Association between Level of Emotional Intelligence and Severity of Anxiety in Generalized Social Phobia

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Abstract

Generalized Social Phobia (GSP) is characterized by a marked fear of most social situations. It is associated with an anomalous neural response to emotional stimuli, and individuals with the disorder frequently show interpretation bias in social situations. From this it might be suggested that GSP involves difficulty in accurately perceiving, using, understanding and managing emotions. Here we applied the Mayer-Salovey-Caruso Emotional Intelligence Test (MSCEIT) to medication-free GSP (n=28) and no pathology (n=21) individuals. Patients with GSP performed within the normal range on the measure however severity of social anxiety significantly correlated with emotional intelligence (EI). Specifically, there was a negative correlation between social anxiety severity and Experiential (basic-level emotional processing) EI. In contrast, there was no significant correlation between social anxiety severity and Strategic (higher-level conscious emotional processing) EI. These results suggest that EI may index emotional processing systems that mitigate the impact of systems causally implicated in GSP.

Keywords

generalized social phobia; emotional responding; emotional intelligence; MSCEIT

INTRODUCTION

Generalized social phobia (GSP) imposes persistent functional impairment and disability on individuals with the disorder, and is associated with a high risk for depression, alcohol, drug abuse and suicide (e.g., Brody, 2004; e.g., Kaufman & Charney, 2000; Kessler, 2003). It is characterized by a marked and persistent fear of most social situations or interactions in which embarrassment may occur. This exaggerated fear of social situations may in part reflect a reduced ability to 'read' social situations.

Thus, there are data to suggest that socially anxious or shy individuals may not perceive social situations accurately. So, for example, they typically judge their performance more negatively

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than nonanxious individuals (Alden & Wallace, 1995; Rapee & Lim, 1992; Taylor & Alden, 2005). In addition, they tend to use a suboptimal interactional style, which includes the excessive use of smiling, head nodding, excuses and apologies (Edelmann, 1987; Leary, Knight, & Johnson, 1987; Pilkonis, 1977), as well as more verbal reinforcers while others are talking (Leary et al., 1987; Natale, Entin, & Jaffe, 1979), but limited use of social cooperation and dominance behaviors (Baker & Edelmann, 2002; Walters & Hope, 1998). Studies have also shown that socially anxious individuals expect that their social ability falls short of what others expect and doubt their ability to created desired impressions on others (Alden & Wallace, 1995; Carleton, Kelsey, & Asmundson, 2007; Wallace & Alden, 1991, 1997). This data might be taken to indicate that GSP is associated with an impaired ability to analyze or strategize about social situations/ interactions, an ability that is often linked with EI.

There are also data to indicate that individuals with GSP have an atypical response to other individuals' emotions. Thus, studies examining the neural response to emotional expressions in patients with GSP have reported increased activity in several regions including the amygdala and anterior cingulate cortex to a variety of facial expressions including harsh (Phan, Fitzgerald, Nathan, & Tancer, 2006), angry (Blair et al., under revision-a; Stein, Goldin, Sareen, Zorrilla, & Brown, 2002; Straube, Kolassa, Glauer, Mentzel, & Miltner, 2004; Straube, Mentzel, & Miltner, 2005), fearful (Blair et al., under revision-a; Stein et al., 2002), disgusted (Amir et al., 2005), happy (Straube et al., 2005) as well as neutral (Birbaumer et al., 1998; Stein et al., 2002) expressions. Moreover, individuals with GSP appear to 'scan' facial expressions atypically, showing decreased scanning of selected facial features (particularly the eyes), and increased scanning of non-features, compared to non-anxious controls (Horley, Williams, Gonsalvez, & Gordon, 2003; Horley, Williams, Gonsalvez, & Gordon, 2004). These data suggest that GSP is associated with an impaired perception about social situations/ interactions.

The ability to strategize and perceive social situations/ stimuli is closely related to the concept of emotional intelligence (EI) as perceived by most emotion researchers. As such, it would appear plausible that individuals with GSP may present with impairments on EI measures. However, as of this writing, no prior study has examined the relationship between EI and any group of mood and anxiety disorders, let alone GSP in particular.

One of the most widely used measures for EI is the Mayer-Salovey-Caruso Emotional Intelligence Test (MSCEIT) (Mayer, Salovey, & Caruso, 2002). The MSCEIT assesses two main areas of EI, strategic and experiential intelligence. Strategic EI involves the abilities to understand emotional information, to understand how emotions combine and progress through relationship transitions, and to appreciate such emotional meanings and to manage emotions, to be able to modulate them in oneself and others so as to promote personal understanding and growth. In contrast, the Experiential EI involves the abilities to perceive emotions in oneself and others and the ability to generate, use and feel emotion as necessary to communicate feelings or employ them in other cognitive processes (Mayer et al., 2002). It should be noted (see also Table 2), that strategic EI can be considered to index an individual's semantic knowledge about other's emotional states; i.e., it indexes what they think someone else should feel in a particular situation and their understanding of the relationship between another's actions and their likely mood states. Experiential EI can be considered to index an individual's ability to read their own and others mood states and their knowledge about the efficacy of emotional states.

The concept of EI, and the scales assessing EI, has been the subject of some criticism, including its relation to other types of intelligence, and established personality dimensions (Brody, 2004; Roberts et al., 2006; Roberts, Zeidner, & Matthews, 2001). In addition, the MSCEIT's scoring method, which is based on consensus ratings with higher scores indicating a higher

overlap between the rater and a large sample of world wide respondents, has been criticized for requiring conformity to norms or not recognizing exceptional EI (e.g.,Brody, 2004). However, there is a body of work suggesting that it is congruent with the theory on which it is based, and that it a separate construct from established personality measures (Brackett & Mayer, 2003; Brackett & Salovey, 2006; Mayer, Roberts, & Barsade, 2008). In addition, reliability and validity data are generally reasonable, with total scale split halves of *r>0.90 and* test-retest reliability of $r = 0.86$ (see Mayer et al., 2008). The MSCEIT is also widely used and has been found to predict the perceived quality of social interactions and the extent to which people feel wanted and important in their interactions as well as to the perceived quality of opposite-sex interactions with romantic partners (Lopes et al., 2004), self reports and peer nominations of interpersonal sensitivity and prosocial tendencies (Lopes, Salovey, Cote, & Beers, 2005), and the use of optimistic thinking to regulate negative thinking (Lopes, Salovey, & Straus, 2003). In addition, scores are negatively correlated with negative outcomes including illegal drug and alcohol use, deviant behaviour, and poor relations with friends (Brackett & Mayer, 2003), as well as self-reports of socioemotional competence and dominance (Lopes et al., 2005). Finally, recently, at the neural level, EI as indicated by the MSCEIT has been found to correlate positively with neural activity in frontal polar region, a region that has been linked to mood and anxiety disorders (Reis et al., 2007).

There are three relationships that EI may have with GSP: (1) reduced EI may be causally related to the development of GSP. This position predicts that patients with GSP will show reduced levels of EI; (2) EI may have no role in the development of GSP per se. However, it may index emotional processing systems that mitigate the impact of systems that are causally implicated in the development of GSP. This position predicts that patients with GSP will not show reduced levels of EI but that their level of EI will relate to the level of symptoms shown; and (3) EI may be unrelated to GSP. This position predicts no relationship between EI and GSP. In this study we test these hypotheses by applying the MSCEIT to medication-free individuals with GSP and examining its relationship to severity of social anxiety symptoms as indexed by scores on the Liebowitz Social Anxiety Scale (LSAS).

METHODS AND MATERIALS

Participants

Patients with GSP (n=28) and healthy comparison individuals (n=21) participated in the study. Samples were group-matched on age, gender, and IQ (see Table 1). Patients were required to meet criteria for current Generalized Social Phobia according to the DSM-IV (1994) criteria based on the Structural Clinical interview for DSM-IV Axis I disorders (SCID) (First, Spitzer, Williams, & Gibbon, 1995) and a confirmatory clinical interview by a board-certified psychiatrist (DSP). None of the GSP patients had a current/ recent depressive episode, autism/ pervasive developmental disorders, mental retardation, or significant medical or neurological illness. In addition, all patients were currently medication-free (no regular use of psychotropic medication within 2 weeks of the study or fluoxetine or benzodiazepine within 8 weeks of the study). Comparison individuals did not have a current or past history of psychiatric illness including substance abuse or dependence. There was no family history of psychiatric illness in first degree relatives of these healthy controls. All participants were in good physical health, as confirmed by a complete physical exam, and provided written informed consent. The participants were recruited via NIMH Institutional Review Board (IRB) approved fliers and advertisements, describing study procedure, placed in the local media.

All subjects were evaluated using the SCID in addition to a psychiatric evaluation. Level of social anxiety for the GSP patients was assessed with the Liebowitz Social Anxiety Scale (LSAS), level of overall impairment was assessed with the DSM-IV Global Assessment of Functioning (GAF) Scale, and level of general anxiety was assessed with the Beck Anxiety

Inventory (BAI). The mean score on these measures was 54.8 (sd=10.42), 24.0 (sd=12.40), and 70.7 (sd = 20.59), indicating a moderate level of social anxiety, general anxiety and overall impairment.

Procedure

The MSCEIT and IQ as assessed by the Wechsler Abbreviated Scale of Intelligence (WASI) were completed as part of a larger behavioral testing battery. In addition, for the GSP patients the screening visit included the completion of the DSM-IV Global Assessment of Functioning (GAF) Scale as part of the Structured Clinical Interview for the DSM-IV, the LSAS, and the BAI. MSCEIT answer sheets were scored by the test publishers Multi-Health Systems (MHS) using consensus-scoring norms.

Measures

Emotional intelligence: The MSCEIT—The Mayer-Salovey-Caruso Emotional Intelligence Test (MSCEIT) is a standardized EI test. It contains 141 items that are answered in approximately 35–45 minutes. It consists of eight tasks which are divided into branches of emotional intelligence: Perceiving, Using, Understanding, and Managing (emotions); see Table 2 for example items. Specifically:

1. "Perceiving emotions: the ability to accurately recognize how you and those around you feel",

2. "Using emotions: the ability to generate emotions and use emotions in cognitive tasks such as problem solving and creativity",

3. "Understanding emotions: the ability to understand complex emotions and emotional 'chains', how emotions transition from one state to another", and

4. "Managing emotions: the ability to intelligently integrate the data of emotions in yourself and in others in order to devise effective strategies that help you achieve positive outcomes".

These four Branch sections are then divided into two different sections: Experiential and Strategic EI Area scores. The Experiential EI area score involves the identification of emotion and its productive use in thought and is considered to index the more basic-level processing of emotion. The Experiential EI area score is made up by the Perceiving Emotions and Using Emotions branches of the MSCEIT. The Strategic EI involves reasoning about emotions and how they may be managed and is considered to index the more higher-level, conscious processing of emotions. The Strategic EI is made up by the Understanding Emotions and Managing Emotions branches of the MSCEIT. The MSCEIT also provides a Total EI score. It is made up by the Experiential and Strategic areas of the MSCEIT.

In addition, the MSCEIT includes a Positive-Negative Bias score which indicates the individual's tendency to respond to the pictorial stimuli by assigned positive relative to negative emotions. A score > 115 indicates a more than typical tendency at assigning positive emotions, and a score < 85 indicates a more than typical tendency at assigning negative emotions.

A correct response on the test can be scored on the basis of agreement with an expert or with general consensus, with ratings according to the two systems correlating highly ($r > .90$) (Mayer, Salovey, & Caruso, 2001). For the current paper we used general consensus scoring. MSCEIT scores provided by the test publishers are standardized (M=100, SD=15) in relation to a normative sample previously assessed by the MSCEIT. Scoring of the MSCEIT results in scores for the individual Branches, Areas as well as a total EI score. Further details on the MSCEIT can be found in the user's manual (Mayer et al., 2002).

Liebowitz Social Anxiety Scale (LSAS): The LSAS (Liebowitz, 1987) is a questionnaire that assesses severity of the social anxiety and avoidance. The scale features twenty-four items, with thirteen relating to performance anxiety and eleven relating to social situations. Each item is scored according to social anxiety and avoidance (0 through 3). Thus, the overall score on the questionnaire range from 0 to 144.

Beck Anxiety Inventory (BAI): The BAI (Beck & Steer, 1993) is a questionnaire that assessed level of (non-social) anxiety. The scale features twenty-one items, each describing a common symptom of anxiety. Each item is scored according to how bothered the participant has been by each symptom over the past week (0 through 3). Thus, the overall score on the questionnaire range from 0–63.

DSM-IV Global Assessment of Functioning (GAF) Scale: The GAF is part of the Structured Clinical Interview for the DSM-IV (First et al., 1995). It is a numeric scale (0–100) used to rate social, occupational and psychological functioning, where a score of 1–10 indicates "Persistent danger of severely hurting self or others OR persistent inability to maintain minimum personal hygiene OR serious suicidal act with clear expectation of death" and 90–100 indicates "Superior functioning in a wide range of activities, life's problems never seem to get out of hand, is sought out by others because of his or her many qualities. No symptoms."

Wechsler Abbreviated Scale of Intelligence (WASI): The WASI (Wechsler, 1997) is a general test of intelligence that can involve either a four- and two-subtest format. In the current study we used the two-part subtest, composed of Matrix Reasoning, measuring nonverbal fluid abilities, and Vocabulary, measuring verbal IQ. Test administration takes approximately 25 minutes.

RESULTS

The MSCEIT scores for the participants are listed in Table 1. As can be seen, the scores are all within the normal range of scores on the MSCEIT where the mean is 100 and SD is 15, indicating that GSP is not related to an impaired EI per se. To further examine this issue we compared the MSCEIT scores of the patients with GPS with the MSCEIT scores of the age, IQ and gender matched healthy comparison individuals using a series of ANOVAs. There was a trend towards the patients with GSP scoring lower as a group on the Perceiving Emotions subscale ($p < 0.1$), however, the two groups' scores did not differ significantly on any of the MSCEIT scales; see Table 1. In short, and regarding our first hypothesis, reduced EI does not appear to be causally related to the development of GSP.

Next we considered whether scores on the MSCEIT relates to the level of symptoms shown (cf. hypothesis # 2). The correlations between general IQ scores and the MSCEIT scores for the individual Branches, Areas as well as the total EI and LSAS score were not significant, thus general IQ was not considered within our correlational design. Correlations between scores on the LSAS and total EI score as well as scores for the individual Branches and Areas of EI are presented in Table 3. Scores on the LSAS correlated negatively with Total EI score on the MSCEIT $r(28) = -0.46$, $p = 0.015$. Correlations between the LSAS scores and the scores on the two constituent parts of the Total EI, Experiential and Strategic EI, revealed that whereas there was a highly significant negative correlation between LSAS scores and Experiential EI scores $r(28) = -0.63$, $p = 0.001$ (see Fig. 1), there was no significant correlation between LSAS scores and Strategic EI scores $r(28) = -0.06$, $p = 0.756$. In other words, whereas level of social anxiety is strongly, and negatively correlated with level of Experiential EI, there does not appear to be any significant relationship between level of social anxiety and Strategic EI.

In line with these results, there were significant correlations between the LSAS scores and the scores on the two constituent parts of the Experiential EI part: Perceiving Emotions $r(28) = -0.53$, p = 0.004, and Using Emotions $r(28) = -0.47$, p = 0.012; see Figure 1. In contrast, there were no significant correlations between the LSAS and the two constituent parts of the Strategic EI area: Understanding Emotions $r(28) = -0.01$, p = 0.992, and Managing Emotions $r(28) = -0.10$, p = 0.631.

The mean Positive-Negative Bias score for the GSP patients was 99.97 (s.e. 2.80). According to the MSCEIT manual, a score higher than 115 indicates a tendency to assign positive emotions to pictorial stimuli, whereas a score lower than 85 indicates a tendency to assign negative emotions to pictorial stimuli. In other words, the patients with GSP did not appear to show a tendency to assigning neither positive, nor negative, emotions to the stimuli presented within the MSCEIT. This was further supported by there being no significant correlation between LSAS scores and Positive-Negative Bias score $r(28) = -0.22$, p = 0.266.

GSP is associated with increased levels of general anxiety as well as overall impairment in life functioning. As a secondary analysis, we wanted to ascertain the specificity of our correlational results to levels of social anxiety, rather than levels of general anxiety, or overall impairment *per se*. We first examined the relationship between levels of general anxiety, as assessed by the BAI, and levels of overall impairment, as assessed by the GAF with scores on the MSCEIT. The BAI scores did not correlate significantly with any of the MSCEIT scale scores (*r* range ± 0.03 to 0.29; ns). In addition, the GAF scores also did not correlate significantly with six of the seven MSCEIT scale scores (*r* range ± 0.00 to 0.31; ns), however they did correlate significantly with the Using Emotions scale score ($r(28) = -0.40$, p = 0.036).

Next we examined the correlations between scores on the LSAS and the scores on the MSCEIT, covarying out level of general anxiety and overall impairment. As before, scores on the LSAS correlated negatively with Total EI score on the MSCEIT $r(28) = -0.51$, p = 0.008. In addition as before, whereas there was a highly significant negative correlation between LSAS scores and Experiential EI scores $r(28) = -0.60$, p = 0.001, there was no significant correlation between LSAS scores and Strategic EI scores $r(28) = -0.23$, p = 0.267. Further, there was again significant correlations between the LSAS scores and the scores on the two constituent parts of the Experiential EI part: Perceiving Emotions; $r(28) = -0.53$, p = 0.005, and Using Emotions; $r(28) = -0.45$, p = 0.021. Also in line with the first analysis, there were no significant correlations between the LSAS and the two constituent parts of the Strategic EI area: Understanding Emotions; $r(28) = -0.17$, p = 0.420, and Managing Emotions; $r(28) = -0.24$, p = 0.237. Finally, there was no significant correlation between LSAS scores and Positive-Negative Bias score $r(28) = -0.17$, p = 0.411. In short, the main results from our correlational analyses were not affected by the inclusion of the BAI and GAD covariates.

DISCUSSION

In this study, we examined whether there is a relationship between the severity of social anxiety as assessed by the LSAS and EI as assessed by the MSCEIT. We found a significant correlation between severity of social anxiety and EI. Specifically, there was a highly significant negative correlation between severity of social anxiety and the Experiential EI area score of the MSCEIT. In contrast, there was no significant correlation between level of social anxiety and the Strategic EI area score of the MSCEIT. In addition, the individuals with GSP did not show an increased negative interpretation bias.

EI has not previously been examined in patients with GSP. We investigated three contrasting possibilities regarding the relationship between EI and GSP. The first was that EI might be causally related to the development of GSP. It is possible that the exaggerated fear of social

situations seen in patients with GSP reflects a reduced ability to 'read' social situations (i.e., reduced EI). This is consistent with data suggesting that socially anxious or shy individuals may have a reduced ability to analyze social situations, as indicated by a reduced ability to judge their own past (Alden & Wallace, 1995; Rapee & Lim, 1992), or future (Alden & Wallace, 1995; Wallace & Alden, 1991, 1997) social performance. However, this hypothesis was not supported. Patients with GSP as a group did not show impaired EI; their EI scores on all subscales were within the normal range and their scores were not significantly lower than those of an age and IQ matched group of healthy comparison individuals.

The current data also did not support the third hypothesis: that EI is unrelated to GSP. Instead, the current study identified a significant inverse relationship between EI as assessed by the MSCEIT and severity of social anxiety as assessed by the LSAS in patients with GSP. These data are inconsistent with the suggestion that EI is unrelated to GSP. They do however support our second hypothesis; that while EI may have no role in the development of GSP *per se*, it may index emotional processing systems that mitigate the impact of systems that are causally implicated in the development of GSP.

Interestingly, though unpredicted, the current data suggest that the relationship between EI difficulties and level of GSP symptoms as indexed by the LSAS is relatively specific. Despite the increased risk for depression in patients with GSP (Kaufman & Charney, 2000) the individuals with GSP showed no indications of a negative interpretation bias. Of course, it is important to remember that the current study excluded patients with GSP with comorbid depression. Depression has long been linked with a negative interpretation bias. It appears plausible that patients with GSP and depression might show this negative interpretation bias.

In addition, there was no relationship between social anxiety symptoms in patients with GSP and level of Strategic EI. Within the framework offered by Mayer and colleagues, Strategic EI is thought to involve the ability to reason about emotions and their management and is considered to index the more higher-level, conscious processing of emotions. Interestingly, the neuroimaging literature on GSP, at least, has consistently stressed an anomalous emotional (amygdala) response to social/ emotional stimuli rather than an anomalous ability to understand or reason about their emotional responses (Phan et al., 2006; Stein et al., 2002; Straube et al., 2004). This is, of course, in contrast to the literature on other emotional disorders such as Posttraumatic Stress Disorder where a reduced regulatory (prefrontal) ability has been also been stressed (Bremner, 2002; Shin et al., 2005). In short, the absence of a relationship between strategic EI ability and social anxiety symptoms in patients with GSP is consistent with the focus of the pathology in GSP. Importantly, Strategic EI is indexed by questions which relate to the participants emotional semantic knowledge; how another individual might feel in a particular situation or how another individual might behave following a particular emotional situation. It is perhaps less surprising that a relative lack in semantic knowledge about how others would feel or act in emotional situations is not associated with the exacerbation of GSP symptoms in patients.

The current study observed significant negative correlations between LSAS scores and both constituent elements of Experiential EI: Using emotions ($p < 0.05$) and particularly Perceiving Emotions ($p < 0.005$). Moreover, their negative relationship with LSAS scores was even more significant when they were combined as the Experiential EI score ($p < 0.001$; see Fig. 1). In addition, the relationship between LSAS scores and Experiential EI remained highly significant even when controlling for general overall impairment (as assessed by the DSM-IV Global Assessment of Functioning Scale) and level of general anxious symptomatology (as assessed by the Beck Anxiety Inventory). These data suggest that the relationship between Experiential EI and social anxiety symptomatology cannot be considered to be a function of Experiential EI acting as a marker for more general anxiety severity/ impairment.

Experiential EI involves the abilities to perceive emotions in oneself and others and the ability to generate, use and feel emotion as necessary to communicate feelings or employ them in other cognitive processes. It can be considered to index an individual's ability to read their own and others mood states and their knowledge about the efficacy of emotional states. The current data suggest that if these processes are working less efficiently in an individual with GSP, then there will be exacerbation of that individual's GSP symptoms.

GSP has been related to negative perceptions of own social ability (Alden & Wallace, 1995; Carleton, Kelsey, & Asmundson, 2007; Wallace & Alden, 1991, 1997) as well as increased response to self-referential criticism (Blair et al., under revision-b). Given this it is certainly possible to consider why a relatively ability to read the mood states of themselves and others and a relative inability to know the consequences of the display of particular mood states, might lead to an exacerbation of GSP symptoms; the individual with reduced experiential EI may be more predisposed to social blunders and, as a consequence, increase their social anxiety and GSP symptoms. In this context, it is interesting to note work suggesting that MSCEIT Experiential EI scores are positively related to the perceived quality of social interactions, including opposite-sex interactions with romantic partners (Lopes et al., 2004), self reports and peer nominations of interpersonal sensitivity (Lopes et al., 2005), and the use of optimistic thinking to regulate negative thinking (Lopes, Salovey, & Straus, 2003) and negatively related to poor relations with friends (Brackett & Mayer, 2003) and self-reports of socioemotional competence (Lopes et al., 2005).

It is important to remember that the current study was correlational in design and thus it is not possible to be certain about causality. It could be argued that social anxiety impedes EI. However, in this case, this appears unlikely. If social anxiety did impede EI then EI levels in the patients with GSP should not be within the normal range and not significantly differ from a healthy comparison group. Of course, there could be a third type of processing, not causally related to GSP that exacerbates the symptoms of patients with GSP and also suppresses Experiential EI. This last possibility cannot be discounted.

Some caveats should be noted regarding our current results. While the sample size in the current study is comparable to that of other studies that have examined correlational effects in clinical populations, it is relatively small. That is, it is possible that our findings of no significance (i.e., for the correlations between strategic EI score and its constituents and level of social anxiety) might reflect a lack of statistical power. While this is true, it is worth noting however that all three correlations correlations between strategic EI score and its constituents and level of social anxiety (-0.06, -0.01 and -0.1) were very small (power analysis with significance level at 0.05 and power at 0.95 indicated that a sample size of 3599, 129937, and 1289 respectively would be required to reach significance on the basis of these results). While a considerably larger N might reveal significant relationships, it is unlikely that they will explain a large degree of the variance in level of social anxiety unlike, according to the current results, experiential EI and its constituents. As with the correlational results, it is possible that the findings of no group differences between the GSP and healthy comparison groups could reflect a lack of statistical power. This is perhaps less of a concern given that the GSP patients did in fact perform within the normal range on this task. However, future studies using demographics-matched healthy comparison groups, as well as possible other psychiatric conditions, together with GSP, will be important in further determining the relative performance on the MSCEIT in GSP. Finally, and as noted in the introduction, while the MSCEIT has been extensively used, and received general support (see Mayer et al., 2008), the measure has been criticized and future studies will be important in further interpreting the results from the EI data.

In short, in this paper we found that there is an association between level of severity of social anxiety in GSP and level of EI. Specifically, we found that there was an inverse relationship

between level of social anxiety, and level of basic-level or self-referential emotional processing (Experiential EI). In contrast, the correlation between level of social anxiety and level of higher-order or less- self-referential emotional processing did not reach significance. Covarying out level of general anxiety and overall impairment did not affect these results, supporting the suggested significance of level of social anxiety specifically in this presentation. These results hint at the immediate impact experienced by patients with GSP in situations of social interactions, and underline why rationalizations may not always conquer social fears in GSP.

Acknowledgments

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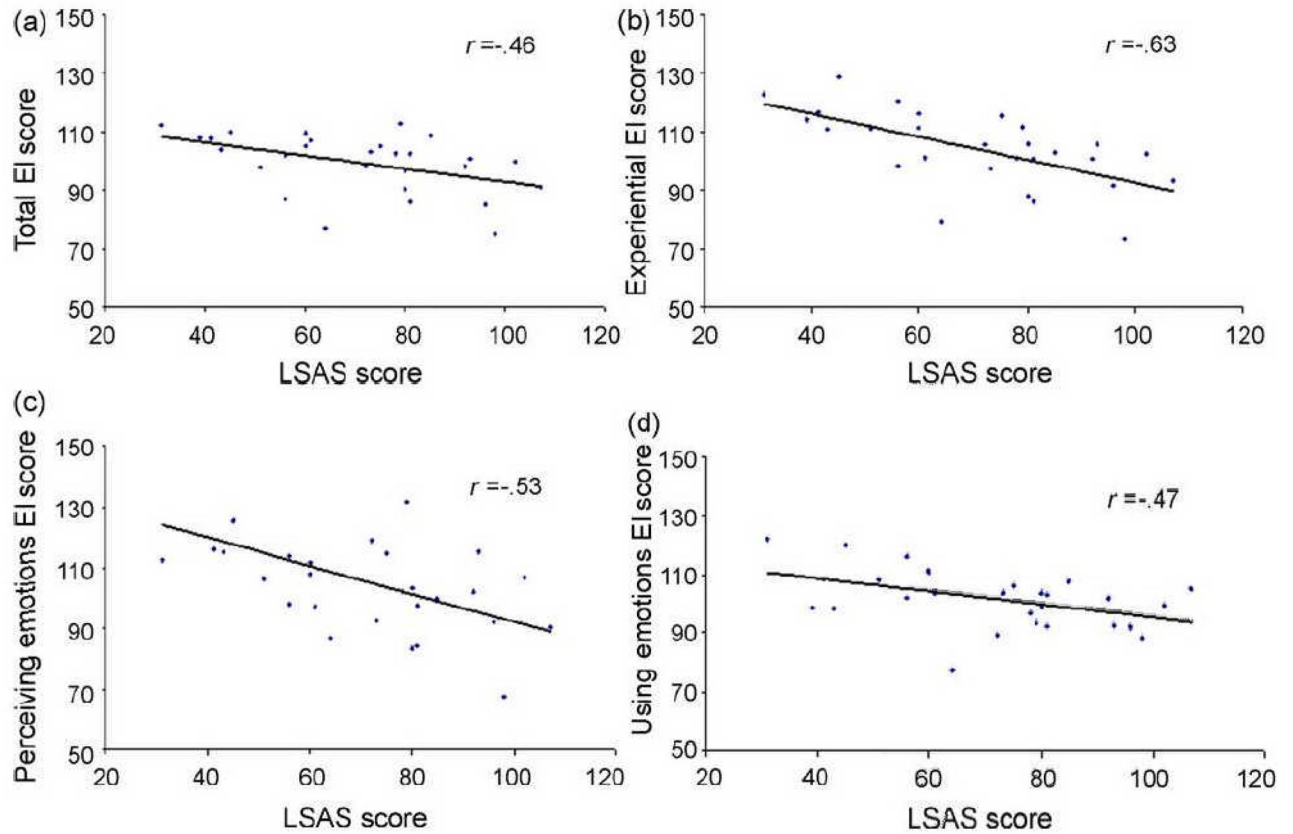Wechsler, D. Wechsler Adult Intelligence Scale. Third Edition. San Antonio, TX: The Psychological Corporation; 1997.

Figure 1.
Correlation between LSAS scores and **(a)** Total EI score, **(b)** Experiential EI score, **(c)** Perceiving emotions, and **(d)** Using emotions.

Table 1

Participant Characteristics: S.D. in Brackets ().

	GSP (N = 28)	Healthy participants (N = 21)	*p*
Age	32.4 (10.65)	36.0 (9.78)	n.s.
Gender	13 F/ 15 M	10 F/ 11 M	n.s.
Racial category/ ethnicity [*]			
White	11	18	
Black or African-American	5	3	
Asian	3	-	
IQ	120.6 (9.42)	116.0 (5.93)	n.s.
MSCEIT Scores:			
Perceiving Emotions	105.7 (18.31)	113.1 (22.29)	*p* = 0.204
Using Emotions	102.0 (9.73)	107.1 (12.00)	*p* = 0.106
Understanding Emotions	101.3 (11.17)	100.8 (10.48)	*p* = 0.867
Managing Emotions	94.3 (7.96)	95.5 (8.48)	*p* = 0.615
Experiential	104.1 (12.94)	111.1 (14.82)	*p* = 0.083
Strategic	97.0 (10.15)	97.3 (11.29)	*p* = 0.912
Total	99.4 (10.18)	103.6 (11.40)	*p* = 0.184

Key to Table 1: F = Female; M = Male

[*] 3 participants in each group reported as Hispanic or Latino.

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Table 2

Sample MSCEIT items involving the four EI branches.

EI Branch

Perceiving Emotions

Sample MSCEIT items

Indicate how much of each emotion is expressed by this face:

	None				*Very Much*
Happiness	1	2	3	4	5
Anger	1	2	3	4	5
Fear	1	2	3	4	5
Excitement	1	2	3	4	5
Surprise	1	2	3	4	5

Using Emotions

What mood(s) might be helpful to feel when meeting in-laws for the very first time?

	Not Useful				*Useful*
a) Slight Tension	1	2	3	4	5
b) Surprise	1	2	3	4	5
c) Joy	1	2	3	4	5

Understanding Emotions

Tom felt anxious, and became a bit stressed when he thought about all the work he needed to do. When his supervisor brought him an additional project, he felt ____.
(Select the best choice.)
a) Overwhelmed
b) Depressed
c) Ashamed
d) Self Conscious
e) Jittery

Managing Emotions

Debbie just came back from vacation. She was feeling peaceful and content. How well would each action preserve her mood?
Action 1: She started to make a list of things at home that she needed to do.
Very Ineffective..1…..2…..3…..4…..5..Very Effective
Action 2: She began thinking about where and when she would go on her next vacation.
Very Ineffective..1…..2…..3…..4…..5..Very Effective
Action 3: She decided it was best to ignore the feeling since it wouldn't last anyway.
Very Ineffective..1…..2…..3…..4…..5..Very Effective

Table 3

Correlations between the scores on the LSAS and other measures. 95% confidence intervals in brackets ().

	MSCEIT: Total score	MSCEIT: Experiential	MSCEIT: Strategic	MSCEIT: Perceiving emotions	MSCEIT: Using emotions	MSCEIT: Understanding emotions	MSCEIT: Managing emotions
LSAS score	-0.46^{*} (−0.72≥−0.11)	-0.63^{**} (−0.82≥−0.34)	−0.06 (−0.43≥0.32)	-0.53^{*} (−0.76≥−0.20)	-0.47^{*} (−0.72≥−0.12)	−0.01 (−0.38≥0.37)	−0.10 (−0.46≥0.29)

*
$p < 0.05$

**
$p < 0.001$