PERGAMON

Personality and Individual Differences 32 (2002) 197–209

PERSONALITY AND INDIVIDUAL DIFFERENCES

www.elsevier.com/locate/paid

Emotional intelligence moderates the relationship between stress and mental health

Joseph Ciarrochi *, Frank P. Deane, Stephen Anderson

Department of Psychology, University of Wollongong, Wollongong 2522, Australia

Received 20 July 2000; received in revised form 4 December 2000; accepted 29 December 2000

Abstract

Despite a great deal of popular interest and the development of numerous training programs in emotional intelligence (EI), some researchers have argued that there is little evidence that EI is both useful and different from other, well established constructs. We hypothesized that EI would make a unique contribution to understanding the relationship between stress and three important mental health variables, depression, hopelessness, and suicidal ideation. University students ($n = 302$) participated in a cross-sectional study that involved measuring life stress, objective and self-reported emotional intelligence, and mental health. Regression analyses revealed that stress was associated with: (1) greater reported depression, hopelessness, and suicidal ideation among people high in emotional perception (EP) compared to others; and (2) greater suicidal ideation among those low in managing others' emotions (MOE). Both EP and MOE were shown to be statistically different from other relevant measures, suggesting that EI is a distinctive construct as well as being important in understanding the link between stress and mental health.

Keywords: Emotional intelligence; Stress; Mental health

1. Introduction

With little empirical support, people have claimed that "...emotional intelligence may be the best predictor of success in life, redefining what it means to be smart" (TIME, 1995, cover), and that emotional intellegence (EI) will confer "...an advantage in any domain in life, whether in romance and intimate relationships or picking up the unspoken rules that govern success in organisational politics" (Goleman, 1995, p. 36). The topic of EI has appeared in a best-seller (Goleman, 1995) and a number of other popular books (Cooper & Sawaf, 1997; Gottman, 1997;

* Corresponding author. Tel.: +61-2-4221-4488; fax: +61-2-4221-4163.
E-mail address: joseph_ciarrochi@uow.edu.au (J. Ciarrochi).

0191-8869/01/$ - see front matter
PII: S0191-8869(01)00012-5

Salerno, 1996; Segal, 1997), magazine and newspaper articles (Bennets, 1996; Henig, 1996; Peterson, 1997), and most recently on a highly watched talk show (Hudson, 1998). Lost in all the excitement is research which suggests that many EI measures may be neither useful nor different from other, well-established measures (Davies, Stankov & Roberts, 1998). Only recently are researchers beginning to identify valid EI measures (Ciarrochi, Chan & Caputi, 2000; Mayer, Caruso & Salovey, 1999; Schutte et al., 1998). Before the bold claims about EI can be justified (or refuted), much more critical work is needed.

The primary purpose of this study was to assess whether emotional intelligence is distinctive and useful in understanding the relationship between stress and mental health. We evaluated whether people who are skilful at regulating their own and others' emotions would be able to protect themselves from the adverse effects of stress, reporting less depression, hopelessness, and suicidal ideation. We also evaluated whether people high in emotion perception would be more influenced by stress than those low in perception. This effect was expected to occur for two possible reasons. Low perception people may be relatively insensitive to stress (Simpson, Ickes & Blackstone, 1995), or they may be sensitive to stress but not realize that it is impacting them. Both of these hypotheses suggest that there will be a weak link between stress and mental health among those low in emotion perception.

1.1. Measuring EI

A number of researchers have attempted to develop self-report measures of EI or EI-related constructs (Bar-On, 1997; Goleman, 1995; Nemiah, Freyberger & Sifneos, 1976; Roger & Najarian, 1989; Salovey & Mayer, 1990; Schutte et al., 1998). However, in a recent set of studies Davies et al. (1998) uncovered problems with a number of these measures. First, some of them had poor reliabilities. Second, the more reliable self-report measures had salient loadings on the well-established personality factors of Neuroticism, Extraversion, Psychoticism, Agreeableness, and Openness. Third, although there is factor-analytic evidence supporting the discriminant validity of two EI factors (emotional awareness and clarity), these factors no longer emerge when unreliable measures are dropped from factor analysis.

Schutte et al. (1998) have recently developed a self-report measure of EI, which measures emotion management (in self and others), emotion perception, and emotion utilization (Petrides & Furnham, 2000). The initial evidence suggests that this measure may be both reliable and distinct from the big five personality factors (Schutte et al., 1998), which is an improvement over many of the old measures. There is also evidence that the EI measure predicts success at school. However, there could still be a problem with the measure that may be inherent in all self-report measures: it may substantially overlap with optimism and general positive mood. This argument is supported by a close examination of the content of the EI and pessimism scales (Beck, Weissman, Lester & Trexler, 1974). For example, two items from the "managing own emotions" subscale of the EI measure (see methods) are, "I expect that I will do well on most things I try," and "I expect good things to happen." Two items from the pessimism scale are, "I look forward to the future with enthusiasm," and "I have great faith in the future." Given this content overlap between aspects of EI and pessimism/optimism, perhaps the finding that high EI people perform better at school (Schutte et al., 1998) is simply a replication of the finding that optimistic people perform better at school (Epkins, 1996; Nurmi, 1993).

In a recent attempt to remedy the weaknesses of self-report measures, Mayer et al. (1999) have developed an objective measure of EI, called the Multifactor Emotional Intelligence Scale (MEIS). The test is objective in the sense that there are "better" and "worse" answers, as determined by consensus. For example, if most people think a particular face is expressing a great deal of anger, then it is assumed that the face does indeed express a great deal of anger. People who do not judge the face to express anger are "less correct" than others. The MEIS measures three branches of EI (Ciarrochi et al., 2000; Mayer et al., 1999), the perception and appraisal of emotion, understanding and reasoning about emotions, and the management and regulation of emotions in oneself and others. The MEIS has been shown to be reliable, relatively independent of performance and verbal IQ, and related to important criterion variables such as life satisfaction and relationship quality even after controlling for other, well-established personality traits (Ciarrochi et al., 2000; Ciarrochi, Forgas & Mayer, 2001; Mayer et al., 1999). In summary, both the new Schutte et al. (1998) self report measure and the MEIS show some discriminant and criterion validity.

1.2. Emotional intelligence, depression, and suicidal ideation

Depression is widespread and increasing globally (Barlow & Durand, 1999) and is one of the most debilitating disorders. It has been associated with impaired social judgments, school difficulties, job loss, physical illness, unsatisfactory marital relations, feelings of hopelessness, and suicide (Assh & Byers, 1996; Beck, Steer & Brown, 1996; Tarris, Bok & Calje, 1998). One of the major antecedents of depression is life stress, both daily hassles (Kanner, Coyne, Schaefer & Lazarus, 1981) and major negative life events (Sarason, Johnson & Siegal, 1978).

Does EI moderate the relationship between stress and mental health, as measured by depression , hopelessness and suicidal ideation? There is some preliminary evidence to suggest that some forms of emotional intelligence may protect people from stress and lead to better adaptation. For example, an objective measure of emotion management skill has been associated with a tendency to maintain an experimentally induced positive mood (Ciarrochi et al., 2000), which has obvious implications for preventing depressive states. There is other research to suggest that adolescents who say they are good at managing others' emotions (MOE) tend to have more social support and to be more satisfied with that support (Ciarrochi, Chan & Bajgar, 2001). Such increased support may help protect these people from depression and suicidal ideation (Kalafat, 1997). The present study sought to investigate whether emotion regulation skill (involving both self and others) helps protect people from the adverse effects of stress.

This study also sought to investigate the role of emotion perception in the stress-mental health relationship. Unlike people who are poor at regulating their emotions, people who are poor at perceiving their emotions might actually be *less* sensitive to the effects of stress. For example, Simpson et al. (1995) showed that dating couples can be motivated to inaccurately perceive each others' thoughts and feelings, and that such inaccuracy may protect the couple from relationship stress. Similarly, research has shown that the tendency to not think about thoughts and feelings, or low psychological mindedness, is associated with lower anxiety, depression, and paranoia, and with higher self-esteem (Farber, 1989; McCallum & Piper, 2001). These studies suggest that avoiding or repressing feelings may sometimes be good for mental health, at least in the short run.

Perhaps in a similar way people low in emotion perception chronically repress or ignore what they feel, which may reduce the adverse effects of stress. Alternatively, stress may affect low perception

people just as adversely as high perception people, but low perception people might not actually realize they are being affected adversely. While the present study was not designed to distinguish between these two hypotheses, it was intended to take the first important step in evaluating them. Both hypotheses suggest that the link between stress and poor mental health should be weaker among people who are low in emotion perception than among those high in perception.

1.3. Aims and hypotheses

We used a cross-sectional survey design to measure self-reported and objective emotional intelligence, daily hassles, major life events, depression, hopelessness, and suicidal ideation. We used Schutte et al.'s (1998) self-report measure of EI to assess emotion perception and emotion management (of self and others). We also used the stories subtest from the MEIS performance test to assess objective emotion perception. The stories test was chosen because it has been shown to be reliable and central to the definition of emotional intelligence (Ciarrochi, Forgas & Mayer, 2001).

We investigated two major classes of hypotheses. First, we investigated the extent that the emotional intelligence variables were distinguishable from the other variables in the study. We were specifically concerned that the self-report measure of managing emotions (related to the self) would overlap substantially with self-reported hopelessness (see introduction). Second, we investigated the extent that emotion perception and management moderated the relationship between stress and mental health. We evaluated whether the ability to manage one's own emotions and those of others would protect people from the adverse effects of stress. We also evaluated whether emotion perception increases people's sensitivity to stress, leading them to report greater levels of depression, hopelessness, and suicidal ideation.

2. Method

2.1. Participants and procedure

Three-hundred and two Australian university students (232 female, 70 male) with a mean age of 20.6 (S.D. = 5.0) participated in the study in order to satisfy a course requirement. The participants

Table 1
Means and standard deviations of main variables

Measure	Mean	S.D.	*n*
Suicidal ideation	19.96	21.36	290
Hopelessness	23.93	3.76	300
Depression	12.20	9.04	300
Hassles	51.66	33.06	294
Life stress	6.29	6.13	298
Emotional perception (objective)	0.36	0.064	302
Emotional perception (self-report)	3.73	0.60	301
Managing others' emotions	3.78	0.51	301
Managing own emotions	3.66	0.60	300

in this subject pool come from a variety of disciplines, including psychology, nursing, and the arts and sciences. A small number of students answered some questionnaires incorrectly or failed to complete the questionnaire. Differences in sample sizes are reported in Table 1. There was no significant difference in depression between the people who did ($M = 12.29$, S.D. = 9.13) and did not ($M = 9.18$, S.D. = 5.76) fill out the suicide questionnaire correctly, $F(1, 298) = 0.80$, $P = 0.37$. (With alpha set at 0.30, power for this test was 0.72 for a medium effect and 0.89 for a large effect; Faul & Erdfelder, 1992.) All participants completed an anonymous battery of questionnaires arranged in the order presented below.

2.2. Materials

2.2.1. Objective emotion perception

Stimuli consisted of six short stories, with each story followed by seven emotions and a related 7-adjective mood scale (Mayer & Geher, 1996). The participant's task was to identify the emotions in the story, by indicating whether it was "Definitely Not Present" (1) to "Definitely Present" (5). The Stories Test was scored using the consensus scoring system developed by Mayer et al. (1999) and was shown to be reliable in the present sample, $\alpha = 0.82$.

2.2.2. Self-report emotional intelligence (33-item scale)

The self-report questionnaire by Schutte et al. (1998) comprises 33 self-referencing statements and requires subjects to rate the extent they agree or disagree with each statement on a 5-point scale (1 = strongly disagree; 5 = strongly agree). A recent factor analytic study (Petrides & Furnham, 2000) identified 4 interpretable factors in the Schutte et al. (1998) measure, and our factor analysis of the present data identified the same factors.[1] The perception factor (10 items; $\alpha = 0.80$) consists of statements such as "I find it hard to understand the non-verbal messages of other people." The managing self emotions (MSE) factor (nine items; $\alpha = 0.78$) consists of items such as "I motivate myself by imagining a good outcome to tasks I take on." The MOE factor (eight items; $\alpha = 0.66$) consists of items such as "I arrange events others enjoy." This third factor might also be labelled "social skills" (Petrides & Furnham, 2000), but we chose MOE skill because six of the eight items refer to actions that would tend to maintain or improve other people's positive moods.

There was a fourth emotion utilization factor, but it had low reliability (four items; $\alpha = 0.58$; "When I feel a change in emotion, I tend to come up with new ideas"). Consequently, it was excluded from the present study, along with two other items that did not load clearly on any one factor.

[1] Both our factor analysis and that of Petrides and Furnham (2000) involved varimax rotation, and the four factor solution accounted for approximately 40% of the total variance. Also, the items identified as belonging to a particular factor in both analyses loaded at a level of 0.30 or greater on its respective factor. There were, however, two minor differences between the analyses. Item 6 (see Schutte et al., 1998) loaded on the managing others' emotions (or social skills) factor in the Petrides and Furnham analysis but not our analysis, so this item was dropped from the managing others' emotions variable. Also, item 33 loaded moderately on the perception factor in the Petrides and Furnham analysis (loading = 0.24), loaded the highest on the perception factor in the our analysis (loading = 0.53), and its item content was clearly related to emotion perception ("It is difficult for me to understand why people feel the way they do."). Consequently, it was included in the emotion perception variable.

2.2.3. Hassles Scale (HAS; Kanner et al., 1981)

The HAS is a 117-item stress inventory that assesses the frustrations and irritation of everyday encounters that can range from minor annoyance to major pressure, problems or difficulty. It includes items such as "troublesome neighbors", "financial insecurity", and "difficulty with friends." Respondents were required to circle the hassles that had happened to them in the past month on a 3-point Likert scale ranging from "somewhat severe" (1) to "extremely severe" (3). The three point severity scales were summed to generate a cumulative severity score (Kanner et al., 1981). The HAS was reliable in the present sample ($\alpha = 0.94$) and has been shown to possess adequate construct validity, correlating in the expected direction with measures of negative affect, psychological symptoms, and other stress scales (Kanner et al., 1981).

2.2.4. Life Experiences Survey (LES; Sarason et al., 1978)

The LES is a 57-item self-report measure that allows respondents to indicate the occurrence of any of 57 experiences in the past 6 months to one year. Respondents were instructed to indicate which events they had experienced and the desirability and impact of each of these events on a 7-point scale, ranging from -3, (Extremely Negative) to $+3$ (Extremely Positive). A life stress score was obtained for each subject by summing the impact ratings of those events experienced as negative during the most recent 6 months (Sarason et al., 1978). The LES has been found to correlate with a wide range of theoretically relevant variables (e.g. anxiety, academic achievement, etc.; Sarason et al., 1978) and showed moderate internal reliability in our sample, $\alpha = 0.69$.

2.2.5. Suicide Ideation Questionnaire (SIQ; Reynolds, 1987)

The SIQ consists of 30 Likert items (e.g. "I thought it would be better if I were not alive") concerning thoughts relating to suicide that occurred in the previous month. The 7-point scale ranges from 0 (I never had this thought) to 6 (Almost every day). The SIQ is highly reliable ($\alpha = 0.96$ in the present sample) and is related to a number of theoretically relevant measures including depression, hopelessness, and negative life events, and has predicted 68% of the variance in suicidality in a sample of college students (Reynolds, 1987).

2.2.6. The Beck Depression Inventory-II (BDI-II; Beck et al., 1996)

The BDI-II consists of 21 (items) groups of statements that measure cognitive, somatic, and behavioural indices of depression experienced during the past two weeks. Each item is scored 0 to 3, with high scores indicating more severe depression. Examples of statements include "I do not feel sad" = 0, "I don't have enough energy to do much" = 2, and "I feel like crying, but I can't" = 3. The inventory shows good internal consistency ($\alpha = 0.91$ in the present sample) and has been shown to have good construct validity in a university population (Oliver & Burkham, 1979).

2.2.7. The Beck Hopelessness Scale (BHS; Beck et al., 1974)

The BHS contains 20 items that measure the extent of negative expectations and pessimism regarding the future and requires subjects to rate items as true or false (e.g. "I look forward to the future with enthusiasm", "My future seems dark to me"). The BHS has high levels of internal consistency ($\alpha = 0.86$ in the present sample) and has been found to predict eventual suicide (Beck, Steer, Kovacs & Garrison, 1985).

3. Results

The depression, suicidal ideation, and hopelessness variables tended to be positively skewed. Consequently, all analyses were performed using both a log-transformed scale and a non-transformed scale. There were no differences between the two analyses, so for the sake of clarity, the nontransformed results are reported. None of the effects discussed below were qualified by sex or age; consequently all results are collapsed across these two variables.

3.1. Preliminary analyses

Table 1 presents the descriptive statistics for the variables used in this study. Table 2 presents the correlations between the central variables of interest. As expected the mental health variables — depression, hopelessness and suicidal ideation — are all interrelated and are highly related to both stress measures. The subjective measures of emotional intelligence are all strongly related to each other but unrelated to the objective measure of emotion perception. The objective measure of emotion perception is not significantly related to any of the variables, thus providing evidence for its uniqueness. In contrast, MSE skill is correlated relatively highly and negatively with hopelessness. Indeed, when we corrected for attenuation due to the imperfect reliability of the MSE and hopelessness measures (Murphy & Davidshofer, 1998), the correlation between hopelessness and emotion regulation was −0.70, suggesting that the variable may not be clearly different from hopelessness, as argued in the introduction.

3.2. Stress and emotional intelligence

We next used hierarchical regression analysis to evaluate whether objective emotion perception, self-reported emotion perception, and MOE skill moderated the relationship between stress

Table 2
Correlations between objective and self-report emotional intelligence variables and stress and mental health variables

Variable[a]	1	2	3	4	5	6	7	8	9
1. Emotion Perception-O	–	−0.08	0.09	0.01	−0.10	−0.03	0.08	0.06	0.12
2. MSE skill-S		–	0.32**	0.42**	0.09	−0.15*	−0.41**	−0.41**	−0.57**
3. Emotion Perception-S			–	0.41**	−0.07	0.02	0.01	−0.06	−0.13
4. MOE Skill-S				–	−0.10	0.09	−0.11	−0.09	−0.26**
5. Life Stress					–	0.40**	0.30**	0.35**	0.11
6. Hassles						–	0.33**	0.42**	0.19**
7. Suicidal Ideation							–	0.68**	0.57**
8. Depression								–	0.57**
9. Hopelessness									–

[a] "O" indicates an objective measure and "S" indicates a self-report measure. MOE, managing others' emotions; MSE, managing self emotions.

*$P < 0.01$.

**$P < 0.001$.

and mental health. Following the procedure outlined by Aiken and West (1991) for testing interactions (or moderation effects) involving continuous variables, we converted all continuous variables to z scores and used stress, the emotional intelligence variables, and the product terms between stress and emotional intelligence to predict mental health. We did not include self-reported emotion regulation in these analyses because of its potential lack of discriminant validity with hopelessness (but see below). There were six regression analyses, three analyses involving depression, hopelessness, and suicidal ideation for each of the two types of stress (negative life events and daily hassles). In order to reduce the risk of Type I error, we set alpha to 0.01.

There were no significant interactions between negative life events and the emotional intelligence variables in predicting depression, hopelessness, and suicidal ideation, all Ps > 0.01. In contrast, we found significant interactions between hassles and emotion perception for all three of our mental health variables, and a significant interaction between hassles and skill at managing others' emotions for suicidal ideation (Table 3). There were no significant main effects or intereractions involving self-reported emotion perception, all Ps > 0.05.

To explore the emotion perception interactions further, we followed the suggestion of Aiken and West (1991) and substituted z score values of -1 (low perception) and $+1$ (high perception) into the emotion perception variable in the regression model and generated the simple effects

Table 3
The impact of daily hassles objective emotion perception, and self-reported skill at managing emotions on depression, hopelessness, and suicidal ideation

Variable[a]	B	S.E.	β
Depression			
Emotion perception	0.88	0.50	0.10
Hassles	4.15	0.50	0.46***
MOE skill	−0.95	0.53	−0.11
Emotional perception×hassles	1.66	0.50	0.18***
MOE skill×hassles	−0.88	0.60	−0.09
Hopelessness			
Emotion perception	0.54	0.22	0.14*
Hassles	0.98	0.22	0.26***
MOE Skill	−0.97	0.23	−0.26***
Emotional perception×hassles	0.61	0.22	0.16**
MOE skill×hassles	−0.26	0.26	−0.06
Suicidal ideation			
Emotion perception	1.67	1.21	0.08
Hassles	7.77	1.21	0.36***
MOE skill	−3.96	1.30	−0.19***
Emotional perception×hassles	3.25	1.21	0.15**
MOE skill×hassles	−5.39	1.46	−0.23***

[a] MOE, managing others' emotions.
*$P < 0.05$.
**$P < 0.01$.
***$P < 0.001$.

Table 4
Relationship (β) between daily hassles and depression, hopelessness, and suicidal ideation among those low and high in objective emotion perception (EP)[a]

Relationship	Low EP	SE	High EP	SE
Hassles–depression	0.28***	0.068	0.65***	0.082
Hassles–hopelessness	0.10	0.072	0.43***	0.087
Hassles–suicidal ideation	0.22**	0.073	0.54***	0.087

[a] Asterisks represent tests of whether β is significantly different from 0.
**$P < 0.01$.
***$P < 0.001$.

presented in Table 4. This table illustrates that hassles were most strongly associated with depression, hopelessness, and suicidal ideation among high perception people.

We next explored the significant interaction between hassles and MOE skill (Table 3) and found that the relationship between hassles and suicidal ideation was greater among low than high MOE people, and that both relationships were significantly different from 0, low MOE: $\beta = 0.574$, S.E. $= 0.087$, $P < 0.001$; and, high MOE: $\beta = 0.180$, S.E. $= 0.080$, $P < 0.05$.

3.3. Stress and emotion regulation

Despite the moderate correlation between hopelessness and emotion regulation, it is still possible that emotion regulation explains variance in mental health over and above that explained by hopelessness. To assess this possibility, we used regression to examine the impact of emotion regulation on depression and suicidal ideation while controlling for hopelessness. Included in the regression model were all the variables used in the analyses described above. There was a significant main effect of MSE skill on depression, $\beta = -0.27$, S.E. $= 0.10$, $P < 0.05$, but no significant interaction between MSE skill and stress, $\beta = -0.04$, S.E. $= 0.04$, $P > 0.05$. Thus, higher emotion regulation was associated with lower depression, even after controlling for hopelessness.

4. Discussion

The most noteable findings in this study are related to the performance measure of emotional perception. This measure was reliable and was not directly related to stress or mental health, suggesting construct uniqueness. Importantly, it moderated the relationship between stress and all three of our mental health variables. Emotionally perceptive people appear to be more strongly impacted by stress than their less perceptive counterparts, expressing higher levels of depression, hopelessness, and suicidal ideation.

The results for the self-report measure of EI were more inconsistent but still promising. MOE significantly moderated the link between stress and mental health. People high in self-reported MOE skill responded to stress with less suicidal ideation than others. They also reported less depression and hopelessness, though these effects were unrelated to stress. MOE showed little to no overlap with the stress and mental health measures, suggesting construct distinctiveness. In

contrast, MSE showed significant overlap with hopelessness, but did predict depression even after controlling for this potentially confounding variable. Finally, self-reported emotion perception showed high distinctiveness, but was not useful in predicting mental health outcomes.

4.1. Objective emotion perception

One limitation of self-report measures of EI is that they require people to make judgments about their own skills, judgments that can be notoriously unreliable or biased. The strength of the objective perception measure is that it does not require people to have any insight into their own skill at perceiving emotions. It merely requires them to perform a task that is then scored along an objective criterion based on consensus. Objective emotion perception was shown to be unrelated to stress and mental health. This finding supports the idea that perceptiveness (as measured by this scale) is more like a trait than a state. Thus, as emotional states (distress, depression) vary, the emotional perception trait remains relatively stable, resulting in low correlations between these variables. While further research is required into the state-trait status of the emotional perception construct, it is clear in the present study that emotion perception is distinguishable from stress and mental health.

Why did emotionally perceptive people appear to respond worse to stress than others? There are at least two possibilities, which we will label the insensitivity hypothesis and the confusion hypothesis. The insensitivity hypothesis suggests that low perception people acknowledge that there are a lot of hassles in their life, but they successfully repress thoughts of the hassles, or ignore them altogether. Previous evidence is certainly consistent with the notion that being deliberately unperceptive can be a useful strategy in dealing with stress, and is a strategy people often spontaneously use (Farber, 1989; Simpson et al., 1995). A second possibility is that low perception people are indeed sensitive to stress but just do not realize that it is impacting them adversely. By definition, low perceptive people should be more confused about what they are feeling and should show less coherence (or association) between their levels of reported stress and negative emotion.

Both the insensitivity and confusion accounts are capable of explaining why perception moderated the relationship between hassles and mental health but did not moderate the relationship between major life stress and mental health. The insensitivity explanation could be used to argue that people low in perception are able to ignore hassles, but simply can not ignore more powerful negative events such as the death of a family member or loss of a job. In contrast, the confusion proposition could be used to argue that people low in perception are more likely to misunderstand the adverse impact of relatively subtle everyday hassles, but can easily perceive the adverse impact of a major and highly salient life event. The present study cannot distinguish between the two possibilities, but it does clearly establish that the relationship between stress and mental health is weaker among low than high perceptive people. It remains for research to clarify the mechanisms underlying this effect.

4.2. Self-reported EI

People high in MOE skill tended to adapt better to stress, responding with less suicidal ideation. What is the potential mechanism underlying this effect? People high in MOE skill claim they

help people to regulate moods in a positive direction and try to establish intimacy with them (Schutte et al., 1998). Such behaviour should lead to closer friendships and greater social support, which should be of psychological benefit in times of stress and crisis. Consistent with this view, there is evidence that social support can act as a protective factor for stress and suicide (Kalafat, 1997), and that MOE skill is positively associated with the amount and quality of social support (Ciarrochi, Chan & Bajgar, 2001). Future work should measure stress, mental health, MOE skill, and social support in the same study, and then examine whether social support does indeed mediate the relationship between MOE skill and the stress-suicidal ideation link.

There was evidence that managing self-relevant emotions showed low construct distinctiveness, with approximately 50% of its variance being explainable by the construct of hopelessness. Still, the variable did predict depression, even after controlling for hopelessness, suggesting that it is somewhat distinctive. One reason for the overlap may be because managing self-relevant emotions is causally related to hopelessness (or vice versa). For example, people that are poor at managing their emotions may tend to become hopeless over time because they can not control their negative emotions. Longitudinal research is needed to evaluate this possibility. Research is also needed to evaluate whether the managing self-relevant emotions scale can be refined so that it has less content overlap with hopelessness.

4.3. Practical implications

As well as supporting the argument that aspects of the EI construct are both distinctive and useful, the present set of findings has important practical implications for understanding the link between stress and mental health. For example, although high and low MOE people respond to stress with equivalent amounts of depression and hopelessness, high MOE people respond to stress with less suicidal ideation. If future work confirms this finding, then it may be worthwhile for suicide intervention programs to consider teaching people MOE skills.

Perhaps the most intriguing implication of our results is that some aspects of emotional intelligence may not always be intelligent, that is, emotionally perceptive people may be more vulnerable to the adverse effects of stress. Our findings suggest that under stress, low perception people don't believe themselves to feel particularly depressed, hopeless, or suicidal. It may make little difference whether this belief is accurate (bliss) or inaccurate (ignorant bliss). As long as the low perception people *think* they are happy and optimistic, they may be protected from some of the adverse effects of stress (Simpson et al., 1995). Future research should certainly explore this intriguing possibility.

4.4. Limitations and future directions

One limitation of the present study is that it is based on correlational rather than experimental evidence. This limitation is inherent in any study of depression and suicidal ideation, since it would be unethical to induce these states in people. Still, other designs can be used to complement the findings in our study. For example, a quasi-experimental longitudinal design (Priester & Clum, 1993) might measure skill before the onset of stress (e.g. exam failure) and adaptation after the stress, and then observe the impact of stress on adaptation.

Another potential limitation is that the EI variables in this study might significantly overlap with other variables not included in the study, which would suggest that EI is perhaps not distinctive.

Challenging this possibility, previous research suggests that the two EI variables that were important in this study — emotion perception and MOE skill — are distinct from a wide variety of other measures, including the big five personality factors, self-esteem, trait anxiety, verbal and performance intelligence, and other, well established measures (Ciarrochi, Chan & Bajgar, 2001; Ciarrochi et al., 2000; Schutte et al., 1998).

In summary, EI measures have been shown to be distinctive and useful in understanding the link between stress and mental health. The performance measure of emotion perception showed particular promise, having satisfactory levels of reliability and distinctiveness, and moderating the link between stress and all three of our mental health variables. EI research is still in its infancy, and further research is needed before we can fully understand the role that EI plays in promoting mental health.

Acknowledgements

The authors would like to thank Nathan Fulcher, Sasha Pinazza, Jason Boyd, Mary Markovska, and Melissa Eades for the help with data collection and their other important contributions to this project.

References

Aiken, L., & West, S. (1991). *Multiple regression: testing and interpreting interactions*. Newbury Park, London: Sage Publications, Inc.

Assh, S. D., & Byers, E. S. (1996). Understanding the co-occurrence of marital distress and depression in women. *Journal of Social and Personal Relationships, 13*, 537–552.

Barlow, D. H., & Durand, V. M. (1999). *Abnormal psychology* (2nd ed.). Pacific Grove: Brooks/Cole Publishing Company.

Bar-On, R. (1997). *The emotional intelligence inventory (EQ-I): technical manual*. Toronto, Canada: Multi-Health Systems.

Beck, A. T., Steer, R. A., & Brown, G. K. (1996). *BDI-II manual* (2nd ed.). San Antonio, TX: Psychological Corporation.

Beck, A. T., Steer, R. A., Kovacs, M., & Garrison, B. (1985). Hopelessness and eventual suicide: a 10-year prospective study of patients hospitalized with suicidal ideation. *American Journal of Psychiatry, 142*, 559–563.

Beck, A. T., Weissman, A., Lester, D., & Trexler, L. (1974). The measurement of pessimism: the hopelessness scale. *Journal of Consulting and Clinical Psychology, 42*, 862–865.

Bennets, L. (1996). Emotional Savvy. *Parents, March*, 56–61.

Ciarrochi, J., Chan, A. Y., & Bajgar, J. (2001). Measuring emotional intelligence in adolescents. *Personality and Individual Differences* (in press).

Ciarrochi, J., Chan, A., & Caputi, P. (2000). A critical evaluation of the emotional intelligence construct. *Personality and Individual Differences, 28*, 539–561.

Ciarrochi, J., Forgas, J., & Mayer, J. (2001). *Emotional intelligence in everyday life: a scientific inquiry*. Philadephia: Psychology Press (in press).

Cooper, R. K., & Sawaf, A. (1997). *Executive EQ: emotion intelligence in leadership and organizations*. New York: Grosset/Putnam.

Davies, M., Stankov, L., & Roberts, R. (1998). Emotional intelligence: in search of an elusive construct. *Journal of Personality and Social Psychology, 75*, 989–1015.

Epkins, C. (1996). Affective confounding in social anxiety and dysphoria in children: Child, mother, and father reports of internalizing behaviours, social problems, and competence domains. *Journal of Social and Clinical Psychology, 15*, 449–470.

Farber, B. A. (1989). Psychological-mindedness: can there be too much of a good thing?. *Psychotherapy, 26*, 210–217.

Faul, F., & Erdfelder, E. (1992). *GPOWER. A priori, post-hoc, and compromise power analyses for MS-DOS [Computer program]*. Bonn, Frg: Bonn University, Department of Psychology.

Goleman, D. (1995). *Emotional intelligence*. New York: Bantam Books.

Gottman, J. (1997). *The heart of parenting: how to raise an emotionally intelligent child*. New York: Simon & Schuster.

Henig, R. M. (1996). Are you smarter than you think?. *McCall's, June*, 84–91.

Hudson, D. (Executive Producer). (1998, November). *Oprah Winfrey Show*. Northern New South Wales, Australia: Ten Network.

Kalafat, J. (1997). Prevention of youth suicide. In R. P. Weissberg, T. P. Gullotta, R. L. Hampton, B. A. Ryan, & G. R. Adams, *Healthy children 2010: Vol 8. Enhancing children's wellness* (pp. 175–213). Thousand Oaks, CA: Sage.

Kanner, A., Coyne, J., Schaefer, C., & Lazarus, R. (1981). Comparison of two modes of stress measurement: daily hassles and uplifts versus major life events. *Journal of Behavioural Medicine, 4*, 1–37.

Mayer, J. D., Caruso, D., & Salovey, P. (1999). Emotional intelligence meets traditional standards for an intelligence. *Intelligence, 27*, 267–298.

Mayer, J. D., & Geher, G. (1996). Emotional intelligence and the identification of emotion. *Intelligence, 22*, 89–113.

McCallum, M., & Piper, W. E. (2001). Psychological mindedness and emotional intelligence. In R. Bar-On, & J. D. A. Parker. *Handbook of emotional intelligence*. San Francisco: Jossey-Bass (in press).

Murphy, K. R., & Davidshofer, C. O. (1998). *Psychological testing: principles and applications* (4th ed.). New Jersey: Prentice-Hall, Inc.

Nemiah, J., Freyberger, H., & Sifneos, P. E. (1976). Alexithymia: a view of the psychosomatic process. In O. W. Hill, *Modern trends in psychosomatic medicine (Vol. 3)* (pp. 430–439). London: Butterworths.

Nurmi, J. (1993). Self-handicapping and a failure-trap strategy: a cognitive approach to problem behaviour and delinquency. *Psychiatria-Fennica, 24*, 75–85.

Oliver, J. M., & Burkham, R. (1979). Depression in university students: duration, relation to calender time, prevalence, and demographic correlates. *Journal of Abnormal Psychology, 88*, 667–670.

Peterson, K. S. (February 18, 1997). Signs of intelligence: do new definitions of smart dilute meaning? *USA Today* Section D, p. 1.

Petrides, K. V., & Furnham, A. (2000). On the dimensional structure of emotional intelligence. *Personality and Individual Differences, 29*, 313–320.

Priester, M. J., & Clum, G. A. (1993). The problem-solving diathesis in depression, hopelessness, and suicide ideation: a longitudinal analysis. *Journal of Psychopathology and Behavioural Assessment, 15*, 239–254.

Reynolds, W. M. (1987). *Suicide ideation questionnaire: professional manual*. Odessa, FL: Psychological Assessment Resources.

Roger, D., & Najarian, B. (1989). The construction and validation of a new scale for measuring emotion control. *Personality and Individual Differences, 10*, 845–853.

Salerno, J. G. (1996). *The whole intelligence: emotional quotient (EQ)*. Oakbank, South Australia: Noble House of Australia.

Salovey, P., & Mayer, J. D. (1990). Emotional intelligence. *Imagination, Cognition and Personality, 9*, 185–211.

Sarason, G., Johnson, H., & Siegal, J. (1978). Assessing the impact of life changes: Development of the life experiences survey. *Journal of Consulting and Clinical Psychology, 46*, 932–946.

Schutte, N., Malouff, J., Hall, L., Haggerty, D., Cooper, J., Golden, C., & Dornheim, L. (1998). Development and validation of a measure of emotional intelligence. *Personality and Individual Differences, 25*, 167–177.

Segal, J. (1997). *Raising your emotional intelligence*. New York: Holt.

Simpson, J., Ickes, W., & Blackstone, T. (1995). When the head protects the heart: Empathic accuracy in dating relationships. *Journal of Personality and Social Psychology, 69*, 629–641.

Tarris, T. W., Bok, I. A., & Calje, D. G. (1998). On the relation between job characteristics and depression: a longitudinal study. *International Journal of Stress Management, 5*(3), 157–167.

TIME (October 2, 1995). [Cover]. New York: Time Warner.