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Trait emotional intelligence and adolescent psychological well-being: a systematic review

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ABSTRACT

Trait emotional intelligence (trait EI) has a protective role in adolescence, linked to better well-being and social interactions. However, research on these topics with adolescent samples is limited and has not yet been systematized in the field. The present work aims to scrutinize the extant trait EI literature and adolescent psychological well-being. Since operationalization is crucial for any EI model, the review focused on studies that used the adolescent forms of the Trait Emotional Intelligence Questionnaire (TEIQue). A search conducted in EBSCO Essentials, Google Scholar, Scopus, Web of Science, and Psyc Articles in October 2023 identified 34 articles. Findings are discussed under five subsections: gender differences, psychological constructs, parental relations, scholastic constructs, and practice-oriented topics. The review corroborates the protective role of trait EI in adolescent psychological well-being. Future studies should aspire to extend research in cross-cultural settings with more rigorous designs.

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KEYWORDS

Trait emotional intelligence; trait emotional self-efficacy; TEIQue; adolescence; youth; well-being

Introduction

The concept of emotional intelligence (EI) has been the subject of research for three decades, during which time various conceptualizations have been proposed and measures have been developed. In essence, there are two main models of EI, ability EI and trait EI, and the latter is our focus in this paper. Although research on EI is burgeoning, adolescents remain an understudied population. Given that adolescence is a pivotal developmental stage when indicators of lifelong well-being undergo significant modification (Ross et al., 2020), it's crucial to investigate concepts that could bolster adolescent psychological well-being, such as trait EI. Recognizing the importance of distinguishing between EI models and the paucity of research on adolescent samples, our objective was to illuminate the existing international evidence. To this end, we conducted a systematic literature review grounded in a specific classification of adolescence – Bloss' classification – and focused on a leading EI model: Trait emotional intelligence. Our aim was to discern prevailing trends and gaps in this field, providing a roadmap for future research.

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Table 1. The sampling domain of trait emotional intelligence in adults and adolescents.

Trait EI variables	High scorers perceive themselves as ...
Well-being	
<i>Self-esteem</i>	... successful and self-confident.
<i>Trait happiness</i>	... cheerful and satisfied with their lives.
<i>Trait optimism</i>	... confident and likely to 'look on the bright side' of life.
Self-control	
<i>Emotion regulation</i>	... capable of controlling their emotions.
<i>Stress management</i>	... capable of withstanding pressure and regulating stress.
<i>Impulse control</i>	... reflective and less likely to give into their urges.
Emotionality	
<i>Emotion Perception (self and others)</i>	... clear about their own and other people's feelings.
<i>Emotion expression</i>	... capable of communicating their feelings to others.
<i>Relationships</i>	... capable of having fulfilling personal relationships.
<i>Empathy</i>	... capable of taking someone else's perspective.
Sociability	
<i>Social awareness</i>	... accomplished networkers with excellent social skills.
<i>Emotion management (others)</i>	... capable of influencing other people's feelings.
<i>Assertiveness</i>	... forthright, frank, and willing to stand up for their rights.
Auxiliary facets^a	
<i>Adaptability</i>	... flexible and willing to adapt to new conditions.
<i>Self-motivation</i>	... driven and unlikely to give up in the face of adversity.
Global trait EI	

Note. Table above is adapted from 'Theory and Applications of Trait Emotional Intelligence' by Petrides and Mavroveli (2018), *Journal of the Hellenic Psychological Society*, 23(1), pp. 24–36 (https://doi.org/10.12681/psy_hps.23016).

^aThese facets are not keyed to any factor, but feed directly into the global trait EI score.

Trait EI

Trait emotional intelligence (trait EI), also labelled trait emotional self-efficacy, is defined as a constellation of emotion-related perceptions and dispositions, assessed through self-report (Petrides et al., 2007). The construct is seen as part of the general personality framework (Petrides & Furnham, 2000; van Der Linden et al., 2017). The sampling domain of trait EI, in adults and adolescents, comprises 15 specific facets that are mainly grouped under four broad factors (Well-being, Self-control, Emotionality, Sociability) as a comprehensive representation of affective aspects of personality (see Table 1).

Research has located this new construct within personality factor space defined by measures of the Big Five and Giant Three personality dimensions (Alegre et al., 2019; Petrides et al., 2007; Russo et al., 2012). Trait EI shows strong correlations with neuroticism (negatively) and extraversion (positively), and these two traits are significantly associated with the Well-being and Sociability factors of trait EI (Pérez-González & Sanchez-Ruiz, 2014; Petrides & Mavroveli, 2018). Multiple studies have provided clear evidence for the discriminant, criterion, and incremental validity of trait EI (Petrides et al., 2016). Furthermore, research shows that trait EI is largely independent of cognitive ability as operationalized via intelligent quotient tests (Agnoli et al., 2012; Russo et al., 2012).

A growing body of research on trait EI shows that it has important applications across a wide variety of settings. These include clinical applications such as direct and indirect effects of trait EI on psychopathology (Petrides et al., 2017), educational applications regarding academic behaviour and achievement (Petrides et al., 2018), career-related applications as well as research with many professional groups like surgeons (Petrides et al., 2022).

Trait EI in adolescence

Adolescence is roughly defined as the transitional period between childhood and adulthood. It starts with the onset of puberty in which the body undergoes rapid changes (i.e. in size, strength and voice; development of primary and secondary sexual organs; Diem-Wille, 2021). These physical changes trigger and escalate emotional and mental conflicts (Blos, 1962; Viner, 2015). The definitions and

categorizations of adolescence vary widely in the literature. In terms of age ranges, different psychologists have proposed different classifications (e.g. Arnett, 2006; Sacco, 2013). Furthermore, cultural and societal conditions have also defined different age intervals (Diem-Wille, 2021). The categorization of adolescence proposed by Peter Blos was followed within this systematic review, as it is based on a comprehensive psychoanalytic perspective that specifically addresses the psychodynamic features of each developmental stage with reference to personality (Blos, 1962). In summary, Blos (1962) identified six developmental phases and placed the core of adolescence between the ages of 13/14 and 20 (early to late adolescence). Accordingly, for the purposes of this systematic review, we considered 13–20 years as the target age range.

Adolescence is a critical time during which many factors affecting lifelong well-being are either consolidated or not (Ross et al., 2020). That is, the experiences throughout the turbulent years of adolescence directly affect adulthood and the later stages of life. For instance, several mental health problems (e.g. anxiety and impulse-control disorders) show their onset at the earlier stages of life, in childhood and adolescence, and may extend to a person's entire lifetime if left untreated (Kessler et al., 2005). Therefore, it is important to investigate the role of trait EI in adolescents given its demonstrable impact on well-being indicators (Petrides & Mavroveli, 2018).

Much of adolescence is associated with positive changes, such as a psychologically integrated physical development, and enhanced cognitive abilities and socialization. Yet, adolescents are also likely to show vulnerability in many areas, like risk-taking (Steinberg, 2005), mental disorders (Giedd, 2015), poor decision-making, and weak emotional control (Stortelder & Ploegmakers-Burg, 2022). Additionally, the prolonged period of adolescence poses other significant concerns like antisocial behaviour, truancy, precocious sexual activity, lower self-image, and emotional problems (Stortelder & Ploegmakers-Burg, 2022).

Research has shown that trait EI can play a protective role in emotional dysregulation in adolescence, as it has been linked to better well-being and social interactions (Andrei et al., 2014; Kokkinos & Kipritsi, 2012). Adolescents with higher trait EI tend to show less anxiety and depression symptomatology (Gardner & Lambert, 2019) and greater emotional stability (Andrei et al., 2014). Trait EI is also positively associated with active coping (Davis & Humphrey, 2012), stress reduction (Mikolajczak & Luminet, 2008), peer relations and socioemotional competence (Frederickson et al., 2012). In contrast, it is negatively associated with maladaptive behaviour, such as bullying (Kokkinos & Kipritsi, 2012), and deviant behaviour (e.g. truancy and unruliness) at school (Petrides et al., 2004).

Measuring trait EI in adolescents: the TEIQue-adolescent full/short form

Among several widely researched measures of EI, both for ability and trait models, the Trait Emotional Intelligence Questionnaire (TEIQue) developed by Petrides (2001, 2009) is the main operationalization vehicle for trait EI, because it offers a direct route to the underlying theory and provides comprehensive coverage of the trait EI sampling domain (Petrides & Mavroveli, 2018). The full form of the TEIQue comprises 153 items that are clustered into 15 facets, four factors, and a global trait EI score (Table 1). The instrument has exceptionally strong construct validity (Cooper & Petrides, 2010) and has been used in a variety of applied contexts globally (O'Connor et al., 2019).

TEIQue has two versions which are specifically designed for adolescent respondents: TEIQue-adolescent full (AFF)/short (ASF) form. The sampling domain of trait EI is the same for adolescents and adults. Accordingly, TEIQue-AFF (Petrides, 2009) is derived from the original TEIQue and comprises 153 statements, while the TEIQue-ASF is the shortened version with 30 items. Respondents evaluate the items on a Likert scale ranging from 1 (completely disagree) to 7 (completely agree). Studies provide supporting evidence on the internal consistency (Davis & Humphrey, 2012) and incremental validity of TEIQue adolescent forms (Andrei et al., 2014; Siegling et al., 2017).

Aims and relevance of the present study

Given the developmental significance of adolescence and the potential protective role of trait EI for adolescents, the present review aims to offer a systematic analysis of studies investigating the role of trait EI in adolescent well-being. Most research on trait EI and well-being has focused on adult samples, with a limited number of studies on adolescents (Prado Gascó et al., 2018). In addition to adolescents being an understudied population regarding this topic, the definition of EI and adolescence vary across the literature. To be specific in our search criteria, we aimed to gather studies focusing on trait EI in adolescents who are between the age range of 13 to 20. By summarizing and appraising the related high-quality research studies according to an evidence-based method, our purpose was to provide coherent answers to this question: What is the current knowledge about trait EI, as assessed by the TEIQue-AFF/TEIQue-ASF in adolescents between the ages of 13 and 20, as a protective factor for their psychological well-being? The review question was formulated using PICO components.¹ Furthermore, this review also aimed to examine the effectiveness of the TEIQue adolescent forms in predicting adolescent trait EI. We hypothesized that (1) trait EI would contribute to adolescent well-being both intra- and inter-personally; (2) TEIQue adolescent forms would successfully predict adolescent well-being concepts.

Methods

This systematic review was guided by the standards set forth in the 2020 statement Preferred Reporting Items for Systematic Review and Meta-Analysis (PRISMA 2020) (Page et al., 2021).

Information sources

Searches were performed in EBSCO Essentials, Google Scholar, Scopus, Web of Science, and Psyc Articles in March 2022 first, and then updated on October 2023, using the following keywords: *trait emotional intelligence, adolescen**, *trait emotional intelligence questionnaire, TEIQue-AF, TEIQue-AFF, TEIQue-ASF*.

Eligibility criteria

The eligibility criteria for the search strategy and study selection were strictly defined prior to the search.

Inclusion criteria

The inclusion criteria for the search strategy were: articles published in (a) English, (b) peer-reviewed journals, (c) between the years 2001 and 2023; this is because all forms of TEIQue, except for the child form that was introduced subsequently, have been available since 2001 (Petrides, 2001, 2009). The inclusion criteria for the study selection were: (a) adolescent age range (i.e. 13–20), (b) TEIQue-AFF or -ASF as the measure of trait EI, (c) the topic being in line with well-being indicators (e.g. adolescent trait EI and health; school life; peer and family relations).

Exclusion criteria

Studies were excluded if their publication was not in line with the search criteria. Moreover, studies where participants were adolescents but in a different age range, such as 11–18, were excluded, since ages 11 and 12 are not in the developmental category being investigated. Some studies did not report age range, but rather their education level. In these cases, further scrutiny was applied to ensure that the samples satisfied the age criterion, given that age in different education levels may vary between different school systems. Studies administering

the adult or child versions of TEIQue were excluded. Finally, studies with a focus other than adolescent psychological well-being (e.g. EFL learners' linguistic performance) were also excluded.

Search strategy and study selection

Firstly, as the study was explicitly designed to focus on trait EI, the term *trait emotional intelligence* formed a core component of the search criteria. Secondly, *adolescen** was added to detect the main population of interest and the developmental stage to be studied: adolescent(s) and adolescence. Lastly, *trait emotional intelligence questionnaire*, and in a couple of databases – Google Scholar and Scopus, specifically *TEIQue-AF*, *TEIQue-AFF*, *TEIQue-ASF* were added to the search terms throughout the text (i.e. beyond the title and abstract). This small modification on the last search term concerning the questionnaire is made due to the differences in the available search options of different databases. Despite our focus on adolescent psychological well-being, the term *psychological well-being* was not included in the search because an initial informal search that included this term had yielded a very small number of records. Also, as several variables could play a role in an adolescent's psychological well-being (e.g. family/peers relationships, academic achievement, school burnout etc.), the search was conducted without the term 'psychological well-being' in order to broaden its results. Further evaluation based on the eligibility criteria was carried out during the data extraction process (as shown in [Figure 1](#)).

Data extraction

The database search identified 438 potentially eligible studies. Duplicate records (70) were initially deleted using *Zotero 6.0.27* (Corporation for Digital Scholarship, 2006) and the remaining (368) were screened in three steps using *Rayyan* (Ouzzani et al., 2016) (see [Figure 1](#)). The first step was based on the search criteria. Papers that were not in English, not published between the years 2001 and 2023 and that were not articles from peer-reviewed journals (e.g. dissertations, book chapters) were excluded (114). In the second step, reports (254) were screened based on the selection criteria. Authors were contacted for ambiguous and/or missing information (e.g. regarding the age range/education level and translated forms). Lastly, the remaining reports (74) were screened for eligibility, resulting in 40 papers being eliminated. Such papers were excluded due to being focused on subject-matter other than adolescent psychological well-being and due to their design being ambiguous (e.g. failure to state an exact age range, e.g. 'sophomore students', which could include students starting university at the age of 35). Papers not eliminated in previous steps were excluded at this stage based on the relevant selection criteria (see [Figure 1](#) for details). As a result of these exclusions, 34 studies satisfying all the inclusion criteria were reviewed as part of this work ([Table 2](#)). The first and second authors collaboratively screened the search results for the eligibility.

Organization of the results

The results of the literature review are organized in [Table 2](#). The findings are discussed in five sub-categories based on the topics of the studies reviewed: (1) gender differences, (2) psychological constructs (e.g. depression, self-esteem, delinquent behaviour), (3) parental relations (e.g. parenting styles, parental support), (4) scholastic constructs (e.g. school burnout, academic achievement), and (5) practice-oriented topics (e.g. practices to improve the adolescent EI or to reduce the disruptive behaviour). The division into subcategories intends to provide a clearer view of the results. The subcategories are in line with the literature on adolescent well-being (Amholt et al., 2020; Cobb-Clark & Tekin, 2014; Korhonen et al., 2012; McFarlane et al., 1995; McLeod et al., 2012; Sarkova et al., 2013; van Der Graaff et al., 2012).

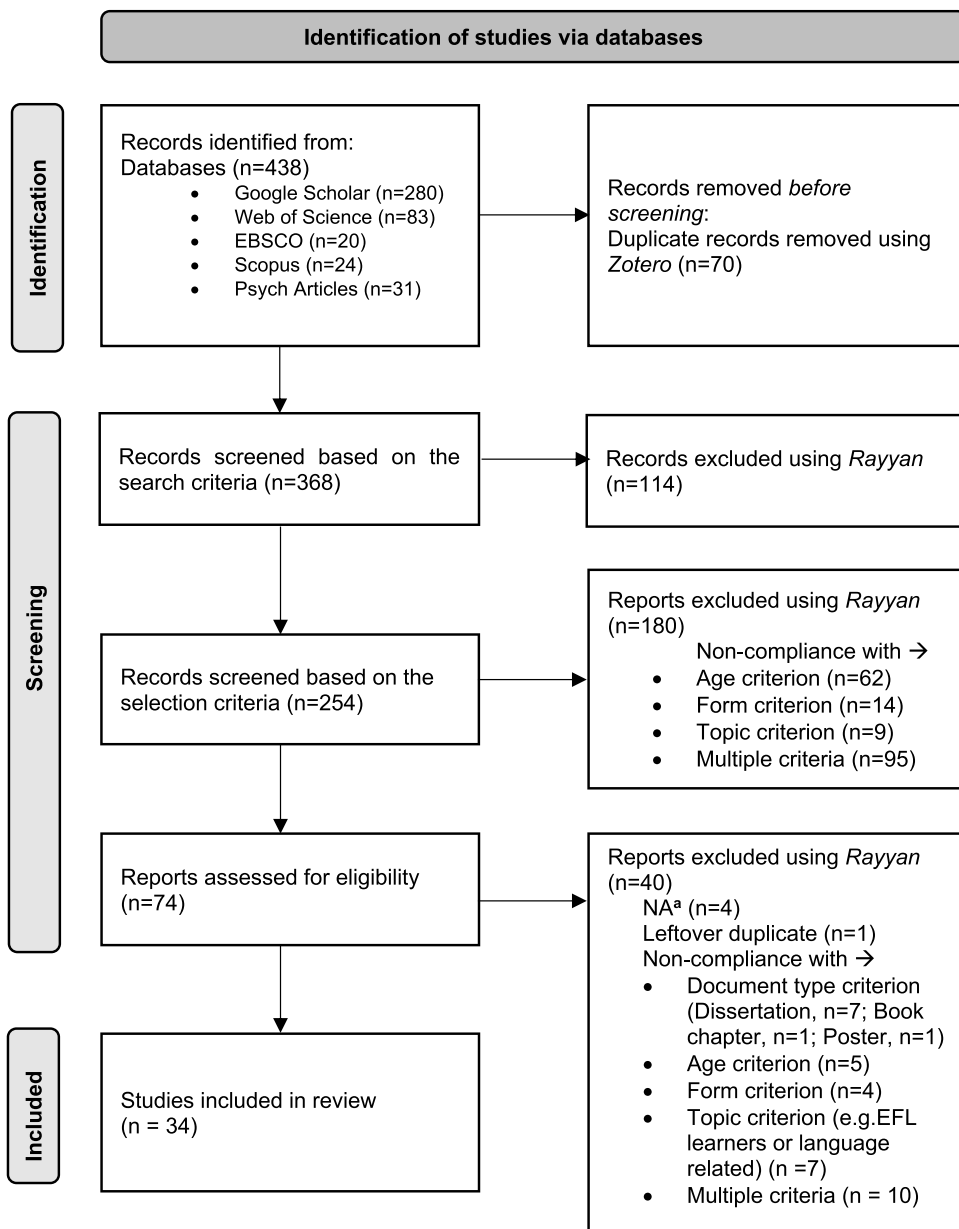


Figure 1. PRISMA 2020 flow diagram of studies included in this systematic literature review. Note. **a** NA = Not available. These reports were excluded because there was no access to them.

Results

Gender differences

Among the reviewed literature, only the paper by Chohan and Habib (2020) exclusively assessed gender differences in adolescent trait EI, concluding that there were no significant gender differences.

While several studies (Cejudo et al., 2019; Gugliandolo et al., 2020; Nyarko et al., 2020) echoed this conclusion, other findings indicated that boys outscored girls, especially on the Self-Control factor of

Table 2. Summary of the studies.

Study	TEIQUE (AFF / ASF)	Design	Sample Description (female, M _{age})	Focus of Study	Statistical Analysis	Summary of Findings	Statistics
Antoniou et al. (2016) <i>The relationship between trait EI and vocational interests of Greek 10th and 11th grade students.</i>	ASF	Cross-sectional	261 adolescents (53.3% female, Greek 10-11 th graders ¹)	Trait EI in adolescents and their vocational interests	T-tests, one-way ANOVAs	Trait EI showed low but significant positive correlations with several RIASEC categories (measured with Self-Directed Search (Holland, 1994) composed of 4 scales: Activities, Competencies, Occupations, Self-estimates).	For the Competencies scale → r = .13* (R: realistic) r = .27*** (I: investigative) r = .05 (A: artistic) r = .15* (S: social) r = .31*** (E: enterprising) r = .14* (C: conventional)
Argyriou et al. (2016) <i>Parenting styles and trait EI in adolescence.</i>	ASF	Cross-sectional	127 adolescents (42.2% female, M _{age} =16.4)	Parenting styles and trait EI in adolescents	Pearson correlation, t-test, mixed effect linear regression model	Trait EI was positively correlated with authoritarianism, and negatively correlated with authoritarianism and permissiveness.	r = .43*** (authoritativeness) r = -.31*** (authoritarianism) r = .11 (permissiveness)
Barberis et al. (2021) <i>How parental autonomy support prevent from adolescents' depression and low self-esteem: A mediational model with trait EI.</i>	ASF	Cross-sectional	283 adolescents (56.1% female, M _{age} =15.53)	Parental autonomy support and trait EI in adolescents	Structural equation modelling (SEM)	Trait EI was predicted by the parental (both maternal and paternal, though in different ways) autonomy support.	$\chi^2(7) = 5.35$; p = .62, CFI = 1.00, RMSEA = 0 (maternal model) $\chi^2(6) = 7.20$; p = .30, CFI = 1.00, RMSEA = .03 (paternal model)
Cejudo et al. (2019) <i>Effectiveness of the videogame "Spock" for the improvement of the EI on psychosocial adjustment in adolescents.</i>	ASF	Experimental	92 adolescents (51.1% female, age range: 17-18)	Effectiveness of the videogame "Spock" for the improvement of EI in adolescents	ANOVAs, ANCOVA	Trait EI was significantly improved after the intervention –videogame, though the effect size was small.	F _{1,9} = 2.00, Cohen's d = .13 (Pre-test) F _{1,9} = 3.27* , Cohen's d = .33 (Post-test)

(Continued)



Table 2. (Continued).

Study	TEIQue (AFF / ASF)	Design	Sample Description (female, M_{age})	Focus of Study	Statistical Analysis	Summary of Findings	Statistics
Chakraborty (2016) <i>Influence of academic motivation on academic achievement and emotional intelligence in secondary school students.</i>	ASF	Cross-sectional	49 adolescents (51% female, Indian 8-9 th graders ⁵)	Influence of academic motivation on academic achievement and EI in adolescents	Pearson correlation, t-test	Trait EI and academic achievement relationship is influenced by academic motivation of adolescents.	$t(46) = 1.9018$
Chen (2019) <i>Chinese adolescents' EI, perceived social support, and resilience—the impact of school type selection</i>	ASF	Cross-sectional	493 adolescents (49.5% female, $M_{age} = 13.9$)	The relationship between trait EI, perceived social support, resilience, and their impact on school choice	Moderation analysis	Trait EI and resilience relationship were enhanced by the perceived social support from friends (but not from family).	$t(489) = 2.31^*$, 95% CI (.01; .06), $R^2 = .60$, $F(3,489) = 243.04^{***}$
Chohan and Habib (2020) <i>A gender-based comparison: EI in adolescents.</i>	ASF	Cross-sectional	600 adolescents (50% female, $M_{age} = 14$)	Gender differences in adolescents' level of trait EI	t-test	Trait EI did not significantly differ among boys and girls.	$t(598) = 1.517$ $M = 139.64$, $SD = 17.56$ (Boys) $M = 141.95$, $SD = 19.67$ (Girls)
Delhaye et al. (2013) <i>Attachment and socio-emotional skills: a comparison of depressed inpatients, institutionalized delinquents and control adolescents: adolescent depression and delinquency.</i>	ASF	Cross-sectional	152 adolescents (50.6% female, age range: 14.7-18.8)	Attachment, socio-emotional skills in adolescents	Correlational analyses, One-way ANOVA	Trait EI showed a positive correlation with secure attachment and a negative correlation with insecure attachment types.	$r = .43^{***}$ (secure) $r = -.26^{**}$ (detached) $r = -.40^{***}$ (preoccupied)
Farina et al. (2021) <i>Trait EI and school burnout discriminate between high and low alexithymic profiles: A study with female adolescents.</i>	ASF	Cross-sectional	884 adolescents (100% female, $M_{age} = 16.2$)	Trait EI in adolescents and school burn-out on high and low alexithymic profiles	Cluster analysis, discriminant analysis, MANOVA	Trait EI was negatively associated with alexithymia.	$r = -.635^{***}$
Fiorilli et al. (2020) <i>Trait EI and school burnout: the mediating role of resilience and academic anxiety in high school.</i>	ASF	Cross-sectional	1235 adolescents (77.89% female, $M_{age} = 15.46$)	Trait EI in adolescents and school burnout: the mediating role of resilience and academic anxiety	Correlational analysis, SEM	Trait EI did not predict school burnout but has an indirect effect on school burnout.	$\chi^2(56) = 375.62$, CFI = .95, RMSEA = .07 $b = .25$, 95% CI: (-.30; .92), $\beta = .06$

(Continued)

Table 2. (Continued).

Study	TEIQUE (AFF / ASF)	Design	Sample Description (female, M _{age})	Focus of Study	Statistical Analysis	Summary of Findings	Statistics
Gugliandolo et al. (2015a) <i>Trait EI as mediator between psychological control and behaviour problems.</i>	AFF	Cross-sectional	260 adolescents (48.84% female, age range: 13-17)	Trait EI in adolescents, parental psychological control, and behaviour problems	Pearson correlations, SEM	Trait EI (1) was negatively correlated with parental control, internalizing and externalizing problems (2) fully mediated the relationship between psychological control and internalizing problems.	(1) $r = -.32^{**}$ (maternal control) $r = -.21^{**}$ (paternal control) $r = -.21^{**}$ (internalizing problems) $r = -.24^{**}$ (externalizing problems)
Gugliandolo et al. (2020) <i>Adolescents and body uneasiness: the contribution of supportive parenting and trait EI.</i>	AFF	Cross-sectional	405 adolescents (62.46% female, age range: 14-19)	Trait EI and supportive parenting in adolescents' body uneasiness	ANCOVA, MANCOVA, SEM	Trait EI (1) predicted body uneasiness negatively (2) showed a mediational effect on the relation between parental autonomy support and body uneasiness.	(2) $\chi^2(86) = 181.2$, CFI = .91, RMSEA = .06 $\chi^2(24) = 33.26$, R- CFI = .99, R-RMSEA = .031 (1) $b = -.66$, 95% CIs [-.82, -.51], $\beta = -.40^{***}$
Gugliandolo et al. (2015b) <i>Trait EI and behavioral problems among adolescents: A cross-informant design.</i>	AFF	Cross-informant	263 adolescents (49.42% female, age range: 13-17)	Behavioural problems and adolescent self and parental ratings of trait EI	Doubly MANOVA	Trait EI was negatively correlated with behavioural problems both in adolescents' self-ratings and parents' ratings.	(2) $b = -.07$, 95% CIs [-.11; -.03], $\beta = -.09^{***}$ (paternal model); $b = -.08$, 95% CIs [-.12; -.04], $\beta = -.11^{***}$ (maternal model)
Hafeez and Habib (2021) <i>Perceived paternal acceptance as predictor of EI in adolescents.</i>	ASF	Cross-sectional	600 adolescents (50% female, M _{age} =14)	Trait EI in adolescents and perceived paternal acceptance	Linear regression	Trait EI was significantly predicted by paternal acceptance-rejection.	$R^2 = .28$, $F = 17.26$, $r = .16^*$

(Continued)

Table 2. (Continued).

Study	TEIQUE (AFF / ASF)	Design	Sample Description (female, M_{age})	Focus of Study	Statistical Analysis	Summary of Findings	Statistics
Kaliská (2015) <i>Three types of intelligences and their relationship to students' school performance</i>	AFF	Cross-sectional	169 adolescents (? % female, Slovak secondary school 3 rd and 4 th graders [†])	Trait EI, Social Intelligence, and General Intelligence in relation to school performance in adolescents	Spearman's non-parametric correlation analysis	Trait EI and social intelligence showed weak-to-zero correlations with grades in Math and Slovak Language lessons.	$-0.29^{**} \leq r \leq .01$
Kokkinos and Viavianou (2021) <i>The moderating role of EI in the association between parenting practices and academic achievement among adolescents.</i>	ASF	Cross-sectional	250 adolescents (56.8% female, $M_{age}=16$)	Parenting practices, trait EI and academic achievement of adolescents	t-tests, Pearson correlations, Moderation analyses	Trait EI (1) was positively correlated with overall achievement (OA) and science achievement (SA) (2) moderated the effect of parents' involvement on language achievement.	(1) $r = .24^{**}$ (OA), $r = .24^{**}$ (SA) (2) $b = .39$, $SE = 0.19$ 95% CIs [.02, .76], $t = 2.06^*$
Lea et al. (2023) <i>Do emotionally intelligent adolescents flourish or flounder under pressure? Linking emotional intelligence to stress regulation mechanisms.</i>	ASF	Experimental	Study 1: 58 adolescents (%82.7 female, age range: 16-18) Study 2: 60 adolescents (%71.4 female, age range: 16-18)	If and How, (different types of EI contributes to stress regulation in adolescence	Hierarchical regressions, exploratory analyses	Study 1: Trait EI (1) factor Sociability predicted the physiological stress reactivity (i.e. heart rate increase) when exposed to a potent social stressor (2) did not predict any psychological stress reactivity (i.e. negative affect) significantly. Study 2: (3) Trait EI factor Self-control was associated (only on reaction time data, not on eye tracking data) with early attentional allocation (generalised avoidance of sad faces).	(1) $\beta = .965^{**}$
Mancini et al. (2017) <i>Trait EI, peer nominations, and scholastic achievement in adolescence.</i>	AFF	Cross-sectional	321 adolescents (50.4% female, $M_{age}=15.5$)	Trait EI, peer nominations, and scholastic achievement in adolescence	Pearson correlations, multiple regression, social network analysis	Trait EI was positively correlated with students' grades in literature but not in math.	$r = .19^{**}$ (literature) $r = .09$ (math)

(Continued)

Table 2. (Continued).

Study	TEIQUE (AFF / ASF)	Design	Sample Description (female, M_{age})	Focus of Study	Statistical Analysis	Summary of Findings	Statistics
McIlwain et al. (2015) <i>Piloting yoga and assessing outcomes in a residential behavioural health unit: piloting yoga in a residential behavioural health unit.</i>	ASF	Single cohort	22 adolescents (64% female, $M_{age}=15$)	Trait EI and yoga as a behavioural intervention in inpatient adolescents	t-test, repeated measures ANOVA, simple linear regressions	Trait EI scores increased over 8 weeks of time in yoga.	$F(2, 48) = 52.08$ $= 4.83^*$
Messanga et al. (2021) <i>Effect of EI on sensitivity to stereotype threat among girls learning to play football.</i>	ASF	Experimental	61 adolescents (100% female, $M_{age}=14.98$)	Protective role of EI against stereotype threat	ANOVA	Trait EI was not found to be protective against sensitivity to stereotype threat.	$f(1, 61) = 6.79$ $\eta^2 = .98$ $p = .135$ $t = .63$ $p = .532$
Mikolajczak et al. (2009) <i>Adolescents choosing self-harm as an emotion regulation strategy: The protective role of trait EI.</i>	ASF	Cross-sectional	490 adolescents (57.3% female, $M_{age}=16.65$)	Trait EI and self-harm as an emotion regulation strategy in adolescents	Pearson correlations, mediation analyses	Trait EI (1) was negatively correlated with self-harm in adolescence (2) and self-harm was partially mediated by the choice of coping strategies (adaptive/maladaptive)	(1) $r = -.31^{***}$ (2) $z = -.002^{**}$
Milojević et al. (2016) <i>Bad past, gloomy future: The trait EI profile of juvenile offenders.</i>	AFF	Causal-comparative	99 adolescents (0% female, 45 juvenile offenders, $M_{age}=16.44$, 54 adolescents from general population, $M_{age}=14.24$)	Trait EI profile of juvenile offenders	ANCOVAs	Trait EI and its 3 (out of 4) factors (except Sociability) were lower for the delinquent group of adolescents – juvenile offenders.	$F = 15.11^{***}$, Cohen's $d = .97$ (Global trait EI) $M = 4.39$, $SD = .47$ (delinquent group) $M = 4.78$, $SD = .56$ (control group)
Mohammadi and Firoozī (2016) <i>The relationship between parenting styles and happiness with the mediating role of emotional intelligence.</i>	ASF	Cross-sectional	345 adolescents (? % female, Iranian high school students ⁵)	The role of EI in the relationship between parenting styles and happiness	Concurrent regression analysis	Trait EI facets Self-awareness and Optimism mediated the relationship between authoritarian and authoritative parenting styles and happiness.	$\beta = .19$ (Self-awareness) $\beta = .13$ (Optimism)

(Continued)

Table 2. (Continued).

Study	TEIQue (AFF / ASF)	Design	Sample Description (female, M _{age})	Focus of Study	Statistical Analysis	Summary of Findings	Statistics
Mumtaz et al. (2023) <i>Family structure as determinant of emotional intelligence of adolescents</i>	ASF	Cross-sectional	400 adolescents (? % female, M _{age} =14.49)	Family structure (joint vs. nuclear) as determinant of EI in adolescents	Linear regression, t-tests	Trait EI did not differ in adolescents from joint and nuclear families.	p = .029 Cohen's d = .110
Nagamitsu et al. (2022) <i>Adolescent health promotion interventions using well-care visits and a smartphone cognitive behavioral therapy app: randomized controlled trial.</i>	ASF	Randomized controlled trial	211 adolescents (62.1% female, age range: 16-20)	Effectiveness of the two adolescent health promotion interventions (i.e., well-care visits with risk assessment interview and self-monitoring with smartphone cognitive behavioural therapy app called <i>Mugimaru</i>)	Mixed effect models, serial correlation of repeated measures	Trait EI scores showed that the cognitive behavioural therapy app was significantly (but temporarily) effective in improving depressive symptoms in adolescents.	r = .31**
Nayak and Rath (2018) <i>Role of emotional intelligence in psychogenic needs, psychache and loneliness of orphans.</i>	ASF	Cross-sectional	200 adolescents (10% female, age range: 16-20)	Role of trait EI in psychogenic needs, psychache, and loneliness of adolescent orphans	Correlational analysis, multiple regression	Trait EI (1) was found to be negatively correlated with most of the psychogenic needs (need for affiliation and power), psychache and loneliness (2) was positively associated with need for achievement in orphans.	r = -.33** (need for affiliation) r = -.37** (need for power) r = -.49** (psychache) r = -.72** (loneliness) r = .46** (need for achievement)

(Continued)

Table 2. (Continued).

Study	TEIQUE (AFF / ASF)	Design	Sample Description (female, M _{age})	Focus of Study	Statistical Analysis	Summary of Findings	Statistics
Nguyen et al. (2021) <i>Emotional intelligence and mental health problems among adolescents in Vietnam: A school-based survey.</i>	ASF	Cross-sectional	1,593 adolescents (55.4% female, age range: 15-18)	Mental health problems and adolescent EI	Multiple linear regression	Trait EI, particularly the Well-being, Emotionality and Sociability factors, played a protective role against common mental health problems (i.e., depressive symptoms, anxiety, stress and loneliness) in adolescents.	$r = -.50^{***}$ (Global Trait EI) $r = -.36^{***}$ (Well-being) $r = -.16^{***}$ (Emotionality) $r = -.07^{**}$ (Sociability) $r = -.08^*$ (Self-control)
Nguyen et al. (2020) <i>Perceived parenting styles and EI among adolescents in Vietnam.</i>	ASF	Cross-sectional	1,593 adolescents (54.7% female, age range: 15-18)	Perceived parenting styles and adolescent EI	Multiple linear regression	Trait EI (1) found to be higher in adolescents who received the warmth of your parents during childhood (2) was lower in adolescents whose parents (especially mothers) were overprotective and authoritarian.	(1) $r = .03^{***}$ (maternal warmth) $r = .04^{***}$ (paternal warmth) (2) $r = -.02^*$ (maternal overpro.) $r = -.03^*$ (maternal authoritarianism)
Nguyen et al. (2022) <i>Suicide ideation: Prevalence and determinants among high school students.</i>	ASF	Cross-sectional	1,593 adolescents (55% female, age range: 15-18)	Prevalence and determinants of suicide ideation among Vietnamese adolescents	Multiple logistic regression	Trait EI found to be a protective factor against lifetime suicidal thoughts.	OR (odds ratio) = .81*, 95% CI [.67, .99]

(Continued)



Table 2. (Continued).

Study	TEIQUE (AFF / ASF)	Design	Sample Description (female, M_{age})	Focus of Study	Statistical Analysis	Summary of Findings	Statistics
Nyariko et al. (2020) <i>EI and cognitive skills protecting mental health from stress and violence among Ghanaian youth.</i>	ASF	Cross-sectional	415 adolescents (71.1% female, $M_{age}=16.51$)	Protective role of trait EI and cognitive skills on mental health from stress, violence	SEM	Trait EI and cognitive skills were not protective against the negative effects of stressful life events and violent experiences although they were associated with low levels of depression and psychological distress.	$\chi^2=13.01^*$ CFI = .98, RMSEA = .05 (stressful life events X EI) $\chi^2=12.65^*$ CFI = .98, RMSEA = .05 (violent experiences X EI) $r = -.32^{***}$, CIs [-40, -23] (depressive symptoms) $r = -.30^{***}$, CIs [-38, -21] (psychological distress)
Panno (2016) <i>Trait EI is related to risk taking when adolescents make deliberative decisions.</i>	ASF	Experimental	94 adolescents (21% female, $M_{age}=17.23$)	Trait EI, risk-taking and deliberative decisions in adolescence	A single regression model, correlational analysis, mediation model	Trait EI and risk-taking had shown to have a significant positive relationship under deliberative conditions.	$\beta = .25^*$ $B_{unstandardized} = .055$ 95% CI = .008 to .102 Cohen's $d = .51$
Ruttledge and Petrides (2012) <i>A cognitive behavioural group approach for adolescents with disruptive behaviour in schools.</i>	ASF	Repeated measures	22 adolescents (27% female, age range: 13-14)	Cognitive-behavioural group approach and adolescents with disruptive behaviour	One-way repeated measures ANOVAs	Trait EI scores significantly increased over time (after the intervention and at 26 weeks of follow-up).	Wilks' Lambda = .44, F (3, 19) = 8.027* M=134.27, SD=18.56 (Time 1) M=142.95, SD=19.84 (Time 4)
Stamatopoulou et al. (2015) <i>Research on the association between EI and educational achievement: A case study of the pupils in the senior high schools of Sparta.</i>	ASF	Cross-sectional	381 adolescents (61.9% female, Greek 10-11 th graders ¹)	Educational achievement and trait EI in adolescents	Bivariate analysis, Multiple regression	Trait EI was not a strong indicator of educational achievement.	$r = .07$

(Continued)

Table 2. (Continued).

Study	TEIQUE (AFF / ASF)	Design	Sample Description (female, M _{age})	Focus of Study	Statistical Analysis	Summary of Findings	Statistics
Tiabashvili et al. (2018)	AFF	Experimental	97 adolescents (40 intervention group, 48.67% female, 57 control group, 52.60% female, M _{age} =14.66)	Effectiveness of mythodrama in reducing behavioural problems in adolescence	Pearson correlation, repeated measures ANOVA	Trait EI (1) factor Well-being and global trait EI were significantly higher for the control group (2) scores and adaptive coping strategies increased in the experimental group after the intervention.	Global trait EI Before the intervention; M=4.73, SD=.63 (CG) M=4.43, SD=4.73 (EG)
<i>Mythodrama group psychotherapy approach for adolescents with behavior difficulties.</i>							After the intervention; M=4.81, SD=.90 (CG) M=5.14, SD=.66 (EG)*

Note: * $p \leq .05$, ** $p \leq .01$, *** $p \leq .001$. Entries in this table are necessarily succinct and present only specific findings of interest. They are not intended as a summary of the original research articles, which interested readers are urged to consult.

[†]Greek 10–11th graders correspond to the age range of 16–17

[‡]Slovak secondary school 3rd and 4th graders correspond to the age range of 17–18

[§]Indian secondary school 8th and 9th graders correspond to the age range of 14–16

[¶]Iranian high school students are between the age range of 15–18

◆ There is not a trait EI facet called Self-awareness, but Social-awareness. Due to the theoretical and methodological flaws in the study design, there are issues in these results, too. See section 4.1 for details.

trait EI (Argyriou et al., 2016, Gugliandolo et al., 2015b; Kokkinos & Vlavianou, 2021; Nguyen et al., 2020). Conversely, only Mumtaz et al. (2023) found that girls outscored boys with an effect size of $d = .21$.

Although Stamatopoulou et al. (2015) indicated that there were gender differences in trait EI, the difference between boys ($M = 4.9$, $SD = .6$) and girls ($M = 4.8$, $SD = .7$) was not statistically significant. In some studies, it was not possible to observe gender differences due to the type of samples investigated. Farina et al. (2021) and Messanga et al. (2021) had only female participants; Milojević et al. (2016) had only male participants; Nayak and Rath (2018), Panno (2016), Ruttledge and Petrides (2012) had 10%, 21% and 27% female participants, respectively.

Psychological constructs

Adolescence is a challenging time and is vulnerable to risk-taking and mental health issues. Panno (2016) reported that trait EI showed significant positive correlations with risk-taking under deliberative conditions ($d = .51$), particularly with the three facets – Self-motivation, Happiness, and Optimism. Unlike the existing literature focusing on the downsides of risk-taking as a result of poor decision-making and weak emotional control during adolescence (e.g. experimentation with alcohol and drugs, precocious sexual intercourse), Panno (2016) speculated that emotionally intelligent adolescents took more risks because they were likely to act with goal-oriented self-regulation and unlikely to give up when faced with a challenge.

Mikolajczak et al. (2009) provided support for the protective role of adolescent trait EI on self-harm. The results showed that when depression is controlled, trait EI was negatively correlated with self-harm; particularly those who harmed themselves with the intention of taking their own life had significantly lower trait EI scores than adolescents who harmed themselves as a maladaptive coping strategy. Trait EI has also been found to be protective against suicidal ideation (Nguyen et al., 2022) and common mental health problems such as depressive symptoms, anxiety, stress, and loneliness in adolescents (Nguyen et al., 2021). Conversely, Nyarko et al. (2020) reported that although trait EI was linked to lower levels of depression and psychological distress, it was not protective against stressful life events (e.g. socio-economic adversity) and violent experiences (e.g. community violence).

As individuals with high levels of anxiety and depression may show dysregulated stress responses, Lea et al. (2023) investigated whether and how different types of EI contribute to stress regulation in adolescents. In their experimental setting, stress reactivity was measured in two ways: psychologically (negative affect – NA) and physiologically (heart rate – HR). Results on trait EI showed that especially the Sociability factor in particular predicted HR reactivity after being exposed to the social stressor task. In other words, trait EI may reduce stress reactivity in stressful situations.

The role of trait EI against depression has also been demonstrated in the reviewed literature (Barberis et al., 2021; Mikolajczak et al., 2009; Nyarko et al., 2020). Delhaye et al. (2013) reported that trait EI was lower in depressed adolescents ($d = 0.72$) and those with higher trait EI scores also had higher secure attachment scores compared to depressed ($d = 0.66$) and delinquent ($d = 0.83$) adolescents. That is, adolescents with higher global trait EI scores were more likely to have secure attachments, whereas depressed and delinquent adolescents viewed attachment-related experiences as either negative or unimportant.

Given the impact of negative emotions on adolescent well-being, another study investigated the possible protective role of EI against stereotype threat. According to Messanga et al. (2021), internalized stereotypes can generate negative emotions such as anger and fear, impact working memory and consequently lead to a decline in performance. They posited that, since football is mostly played by men, female students were faced with sexist stereotypes about playing football. They designed an experimental study and compared female students with low and high EI scores in both experimental and control subgroups. The results showed that EI did not significantly reduce sensitivity to stereotype threat.

Lastly, two studies included in the reviewed literature were conducted with very specific samples – juvenile offenders (Milojević et al., 2016) and orphans (Nayak & Rath, 2018). The results indicated that three of the four trait EI factors (Wellbeing, Self-Control, and Emotionality) were lower in juvenile offenders, with effect sizes of $d = .77$, $d = .46$, $d = .84$, respectively (Milojević et al., 2016). Trait EI was also found to be a strong predictor of the psychogenic needs of orphans (i.e. need for achievement, affiliation and power; Nayak & Rath, 2018). Orphans with low trait EI scored higher on the need for affiliation and power, meaning that they had a stronger desire to bond with people and have control over their own lives (Nayak & Rath, 2018). Furthermore, low trait EI was associated with a lower need for achievement, meaning that an adolescent orphan is likely to choose an easier task over a difficult one to minimize the risk of failure (Nayak & Rath, 2018). These preliminary findings demonstrate how optimizing trait EI during adolescence may positively contribute to the social and emotional development of adolescents from diverse populations.

Parental relations

Disengagement from parental control is an important and challenging developmental task for adolescents (Blos, 1962). This challenge is shared by parents, as it can be tricky to decide when to support their offspring on their way to independence and when to take control to protect them (Diem-Wille, 2021). Argyriou et al. (2016) investigated the potential link between parenting styles and adolescent trait EI. The results showed that trait EI was positively correlated with the authoritative parenting style, which involves both firm control and supportive manners encouraged by verbal interaction. In contrast, trait EI was negatively correlated with authoritarianism and permissiveness. Mohammadi and Firoozi (2016) also claimed that parenting style can predict emotional intelligence, but due to various methodological limitations in their study, their results are difficult to interpret and generalize (see section 4.1. for details).

Barberis et al. (2021) confirmed these findings and reported that autonomy supportive practices are essential for the healthy development of trait EI in adolescence. Moreover, trait EI mediated the relationship between parental practices, self-esteem and depression of adolescents (Barberis et al., 2021; Gugliandolo et al., 2015a). Gugliandolo reported that dysfunctional parental practices were likely to result in maladaptive outcomes in adolescents, as they were negatively correlated with trait EI (Gugliandolo et al., 2015a). In contrast, parental warmth and behavioural control were positively correlated with adolescent trait EI (Kokkinos & Vlavianou, 2021). Moreover, Nguyen et al. (2020) found that receiving parental warmth during childhood had a positive impact on adolescent trait EI. In contrast, overprotectiveness and authoritarianism were negatively correlated with adolescent trait EI scores.

In some studies, paternal and maternal models/ratings have been operationalized separately (Barberis et al., 2021, Gugliandolo et al., 2015a, 2015b; Gugliandolo et al., 2020) in order to detect possible differences, depending on parental gender. However, Barberis et al. (2021) warned that such results should be considered within the cultural context. All four studies being reviewed herein have been conducted in Italy. Future research may be extended to a wide variety of cultures.

Hafeez and Habib (2021) concluded that both paternal acceptance and paternal rejection significantly predicted trait EI in adolescents. Specifically, paternal acceptance was noted to aid adolescents in developing a positive sense of self. Beyond parenting styles, the association between family structure and emotional intelligence has also been explored. Family structures are typically categorized as joint families, where grandparents co-reside with their children and grandchildren, and nuclear families, consisting only of parents and their offspring. A study by Mumtaz et al. (2023) found no significant trait EI differences between adolescents from joint and nuclear families.

Another important concept which may affect adolescent psychological well-being and might be influenced by parenting style is body uneasiness. The rapidly changing bodies of adolescents can cause insecurity and shame (Diem-Wille, 2021). Gugliandolo et al. (2020) outlined several dimensions of body uneasiness, namely, behavioural, emotional, and cognitive dimensions. Their results showed that trait EI not only negatively predicted body uneasiness but also mediated the relationship between parental autonomy and body uneasiness. Further, they concluded that supportive parenting plays a pivotal role in the development of trait EI, which in turn aids adolescents in cultivating a healthy body image.

Gugliandolo et al. (2015b) investigated the relationship between trait EI and behavioural problems in adolescence by collecting data from both parents and adolescents. The results revealed that trait EI was negatively correlated with internalizing as well as externalizing problems. Higher Well-being and Self-control factor scores were ascribed by parents to adolescents than adolescents attributed to themselves (Gugliandolo et al., 2015b). Perhaps these findings suggest that adolescents are often misunderstood. It is common for adolescents to be confused about their own drives and actions as a result of the enormous (cognitive, social, emotional) changes they are experiencing; this confusion affects both adolescents and their parents (Diem-Wille, 2021).

Peers also play an important role in the developmental journey of adolescents, sometimes an even greater role than that of their families. By disengaging from parental control, adolescents turn towards their peer group as a substitute family (Blos, 1967). According to Chen (2019), the relationships between trait EI and resilience are enhanced by the social support provided by peers, but not that provided by their family.

Scholastic constructs

There is mixed evidence on the relationship between trait EI and school achievements. The concept of school achievement differs widely across studies. Data from Stamatopoulou et al. (2015) were based on the average grade of high-school students upon graduation. In contrast, Kaliská (2015) and Mancini et al. (2017) considered only maths and literature grades. Since the grades in these two subjects represent key learning abilities, such as writing, reading, and arithmetic, they were deemed to be a good indicator of academic achievement (Mancini et al., 2017). This choice sounds plausible because average grade includes physical education, for example, which might not be relevant to academic achievement unless higher education in sports is being pursued.

While Stamatopoulou et al. (2015) and Kaliská (2015) found weak to non-existent correlations between trait EI and educational achievement, Mancini et al. (2017) observed its positive effect on literature grades. Kokkinos and Vlavianou (2021) went a step further, noting a positive correlation between trait EI and overall academic achievement, including in scientific subjects. It's important to note, however, that the content of maths and literature courses can differ significantly across countries due to varying school systems. Given this variability in school curricula, more research is essential for conclusive findings. Also, Chakraborty (2016) highlights the importance of academic motivation in the relationship between academic achievement and emotional intelligence.

Additionally, two studies focused specifically on school burnout in adolescents. Fiorilli et al. (2020) reported that trait EI was positively correlated with resilience and negatively correlated with anxiety and burnout. There was a strong indirect effect of trait EI on school burnout, with anxiety and resilience mediating this effect. The study by Farina et al. (2021) focused on the association between alexithymia, trait EI and school burnout. They found that trait EI was negatively correlated with alexithymia and played a crucial role in the discriminant function between high and low alexithymic profiles. These studies provide insight into the development of possible interventions for school pupils, especially those who are challenged by coping with stressful events and school burnout. Further research is needed, especially due to the uniformity of the sample groups in these two studies.

Lastly, Antoniou et al. (2016) used Holland's RIASEC vocational interest model Holland (1959) to explore the relationships between vocational interests and trait EI and found that trait EI showed low, but statistically significant, correlations with the components of the RIASEC model (see Table 2).

Practice-oriented topics

The literature being reviewed herein includes four studies conducted to 'improve EI' (Cejudo et al., 2019) or to reduce behavioural disruptions (McIlvain et al., 2015; Ruttledge & Petrides, 2012; Tiabashvili et al., 2018) in adolescents. Cejudo et al. (2019) designed an experimental study to assess the effectiveness of the game 'Spock' (Cejudo & Latorre, 2017) in improving EI and psychosocial adjustment in adolescents. The results showed that there was a significant improvement in adolescent trait EI scores ($d = .33$). Post-hoc tests confirmed the improvement in adolescents who had been playing the game regularly for over 10 weeks. It was concluded that the game could be validated as an effective intervention tool to improve trait EI in adolescents (Cejudo et al., 2019).

McIlvain et al. (2015) conducted a study to assess the effectiveness of yoga in regulating emotions in inpatient adolescents. Although there were no significant changes as testing progressed, trait EI scores increased after eight weeks of yoga practice. Yoga sessions with inpatient adolescents were conducted using guided yoga videos. Allowing adolescents to work on their adaptive emotional regulation strategies in their own space and time may be a valuable opportunity for them. However, more research is needed to support the potential effectiveness of yoga.

Another practice-oriented study was conducted by Ruttledge and Petrides (2012) on the cognitive-behavioural group approach for adolescents with disruptive behaviours (i.e. aggressive, physically and socially disruptive, authority challenging and self-disruptive behaviours) in the classroom. The results showed that TEIQue-ASF scores increased significantly over time and were maintained at a six-month follow-up. Trait EI was shown to be negatively correlated with disruptive behaviour in school. Furthermore, cognitive behavioural group therapy has been found to be a practical approach for adolescents with disruptive behaviour (Ruttledge & Petrides, 2012).

Recently, Nagamitsu et al. (2022) from Japan developed 'Mugimaru', a smartphone-based cognitive behavioural therapy (CBT) application designed to promote adolescent mental health. This application encompasses both psychoeducation and self-monitoring sessions. To ascertain its efficacy, a randomized controlled trial was carried out, comparing the impact of (1) Mugimaru and (2) Well-Care Visits on both the mental and physical well-being of adolescents. The TEIQue-ASF scores were employed to gauge the self-monitoring efficiency of the CBT app. Results indicated that both interventions effectively reduced depressive symptoms in adolescents.

Lastly, another group approach in one of the studies reviewed was mythodrama. Mythodrama is a group psychotherapy approach that is based on analytical psychology; myths and stories are used to work on behavioural difficulties. Tiabashvili et al. (2018) found that mythodrama was an effective intervention method in optimizing trait EI and increasing adaptive coping strategies. Significant changes were observed in the experimental group. Since no follow-up data were collected, further research is needed to investigate the efficacy of this approach.

Discussion

Given the terminological and methodological diversities in the area of EI, the present systematic review emphasizes the essential role of trait Emotional Intelligence (trait EI) in adolescents, an understudied population. The updated search results identified 34 studies from 18 countries, demonstrate the protective role of trait EI for adolescent psychological well-being in several different contexts, including mental health (e.g. Mikolajczak et al., 2009), education (Mancini et al., 2017), parental relations (e.g. Barberis et al., 2021) and more. However, there are contradictory studies

claiming that high levels of trait EI may also be maladaptive (Petrides et al., 2011). Therefore, it is essential to note that importance should be given to optimizing trait EI, rather than increasing it (Ruttledge & Petrides, 2012).

While most of the studies included in this review either focused solely on trait EI, 13 studies were conducted under the generic label of EI using TEIQue forms. A study designed with an incongruent match between EI theory and measurement tool presents serious methodological flaws and interpretational threats. This makes its results difficult to generalize and underscores the need for replication using a more congruent theory-measurement match. The subsequent discussion sections address several topics: controversies surrounding the results of a few studies (4.1); risk of bias within the included studies (4.2); strengths and limitations of the current research in the literature reviewed (4.3); and strengths and weaknesses of this review itself (4.4).

Controversies concerning the results

Firstly, although Panno (2016) found that adolescents with high trait EI were more prone to take risks as they were ambitious about their goals, risk-taking in their study was assessed by using a computer-based card task. To test optimistic thinking on risk taking as an advantage, further research should be conducted to assess the relationship between risk-taking and trait EI, because risk-taking may have different outcomes depending on whether someone has something significant at stake. That is, it may be easier to take risks when playing a card game than in the case of losing something vital and/or crucial as a result of risk-taking.

Secondly, while Mikolajczak et al. (2009) found that trait EI played a protective role in adolescent self-harm, Nyarko et al. (2020) claimed that trait EI was not protective against violent experiences. Although the findings seem contradictory, each study approached the act of violence from a very different perspective. While Mikolajczak et al. (2009) focused on violence against oneself, Nyarko et al. (2020) focused on community violence, such as physical threats, knife attacks, and shootings. Since one has less control over what happens in the community than over events happening within oneself, trait EI is unlikely to be considered a protective factor in Nyarko et al. (2020) study. It is also worth noting that Ghana is experiencing rapid transformations in various communal domains, including socio-economic and political. Such changes might lead to diminished social support and emotional sharing provided by families to adolescents (Nyarko et al., 2020). Nevertheless, providing additional support to adolescents who are likely to be vulnerable to violence (either towards themselves or in a communal domain) should be a high priority, since suicide is one of the leading causes of death in adolescents. Nearly 46,000 adolescents take their own lives across the world every year (UNICEF, 2021).

Furthermore, Cejudo et al. (2019) supported the effectiveness of the game 'Spock' in improving EI in adolescents. However, there seems to be an inconsistency between the model on which the game 'Spock' is based and the measurement method used for the improvement of EI. Although 'Spock' was developed according to the EI model researching abilities, a trait EI measure was used to evaluate its effectiveness. It must be remembered that the main distinction between EI models depends on the measurement type (Petrides & Furnham, 2000). Therefore, the choice of measure should be consistent with the model that underpins a particular research design.

Thirdly, Messanga et al. (2021) concluded that EI was not protective against the effect of incompetence stereotypes in female students playing football. However, the effect of motivation was not taken into consideration in their study. The experiment was carried out as part of normal school activities in a physical education class. Therefore, the students, or at least some of them, may have not been previously interested in playing football, but completed the task as a class requirement.

Lastly, Mohammadi and Firoozi (2016) presented findings on self-awareness in relation to EI. While they employed the TEIQue form to evaluate 'EI,' it's worth noting that trait EI does not

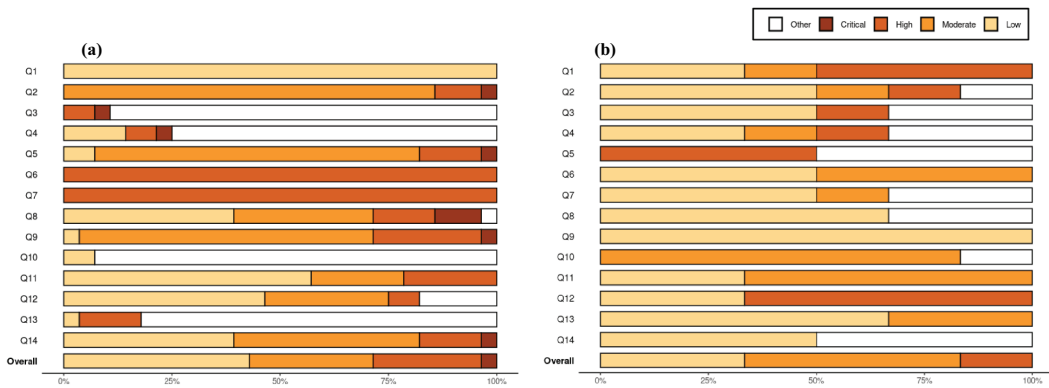


Figure 2. Risk of bias (RoB) assessment of studies included in this systematic literature review. Labels on the x axis represent the percentages of compliance for each item of the NIH quality assessment tools; labels on the y axis correspond to the question (Q) numbers of the NIH tools*. The RoB assessment of (a) 28 studies based on NIH Quality Assessment Tool for Observational Cohort and Cross-Sectional Studies (b) 6 studies based on NIH Quality Assessment of Controlled Intervention Studies. The category *Other* corresponds to the following labels: NA, not applicable; NR, not reported. *Question focuses for the [Figure 2a](#): (1) Research question, (2) Study population, (3) Participation rate, (4) Recruitment criteria, (5) Sample size justification, (6) Exposure assessment prior to outcome measurement, (7) Sufficient timeframe to see an effect, (8) Different levels of exposure of interest, (9) Exposure measures and assessment, (10) Repeated measures assessment, (11) Outcome measures, (12) Blinding of outcome assessors, (13) Follow up rate, (14) Statistical analyses. Question focuses for the [Figure 2b](#): (1) Study Description, (2) Method of randomization, (3) Treatment allocation, (4) Blinding1, (5) Blinding2, (6) Similarity of groups at baseline, (7) Dropout (overall), (8) Dropout (differential), (9) Adherence, (10) Avoid other interventions, (11) Outcome measures assessment, (12) Power calculation, (13) Pre-specified outcomes, (14) Intention-to-treat analysis.

encompass a facet of ‘Self-awareness.’ This again highlights the importance of aligning research design with the nuances of EI models. It underscores the significance of designing EI studies with a clear understanding of different EI models and their associated measurement methods.

Risk of bias within studies

The 34 included studies were evaluated using the 14-question National Institutes of Health quality assessment tools (National Institutes of Health, 2013). Given that the majority of the studies (28) adopted a cross-sectional design, and a minority (6) utilized an experimental design, we have used two types of NIH tools: the NIH Quality Assessment Tool for Observational Cohort and Cross-Sectional Studies and the NIH Quality Assessment of Controlled Intervention Studies, respectively. [Figure 2](#) displays summary plots created with the *robvis* (risk of bias visualization) tool by McGuinness and Higgins (2021). Although the NIH tools’ questions are generally answered as ‘Yes’, ‘No’, or ‘Other’ (e.g. CD: cannot determine; NA: not applicable; NR: not reported), we introduced additional categories: ‘Critical’ for a few studies with significant flaws and ‘Moderate’ for those presenting borderline information.

Particularly in [Figure 2a](#), bars exhibit minimal percentages of ‘low risk of bias’ (illustrated in green). Notably, Q2 pertains to the sample of the studies. While many studies provided detailed sample descriptions, none specified the data collection date. While this may not be as pivotal as demographic details, the NIH guidelines still recommend addressing the ‘who, when, where?’ queries, which lead us to allocate primarily ‘Moderate’ ratings to studies. Additionally, many studies omitted details on recruitment criteria (Q4) and lacked justification for sample size with power descriptions (Q5). Per the NIH guidelines, cross-sectional studies should answer questions 6 and 7 ([Figure 2a](#)) as ‘no’. That is why, the two completely red bars (Q6 and Q7) cannot be representative of ‘high risk of bias’ in this case.

The subsequent summary plot ([Figure 2b](#)) pertains to the six studies by Cejudo et al. (2019), Lea et al. (2023), Nagamitsu et al. (2022), Panno (2016), Ruttledge and Petrides (2012), and Tiabashvili

et al. (2018). Two primary bars (Q5, Q12) depict a heightened bias level compared to others. Q5 addressed the blinding of outcome assessors. For some studies (Lea et al., 2023; Nagamitsu et al., 2022; Tiabashvili et al., 2018), this was not an applicable bias criterion, leading to an 'NA' rating. Q12 concerned sample size justification, with only two studies (Lea et al., 2023; Nagamitsu et al., 2022) providing relevant information.

Regarding the overall risk of bias, eight studies (Antoniou et al., 2016; Chohan & Habib, 2020, Hafeez & Habib, 2021; Messanga et al., 2021; Mohammadi & Firoozi, 2016; Nayak & Rath, 2018; Nguyen et al., 2021; Stamatopoulou et al., 2015) raised high-risk concerns, with one study (Chakraborty, 2016) categorized as critical.

Research strengths and limitations

The studies referenced in this review possess both strengths and limitations. Several have pioneered investigations into the significance of trait EI in adolescent well-being by delving into novel topics. For instance, Argyriou et al. (2016) examined the connection between trait EI and parenting styles; Lea et al. (2023) studied the relationship between emotion perception ability and early attentional selection under stress; Mancini et al. (2017) utilized the TEIQue-AFF to investigate the association between trait EI and school achievements; and Nguyen et al. (2020) explored the link between adolescent EI and their experience of parenting styles in a Southeast Asian context. By shedding light on these areas and enriching the literature, these studies emphasize the pivotal role of trait EI during adolescence.

Furthermore, the reviewed literature has revealed important implications not only for adolescents, but also for their families, caretakers, teachers, and associations working with adolescents. For example, improvements may be made in counselling services or parental practices, and intervention tools/behavioural interventions have been suggested to optimize adolescent trait EI, prevention programmes, alternative treatment plans, and educational settings.

The predominant limitations of the reviewed studies include their cross-sectional designs, homogeneous samples, absence of follow-ups, and concerns regarding generalizability. Given that the majority of the studies in this review are cross-sectional, drawing definitive conclusions about causality is challenging. Many researchers also stressed the need for longitudinal research. Some studies were based on small sample sizes, which may have led to Type-II errors. However, regardless of the sample size, nearly all of the studies relied on homogenous and monocultural samples, demonstrating the need for cross-cultural research in this area.

The distribution of studies by country also shows the need for research to be expanded internationally. While 23.5% of the studies were conducted in Italy and 11.7% in Greece, there were only three studies from Pakistan and Vietnam, two studies each from the UK and India, and the rest solitary studies from 12 different countries.

Strengths and weaknesses of this review

Firstly, this review encompasses a wide range of topics related to adolescent psychological well-being. Overall, it shows that TEIQue adolescent forms, with their comprehensive coverage of the construct's sampling domain, have been used in many research designs covering diverse topics such as mental health, behavioural problems, parenting styles, school burnout, and academic achievement. Prior to conducting this review, we also checked whether there was another systematic review of the literature on the same topic to avoid duplication. When doubts arose about any key information provided in scientific reports, the corresponding author was contacted for clarifications. Ninety-one percent of the studies were published during the last nine years, indicating that the literature under review was current.

There were some limitations pertaining specifically to the review process. The search was limited to publications in English, which introduces a language bias. Moreover, nearly thirty percent of the studies were excluded by considering only peer-reviewed articles as one of the search criteria used during the screening phase (see [Figure 1](#)). Finally, a preregistration protocol is not available for this review.

Conclusions and future directions

The protective role of trait EI in adolescent psychological well-being has been demonstrated beyond doubt in the scientific literature. Although studies on adolescents are comparatively scarce, research has shown that trait EI is associated with lower levels of anxiety and depression, greater emotional stability, active coping, healthier peer relations and socio-emotional competence.

The present systematic review examined the literature on trait EI, specifically measured by TEIQue adolescent forms, in adolescent well-being. Thirty-four relevant studies were identified. The reviewed literature provides equivocal findings on gender differences and academic achievement of adolescents; emphasizes that parental practices have a significant effect on adolescent trait EI; and corroborates the validity of TEIQue Adolescent Forms in predicting adolescent psychological well-being in relation to several concepts, such as alexithymia, behavioural problems, self-harm, depression, and more. Possible ways of optimizing trait EI in adolescents through different approaches have also been covered by the reviewed literature.

Yet, future research should delve deeper into the role of trait EI in adolescents. This can be achieved by integrating qualitative and quantitative methods to examine its multifaceted role, broadening the scope to cross-cultural settings, partnering with skilled mental health professionals for test administration and interpretation, and incorporating follow-up phases in the studies. Moreover, additional scale validation studies using translated versions of the TEIQue instruments would be valuable. While there are several educational, training, and rehabilitation programmes centred on the development of trait EI, it is recommended to conduct in-depth studies on the effectiveness of these training sessions, utilizing pre- and post-test designs.

The present review has also emphasized the need for cross-cultural and cross-disciplinary research in the field. It should be borne in mind that consistency between theory and measurement method is vital when designing studies for EI research. The stakes in terms of application are high and require a greater commitment to research at two levels: firstly, research should aim for greater clarity on the leading theories and results achieved, and secondly it should closely relate to professional practice.

In summary, delving into the protective role of trait EI in adolescent psychological well-being is crucial for expanding our understanding and for exploring its potential implications for young people. Further research could inform and enhance statutory regulations and government programmes designed for adolescents, aiming to ease their tumultuous years. Such studies could also provide support for parents, teachers, and caregivers who may themselves feel the strain of adolescent challenges.

Note

1. P (population): adolescents between the ages of 13 to 20, I (intervention/indicator): trait EI, C (comparison): NA (not available), O (outcome): psychological well-being.

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