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Abstract

Theoretically, trait and ability emotional intelligence (EI) should mobilise coping processes to promote adaptation, plausibly operating as personal resources determining choice and/or implementation of coping style. However, there is a dearth of research deconstructing if/how EI impacts mental health via multiple coping strategies in adolescence. Using path analysis, the current study specified a series of multiple-mediation and conditional effects models to systematically explore interrelations between coping, EI, depression and disruptive behaviour in 748 adolescents (mean age = 13.52 years; $SD = 1.22$). Results indicated that whilst ability EI influences mental health via flexible *selection* of coping strategies, trait EI modifies coping *effectiveness*; specifically, high levels of trait EI amplify the beneficial effects of active coping and minimise the effects of avoidant coping to reduce symptomatology. However, effects were selective with respect to coping style and outcome. Implications for interventions are discussed alongside directions for future research.

Keywords:

emotional intelligence; coping; mental health; depression; disruptive behaviour;
adolescence

Introduction

Interest in emotional intelligence (EI) - a construct that captures individual differences in identifying, processing and regulating emotion (Zeidner, Matthews, & Roberts, 2009) – continues to intensify given empirical links to a variety of adaptational outcomes (Brackett, Rivers, & Salovey, 2011) and recent evidence suggesting that EI can be improved via targeted training in adults (Nelis et al., 2011) and through school-based programmes in youth (Durlak, Weissberg, Dymnicki, Taylor, & Schellinger, 2011). The broader construct can be differentiated in line with two distinct methods of assessment; considered as a cluster of emotion-related *self-perceptions/dispositions* evaluated via self-report, EI is termed ‘trait’ emotional intelligence (TEI) (Petrides, Pita, & Kokkinaki, 2007), whereas direct assessment of *actual proficiency* in perceiving, understanding, using and managing emotion through measures of maximal performance, is considered reflective of ‘ability’ emotional intelligence (AEI) (Mayer, Salovey, & Caruso, 2008). Research supports this distinction; negligible associations have been reported between measures of AEI and TEI in adults (e.g., Brackett & Mayer, 2003) and adolescents (Davis & Humphrey, 2012). The two conceptualisations are regarded as complementary - *explicit* socio-emotional skill might

underpin but not necessarily translate into optimal 'on-line' functioning where *implicit* factors (e.g., emotional self-efficacy) often play a role (Mikolajczak, 2009). Thus, it is of importance to assess how trait and ability EI independently influence adaptational outcomes.

EI and Mental Health

It is postulated that both forms of EI should confer adaptive advantages for psychological health; 'intelligent' utilisation of emotion-related skills should promote efficient regulation of affect (Salovey & Mayer, 1990), whilst positive perceptions of competency to handle emotion-laden situations, should facilitate optimal appraisal and response across contexts (Petrides, Pita et al., 2007). Indeed, there is now robust evidence supporting such a link between EI and mental health in general (Martins, Ramalho, & Morin, 2010). Specifically, higher AEI appears most strongly related to lower levels of *externalising* symptomatology (e.g., Brackett, Mayer, & Warner, 2004), whereas TEI appears to be a better predictor of *internalising* disorders (e.g., Gardner & Qualter, 2010), though, of the two, relationships between TEI and both types of outcome appear more robust (e.g., Davis & Humphrey, 2012; Williams, Daley, Burnside, & Hammond-Rowley, 2009). Nevertheless, research aimed at unpacking the processes underpinning these relationships - examining *how* and *when* (EI influences adaptation - is still at an embryonic stage (Zeidner et al., 2009), particularly in relation to adolescents.

It has been proposed that EI might buffer stress by promoting positive ways of coping which, in turn, lead to successful adaptation (Keefer, Parker, & Saklofske, 2009). Importantly, coping (*purposeful* efforts by the individual to regulate emotion, cognition, behaviour, physiology, and the environment in response to stressors - Compas, Connor-Smith, Saltzman, Thomsen, & Wadsworth, 2001), has emerged as a significant mediator of a variety of stressor-symptom relationships in youth populations (see, Grant et al., 2006, for a review). Since coping processes are dependent upon the (successful) operationalisation of key personal competencies/resources (Compas et al., 2001), these could well be represented by EI, construed as either a skill set located as the intersection of cognition and emotion, or as our 'emotional personality'. Divergent roles are implied in the literature; whereas AEI is hypothesised to temporally *precede* broader coping efforts by influencing initial emotional arousal to stressors (Salovey, Bedell, Detweiler, & Mayer, 1999), consistent with personality theory, TEI is viewed "as central to the development and implementation of successful coping mechanisms" (Petrides, Perez-Gonzalez, & Furnham, 2007, p.29). Consequently, explicit emotional skill/knowledge (AEI) may drive the *selection* of coping strategies whilst implicit emotional self-competency (TEI) may determine coping *efficacy*.

Coping, EI and Mental Health

As coping is a highly contextualised, dynamic process there are no universally 'adaptive' coping strategies that can be statically applied across all individuals and stressful situations (Carver & Connor-Smith, 2010). Nevertheless, broadly speaking, problem-focussed or

engagement strategies (e.g., reappraisal, support seeking) are reportedly advantageous over emotion-focussed or disengagement approaches (e.g., avoidance; wishful thinking) in reducing externalising and internalising symptomatology in youth (Compas et al., 2001; Seiffge-Krenke, 2011). Cross-sectional associations between EI and coping styles suggest that higher TEI is associated most robustly with increased use of such 'adaptive' problem-oriented styles and, to a lesser magnitude, decreased use of 'maladaptive' emotional and avoidant coping (e.g., adults: Mikolajczak, Nelis, Hansenne, & Quoidbach, 2008; youth: Mikolajczak, Petrides, & Hurry, 2009). Conversely, AEI appears to relate most strongly to reduced use of avoidance and emotional styles rather than increased use of problem-focussed coping (e.g., adults: MacCann, Fogarty, Zeidner, & Roberts, 2011; youth: Peters, Kranzler, & Rossen, 2009). Skill in managing emotion is most consistently implicated in these associations, whereas perceiving emotion appears the least influential sub-skill.

However, very few studies have explored mediating links between EI, coping and mental health and research has exclusively focussed upon the TEI perspective. Nevertheless, in adolescents, evidence suggests that *lower* TEI can be linked to poorer adjustment through *increased* use of avoidant and emotional coping styles (but not decreased use of problem-focussed styles) – when 'adjustment' is indexed via general psychological distress (Chan, 2005), engagement in self-harming behaviours (Mikolajczak et al., 2009), and self-reported externalising and internalising symptoms (Downey, Johnston, Hansen, Birney, & Stough, 2010). Studies exploring the interactive effects of EI and coping on mental health are markedly absent (investigations of predictive utility are the norm), though in an adult,

occupational context, it would appear AEI does not modify either 'surface-acting' or 'deep-acting' coping to impact emotional exhaustion (Peng, Wong, & Che, 2010).

The Current Study

Evidence implies that both perceived and actual emotional competence are related to distinct profiles of coping, however research exploring if/how this impacts upon mental health outcomes in adolescence is extremely limited – currently there are no studies investigating interrelationships between AEI, coping styles and mental health. Theoretical conjecture predicts differing roles for TEI and AEI within coping-health processes but this remains unexplored via systematic testing of competing mediation and moderation hypotheses. Moreover, it is widely acknowledged that 'real-world' coping requires the flexible deployment of *multiple* strategies to combat stressors; for instance, both avoidant (to escape negative emotionality) and active (problem-oriented towards future plans) strategies may be appropriate for dealing with the death of a family member (Folkman & Moskowitz, 2004). Indeed, the simultaneous effect of coping strategies on adolescent internalising symptomatology has been recently documented (Gaylord-Harden, Cunningham, Holmbeck, & Grant, 2010). However, there is a dearth of research deconstructing how EI may impact mental health in the context of *multiple* coping strategies; examining separate links between particular coping styles, EI and mental health has been the norm – a practice which is both theoretically and methodologically inadequate (parameter bias).

The current study seeks to address these gaps in the literature. Specifically, to identify whether EI exerts an early 'upstream' effect in mobilising coping *selection*, the extent to which specific coping styles (active, avoidant, support seeking) mediate the effect of EI (trait or ability) on depression and disruptive behaviour (conditional on the inclusion of other, related coping approaches in the model) will be explored – see figure 1A. However, rather than drive selection of coping strategies, EI could be implicated further 'downstream' to play a role in coping *implementation*. Hence the extent to which the effects of specific coping styles (active, avoidant, support seeking) on depression and disruptive behaviour are contingent on level of EI (ability or trait) will be explored, with control for related coping styles (figure 1B).

Methods

Participants

Participants were 772 adolescents (369 females; 403 males) aged 11 to 16 years ($M = 13.53$ $SD = 1.22$), recruited from six schools in the West Midlands, UK that were selected via opportunity sampling. Participation was contingent upon parental consent and student assent.

Materials

Trait emotional intelligence

The Trait Emotional Intelligence Questionnaire-Adolescent Short Form (TEIQue-ASF; Petrides, 2009) consists of 30 brief statements (e.g., “I find it hard to control my feelings”) which tap *sociability* (e.g., managing others’ emotions; assertiveness) *emotionality* (e.g., emotional expression; perception of emotion in self/others); *self-control* (e.g., managing own emotions; impulsiveness) and *well-being* (e.g., optimism; happiness) - to which participants respond using a seven-point scale; strongly disagree (1) to strongly agree (7). Following reversals, a global TEI score (possible range 30–210) is derived from summed item responses; higher scores signal higher levels of TEI. The TEIQue has robust psychometric properties (see Petrides, 2009) and in the present sample $\alpha = .82$.

Ability emotional intelligence

The Mayer-Salovey-Caruso Emotional Intelligence Test-Youth Version: Research Edition (MSCEIT-YV R; Mayer, Salovey, & Caruso, in press) comprises 101 items tapping skill in *experiential* (perceiving; using emotion to facilitate thought) and *strategic* (understanding; management) emotional processing. For *perceiving emotion*, a series of faces are rated for emotional content on a 5-point scale; matching various sensory experiences (colour, temperature, speed) to different emotions using a 5-point scale indicates ability to *use*

emotion to facilitate thinking; knowledge of emotion definitions, transitions/blends evaluates *emotional understanding*, whilst rating the usefulness of particular strategies for attaining a target feeling (in the case of a vignette-based protagonist) taps *emotion management* proficiency. Responses are scored by the test publishers (Multi-Health Systems) with items assigned a scaled value - 0 (less correct) to 2 (more correct), signifying the degree of concordance with expert consensus opinion. Higher scores indicate higher AEI skill. Averaged item scores create branch scores, from which average experiential and strategic area scores are derived, the mean of which yields a total AEI score (where standardised values: $M = 100$, $SD = 15$). The MSCEIT-YVR is still under development and comprehensive psychometric testing is awaited, however preliminary analyses with the tool have yielded split-half reliabilities of .67 (perceiving), .81 (using; managing), .86 (understanding) and .90 for total AEI (Papadogiannis, Logan, & Sitarenios, 2009). In the present sample, branch-level scores were only moderately intercorrelated and demonstrated differential patterning with the total score (see table 1). Hence, subsequent analyses were conducted at **total and branch level to facilitate comparison with (global) TEI yet illuminate** any divergent skill-based effects **that could be masked** by aggregation (Fiori & Antonakis, 2011).

Coping

The Children's Coping Strategies Checklist (CCSC-R1; Ayers, Sandler, West, & Roosa, 1996) is a self-report, multidimensional measure of coping style which allows respondents to describe how they typically cope with stressors across situations. Incorporating 60 items, adolescents respond using a 4-point scale, "never" (1) through to "most of the time" (4),

indicating the frequency of the behaviour described. Items tap 13 coping dimensions: *cognitive decision making* (“I thought about what would happen before I decided what to do”); *direct problem solving* (“I did something to solve the problem”); *seeking understanding* (“I thought about why it happened”); *control* (“I told myself that I could handle whatever happens”); *positivity* (“I reminded myself that overall things are pretty good for me”); *optimism* (“I told myself that in the long run things would work out for the best”); *distracting actions* (“I listened to music”); *physical release of emotions* (“I did some exercise”); *avoidant actions* (“I tried to stay away from the problem”); *repression* (“I tried to ignore it”); *wishful thinking* (“I wished that bad things wouldn’t happen”); *support seeking for feelings* (“I talked with my friends about my feelings”) and for problem-solving (“I asked my mother or father for help in figuring out what to do”). Mean scores for items representing each dimension are averaged to form 4 super-ordinate coping styles - *active* (cognitive decision making; direct problem solving; seeking understanding; control; positivity; optimism); *avoidant* (avoidant actions; repression, wishful thinking), *distraction* (distracting actions; physical release of emotions), *support seeking* (emotional and problem-oriented via peers, siblings, parents, other adults) - where scores have a possible range of 1-4. Adequate levels of internal consistency have been reported for the coping dimensions, e.g., $\alpha = .55$ to $.69$ (Gaylord-Harden, Gipson, Mance, & Grant, 2008) together with 1-week test-retest reliability coefficients in the range of $.49$ to $.73$ (Program for Prevention Research, 1999). In the current sample, these moderate levels of internal consistency were broadly replicated ($\alpha = .50$ [avoidant action] to $.75$ [support for problem-solving]). Confirmatory factor analyses of the scale have identified the intended four factor solution (e.g., Ayers et al., 1996), but also an alternative three factor solution (active, avoidant; support seeking) (e.g., Gaylord-Harden et al., 2008). A CFA of the three and four factor

models was conducted, using robust maximum likelihood estimation in MPlus version 6.11 (Muthen & Muthen, 2010). In each case, scaling was established by fixing factor variances to 1.0; all factor loadings, residual variances and factor co-variances were freely estimated. Ideally, measures of incremental fit, e.g., CFI/TLI, should exceed .95 and absolute fit indices, e.g., RMSEA, should be less than .6 (Hu & Bentler, 1999). In line with these criteria, the 4-factor model provided a reasonable fit to the data (MLM χ^2 (59) = 199.319, $p < .001$, CFI = .96, TLI = .94, SRMR = .04, RMSEA = .06 [CI = 0.05–0.07]) however, scrutiny of the standardised factor loadings revealed that *physical release of emotions* had a substantially lower loading ($\lambda = .47$) than other dimensions (all $\lambda \geq .60$). In accord with previous research (e.g., Gaylord-Harden et al., 2008) this sub-scale was removed and *distracting actions* (as the remaining dimension loading on the distraction factor), was set to load on avoidant coping. The three factor model resulted in a superior fit (MLM χ^2 (51) = 165.817, $p < .001$, CFI = .97, TLI = .98, SRMR = .03, RMSEA = .05 [CI = 0.04–0.06]; Δ MLM χ^2 (8) 33.401, $p < .001$). Thus, active ($\alpha = .90$), avoidant ($\alpha = .76$), and support seeking ($\alpha = .92$) coping styles were retained for subsequent analysis.

Mental health

The 20-item depression (feelings of sadness, negative thoughts, physiological symptoms) and disruptive behaviour (conduct and oppositional defiant disorder) scales from the Beck Youth Inventories of Emotional and Social Impairment, Second edition (BYI II; Beck, Beck, Jolly, & Steer, 2005) were utilised. Participants indicate how often each statement (e.g., “I

feel lonely”) has been true for them recently using a 4-point scale; never (0) through to always (3). In both cases, higher summed item values (range 0 - 60), represent higher levels of disorder. Both scales have demonstrated excellent psychometric properties (Beck et al., 2005) and in the current sample internal consistency was $\alpha = .93$ (depression) and $\alpha = .86$ (disruptive behaviour).

Procedure

Students were given verbal and written instructions and, once advised of their right to withdraw from the research without detriment, proceeded to complete questionnaire booklets (containing counterbalanced measures) individually within a whole-class setting. Class tutors and/or the researcher provided support where required and ensured confidentiality/independence of responding. Average completion time was 1h.

Results

Screening revealed sixteen univariate outliers (detached from the distribution with z-scores ± 3.29 SD from the mean) and eight multivariate outliers (Mahalanobis distances greater than $\chi^2(17) = 40.790, p < .001$) which were subsequently removed (Tabachnick & Fidell, 2007). This resulted in a final sample $N = 748$ (361 females; 387 males; mean age = 13.52, $SD = 1.22$). The data indicated non-normality, particularly the mental health variables which evidenced positive skew. However, this is fully in line with research in non-clinical populations where low levels of symptomatology (and hence low rates of item

endorsement) are expected (e.g., Stapleton, Sander, & Stark, 2007). To adjust for non-normality in the main analyses, a nonparametric re-sampling technique was employed to derive parameter estimates and respective confidence intervals (Preacher & Hayes, 2008).

Preliminary analyses

Table 1 displays descriptive statistics and zero-order correlations for the study variables. Depression was positively associated with avoidant coping and negatively related to TEI, whilst disruptive behaviour shared inverse associations with active, support seeking coping, TEI and AEI (all bar the ability to perceive emotion). TEI and AEI were differentially associated with coping styles, though all significant associations represented small effect sizes, $r < .30$ (Cohen, 1992), signalling the distinctiveness of EI and coping constructs. Those higher in TEI were more likely to employ active and support seeking strategies and engage less often in avoidant coping. In contrast, higher levels of AEI related to increased use of active strategies but *less* frequent use of support seeking coping. Consistent with previous research (Davis & Humphrey, 2012), AEI and TEI were only weakly related.

Females had significantly higher levels of total AEI ($M = 99.63$, $SD = 14.13$) than males ($M = 95.91$, $SD = 15.71$; $t(746) = 3.392$, $p = .001$), a difference which appeared attributable to greater skill in managing emotions (female $M = 98.36$, $SD = 14.09$; male $M = 93.29$, $SD = 14.43$; $t(746) = 4.858$, $p < .001$). Sex differences in TEI scores were not significant. Females reported significantly higher levels of depression ($M = 12.99$, $SD = 9.71$) than males ($M =$

10.25, $SD = 8.86$; $t(746) = 4.039$, $p < .001$), however, the reverse was true for disruptive behaviour (male $M = 7.79$, $SD = 6.62$, female $M = 6.17$, $SD = 5.82$; $t(746) = 3.547$, $p < .001$). The use of avoidance and support seeking coping also differed according to sex; females were more likely to employ avoidant strategies ($M = 2.41$, $SD = .56$) compared with males ($M = 2.29$, $SD = .56$); $t(746) = 2.907$, $p = .004$), a trend which also held for support seeking coping (female $M = 2.09$, $SD = .66$, male $M = 1.86$, $SD = .64$; $t(746) = 4.827$, $p < .001$). Table 1 indicates that whilst disruptive behaviour, depression and AEI increase with age, frequency of support seeking coping decreases with maturity. Consequently, the influence of age and sex were controlled in the main analysis.

Indirect effects of EI on mental health through coping

Path models (depicted in Fig. 1A) were estimated using full information maximum likelihood in MPlus version 6.11 (Muthen & Muthen, 2010). Bootstrap re-sampling was employed to generate bias-corrected confidence intervals for point estimates. This technique is advantageous over alternative approaches (e.g., 'causal steps'; multivariate product of coefficients) as it does not assume the product term of the indirect effect, ab (nor its constituent paths a b) is normally distributed and outperforms the causal steps approach in terms of power to detect an indirect effect in multiple mediation (Williams & MacKinnon, 2008). Importantly, contrary to the causal steps approach, the absence of an initial 'total' effect of X on Y (e.g., as in the present data between AEI and depression – see table 1) *does not* preclude examination of indirect effects; as the total effect represents the 'end-product'

of numerous paths of influence (indirect or direct; present or absent in the final model), it is plausible that multiple indirect effects may exert *opposing* intermediate influences on Y , cancelling each other out, to produce a non-significant total effect (Hayes, 2009). This is particularly pertinent to the current investigation where the interdependence of coping strategies is expected (Gaylord-Harden et al., 2010).

In total, **12** multi-mediator models were estimated, where the effects of X (**total AEI; AEI** sub-skills; TEI) on Y (disruptive behaviour; depression) through active, avoidant and support seeking coping (M_1 - M_3) were examined, controlling for the influence of age and sex.

Significant specific indirect effects were found in models transmitting the effects of total AEI on depression and disruptive behaviour, with further modelling suggesting these effects could be qualified with reference to skills in using, understanding and managing emotion. Conversely, the effect of TEI on disorder was not significantly mediated by any of the three coping styles, specifically or collectively. Tables 2 and 3 display parameter estimates and pairwise contrasts for specific indirect effects; for parsimony, only models containing significant indirect effects are reported. Bootstrapped confidence intervals that do not contain zero signify that an effect is statistically significant – subsequent interpretation will be made using this criterion however, for comparison, significance levels according to normal theory testing are also indicated with asterisks in the traditional fashion.

Turning first to depression (table 2), total AEI exerts an effect on internalising disorder predominantly via active coping but not avoidant or support seeking styles (direct effect = -.069 [-.122, -.019]). Specifically, for every unit change in total emotional ability, depression is expected to *decrease* by .017, per an *increase* of .005 in active coping. Sub-scale analyses show this trend extends to the effect of using, understanding and managing emotion on depression; here, the expected decrease in disorder ranges from .008 to .010 as a function of a .004 increase in active coping, per a single unit change in each skill. However, in addition to the anticipated reduction in depression via active coping, a unit change in the ability to use emotion to facilitate thought also *increases* depression by .015 via a .003 *increase* in avoidant coping. Pairwise contrasts confirm the specific indirect effect through avoidant coping is significantly greater in magnitude than via active coping (point estimate = -.025 [-.049, -.007]). Similarly, whilst the ability to understand emotion leads to reduced depression through increased active coping, it also *increases* symptoms through *reduced* support seeking coping (direct effect = -.074 [-.134, -.014], where the latter effect appears larger in magnitude (point estimate = -.018 [-.029, -.008])). For disruptive behaviour (table 3), a unit change in total emotional skill leads to a .005 *increase* in active coping and an *decrease* of .006 in externalising behaviours – a pattern which can be attributed to strengths in using and managing emotion. However, the ability to use emotion simultaneously produces a .003 *increase* in avoidant coping which triggers a .005 *increase* in disruptive behaviour (direct effect = -.053 [-.081, -.022]), though the specific indirect effect through active coping is greater in magnitude than through avoidant coping (point estimate = -.011 [-.025, -.004]). Overall, significant models explained a modest amount of variance in disorder; total AEI on depression: $R^2 = .107$; on disruptive behaviour: $R^2 = .122$. Note that

the presence of non-significant *total indirect* effects in the models is expected given that this reflects the sum of specific indirect effects of opposing signs (Hayes, 2009).

The moderating effect of EI on coping and health

12 path models (see Fig. 1B) were tested using maximum-likelihood estimation in MPlus v.6.11 to explore simultaneous conditional effects following established procedures (Aiken & West, 1991; Preacher, Rucker, & Hayes, 2007). To minimise collinearity, predictor variables were standardised (mean-centred) before regressing the control variables (age; sex), EI (TEI; **AEI**), each coping style (active; avoidant; support seeking) and their respective product terms (i.e., EI x coping) first on depression and then disruptive behaviour. AEI did not significantly interact with coping to predict mental health (tested at either global or sub-level). TEI significantly modified both the effect of active and avoidant coping on depression ($R^2 = .332$). Table 4 displays bootstrapped parameter estimates and confidence intervals. Using model constraints, each effect was probed at conditional values (+1 and -1 SD above the mean) of TEI (Fig. 2). Both interactions were ordinal within the possible range of values; in figure 2A, the simple regression lines would cross at 4.564 SD above the mean of active coping, whilst in figure 2B, the point of intersection would occur at 7.057 SD below the mean of avoidant coping. In those with lower emotional self-competency, the effect of active coping on depression is reduced ($B = -1.819, p = .004 [-3.182, -.577]$) relative to those with high emotional self-competency ($B = 1.819, p = .004 [.575, 3.154]$). When engaging in

avoidant coping, those with higher TEI reported fewer depressive symptoms ($B = -1.251, p = .017 [-2.277, -.296]$) relative to those with lower TEI ($B = 1.251, p = .017 [.290, 2.275]$).

Discussion

This study endorses the construct differentiation of EI, providing support for the divergent effects of trait and ability EI on coping-mental health relations. Firstly, corroborating previous findings (e.g., Davis & Humphrey, 2012; Gardner & Qualter, 2010), TEI was more robustly associated with internalising over externalising symptoms, whilst the reverse was true for AEI. Secondly, it would appear that actual emotional skill versus perceived emotional competency plays a more crucial role in initial *selection* of coping strategies which, deployed simultaneously, lead to a reduction in disorder. In contrast, perceived not actual emotional competency appears key to the successful *implementation* of coping efforts.

Analyses illustrate the importance of specifying more complex models to better capture the interplay between AEI, coping and health; multiple intervening (yet opposing) mechanisms influence depressive affect and disruptive behaviour *and* these are necessarily selective. Rather than being associated with reduced use of isolated 'maladaptive' styles such as emotional coping (e.g., Peters et al., 2009), those who are better able use emotion to facilitate thinking, have high levels of emotional understanding, and can regulate their own emotions/the emotions of others, are able to *flexibly* employ a range of coping strategies to

maintain good levels of mental health. Considered jointly, these findings suggest that increased use of avoidant strategies and less frequent support seeking coping need not be deleterious when set in the context of active coping – emotionally intelligent individuals are able to switch flexibly, presumably as the need arises, between coping styles to attain an optimal balance. However, AEI skills do not uniformly contribute to this adaptive advantage; emotional knowledge appears implicated in the reduction of depression but not disruptive behaviour, and emotion perception would appear unrelated to the entire process. This latter phenomenon could be a property of the measurement method - non-verbal perception of facial emotion is distinct from other MSCEIT-YVR tasks tapping declarative emotion knowledge, sharing relatively low inter-correlations with performance in other areas (and total AEI) in the present sample. This reinforces the importance of conducting analyses at AEI sub-skill level (Fiori & Antonakis, 2011). Nevertheless, recent research hints that the ability to perceive emotion might uniquely impact further 'upstream' stress processes. For instance, enhanced proficiency in this area has been found to directly modify the effects of daily hassles on internalising disorder in young adults (Ciarrochi, Dean, & Anderson, 2002) and appears amplified in those from poorer socio-economic backgrounds (Kraus, Cote, & Keltner, 2010). To further disentangle this complexity and establish whether increased emotional awareness and understanding is *truly* 'adaptive', future research must now examine how individual AEI skills influence selection of multiple coping styles within the context of chronic and acute environmental stressors known to be implicated in the onset and maintenance of psychopathology.

Conversely, contrary to previous research (Downey et al., 2010; Mikolajczak et al., 2009) TEI did not influence choice of coping style. Rather, conditional effects suggest that perceived emotional self-efficacy *interacts* with coping efforts to affect depression. At high levels of TEI, the beneficial effects of an active coping style were amplified and any potentially 'maladaptive' effects of avoidant coping attenuated to reduce symptoms. It would appear those who feel more 'emotionally confident', who consider themselves able to process the (negative) emotion arising from contact with a stressor, can use this self-belief to optimally implement both active *and* avoidant coping styles, without fear of negative consequences, to impact mental health. The non-significant conditional effects involving AEI, together with negligible associations found between measures of trait and ability EI (e.g., in the current sample: $r = .17, p < .001$), reinforce the notion that self-efficacy versus actual skill is crucial for overall coping effectiveness. To this end, TEI may share *some* overlap with the more nuanced construct of 'coping efficacy' (the belief that one can handle future stressors based on positive past-outcomes, as well as stressor-invoked emotional arousal) which has been found to mediate the effect of active and avoidant coping on adjustment in youth (Sandler, Tein, Mehta, Wolchik, & Ayers, 2000). Exploring links between TEI and coping efficacy, as well as locating coping-TEI interactions in the wider stress context remain important areas for future investigation. Moreover, in light of the divergent effects associated with AEI sub-skills, it would be of interest to examine how key TEI components (e.g., sociability, wellbeing, self-control, emotionality) differentiate within these processes, employing a long-form TEI measure.

The present findings did not consider the impact of broadband personality traits (e.g., 'Big Five - OCEAN') on relationships. Given that TEI is partially determined by such higher-order

dimensions, particularly trait Neuroticism (N) and Extraversion (E), critics argue that advancement of the construct is contingent upon whether significant proportions of unique variance in adaptational outcomes can be attributed to TEI beyond that already accounted for by personality (Zeidner et al., 2009). This is especially pertinent in the context of coping, as broadband personality traits are known to be differentially related to the use of specific strategies, e.g., E and Conscientiousness to problem-solving; N to wishful thinking and withdrawal; E and N to support seeking (Connor-Smith & Flachsbart, 2007). Hence, it is important to establish that high TEI offers more than a restatement of the patterning of effects associated with positive affect (i.e., low trait N) and sociability (high trait E). Whilst recent work recognises that both AEI and TEI explain incremental variance in the prediction of mental health in adolescence beyond the Big Five and also IQ (Davis & Humphrey, 2012), this has not yet been explored with respect to coping styles in youth, although there is consistent evidence that TEI contributes incrementally, beyond personality, to the prediction of emotional and rational coping styles traits in adults (Petrides, Perez-Gonzalez et al., 2007; Petrides, Pita et al., 2007).

Whilst the current findings are limited by aspects of the research design (i.e., cross-sectional; correlational; single-informant self-report) they offer a promising platform upon which to base future work, which might usefully extend explorations to a latent modelling context to adjust for measurement imperfection. Trait and ability EI assume distinct roles in adaptational processes and impact selectively on coping styles and disorder-type. We must now move beyond simplistic predictive associations (i.e., high EI = 'adaptive' coping style = less disorder) to examine the integrated influence of both AEI and TEI in fully specified

models – it is plausible that those with low emotional self-competency cannot put their emotional knowledge into action. This carries implications for school-based socio-emotional programmes; although already meeting with some success (Durlak et al., 2011), perhaps ‘one size’ does not ‘fit all’. These findings suggest that further refinement of teaching (explicit emotional knowledge: AEI) and activities (putting knowledge into action to bolster self-efficacy: TEI) in line with *targeted* adjustment outcomes (e.g., emotional understanding for internalising disorder) would optimise impact.

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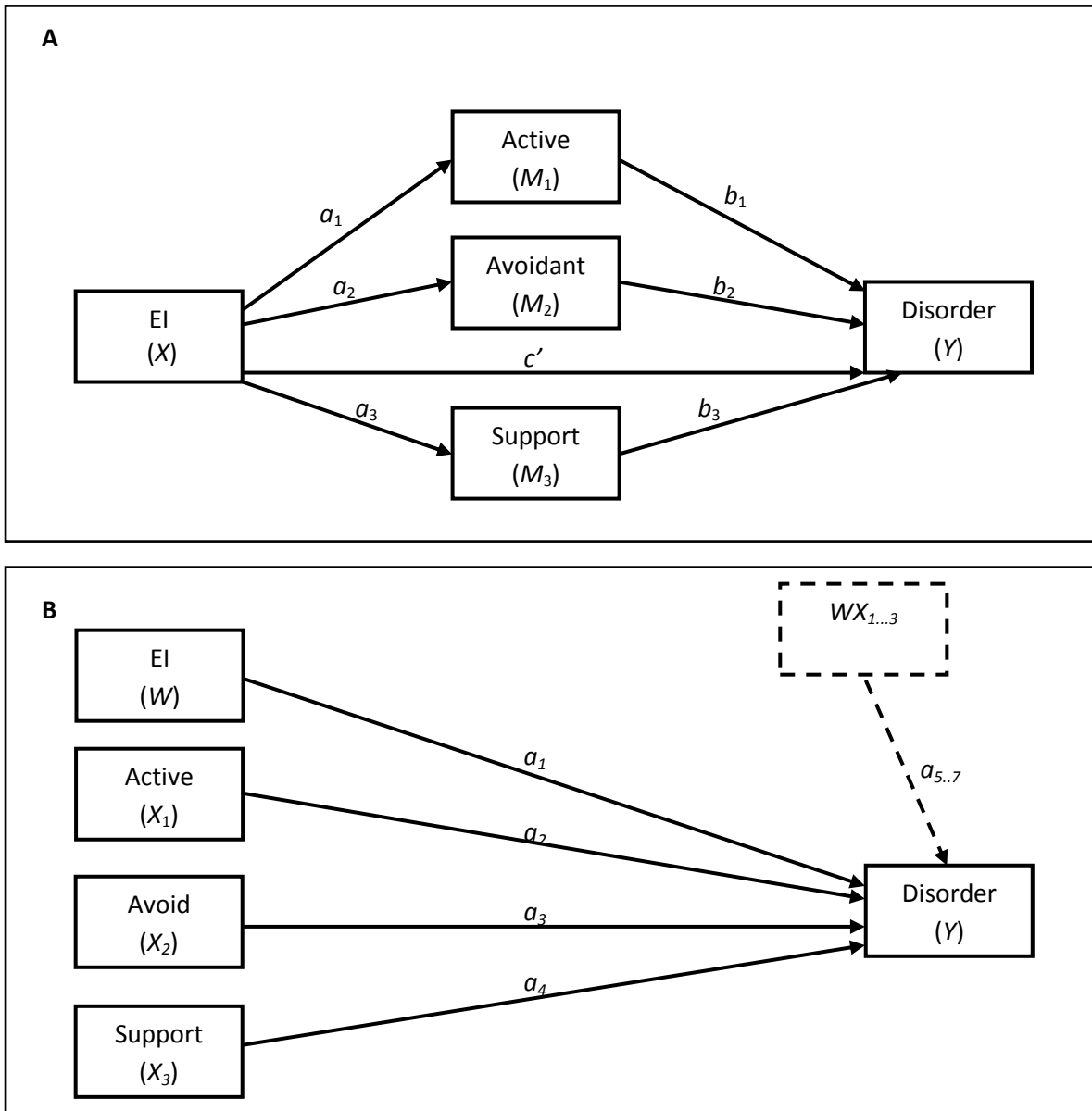


Figure 1: Hypothesised path models to test (A) multiple indirect effects of EI on depression and disruptive behaviour via active, avoidant and support seeking coping and (B) effects of coping strategies on depression and disruptive behaviour at conditional levels of EI. For clarity, covariances between mediators (M) and exogenous variables (X , W , WX) are not shown. In both models, age and sex are regressed on all variables.

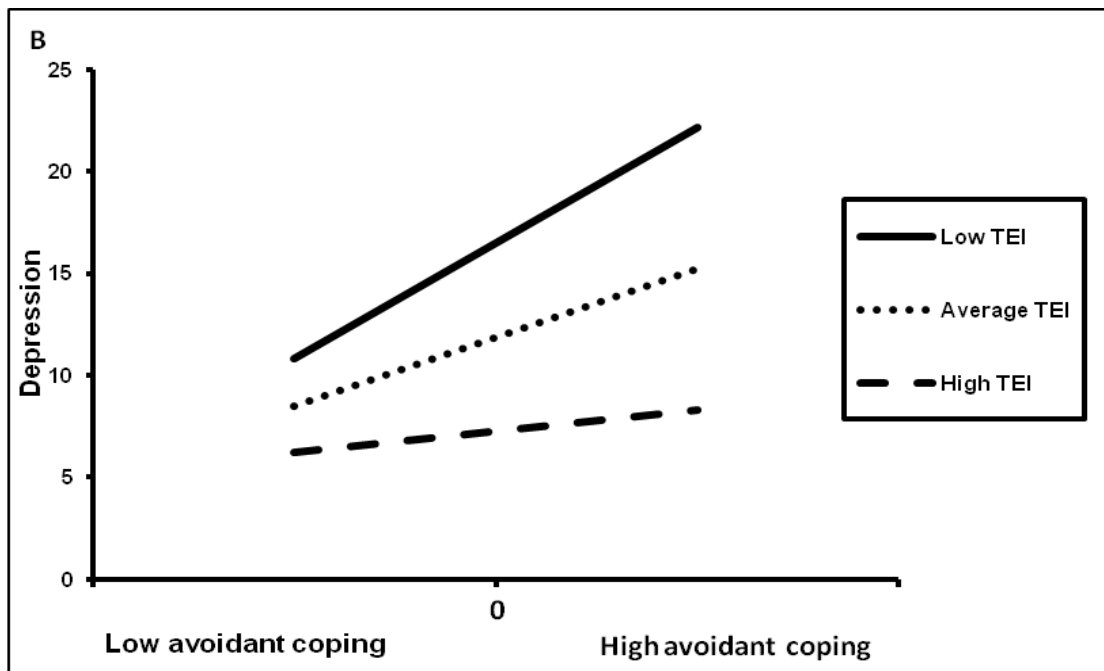
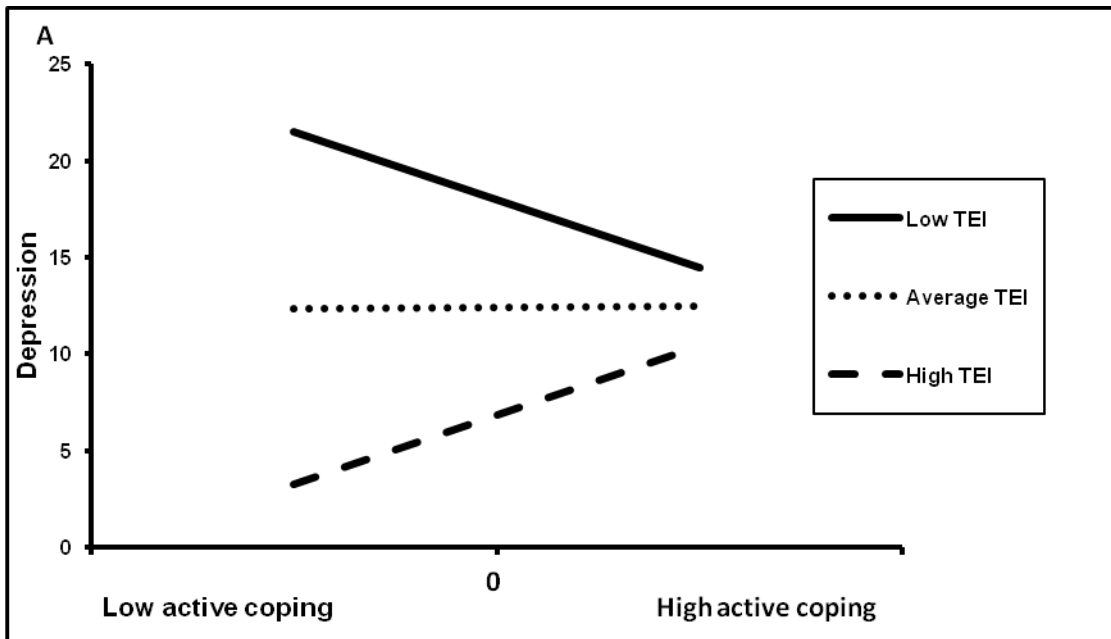


Figure 2: Data plots of simple slope interactions for (A) trait emotional intelligence (TEI) x active coping on depression and (B) trait emotional intelligence x avoidant coping on depression.

Table 1: Correlations and descriptive statistics for EI, coping and mental health variables ($N = 748$)

Variable	1	2	3	4	5	6	7	8	9	10	11	12
1. Depression	-											
2. Disruptive behaviour	.47**	-										
3. Active coping	-.05	-.12**	-									
4. Avoidant coping	.15**	-.02	.61**	-								
5. Support seeking coping	-.04	-.14**	.62**	.48**	-							
6. Trait EI	-.54**	-.36**	.23**	-.07*	.17**	-						
7. Ability EI (total)	-.05	-.15**	.12**	.03	-.08*	.17**	-					
8. AEI Perceiving emotion	-.03	-.04	.01	-.06	-.02	.06	.44**	-				
9. AEI Using emotion	-.06	-.14**	.11**	.10**	-.01	.09*	.67**	.08*	-			
10. AEI Understanding emotion	-.05	-.08**	.10**	-.01	-.14*	.19**	.84**	.31**	.37**	-		
11. AEI Managing emotion	-.01	-.14**	.10**	.03	-.06	.14**	.85**	.25**	.40**	.60**	-	
12. Age	.08*	.16**	.06	-.02	-.09*	-.01	.32**	.19**	.06	.41**	.24**	-
Mean	11.57	7.01	2.35	2.34	1.97	132.52	97.71	89.60	101.82	101.58	95.74	13.52
(SD)	(9.38)	(6.30)	(.61)	(.57)	(.65)	(20.81)	(15.07)	(17.29)	(16.18)	(14.57)	(14.48)	(1.22)

Note EI = Emotional Intelligence; AEI = ability emotional intelligence. For interpretation purposes, standardised scores for ability EI (mean = 100; standard deviation = 15) are presented.

* $p < .05$; ** $p < .001$

Table 2: The effect of ability EI on depression through active, avoidant and support seeking coping (N=748)

Note: ACT = active coping; AVD = avoidant coping; SUP = support seeking coping; DEP = depression; AEI = ability emotional intelligence. Significant specific indirect effects

Parameter (see fig. 1A)	Point est.	Total AEI		Using emotion		Understanding emotion		Managing emotion				
		Bias corrected 95% CI		Bias corrected 95% CI		Bias corrected 95% CI		Bias corrected 95% CI				
		Lower	Upper	Lower	Upper	Lower	Upper	Lower	Upper			
ACT on AEI (a_1)	.005*	.001	.008	.004*	.001	.007	.004	.000	.007	.004*	.000	.007
AVD on AEI (a_2)	.001	-.002	.004	.003	.000	.006	.000	-.004	.003	.001	-.002	.004
SUP on AEI (a_3)	-.004	-.008	.000	.000	-.004	.003	-.006**	-.010	-.003	-.003	-.007	.000
DEP on ACT (b_1)	-2.313*	-3.835	-.748	-2.547**	-4.084	-.914	-2.297*	-3.834	-.588	-2.568**	-4.058	-.937
DEP on AVD (b_2)	4.591**	3.219	5.970	4.722**	3.328	6.128	4.554**	3.100	5.973	4.612**	3.230	5.987
DEP on SUP (b_3)	-1.527*	-2.834	-.214	-1.325*	-2.629	-.027	-1.589*	-2.916	-.335	-1.313*	-2.617	-.022
DEP on AEI (c')	-.069*	-.122	-.019	-.051*	-.095	-.005	-.074*	-.134	-.014	-.039	-.086	.009
<i>Specific indirect effects</i>												
ACT (a_1b_1)	-.017*	-.025	-.003	-.010*	-.023	-.003	-.008	-.021	-.001	-.009	-.025	-.002
AVD (a_2b_2)	.008	-.009	.020	.015*	.003	.030	-.002	-.017	.015	.003	-.010	.018
SUP (a_3b_3)	.009	.000	.017	.001	-.003	.007	.010	.002	.024	.004	.000	.015
Total	.000	-.016	.015	.005	-.006	.018	.000	-.017	.016	-.002	-.018	.012
<i>Contrasts</i>												
ACT vs. AVD	-.015	-.025	-.003	-.025*	-.049	-.007	-.006	-.033	.013	-.012	-.037	.006
ACT vs. SUP	-.017**	-.009	.020	-.011*	-.021	-.004	-.018**	-.029	-.008	-.014*	-.025	-.006
AVD vs. SUP	-.001	.000	.017	.014	.000	.032	-.012	-.035	.012	-.001	-.020	.017

are in bold type. For ease of interpretation unstandardised point estimates are presented, quantified in the metric of the original variable scales (Preacher & Kelley, 2011). Specific indirect effects are free of the measurement scale of intervening variables so may be compared without standardisation/transformation (Preacher & Hayes, 2008). Standardised estimates are available from the first author on request. Confidence intervals derived from 1000 bootstrap samples.

* $p < .05$; ** $p < .001$

Table 3: The effect of ability EI on disruptive behaviour through active, avoidant and support seeking coping (N=748)

Parameter (see Fig. 1A)	Total AEI			Using emotion			Managing emotion		
	Point est.	Bias corrected 95% CI		Point est.	Bias corrected 95% CI		Point est.	Bias corrected 95% CI	
		Lower 2.5%	Upper 2.5%		Lower 2.5%	Upper 2.5%		Lower 2.5%	Upper 2.5%
ACT on AEI (a_1)	.005*	.001	.008	.004*	.001	.007	.004*	.000	.007
AVD on AEI (a_2)	.001	-.002	.004	.003*	.000	.006	.001	-.002	.004
SUP on AEI (a_3)	-.004*	-.008	.000	.000	-.004	.003	-.003	-.007	.000
DRB on ACT (b_1)	-1.253*	-2.435	-.227	-1.587*	-2.679	-.599	-1.435*	-2.492	-.483
DRB on AVD (b_2)	1.416*	.478	2.313	1.562**	.614	2.478	1.424*	.441	2.313
DRB on SUP (b_3)	-1.014*	-1.902	-.134	-.727	-1.578	.155	-.859	-1.769	-.018
DRB on AEI (c')	-.085**	-.122	-.051	-.053**	-.081	-.022	-.073**	-.107	-.043
<i>Specific indirect effects</i>									
ACT (a_1b_1)	-.006*	-.016	-.001	-.007*	-.015	-.002	-.005	-.015	-.001
AVD (a_2b_2)	.001	-.002	.008	.005	.001	.013	.001	-.003	.007
SUP (a_3b_3)	.004	.000	.012	.000	-.002	.004	.003	.000	.009
Total	.000	-.010	.008	-.001	-.007	.005	-.002	-.011	.007
<i>Contrasts</i>									
ACT vs. AVD	-.007	-.022	.000	-.011*	-.025	-.004	-.006	-.018	.001
ACT vs. SUP	-.010*	-.016	-.005	-.007*	-.014	-.002	-.008*	-.015	-.004
AVD vs. SUP	.002	-.012	.006	.005	-.001	.013	-.002	-.011	.005

Note: ACT = active coping; AVD = avoidant coping; SUP = support seeking coping; DRB = depression; AEI = ability emotional intelligence. Significant specific indirect effects are in bold type. For ease of interpretation unstandardised point estimates are presented, quantified in the metric of the original variable scales (Preacher & Kelley, 2011). Specific indirect effects are free of the measurement scale of intervening variables so may be compared without standardisation/transformation (Preacher & Hayes, 2008). Standardised estimates are available from the first author on request. Confidence intervals derived from 1000 bootstrap samples.

* $p < .05$; ** $p < .001$

Table 4: The moderating effect of trait emotional intelligence (TEI) on the relationship between coping (active, avoidant, support seeking) and depression ($N=748$)

Parameter (see Figure 1B)	Point est.	Bias corrected 95% CI	
		Lower 2.5%	Upper 2.5%
Depression on TEI (a_1)	-.241**	-.269	-.214
Depression on active coping (a_2)	.024	-1.374	1.377
Depression on avoidant coping (a_3)	1.803*	.556	3.080
Depression on support seeking coping (a_4)	-.249	-1.455	.846
TEI x active (a_5)	.087*	.028	.152
TEI x avoidant (a_6)	-.060*	-.109	-.014
TEI x support seeking (a_7)	-.013	-.060	.032

Note: As all variables were standardised prior to analysis, unstandardised beta coefficients are reported. Confidence intervals derived from 1000 bootstrap samples.

* $p < .05$; ** $p < .00$

