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Trait emotional intelligence predicts self-esteem and trait anxiety in adolescents

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Abstract

Trait anxiety and self-esteem, as indicators of well-being, have been understudied in the literature that examines the relationship between emotional intelligence and well-being in adolescent development. Anxiety and self-esteem are emotion-based factors in adolescent personality and are expected to be related to Trait Emotional Intelligence (TEI) as an adaptive emotion-based capacity. The objective of the study is to examine the unique contributions of TEI on trait anxiety and self-esteem in adolescents in the context of personality. The study involved 807 adolescents ages 16-19 from central Slovakia and examined the predictive relationship of TEI (as measured by the Trait Emotional Intelligence Questionnaire, TEIQue-ASF) separately on self-esteem and on trait anxiety after considering broad based personality (as measured by the Freiburger´s Personality Inventory, FPI) and cognitive abilities (assessed by Amthauer´s Intelligence Structure Test, IST). The results showed that TEI has strong bivariate correlations with both trait anxiety ($r=-.65$) and self-esteem ($r = .62$) that maintained significance in the regression analyses. With trait anxiety as a dependent variable the explained variance by TEIQue-ASF factors above personality traits was 6%. With self-esteem as the dependent variable TEIQue-ASF factors explained a greater amount of variance (9%) with none of the personality traits as significant. The overall findings suggest that TEI is an important factor in adolescent well-being through its associations with lower trait anxiety and higher self-esteem.
Keywords: trait emotional intelligence; self-esteem; trait anxiety; adolescents.

Resumen

La inteligencia emocional de rasgo predice la autoestima y rasgo de ansiedad en adolescentes. La ansiedad de rasgo y la autoestima, como indicadores del bienestar, han sido poco estudiadas en la literatura que examina la relación entre la inteligencia emocional y el bienestar en el desarrollo adolescente. La ansiedad y la autoestima son factores emocionales que contribuyen a la personalidad adolescente y se espera que estén relacionadas con la Inteligencia Emocional de Rasgo (IER), siendo ésta una capacidad adaptativa basada en las emociones. El objetivo de este estudio fue examinar las contribuciones únicas de la IER en la ansiedad de rasgo y la autoestima en adolescentes en el contexto de la personalidad. El estudio involucró a 807 adolescentes de entre 16 y 19 años de edad de la región central de Eslovaquia, y examinó la relación predictiva de la IER (medida por el Cuestionario de Inteligencia Emocional de Rasgo, TEIQue), en la autoestima, por un lado, y la ansiedad de rasgo, por el otro, después de considerar la personalidad de base amplia (medida por el Inventario de Personalidad de Freiburger, FPI). Los resultados mostraron que la IER correlaciona de manera robusta y bivariada tanto con la ansiedad de rasgo ($r = -.65$) como con la autoestima ($r = .62$), manteniendo su significancia en los análisis de regresión. Considerando a la ansiedad de rasgo como variable dependiente, la varianza explicada, a partir de los componentes del TEIQue y por encima de los factores de personalidad, fue del 6%. Con la autoestima como variable dependiente, los componentes de TEIQue explicaron una mayor cantidad de varianza (9%) sin que ninguno de los factores de personalidad fuera significativo. En general, los hallazgos sugieren que la IER es un factor importante en el bienestar adolescente a través de sus asociaciones con una menor ansiedad de rasgo y una mayor autoestima.
Palabras clave: inteligencia emocional de rasgo; autoestima; ansiedad de rasgo; adolescentes.

The study of emotional intelligence (EI) in adolescence is important to support personal development and well-being and to protect against psychopathology. Adolescence is a critical period for identity formation where the marked increases in emotional intensity and instability (Bailen, Green & Thompson, 2019) can lead to potential risks for social-emotional disorders (Rapee, et. al., 2019). Petrides (2009) considers EI as a set of emotion-related personality differences. Several studies and meta-analyses have found significant positive relationships between EI and well-being in adolescents (Llamas-Díaz, et. al., 2022; Salavera et al., 2020; Tejada-Gallardo, et.al., 2020; Villanueva,

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et, al., 2020). By contrast EI has inverse relationships with various indicators of psychopathology such as aggression (Castillo-Gualda, et. al., 2018; Vega, et. al., 2021) and suicidality (Dominguez-Garcia & Fernandez-Berrocal, 2018). Morales, et. al. (2017) in a Spanish sample of adolescents (*N*=1458) found that emotion-based personality factors such as low emotional stability overall and anxiety (low scores on calmness in girls) were associated with sexual risk-taking behavior.

Two important emotion-related personality variables associated with well-being in adolescent development are self-esteem and trait anxiety. Villanueva et. al. (2020) identify self-esteem as a factor of well-being and Sarkova et al. (2013) found higher self-esteem to be associated with well-being and assertiveness in adolescents (*N*=1023 aged 14.9±.51; 47.6% boys). By contrast, Garaigordobil et al. (2008) found an inverse relationship between self-esteem and psychopathology.

Anxiety is an inverse indicator of well-being (Llamas-Diaz et. al., 2022) and a major social-emotional disorder (Rapee et. al., 2019). Crocetti et al. (2009) in a study from the Netherlands (*N*=1313) found a relationship between high anxiety and difficulties with identity development in adolescents ages 10-20 years. The adverse effects of anxiety can extend beyond adolescence as found in a study by Dickson et al. (2017) noting anxiety interference with motivational processes such as more avoidance goals and less specific approach plans in university participants from the UK (*N*=231, *M*=21.38, *SD*=4.61) and USA (*N*=279, *M*=20.16, *SD*=2.03). Durbin (2019) reviewed the literature of adult and adolescent studies examining personality traits and psychopathology finding that individuals with high neuroticism (e.g., trait anxiety) were more likely to develop both internalizing and externalizing disorders. Interestingly low traits of positive emotionality also predicted psychopathology, indicating that increased positive emotionality could serve as a buffer for adolescents and adults against psychological disorders. The implication from these studies is that high levels of TEI may serve as a resiliency factor, off-setting trait anxiety, low self-esteem and their adverse associated effects.

Meta-analyses of studies with adult samples have long indicated that higher EI is related to mental and physical health (Martins et al., 2010; Schutte et al., 2007). In these analyses, TEI was a somewhat better predictor than ability-EI overall and the Trait Emotional Intelligence Questionnaire (TEIQue; Petrides, 2009) had the strongest correspondences with mental health above the other trait measures (Martins et al. 2010). In an early meta-analytic study on EI in adolescents, Resurreccion et al. (2014) found that lower EI was a predictor of adolescent psychopathology and maladaptive coping. Most of the 20 studies in this meta-analysis considered depression or adjustment as indicators of psychopathology while only three involved anxiety specifically. Of these three, only one, (Fernandez-Berrocal et al., 2006) included self-esteem as a predictive factor (Spanish sample, *N*=250; *M*=14.7; *SD* = .63 years).

A more recent meta-analysis on EI and adolescent well-being (Llamas-Diaz et. al., 2022) included 41 studies that were organized by three types of EI measures: self-reported abilities, self-reported mixed models, and performance EI. This grouping distinguishes the two major models in the field that consider EI as an ability (measured by performance measures or self-report) or as a mix of personality traits (measured by self-reports). In the analysis, self-report abilities had estimated effect sizes of .33 for indicators of affective well-being and .27 for cognitive well-being. Self-reported measures of mixed EI models (i.e. TEI) were more significant indicating effective sizes of .42 with indicators of affective well-being and .37 with cognitive well-being. Only two studies in this analysis had performance EI measures and were not notable. Within the nine studies utilizing self-report mixed EI models, Llamas-Diaz et. al., (2022) found the strongest measure to

be the TEIQue with an effective size of .46 with adolescent affective well-being. This finding with the TEIQue corresponds to the Martins et al. (2010) meta-analysis with adult studies and Resurreccion et al. (2014) meta-analysis with adolescents that also found the TEIQue as the strongest predictor compared to other EI measures.

Studies using the TEIQue found correspondences with positive and optimal developmental variables. For example, Salavera et al. (2020) found the TEIQue to predict adolescent´s well-being. Piqueras et al. (2020) found strong evidence for the TEIQue in predicting adolescent mental health accounting for 44% of the variance in measures of psychopathology including samples from Spain and Portugal. Rey et al. (2011) noted medium to strong positive significant correlations between EI, self-esteem, and life satisfaction in 316 Spanish adolescents aged from 14 to 18. These authors advocate for deeper examinations of the mechanisms of these related variables such as how self-esteem and EI may moderate positive and optimal personality development. An examination of the variable in these aforementioned adolescent EI studies as well as studies used in meta-analyses of adolescents and well-being (e.g., Llamas-Diaz et. al. 2020) indicates that self-esteem and anxiety have been less studied than depression and other well-being indicators. Kaliska and Kalisky (2016) noted how the construct of TEI "captures individual variability of emotional aspects otherwise scattered across personality theories" (p. 270). This current study examined TEI, self-esteem, and trait anxiety because of their importance in personality development, their common basis in emotional processes and to better understand the interactions of these personality mechanisms in adolescents.

The aim of this study is to identify the unique contributions of the TEIQue in the context of existing personality factors and level of intelligence. The TEIQue is used as it has been identified as the strongest predictor of mental health (Llamas-Diaz, 2020), but has been under-utilized in the current literature on adolescent´s EI. It is hypothesized that TEI will be associated with self-esteem and trait anxiety respectively as separate dependent variables, after considering anxiety and self-esteem alternately with personality factors and cognitive abilities.

Methods

Participants

The convenience sampling included 807 adolescents from five high schools ages 16 to 19 (*M*age = 17.8, *SD* = .53), from cities of Banská Bystrica, Zvolen and Lučenec, in the central region of Slovakia. There were 409 (51%) girls and 398 (49%) boys. The research sample was obtained by targeted and occasional sampling as a part of professional orientation testing during the years of 2016 to 2019 before the pandemic period. The inclusion criteria were all third-year high school students (*N*=841; in 2016: *N*=205, in 2017: *N*=198, in 2018: *N*=216, in 2019: *N*=222). The final sample covered 90% of the target population who had the written informed consent signed by their parents or themselves (18-years or older) voluntarily two weeks before testing. Almost 10% of respondents did not accept an offer from the school. The only exclusion criterion was refusal or no interest to give an informed consent.

Measures

Trait Emotional Intelligence Questionnaire-Adolescent´s Short Form. (TEIQue-ASF). TEI was assessed by the Slovak version of the *TEIQue-ASF* (Petrides, 2009) which was adapted to Slovakian conditions by Kaliská et al. (2015). The instrument consists of 30 items

Table 1. Descriptive indicators of all variables in a sample of the Slovak adolescents

		Min	Max	*M*	*SD*	Mdn	Skewness	Kurtosis
TEIQue-ASF	Global TEI	2.13	6.67	4.91	.69	4.97	-.46	-25
	Well-being	1.00	7.00	5.32	1.05	5.50	-.85	.33
	Emotionality	1.63	7.00	5.04	.88	5.13	-.40	-.00
	Self-control	1.33	7.00	4.47	.93	4.50	-.43	.08
	Sociability	1.83	7.00	4.81	.97	4.83	-.35	-.26
STAI	Trait anxiety	1.10	3.70	2.19	.48	2.15	.42	-.19
RSS	Self-esteem	1.20	4.00	2.87	.53	2.90	-.30	-.29
FPI	Nervousnes	1.00	9.00	5.30	1.74	5.00	.06	-.40
	Aggression	1.00	9.00	5.40	1.57	5.00	-.06	-.01
	Depression	1.00	9.00	5.00	1.75	5.00	.18	-.27
	Excitability	1.00	9.00	4.87	1.90	5.00	.10	-.08
	Sociability	1.00	9.00	5.38	2.38	5.00	-.08	-.99
	Calmnes	1.00	9.00	5.24	2.15	5.00	.06	-.94
	Dominance	1.00	9.00	4.73	1.92	5.00	-.07	-.30
	Inhibited	1.00	9.00	5.27	2.06	5.00	-.02	-.69
	Frankness	1.00	9.00	5.73	1.97	6.00	-.11	-.57
	Emotionality	1.00	9.00	5.61	2.26	6.00	-.22	-.98
	Neuroticism	1.00	9.00	6.01	2.00	6.00	-.12	-.83
	Masculinity	1.00	9.00	5.84	2.00	6.00	-.14	-.65
IST	Global IQ level	82	154	117.6	11.3	118.0	-.12	.05

Note: Min – minimum, Max – maximum, M – mean, SD – standard deviation, Mdn – median

answered by a seven-point Likert scale (1 – completely disagree to 7 – completely agree). Reliability estimates of internal consistency (α = .85) reaches highly acceptable values. The TEIQue-ASF is comprised of four independent factors: Well-being, Self-control, Emotionality and Sociability reaching also acceptable values ($\alpha \geq .71$).

Freiburger´s Personality Inventory (FPI). The FPI was initially developed in 1970 and later revised by Fahrenberg et al. (2010). It was originally adapted to Slovakian by Kollárik et al. (1985). FPI assesses 12 personality traits (Nervousness, Aggressiveness, Depression, Excitability, Sociability, Calm, Dominance, Inhibitedness, Frankness, Extraversion, Emotionality and Masculinity). The instrument consists of 114 dichotomous items («true» vs. «false») items where each trait comprises 10 –14 items. The inventory has been validated across various languages and populations and the subscales' internal consistencies are sufficient (α = .73 to .83; Fahrenberg et al., 2010). Reliability estimates of internal consistency (for each subtest was above $\alpha \geq .75$) reached acceptable values.

The Intelligence Structure Test (IST). IST is an intelligence test battery based on the structural model of intelligence (Amthauer, 1992) that was revised and standardized by Dočkal et al. (2017) with sufficient psychometric properties. The battery measures: Verbal intelligence (assessed by subtests: Sentence Completion /20 items/, Verbal Analogies /20 items/, Elimination /20 items/, Generalization /16 items/), Numerical intelligence (subtests: Numerical Calculations /20 items/, Number Series /20 items/) and Figural intelligence (subtests: Figure Selection /20 items/, Cubes /20 items/). The battery was administered in a class group setting for our research purpose. Reliability estimates of internal consistency reached acceptable values (for each subtest was above $\alpha \geq .78$).

Rosenberg´s Self-esteem Scale (RSS). The Rosenberg Self-esteem Scale (Rosenberg, 1965) is a 10-item self-report measure that assesses global self-esteem. It uses a 4-point Likert scale rating of positive and negative statements about one's feelings. Reliability estimates of internal consistency (α = .80) reaches highly acceptable values.

The State-Trait Anxiety Inventory (STAI, Slovakian adaptation, Muller et al., 1980) was used to measure trait anxiety. It is a 20-item

self-report measure with a 4 -point Likert scale rating of anxiety symptoms. Reliability estimates of internal consistency (α = .89) reached acceptable levels.

Procedures

The full test battery lasted up to 120 minutes. Descriptive statistics and bivariate correlation analyses were conducted followed by two 3-step hierarchical regression analyses with trait anxiety and self-esteem respectively as dependent variables.

Results

The basic descriptive statistics for the measures are listed in Table 1. Skewness and kurtosis were in a normal distribution.

Pearson's correlation coefficients (*r*) are presented in Table 2a and Table 2b. The bivariate correlations indicate that TEI was negatively correlated ($-.45 \leq r \leq -.65$) to negative emotion-based factors of personality as measured by the FPI (depression, inhibitedness and neuroticism) and positively correlated ($.43 \leq r \leq .62$) to positive emotion-based personality traits (sociability, calmness, and emotionality). Trait anxiety and self-esteem correlated with all but one (Dominance, *r* = -.07, ns) of the FPI personality traits in expected directions indicating how these major variables fit within the configuration of broad-spectrum personality traits. TEI had the strongest correlations with trait anxiety (*r* = -.65) and self-esteem (*r* = .62) compared to the other personality variables suggesting the strong emotional dimensions of the respective variables. IQ level was only minimally correlated or uncorrelated with FPI personality factors, self-esteem, trait anxiety and trait EI indicating how intellectual capacities tend to operate separately from personality traits.

The first hierarchical regression analysis (Table 3) used trait anxiety as the dependent variable with the following entered variables: self-esteem (step 1), significant personality traits (step 2), global TEI (step 3). The IQ level was not entered into the regression analysis due to the low correlation.

Table 2a. Bivariate Correlation analysis between variables

	1	2	3	4	5	6	7	8
1 Trait EI	1							
2 Trait anxiety	-.65***	1						
3 Self-esteem	.62***	-.64***	1					
4 Nervousness	-.38***	.46***	-.37***	1				
5 Aggressiveness	-.14**	.17***	-.12**	.25***	1			
6 Depression	-.55***	.61***	-.53***	.45***	.23***	1		
7 Excitability	-.28***	.35***	-.23***	.28***	.36***	.40***	1	
8 Sociability	.58***	-.38***	.34***	-.15***	.16***	-.29***	.02	1
9 Calm	.43***	-.45***	.32***	-.17***	-.03	-.37***	-.35***	.28***
10 Dominance	-.10**	.15**	-.07	.16***	.36***	.19***	.40***	.05
11 Inhibitedness	-.48***	.41***	-.36***	.29***	-.08*	.33***	.11***	-.53***
12 Frankness	-.19***	.23***	-.12**	.22***	.38***	.28***	.29***	.02
13 Emotionality	.47***	-.26***	.24***	-.06	.32***	-.15***	.15***	.86***
14 Neuroticism	-.45***	.55***	-.41***	.39***	.28***	.78***	.59***	-.17***
15 Masculinity	.42***	-.45***	.39***	-.40***	.16***	-.40***	-.09**	.41***
16 IQ level	-.07*	.10*	.01	.06	.01	.05	-.07*	-.13***

*Note: *p<.05, **p<.01, ***p<.001*

Table 2b. Bivariate correlation analysis between variables (continued)

	9	10	11	12	13	14	15
1 Trait EI							
2 Trait anxiety							
3 Self-esteem							
4 Nervousness							
5 Aggressiveness							
6 Depression							
7 Excitability							
8 Sociability							
9 Calm	1						
10 Dominance	-.19***	1					
11 Inhibitedness	-.31***	-2	1				
12 Frankness	-.13***	.25***	.07	1			
13 Emotionality	.25***	.15***	-.51***	.12***	1		
14 Neuroticism	-.44***	.27***	.26***	.41***	-.05	1	
15 Masculinity	.41***	.09**	-.56***	.05	.41***	-.30***	1
16 IQ level	.01	-.10**	.06	.07	-.12***	.04	-.03

*Note: *p<.05, **p<.01, ***p<.001*

All models were highly significant predicting together up to 60% of the variance in trait anxiety. TEI, entered on its own, was found to be a significant negative predictor of trait anxiety, over and above self-esteem and other personality traits. Trait EI predicted a significant 1% of unique variance in trait anxiety (as collinearity statistics are less than 5 suggesting independence of each variable) after controlling for other variables supporting incremental validity of TEI with remaining partial negative and significant correlation of $r = -.16$ to trait anxiety. A secondary analysis using the four TEIQue-ASF factors (well-being, emotionality, self-control, sociability) entered at Step 3 instead of global trait EI level proved to be significant ($F(13,794) = 57.48***$, *R2change* = .06). Three factors with remaining partial correlations (well-being, $r = -.23***$, self-control, $r = -.24***$, sociability, $r = .16**$) stayed significant after controlling for other variables.

The next major three-step hierarchical regression analysis was conducted with self-esteem as a dependent variable and the following entered variables: trait anxiety (step 1), significant FPI personality traits (step 2), global TEI (step 3). The IQ level was not entered into the regression analysis due to the zero correlation. The results are presented in Table 4.

The model was significant explaining up to 48% of self-esteem variance. At the final step, TEI was found to be a significant and positive correlate of self-esteem, over and above trait anxiety and the FPI personality traits predicting 5% of unique variance in self-esteem after controlling for other variables in the model with remaining partial positive and significant correlation of $r = .30$ to self-esteem. In the final step of the regression, none of the FPI personality traits were significant. In a supplemental analysis four TEIQue-ASF factors were entered at Step 3 instead of global TEI and were significant ($F(12,795) = 36.79***$, *R2change* = .09). Two factors with remaining positive correlations (well-being, $r = .33***$, and sociability, $r = .19**$) stayed significant after controlling for other variables.

Discussion

The results support the hypothesis that TEI is moderately related to both trait anxiety ($r = -.65$) and self-esteem ($r = .62$) and that these relationships maintain after accounting for broad-based personality traits. Adolescents scoring higher in TEI were more likely to report higher self-esteem and lower trait anxiety. They tended to also be

Table 3. Hierarchical Regression Analysis for Trait Anxiety as Dependent Variable

		Trait anxiety		
	Step 1	$F(1,806) = 276.25^{***}$, $R^2_{adj.} = .41$		
	Step 2	$F_{change}(9,798) = 24.11^{***}$, $R^2_{adj.} = .59$, $R^2_{change} = .20$		
	Step 3	$F_{change}(10,797) = 10.45^{***}$, $R^2_{adj.} = .60$, $R^2_{change} = .01$		
	Beta	*t*	Partial correlations	Collinearity *VIF*
Self-esteem (Step 1)	-.64	-16.62***	-.64	1.00
Self-esteem	-.33	-8.47***	-.39	1.51
Depression	.24	4.26***	.21	3.12
Neuroticism	.00	.09	.00	3.85
Nervousness	.19	5.06***	.25	1.45
Calm	-.18	-4.41***	-.22	1.59
Masculinity	-.02	-.45	-.02	1.87
Inhibitedness	.05	1.06	.05	1.78
Sociability	-.09	-2.38**	-.12	1.51
Excitability (Step 2)	.03	.60	.03	1.87
Self- esteem	-.28	-6.74***	-.32	1.76
Depression	.21	3.73***	.19	3.20
Neuroticism	.01	.08	.00	3.85
Nervousness	.17	4.37***	.22	1.51
Calm	-.16	-3.92***	-.19	1.63
Masculinity	-.03	-.61	-.03	1.87
Inhibitedness	.04	.93	.05	1.78
Sociability	-.03	-.73	-.04	1.87
Excitability	.02	.50	.03	1.87
Trait EI (Step 3)	-.17	-3.23***	-.16	2.64

Note: *p<.05, **p<.01, ***p<.001

Table 4. Hierarchical Regression Analysis – Self-esteem as Dependent Variable

		Self-esteem		
	Step 1	$F(1,806) = 276.25^{***}$, $R^2_{adj.} = .41$		
	Step 2	$F_{change}(8,799) = 3.39^{**}$, $R^2_{adj.} = .43$, $R^2_{change} = .03$		
	Step 3	$F_{change}(9,798) = 38.23^{***}$, $R^2_{adj.} = .48$, $R^2_{change} = .05$		
	Beta	*T*	Partial correlations	Collinearity *VIF*
Trait anxiety (Step 1)	-.64	-16.62***	-.64	1.00
Trait anxiety	-.47	-8.47***	-.39	2.13
Depression	-.19	-2.81**	-.14	3.16
Neuroticism	.03	.50	.03	2.99
Masculinity	-.01	-.24	-.01	1.81
Nervousness	-.06	-1.40	-.07	1.50
Inhibitedness	-.01	-.24	-.01	1.78
Sociability	.10	2.24*	.11	1.49
Calm (Step 2)	.02	.37	.02	1.59
Trait anxiety	-.37	-6.73***	-.32	2.31
Depression	-.12	-1.91	-.10	3.25
Neuroticism	.04	.58	.03	2.99
Masculinity	.01	.11	.01	1.82
Nervousness	-.02	-.338	-.02	1.55
Inhibitedness	-.00	-.02	-.00	1.79
Sociability	-.03	-.62	-.03	1.84
Calm	-.02	-.38	-.02	1.62
Trait EI (Step 3)	.35	6.18***	.30	2.47

Note: *p<.05, **p<.01, ***p<.001

more sociable, calm, and masculine, and less nervous, depressed, inhibited, and neurotic.

The close alignment of TEI with FPI personality traits is understandable and expected and likely accounts for the smaller degree of explained variance (6%) for trait anxiety by TEIQue-ASF factors. In the analysis with self-esteem as a dependent variable TEIQue-ASF factors explained more variance (9%). It is notable that none of the FPI personality variables were significant in this regression analysis suggesting that TEI captures or overlaps with most of the emotion-based personality traits (as suggested by Kaliska and Kalisky, 2016) related to self-esteem. The association of TEI and self-esteem operates predominantly through the TEIQue-ASF factors of well-being and sociability. Both of these factors were significant in predicting trait anxiety and self-esteem and reflect a general division of the personal domain (self/well-being) and interpersonal domain (others/sociability). The TEIQue-ASF factor self-control was significant where lower scores predicted higher trait anxiety. This relationship makes sense since anxiety as an emotional state requires EI capacities to be managed.

Interestingly the emotionality factor of the TEQue-ASF (whose items reflect attention to, and expression of emotions), was not significant in either of the models. This may be explained that trait anxiety is one predominant emotion and does not depend upon recognition of a range of other emotions. Self-esteem is an overall valuative quality of the self-concept of which emotions are underscored but not necessarily discrete so may not be captured by the TEIQue-ASF emotionality factor.

It is important to acknowledge several limitations. First, the sample consisted of adolescents involved in school counseling activities which may have created a bias and possibly reduce the generalizability of the findings. Second, it should be noted that while the sample was drawn from several schools all were located in central Slovakia limiting representativeness of Slovak adolescents nation-wide or adolescents in other countries. The study used a cross-sectional design so cannot infer the developmental processes of EI, anxiety and self-esteem interactions. We addressed the potential limitation of common method bias (CMB) extracted by Harman´s single factor test that reached a level of 32.05% suggesting our data is free of CMB as the recommending level is below 50% (Podsakoff et al., 2003).

The results of the study suggest that improving EI in Slovak adolescents is beneficial for positive psychosocial development as decreased anxiety and increased self-esteem are desirable personal attributes. These findings are consistent with other studies on EI and adolescents that also used the TEIQue (Piqueras et al., 2020; Salavera et al., 2020) as well as other trait EI measures (Guerra-Bustamante et al., 2019; Llamas-Diaz, et. al. 2022) and had correspondences with well-being and positive psychosocial factors.

The importance of peer groups for adolescents is well known (i.e. Rapee et. al., 2019) and thus adolescents high on the TEI factor sociability will likely have better self-esteem and lower anxiety. Self-control is critical for all individuals, but would be a particularly beneficial resiliency factor to develop for those high in trait anxiety. As suggested by Villanueva et. al., (2020) developing better clarity about emotions is a significant mechanism for developing EI and can serve as an essential aspect of interventions. In a 3-year longitudinal experimental design study with 476 Spanish adolescents Castillo-Gualda et. el. (2018) found improved psychosocial variables (i.e. decreased aggression) through the reduction of negative affect. Drawing on implications of Durbin's (2019) review, increasing positive emotionality can protect against depression, stress and other psychopathologies.

Schools are ideal settings for developing EI since adolescents spend a large amount of time there, activities are designed and struc-

tured for learning, and there are ample opportunities for social (and emotional) exchanges with peers. School-based social-emotional learning (SEL) programs (e.g., Brackett et al., 2012) that teach EI capacities and involve coordination and collaboration of various school personnel are essential in order to integrate EI into the broader context of adolescents' overall social and personal development. Future research might examine the efficacy of such SEL curricula on adolescent well-being.

Conflicts of interest

The authors declare that they have no conflict of interest.

Compliance with ethical standards

All procedures performed in studies involving human participants were in accordance with ethical standards of the institutional research committee and with the 1964 Helsinki Declaration and its later amendments or comparable ethical standards.

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