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SEX DIFFERENCES IN THE RELATIONSHIP BETWEEN SENSATION SEEKING,
TRAIT EMOTIONAL INTELLIGENCE AND DELINQUENT BEHAVIOUR.

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Abstract

Levels of sensation seeking peak in adolescence and there is a well-documented association with delinquency and other risk taking behaviours. The present study investigated the potential moderating effect of trait Emotional Intelligence (EI) on this relationship. Trait EI encompasses high levels of empathy and emotion regulation and is associated with positive outcomes and wellbeing. 96 young adults (48 female; overall $M_{age} = 19.76$) completed measures of sensation seeking, trait EI and self-reported delinquent behaviours since age 12. Results indicated that sensation seeking and frequency of delinquent behaviours were positively associated, but this effect was moderated by trait EI for male participants - those with lower trait EI showed a greater increase in delinquency in line with a rise in sensation seeking. No moderation effect was observed for females, and females with higher levels of trait EI reported more delinquent behaviours. The results are discussed in terms of the protective role of trait EI in supporting self-regulation and whether, for some females, high levels of EI might predispose to antisocial relational behaviours.

KEYWORDS: adolescence; delinquency; sensation seeking; emotional intelligence; gender differences

Trait emotional intelligence (trait EI) is a constellation of affect-related personality facets reflecting the ability to experience, attend to, identify, understand and utilize personal emotions and those of others (Petrides & Furnham, 2003; Petrides, Pita, & Kokkinaki, 2007). As such, trait EI encapsulates factors which relate to high levels of psychological and physical well-being (Austin, Saklofske & Egan, 2005; Martins, Ramalho, & Morin, 2010). Trait EI has shown predictive utility across a range of life outcomes including educational achievement and attendance (Petrides, Frederickson, & Furnham, 2004), workplace performance (Wong & Law, 2002; O'Boyle, Humphrey, Pollack, Hawver & Story, 2011), mental and physical health (Austin, et al, 2005; Schutte, Malouff, Thorsteinsson, Bhullar, & Rooke, 2007) and the quality of social relationships (Mavroveli, Petrides, Rieffe & Bakker, 2007).

The present study aimed to investigate how trait EI influences engagement in delinquent behaviour by adolescents and young adults. Specifically, we were interested in how EI might influence the association between delinquent behaviour and Sensation Seeking. Sensation seeking can be defined as “the seeking of varied, novel, complex, and intense sensations and experiences, and the willingness to take physical, social, legal, and financial risks for the sake of such experience” (Zuckerman, 1994, p. 27) and a considerable amount of research has indicated that it may be a risk factor for criminal and antisocial behaviours in student, community and convicted samples (Goma-i- Freixanet, 1995; Hansen & Breivik, 2001; Horvath & Zuckerman, 1993; Pfefferbaum & Wood, 1994; Zuckerman, 2007 for review). Although the relationship between sensation seeking and delinquency is well established, we know relatively little about potential psychological moderators of this association. A greater understanding of such factors is desirable (Roberti, 2004) and the present study is focussed on whether trait EI may be one such moderator.

Levels of sensation seeking tend to peak in adolescence and a significant percentage of individuals engage in risky behaviours, including delinquency, in the teens and early twenties (Zuckerman, 1994; 2007). For many, this can be a relatively benign and short-lived episode in the transition to adulthood, while for others it can form a precursor to life-long criminality (Moffitt, 1993). Life-course-persistent offenders are said to lack development in prosocial behaviour whereas adolescence-limited offenders develop such skills by early adulthood (Moffitt, 1993). Low social competence is associated with self-reported delinquency among convicted juvenile offenders (Palmer & Hollin, 1999) and it is therefore feasible that personality traits which support pro-sociality and effective relationships may be protective. For instance, a key component of the trait EI construct is empathy, a lack of which has been linked to offending in both incarcerated and community samples (Jolliffe & Farrington, 2007). High trait EI is also typified by emotional and behavioural self-regulation, low levels of which are known to be associated with crime and delinquency (Gottfredson & Hirschi, 1990; Eisenberg, et al, 1996; Moffitt et al, 2011). However, it is important to note in this context that high sensation seeking can be associated with noncriminal activities such as extreme sports or risky vocations (Hansen & Breivik, 2001; Zuckerman, 2007, for a review). The development of prosocial attitudes, proactive coping skills and positive sociocognitive strategies such as mastery orientation (pursuing of goals which allow for learning of valued skills) may lead individuals to express the sensation seeking drive in ways that are useful (e.g. sports or entrepreneurship) rather than in a more antisocial way, such as crime (O'Connor & Jackson, 2008).

Overall, high trait EI individuals form positive and effective personal relationships and are able to regulate their emotions and behaviours in adaptive ways which support personal wellbeing. Mikolajczak, Petrides and Hurry (2009) have suggested how trait EI measures can usefully

capture individual differences in emotion regulation in one easily administered measure which may provide a useful addition to clinical tools used in forensic evaluation. However, trait EI and sensation seeking have not previously been considered together in this context. In the present study we predicted that trait EI would moderate the relationship between sensation seeking and engagement in delinquent behaviours such that the less emotionally intelligent participants would present a stronger relationship between sensation seeking and delinquency.

We also explored possible gender differences. While sensation seeking has been found to relate to delinquency for both sexes (Goma-i- Freixanet, 1995; Romero, Luengo & Sobral, 2001), males often score more highly on sensation seeking measures (Zuckerman, 1994; 2007).

Jolliffe and Farrington (2007) reported that male (but not female) offenders had lower empathy than non-offenders and Mavroveli et al (2007)'s results suggested that the negative association between trait EI and maladaptive coping may be limited to males. Brackett, Mayer and Warner, (2004) showed that low ability (as opposed to trait) Emotional Intelligence was associated with deviant behaviours for male college students only. Ability EI is measured by responses to simulated social situations and we were interested to find out whether we would find similar results using a trait EI self-report questionnaire. Overall, we anticipated that the predicted relationship between low trait EI and delinquency may only be observed for male participants.

Method

Participants

96 undergraduate students took part in return for course credit; Males $N = 48$, $M_{age} = 19.83$, $SD = 1.63$; Females $N = 48$, $M_{age} = 19.60$, $SD = 1.11$; $t(94) = .81$, $p = .42$. The sample were recruited via a pool of volunteer participants run by the School of Psychology. To be eligible for the study, participants needed to be aged under 25 and have been raised in the UK.

Measures and Procedures

Participants were tested in small groups of up to 6. All completed the following three self-report measures:

Delinquent Behaviour Scale: This was an adaptation of the D45 scale developed by Youngs (2004). The D45 consists of a list of delinquent acts that participants may or may not have committed, ranging from the relatively minor such as truancy from school or cheating in exams, to more serious offences such as using weapons in a fight, arson and assault. Youngs developed the D45 for use with incarcerated young offenders and we used 35 of her original items, selecting those which reflected fairly low-level misdemeanours more likely to be reported by a non-offender student population, and which may elicit fewer responses biased towards social desirability given the research setting. We also added a further 20 neutral items. These comprised notable but non-delinquent experiences such as being admitted to hospital or doing jury service. Our final scale comprised 55 items and participants were asked to indicate whether or not they had engaged in each activity since age 12. As we were interested in the extent of delinquency rather than offence type, a simple delinquent behaviour (DB) score was obtained by summing yes responses to the delinquency items (max possible score = 35, $\alpha = .87$). We also obtained a neutral behaviour (NB) score by same method ($\alpha = .69$) though we did not analyse those data beyond confirming that males and females did not differ ($p = .24$).

Sensation Seeking Scale form V (SSS-V; Zuckerman, 1994). This 40 item scale yields an overall sensation seeking (sensation seeking) score plus scores on four subscales, with 10 items per scale: Thrill and Adventure Seeking (TAS), Experience Seeking (ES), Disinhibition (DIS) and Boredom Susceptibility (BS). Studies of self-reported DB in student samples have tended

to show significant relationships between DB and total SS score and all of the subscales bar TAS (Pérez & Torrubia, 1985; Simó & Pérez, 1991). Romero et al (2001) found a relationship between DB and all four subscales, with the stronger associations being with ES and DIS for males, and DIS for females. Each questionnaire item has two response choices, one of which indicates a high level of sensation seeking and the other indicating a low level, for instance, *I like to try new foods I have never tasted before* versus *I stick with dishes I know I like to avoid disappointment*. Affirmative responses to high sensation seeking items were totalled to provide scores for each of the sub-scales which showed adequate reliability (DIS $\alpha = .69$; BS $\alpha = .65$, TAS $\alpha = .79$, ES $\alpha = .68$). These subscale scores were then summed to create an overall total with good reliability ($\alpha = .85$).

Trait Emotional Intelligence Questionnaire – short form (trait EIQue-SF; Petrides, 2009; Petrides & Furnham, 2006). This 30-item questionnaire is designed to measure global trait emotional intelligence (trait EI); the short form method has been found to provide near identical estimates of the full-scale trait EIQue (Petrides, 2009) and it is considered a robust measure with student samples (Sánchez-Ruiz, Pérez-González & Petrides, 2010). Items such as “*Expressing my emotions with words is not a problem for me*” and “*I usually find it difficult to regulate my emotions*” are responded to on a 7-point Likert scale where a score of 1 was equal to ‘completely disagree’ ranging to a score of 7 which corresponded to ‘completely agree’; giving a possible maximum score of 210. The present data showed strong reliability ($\alpha = .96$).

Statistical Analyses

Male and female scores on all measures were compared by independent samples t-test and Pearson’s correlations between DB and other measures were also computed. Linear regression was conducted to examine interaction effects in predicting DB, particularly the three-way

interaction which we predicted would indicate a moderating effect of sex on the SS-trait EI relationship. Interaction variables were calculated by computing the product of relevant factors, with sex coded 1 (females) and 0 (Males). An analysis using G-Power software indicated adequate power for this analysis ($1-\beta = .76$) with a medium effect size of .15 according to Cohen's (1988) recommendations. All other analyses were conducted using SPSS statistics v. 20.

Results

As Table 1 shows, scores on all three main measures were similar for males and females. For completeness we have also included the SS subscale scores and here, males and females differed on BS, where males scored significantly higher.

PLEASE INSERT TABLE 1 ABOUT HERE

As might be expected with a non-offender student sample, the delinquent behaviours most often reported tended to be relatively low-level with the most prevalent being truancy from school (37% of both male and female participants reported this) followed by rowdy behaviour in public, smoking cannabis and using public transport without a ticket. On some more serious offences sex differences were observable with males reporting higher rates, for instance drunk driving (8% females, 23% males), arson (2% females, 13% males) and beating someone up (6% females and 19% males).

Table 2 presents correlations between the number of reported delinquent behaviours (DB), Sensation Seeking (SS) and Trait Emotional Intelligence (trait EI) scores. Both males and females show a significant positive correlation between DB and sensation seeking and the

magnitude of these correlations is similar across groups. We also report correlations for the SS subscales. For females, all four are significantly related to DB, with DIS and ES presenting notably stronger associations. For males, DB is correlated with all subscales except TAS. These relationships are closely in line with previous research with student samples (Pérez & Torrubia, 1985; Romero et al, 2001; Simó & Pérez, 1991).

PLEASE INSERT TABLE 2 ABOUT HERE

The correlations between DB and trait EI reveal some sex differences. Males presented a significant negative correlation suggesting higher levels of DB are reported by those with lower trait EI while females show a significant positive correlation. These correlations differ significantly across groups (*Fisher's* $z = 5.55, p < .001$). The relationship between sensation seeking and trait EI also differs significantly between males and females (*Fisher's* $z = 2.84, p = .004$) with males presenting little relationship between these factors while for females a significant positive correlation is observed.

The results of a linear regression analysis are shown in Table 3. Here we included the overall total SS score as an independent predictor of DB and also examined its effects in an interaction with trait EI and sex.

PLEASE INSERT TABLE 3 ABOUT HERE

As might be expected given the correlations in Table 2, SS is a significant predictor of DB, both independently and in interaction with the other variables. Most importantly however, a significant three way interaction is observed which indicates that the relationship between trait EI and SS in predicting DB is moderated by sex. In other words, as the correlations also

suggest, for males, high trait EI reduces the effect of SS in predicting DB. However for females, both trait EI and SS predict DB irrespective of the level of trait EI present. A tight 95% confidence interval suggests it is likely to be a robust effect. This model explains 49% of the variance in DB overall.

Discussion

This is the first study to consider trait EI and sensation seeking together as possible co-determinants of delinquent behaviour. As we might expect from previous research, sensation seeking and DB were strongly related. Further to this, and in line with our prediction, we found that this relationship varied as function of trait EI - but only for males, such that males with lower trait EI showed a greater increase in delinquency in line with a rise in sensation seeking. As such, we propose that, for males at least, higher trait EI can protect against the tendency towards sensation seeking as a risk factor for delinquency.

One of the key mechanisms underlying this effect is likely to involve the relationship between high trait EI and enhanced impulse control and emotional regulation (Downey, Johnston, Hansen, Birney & Stough, 2010). Adolescents who perceive they can regulate their own lives and emotions effectively tend to report less depression and lower levels of antisocial behaviour (Mavroveli et al., 2007). Both higher levels of trait EI and efficient emotion regulation can influence the development and maintenance of quality social relationships and, conversely, it is known that social exclusion (or the perceived threat of it) can weaken self-regulation (Baumeister, DeWall, Ciarocco, & Twenge, 2005). Male sensation seekers who have low social status may lack the emotional restraint required to resist peer pressure to commit delinquent acts. For female participants, although sensation seeking and DB were positively

associated, no moderating effect of trait EI was observed. We had anticipated this possibility given sex differences observed in previous research (Brackett et al, 2004; Jolliffe & Farrington, 2007) and expected that female participants would show little relationship between trait EI and levels of delinquency. In fact, they showed a significant positive association, suggesting that females who have higher levels of trait EI commit more delinquent acts, a surprising and unprecedented result.

One explanation might lie in sex differences in the nature of delinquency. Delinquency is frequently associated with psychopathology and low levels of emotional wellbeing and, during adolescence and young adulthood, females predominate in internalising disorders such as depression and anxiety while males predominate in externalised disorders like antisocial behaviour (e.g. Hartung, Milich, Lynam, & Martin, 2002; Huselid & Cooper 1994; Leadbeater, Blatt & Quinlan, 1995; Rosenfield, Lennon & White, 2005). Males and females also generally differ in amount of offending and types of offences committed, with males tending to engage in more criminal activity, and more violent activity, than females although the sex-gap narrows with minor offences. In a non-forensic student sample we might expect a relatively low number of serious offences to be declared and indeed this was the case, with both sexes reporting similar levels of engagement in DB overall. However, our measure did not ask about behaviours such as psychological bullying, deliberate social exclusion or malicious gossip, behaviours characterised as indirect or relational aggression (Archer & Coyne, 2005). This type of behaviour is more prevalent amongst adolescent females as opposed to males where physically aggressive bullying is more common (Archer, 2004; Österman et al, 1998; Viding, Simmonds, Petrides & Frederickson, 2009). Björkqvist (1994) suggested that females prefer relational aggression because it maximizes the harm inflicted while minimizing the personal danger involved. In addition, the harm is brought about in a socially skilled manner such that

that the aggressor can make it appear as if there was “no intention to hurt at all” (p. 118). A recent review has suggested that good interpersonal skills are required to successfully manipulate others (Jones & Paulhus, 2009) and there is a growing research interest in the “dark side” of emotional intelligence - whether EI can be used in insidious ways in social contexts (Austin, Farrelly, Black, & Moore, 2007). A high level of trait EI may facilitate an enhanced ability to present machiavellian behaviour in a positive light, understand victims’ emotions and predict likely responses in order that social manipulations are successful. Relational aggression would not be captured in our delinquent behaviours questionnaire, but it may be that the high EI females who do this are also those more likely to engage in other behaviours which we did measure. This might occur through a high level of social engagement generally or romantic relationships with delinquent males, thus offering opportunities to offend. These questions will be useful areas for further research.

Overall, the determinants of delinquent behaviour in adolescents are varied and involve complex interactions between social and individual factors. Here we touched on one potential factor, trait EI, and have shown how this may moderate the well documented relationship between sensation seeking traits and delinquency for male participants. In our female sample, there was no moderating effect and those who showed high levels of trait EI were more likely to report having engaged in delinquent acts. We have highlighted some potential explanations for this relationship though these proposals are speculative at present and the question requires further investigation, as do the psychological determinants of female delinquency in general. It has been suggested that one reason males have been studied in greater depth than females is that overt and aggressive antisocial behaviour is less common, less serious and less persistent in females and therefore less costly to society (Chesney-Lind & Shelden, 2004; Fontaine, et al, 2009). However, more subtle inter-personal bullying behaviours may have a lasting cost for

individuals concerned and their contribution to society. Trait EI is known to predict a wide array of positive practical and health-related life outcomes. Understanding how the perpetration of negative behaviours is linked to trait EI may be an important step towards promoting wellbeing.

UNCORRECTED PROOF

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Table 1: Descriptive statistics for males and females (mean scores with SD in parentheses)

	Males (N = 48)	Females (N = 48)	Male & female compared
DB	8.54 (6.32)	8.56 (4.67)	p = .99
trait EI	141.73 (20.44)	145.67 (20.84)	p = .35
SS total	22.71 (5.13)	22.29 (6.20)	p = .72
DIS	6.52 (2.39)	6.33 (2.67)	p = .72
BS	3.31 (2.08)	2.52 (1.79)	t (94) = 2.00, p = .05
TAS	7.06 (2.53)	7.04 (2.50)	p = .97
ES	6.19 (1.92)	6.85 (1.86)	p = .10

DB = delinquent behaviour; trait EI = Trait emotional intelligence; SS = sensation seeking

SS subscales: DIS = disinhibition, BS = boredom susceptibility, TAS = thrill and adventure seeking, ES = excitement seeking

Table 2: Correlations between measures for males and females

	trait EI	SS total	DIS	BS	TAS	ES
DB						
<i>Males</i>	-.53**	.54**	.68**	.53**	.09	.31*
<i>Females</i>	.52**	.57**	.43**	.33*	.35*	.54**
trait EI						
<i>Males</i>	-	-.10	-.51**	-.26	.19	.05
<i>Females</i>	-	.46**	.27	.07	.23	.48**

* significant at .05 level; ** significant at .01 level.

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Table 3: Results of linear regression analyses on DB for males and females (Adj. $R^2 = .49$)

Predictors	St. β	t	p	95% CI	
				lower	upper
Sex	2.89	1.45	.15	-11.96	77.05
SS	2.74	3.34	.001	1.10	4.35
trait EI	.71	1.46	.15	-.07	.46
Sex*trait EI	-2.74	-1.26	.21	-.54	.12
Sex*SS	-6.36	-2.93	.004	-5.03	-.97
SS*trait EI	-2.69	-2.62	.01	-.03	-.004
Sex*trait EI*SS	6.55	2.69	.009	.005	.035

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