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ORIGINAL ARTICLE

The Role of Emotional Intelligence in Risk Behaviors and Nonsuicidal Self-Injury in Adolescence

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Abstract

Through the adaptive use of emotions, emotional intelligence enables emotional information processing and allows the individual to use their emotions more adaptively. Several studies have shown an association between emotional dysregulation, risk behaviors and nonsuicidal self-injury (NSSI). The present study aims to characterize emotional intelligence (i.e., emotional comprehension and emotional management/regulation ability) and explore its relationships with risk behaviors and NSSI in a sample of 559 Portuguese adolescents (224 males and 335 females) with ages between 14 and 20 years old. The Situational Test of Emotional Understanding – Brief (STEU-B), the Situational Test of Emotional Management – Brief (STEM-B), and the Impulse, Self-harm and Suicide Ideation Questionnaire for Adolescents (ISSIQ-A) were the measures used. Higher levels of emotional intelligence were found in female participants, in older participants (17–20), participants with higher school education and participants with higher socioeconomic level. The regression model using STEU-B, STEM-B, gender, and the interaction between STEU-B and gender explained 16% of the variance in risk behaviors and 12% of the variance in NSSI, and revealed that emotion management/regulation is a negative correlate of these behaviors. The results in this study emphasize the importance of interventions targeting emotional intelligence aimed at youth when preventing or reducing risk behaviors and NSSI.

Keywords Adolescence · Emotional intelligence · Risk behaviors · Nonsuicidal self-injury

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Introduction

In recent years, emotional intelligence has become a prominent research topic due to its positive effects on various dimensions of life, including personal well-being (e.g., life satisfaction, happiness), mental health (e.g., anxiety, depression), social development (e.g., interpersonal competences) and professional success (e.g., Klinkosz et al., 2021; Moeller et al., 2020). Emotional intelligence was defined for the first time in 1990 by Salovey and Mayer; however, it was Daniel Goleman who, in 1996, promoted this concept, gaining popularity with the publication of the best seller "Emotional Intelligence". This concept has a vast range of contributions, some more scientific consensual than others. Of these contributions one emotional intelligence conceptual model stands out: the ability model, supported by Salovey and Mayer (1990).

Mayer and Salovey (1997), emotional intelligence pioneers and advocates for the ability model, assume that this construct involves:

> The ability to perceive accurately, appraise, and express emotion; the ability to access and/or generate feelings when they facilitate thought; the ability to understand emotion and emotional knowledge, and the ability to regulate emotions to promote emotional and intellectual growth. (p.10)

According to this model, emotional intelligence also provides the adaptive use of emotions enabling emotional information processing and allowing the use of emotions more adequately and adjusted to the situation (Damásio, 2011). Therefore, Mayer and Salovey (1997) decompose emotional intelligence into four hierarchical dimensions, forming a system of interaction and establishing the Four-Branch Ability Model. These dimensions correspond to: 1) perception (i.e., ability to identify emotions on the self and others); 2) integration (i.e., ability to use emotions to improve cognitive process; this is, enable a combined action between thought and action); 3) comprehension (i.e., ability to comprehend emotional changes that are not always obvious); and 4) emotional management/regulation (i.e., ability to manage emotions and assess each emotion function in order to allow an effective and adjusted problem resolution). These dimensions influence each other and involve mental processes with different levels of complexity. This means, while the perception and emotional integration dimensions are at the base of this hierarchy, the comprehension and emotional management/regulation dimensions are at the top (Mayer & Salovey, 1997; Mayer et al., 2004).

Emotional intelligence studies have yielded inconsistent results regarding gender differences, with some studies reporting higher levels in females (e.g., Gomez-Baya et al., 2017; Salguero et al., 2012) and others finding higher levels in males (e.g., Argyriou et al., 2016). On the other hand, regardless of gender, studies have found an association between emotional intelligence and several adversities in adolescence, such as involvement in risk behaviors (e.g., Lana et al., 2015; Skaar & Williams, 2012).

Adolescence is a developmental period marked by diverse vulnerabilities because there is a predominance of the fully developed limbic system over the

underdeveloped prefrontal cortex, which only matures in adult life (Boyer, 2006; Steinberg, 2007). This fact enhances the natural disinhibition that drives adolescents to seek new experiences, inhibiting cost–benefit analyses (Casey & Jones, 2010; Chen et al., 2009; Steinberg, 2007). Additionally, neuronal pruning occurs in the cortex area responsible for pleasure (i.e., 30% loss occurs in the cortex synapses associated with pleasure), which can lead adolescents to seek new experiences (Herculano-Houzel, 2005; Spear, 2000; Steinberg, 2007). This decrease increases the likelihood of adolescents getting involved in risk behaviors, which could lead to engagement in activities that release a bigger amount of dopamine and compensate for synapses deficits found in this developmental period (Herculano-Houzel, 2005). All these neurobiological factors may explain the high prevalence of risk behaviors (Cooper et al., 2003) and nonsuicidal self-injury (NSSI) in adolescence (Barreto Carvalho et al., 2017). Thus, risk behaviors (e.g., substance abuse, unprotected sexual behavior) characteristic of this developmental period (e.g., Layne et al., 2014), marked by vulnerabilities and adjustments, can be explained by the differential maturation of behavior and cognitive systems (Casey et al., 2008; Spear, 2000).

In adolescence, a period characterized by emotional intensity and instability (Silk et al., 2003), being emotionally intelligent has been found to be pivotal for coping with and navigating multiple challenges (Davis, 2018). Indeed, recent studies advocate that those adolescents with difficulties at an emotional level, namely, those who are not capable of dealing with their emotional experiences, are more vulnerable to getting involved in risky behaviors (e.g., Barahmand et al., 2016; Hessler & Katz, 2010). Specifically, a study (Lando-King et al., 2015) associated higher levels of intrapersonal abilities with fewer sexual partners, suggesting that emotional intelligence may function as a protective factor in risky sexual behavior. Results from another study (Romero-Ayuso et al., 2016) point out that cocaine dependent individuals possess difficulties at an emotional assessment and regulation level. Moreover, one study (Monaci et al., 2013) explored the moderating role of emotional intelligence in the relationship between peer pressure and alcohol consumption and discovered that higher levels of emotional intelligence minimize alcohol use and abuse by boosting young people's capacity to resist peer pressure.

NSSI is also associated with emotional intelligence, namely emotional dysregulation (e.g., Brausch et al., 2022), with this behavior serving as a maladaptive emotional regulation strategy (Nock & Prinstein, 2004). NSSI is characterized by one or more deliberate behaviors practiced by the individual without fatal consequences but with the intent to self-injure (Klonsky, 2007).

Although emotional intelligence has been found to decrease the risk for risk behaviors and NSSI, there is a paucity of research exploring emotional intelligence using objective measures of this skill (compared to self-report perceptions) and its relationships with risk behaviors and NSSI in Portugal, particularly in [specific Portuguese region], as well as whether gender moderates these associations. In this study – using two measures of emotional intelligence, one that refers to the third dimension of the Mayer and Salovey model (i.e., emotional comprehension) (STEU-B) and another that assesses the fourth dimension of this model (i.e., emotional management/regulation) (STEM-B) – we aimed to characterize emotional

intelligence in an adolescent Portuguese sample and explore its relationships with risk behaviors and NSSI.

Method

Participants and Procedures

A total of 559 adolescents, aged 14 to 20 years ($M = 16.7$, $SD = 1.4$), 224 males (40.1%) and 335 females (59.9%), with an average of 5.3 ($SD = 1.1$) years spent in school, were enrolled in the study. Socioeconomic status (SES) was estimated from parents' professional situation. In 30 cases (5.4%), SES could not be estimated due to missing data.

After a brief explanation of the study, included in the informed consent forms, an assessment protocol including self-report measures was distributed and applied to the adolescent population in the Azores. Protocol administration took approximately 40 min. Ethical questions involved in this study were safeguarded by the solicitation of parental informed consent forms for all participants, and study goals were properly described.

Measures

Situational Test of Emotional Understanding – Brief

The Situational Test of Emotional Understanding – Brief (STEU-B; original version by Allen et al., 2014; Portuguese version by da Motta et al., 2022) is based on the third branch of the Four-Branch Ability Model (i.e., emotional comprehension) (Mayer & Salovey, 1997) and was validated by Item Response Theory (IRT) analysis (Allen et al., 2014). It is a 19-item version of the original 42-item Situational Test of Emotional Understanding (MacCann et al., 2008). Each item describes a hypothetical interpersonal situation (e.g., "Xavier completes a difficult task on time and under budget. Xavier is most likely to feel?) in which individuals are asked to select the response that presents the most appropriate emotion to feel in the situation (e.g., "a) surprise, b) pride, c) relief, d) hope, e) joy"). For each item, only one answer is considered correct and is scored as 1, whereas the remaining are considered incorrect and are scored as 0 (i.e., dichotomous scoring). Higher scores indicate a higher ability to comprehend emotions. In the study by Allen et al. (2014), significant gender differences, an acceptable internal consistency, $\alpha = 0.63$, and a reliability index of 0.70 were found. Once validated by Item Response Theory (IRT) analysis, it is considered that an instrument can be applied to any population without requiring new validation, regardless of the population in study (Hambleton & Jones, 1993). The Portuguese validation study (da Motta et al., 2022) showed acceptable internal consistency, α (Kuder-Richardson Formula 20 [KR-20]) $= 0.63$. In the present study, an acceptable internal consistency was also found, $\alpha = 0.67$.

Situational Test of Emotional Management – Brief

The Situational Test of Emotional Management – Brief (STEM-B; original version by Allen et al., 2015; Portuguese version by da Motta et al., 2021) was based on the original Situational Test of Emotional Management (STEM; MacCann & Roberts, 2008) and validated by Item Response Theory (IRT) analysis (Allen et al., 2015). Based on the fourth branch of the Four-Branch Ability Model (i.e., emotional regulation/management) (Mayer & Salovey, 1997), this measure comprises 18 items each describing a hypothetical interpersonal situation (e.g., "Paulo has a new job where he does not know anyone, and he notices that people are not particularly friendly") in which individuals are asked to select the response that is the most effective course of action (e.g., "Have fun with his previous friends outside of working hours", "Focus on doing his job well in the new workplace", "Make an effort to talk and be friendly with others", "Leave the job and find a new one with a better environment"). For each item, only one answer is considered correct and is scored as 1, whereas the remaining are considered incorrect and are scored as 0 (i.e., dichotomous scoring). Higher scores indicate a higher ability to manage/regulate emotions. The original study (Allen et al., 2015) revealed significant gender differences, good internal consistency, $\alpha = 0.86$, and a reliability index of 0.94. The Portuguese validation study (da Motta et al., 2021) showed acceptable internal consistency, α (KR-20) $= 0.62$. The present study found an acceptable internal consistency, $\alpha = 0.69$.

Impulse, Self-harm and Suicide Ideation Questionnaire for Adolescents

The Impulse, Self-harm and Suicide Ideation Questionnaire for Adolescents (ISSIQ-A; Barreto Carvalho et al., 2015) is a self-report measure comprised of a total of 56 items organized into four sections: A for impulsivity, B for self-harm and risk behaviors, C for the automatic and the social reinforcement functions of self-harm, and D for suicidal ideation. This measure was used to assess self-harm (eight items; e.g., "I cut certain parts of my body on purpose (with blades, scissors, knives, cutter, etc.)") and risk behaviors (six items; e.g., "I excessively abuse alcohol"), given these were the only variables of interest for the study. Each item is rated on a 4-point Likert scale (0 = *Never happens to me*; 3 = *Always happens to me*), with higher scores being indicators of a greater presence of self-harm and risk behaviors. The original study (Barreto Carvalho et al., 2015) revealed an excellent internal consistency for self-harm ($\alpha = 0.90$) and a good internal consistency for risk behaviors ($\alpha = 0.81$). Similar internal consistencies were found in the present study, $\alpha = 0.93$ for self-harm and $\alpha = 0.88$ for risk behaviors.

Statistical Analysis

Analysis of missing data was performed on the variables in this study, showing that missing values were random and $< 5\%$. The series mean method was used for imputation. Data were analyzed using SPSS version 27 and AMOS version 26.

Descriptive statistics and correlation analyses were used to characterize all variables and explore the associations between emotional intelligence and all other variables in the study. Moreover, independent samples *t*-tests and ANOVAs were conducted to explore the differences in emotional intelligence between both genders, age groups, socioeconomic status, and years of education. To examine age differences, participants were divided into two age groups: younger (i.e., 14–16) and older (i.e., 17–20). Participants who answered at least one (*Sometimes happens to me*) in any item of the risk behaviors subscale and of the self-harm subscale were considered to engage in the corresponding behavior. Because of the increased statistical power of analyses with large samples, Cohen's *d* effect sizes were calculated to aid in distinguishing statistical significance with more practical implications from statistical significance due to test sensitivity. Cohen (1988) defined effect sizes as small if $0.20 \geq d < 0.50$, medium if $0.50 \geq d < 0.80$, and large if $d \geq 0.80$. Multiple regression analyses were conducted to examine the impact that emotional intelligence had in risk behaviors and NSSI behavior. Logistic regression analyses were performed to estimate the explanatory role of each variable in the engagement in risk behaviors and NSSI behavior.

Results

Characterization of Emotional Intelligence, Risk Behaviors, and NSSI

The total sample showed a mean of 8.8 ($SD = 3.4$) for emotional comprehension ability (STEU-B) and a mean of 8.7 ($SD = 3.2$) for emotional management/regulation ability (STEM-B). Regarding gender differences, females displayed significantly higher levels of both emotional abilities, with a small effect size. The descriptives of emotional intelligence are presented in Table 1.

Statistically significant differences were also found between both age groups (i.e., 14–16 and 17–20) regarding STEU-B, $t(557) = -3.12$, $p = 0.002$, and STEM-B, $t(557) = -2.71$, $p = 0.007$, with the older adolescents scoring higher on both emotional abilities, $M = 9.2$ ($SD = 3.5$) and $M = 9$ ($SD = 2.7$), respectively, when compared to the younger adolescents (STEU-B, $M = 8.2$, $SD = 3.3$; STEM-B, $M =$

Table 1 Gender differences in emotional understanding and emotional management/regulation

	Males ($n = 224$)		Females ($n = 335$)		*t*	*p*	Cohen's *d*
	M	*SD*	*M*	*SD*			
STEU-B	8	3.3	9.3	3.4	−4.45	< 0.001	0.38
STEM-B	8.3	3.2	9	3.2	−2.77	0.006	0.24

STEU-B The Situational Test of Emotional Understanding – Brief (STEU-B; original version by Allen et al., 2014; Portuguese version by da Motta et al., 2022), *STEM-B* The Situational Test of Emotional Management – Brief (STEM-B; original version by Allen et al., 2015; Portuguese version by da Motta et al., 2021)

8.3, $SD = 2.5$). Lastly, statistically significant differences were found regarding socioeconomic groups and years of education for STEU-B, $F(4, 91.760) = 18.31$, $p < 0.001$, and $F(2, 240.013) = 23.04$, $p < 0.001$, respectively, as well as for STEM-B, $F(4, 500) = 8.33$, $p < 0.001$, and $F(2, 219.472) = 9.30$, $p < 0.001$, respectively; participants from higher socioeconomic status and participants with more years of education showed higher levels of both emotional abilities compared to participants from lower socioeconomic status and participants with fewer years of education, respectively.

Approximately a quarter (24.5%) of participants reported engaging in any risk behavior at least sometimes, with males ($M = 1.5$, $SD = 3$) displaying significantly higher levels than females ($M = 0.5$, $SD = 1.5$), $F(1, 299.110) = 20.13$, $p < 0.001$. The effect size was $d = 0.41$, revealing a small effect. Moreover, 23.8% of adolescents reported having engaged in one form of NSSI behavior at least sometimes, with males ($M = 1.7$, $SD = 4$) showing significantly higher levels than females ($M = 1$, $SD = 2.7$), $F(1,362.169) = 20.134$, $p = 0.021$. A small effect size was found ($d = 0.21$).

The Relationships Between Emotional Intelligence, Risk Behaviors, and NSSI

Correlation analyses were conducted between all study variables. Emotional intelligence was negatively and moderately associated with risk behaviors and NSSI behavior. The correlation coefficients are presented in Table 2
2.

Multiple Regression of Risk Behaviors and NSSI On Emotional Intelligence

A multiple linear regression analysis was used to assess the explanatory role of emotional intelligence in the engagement in risk behaviors and NSSI behavior. The negative regression coefficients indicate that lower scores of emotional management/regulation lead to more frequent engagement in risk behaviors and NSSI behaviors. Moreover, the male gender was associated with the engagement in risk behaviors.

Considering the gender differences found in both engagement in risk behaviors and NSSI, as well as the differences observed in emotional abilities, it was

Table 2 Correlation coefficients between emotional intelligence, risk behaviors, and NSSI

Variables	Risk behaviors	NSSI	STEU-B	STEM-B
STEU-B	−0.21**	−0.22**	–	0.48**
STEM-B	−0.25**	−0.21**	0.48**	–

NSSI Nonsuicidal self-injury, *STEU-B* The Situational Test of Emotional Understanding – Brief (STEU-B; original version by Allen et al., 2014; Portuguese version by da Motta et al., 2022), *STEM-B* The Situational Test of Emotional Management – Brief (STEM-B; original version by Allen et al., 2015; Portuguese version by da Motta et al., 2021)

** $p < 0.01$

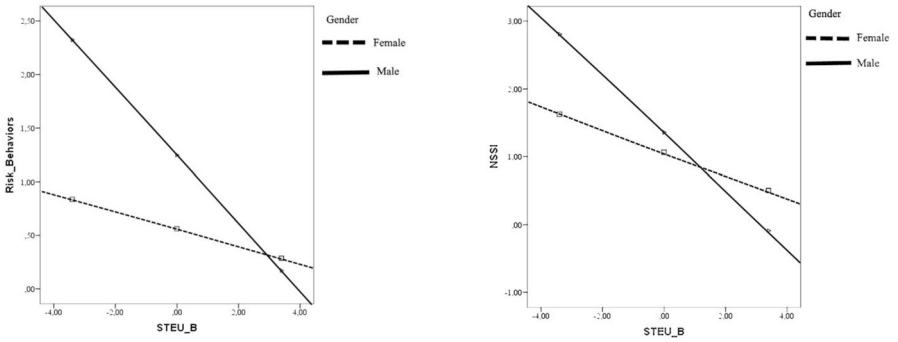

Fig. 1 Simple slopes of the associations between STEU-B and risk behavior and NSSI by gender. *Note*. NSSI = Nonsuicidal self-injury; STEU-B = The Situational Test of Emotional Understanding – Brief (STEU-B; original version by Allen et al., 2014; Portuguese version by da Motta et al., 2022)

Table 3 Standardized estimates and regression coefficients for the multiple regression model

	B	*SE*	*z*	*p*
NSSI ← STEM-B	−0.21	0.04	−4.96	< 0.001
Risk Behaviors ← STEM-B	−0.21	0.03	−5.11	< 0.001
Risk Behaviors ← Gender	−0.11	0.12	4.30	< 0.001
NSSI ← STEU-B*Gender	−0.21	0.07	−4.99	< 0.001
Risk Behaviors ← STEU-B*Gender	−0.23	0.05	−5.57	< 0.001

NSSI Nonsuicidal self-injury, *STEM-B* The Situational Test of Emotional Management – Brief (STEM-B; original version by Allen et al., 2015; Portuguese version by da Motta et al., 2021); *STEU-B* The Situational Test of Emotional Understanding – Brief (STEU-B; original version by Allen et al., 2014; Portuguese version by da Motta et al., 2022)

pertinent to explore if gender moderates the relationship between emotional comprehension (STEU-B) and both risk behaviors and NSSI. Results from the moderation analysis showed a significant moderating effect of gender in the relationships between STEU-B and risk behaviors, $R^2 = 0.038$, $F(1,555) = 10.09$, $p < 0.001$, as well as between STEU-B and NSSI behavior, $R^2 = 0.017$, $F(1,555) = 6.29$, $p = 0.012$). To better understand these results, a graphic representation of both moderation analyses was plotted (see Fig. 1).

The graphs revealed a negative slope for both genders, which means that individuals presenting low scores on STEU-B exhibited high scores of risk behaviors and NSSI behavior. However, this association was more pronounced among the male gender; for low scores on STEU-B, the male gender showed a more evident association with high levels of risk behaviors and NSSI behavior. The model presented good fit indices: $\chi^2/df = 1.442$; GFI = 0.997; CFI = 0.999; TLI = 0.994; RMSEA = 0.028, $p(\text{rmsea} \leq 0.05) = 0.681$; PGIF = 0.142; PCFI = 0.200. The final model explained 16% of the variance in risk behaviors and 12% of the

Table 4 Logistic regression of risk behaviors on STEM-B and gender

	B	*SE*	Wald's χ^2	*p*	Odds ratio
Constant	0.09	0.35	0.063	0.081	1.091
STEM-B	−0.12	0.04	10.69	0.001	0.886
Gender	−0.44	0.21	4.30	0.038	0.643

Note. STEM-B = The Situational Test of Emotional Management – Brief (STEM-B; original version by Allen et al., 2015; Portuguese version by da Motta et al., 2021)

Table 5 Logistic regression of NSSI on STEM-B

	B	*SE*	Wald's χ^2	*p*	Odds ratio
Constant	−0.79	0.36	4.79	0.029	0.455
STEM-B	−0.08	0.04	4.45	0.035	0.926

Note. NSSI = Nonsuicidal self-injury; STEM-B = The Situational Test of Emotional Management – Brief (STEM-B; original version by Allen et al., 2015; Portuguese version by da Motta et al., 2021)

variance in NSSI behavior (based on the R^2). The standardized estimates of this model that were significant are presented in Table 3.

Logistic Regressions of Risk Behaviors and NSSI on Emotional Intelligence, Gender, and Interaction

Lastly, two logistic regressions using the enter method were used to explore the explanatory role of emotional management/regulation (STEM-B), emotional comprehension (STEU-B), gender, and the interaction between STEU-B and gender, in the possibility of engaging in any risk behaviors, as well as in NSSI behavior, or not.

Regarding risk behaviors, the adjusted logit model was statistically significant, $G^2_4 = 34.27$, $p < 0.001$, $R^2_{CS} = 0.06$, $R^2_N = 0.09$. Emotional management/regulation, $B = -0.12$, Wald's $\chi^2(1) = 10.69$, $p = 0.001$, and gender, $B = -0.44$; Wald's $\chi^2(1) = 4.29$, $p = 0.038$, had a stronger and significant effect over the probability logit of a given occurrence (risk behaviors). The logistic regression model is presented in Table 4 and correctly classified 76.2% of participants with and without risk behaviors. The model had a low sensitivity (10.3%) and high specificity (97.4%), indicating its utility to classify the population without risk behaviors with good discriminant ability (area under the curve [AUC] = 0.650, $p < 0.001$).

Concerning NSSI, the adjusted logit model was statistically significant, $G^2_4 = 23.89$, $p < 0.001$, $R^2_{CS} = 0.04$, $R^2_N = 0.06$. Only emotional management/regulation, $B = -0.08$, Wald's $\chi^2(1) = 4.45$, $p = 0.035$, had a stronger and significant effect over the probability logit of a given occurrence (NSSI behavior). The logistic regression model is presented in Table 5 and correctly classified 76.8% of participants with and without NSSI behavior. The model also had low sensitivity (3.8%) and high specificity (99.8%), indicating its utility to classify populations without NSSI behavior with good discriminant ability (AUC = 0.633, $p < 0.001$).

Discussion

The literature shows that emotional intelligence is associated with a variety of vulnerabilities in adolescence, such as risk behaviors and NSSI; however, to our knowledge, little is known about this skill and these relationships at the regional level in Portugal. Furthermore, most previous studies in adolescence assess emotional intelligence using subjective measures that do not fully capture this variable as a personal skill. Thus, this study used two measures of emotional intelligence ability (i.e., STEU-B, STEM-B) and aimed to characterize this skill in an adolescent sample living in a specific Portuguese region, as well as explore its relationships with risk behaviors and NSSI.

Female adolescents showed higher levels of both dimensions of emotional intelligence, in line with other studies (e.g., Gomez-Baya et al., 2017; Salguero et al., 2012), which may be explained by the modern social context in which it is more socially acceptable for the female gender to express their emotions, with male emotional inhibition being often culturally reinforced (Naghavi & Redzuan, 2011). Older adolescents (i.e., 17–20) showed higher emotional intelligence than their younger counterparts (i.e., 14–16), which may be explained by the hierarchical dimensions of this skill of the Four-Branch Ability Model (Mayer & Salovey, 1997); more specifically, by the fact that the last two branches require more complex cognitive processes (Mayer & Salovey, 1997; Mayer et al., 2004). In line with this, individuals with more years of education also showed higher levels of this skill, which may also be explained by the fact that, as with any form of intelligence, the healthy development of emotional intelligence requires training and stimulating emotional experiences (Mayer & Salovey, 1997; Mayer et al., 2004), such as those of the school context (e.g., coping with a bad mark, dealing with teachers and classmates), which become increasingly more emotionally demanding as adolescents progress over the school years. Lastly, individuals with higher socioeconomic status also exhibited higher levels of emotional intelligence, which may be due to the possibility that this group of people is more likely to have fewer concerns about fulfilling their most basic needs (e.g., food, water, rest, employment) and are, thus, more likely to have more availability for focusing on meeting their (higher) psychological needs (e.g., belongingness, esteem) (in line with Maslow's (1943) motivational theory of human needs), which imply emotional experiences (e.g., in interpersonal relationships) and increase their chances of developing a healthier emotional intelligence. Moreover, a higher socioeconomic status may also be associated with an increased parents' ability to provide their children with access to certain services, such as psychology consultations and social-emotional learning programs, which can be pivotal for emotional intelligence development.

In the multiple regression model, emotional management/regulation was negatively associated with both risk behaviors and NSSI, which is in line with previous research that found that emotional dysregulation increases the risk for the engagement in these behaviors (Barahmand et al., 2016; Brausch et al., 2022; Hessler & Katz, 2010). However, this model explained relatively low percentages

of the variances in these behaviors (i.e., 16% and 12%, respectively), which suggests that there are other factors that play role in the engagement in risk behaviors and NSSI, such as peer influence (Gallegos et al., 2021; Mathew, 2020). More specifically, during adolescence the need to belong and to be included in the peer group increases adolescents' vulnerability to engage in risk behaviors (e.g., Nováková & Vávrová, 2015), particularly if these behaviors are accepted or common within their social group. On the other hand, peer group relationships may also be a protective factor against these behaviors if the group does not engage in them.

Results of the logistic regression show that emotional management/regulation is associated with the engagement in risk behaviors and NSSI, indicating that these behaviors may be used as a dysfunctional emotion regulation strategy (Nock & Prinstein, 2004). More specifically, this emotional intelligence skill had a predictive accuracy of 97.4% and 99.8% in the adolescents that did not show risk behaviors and NSSI, respectively, and a predictive accuracy of 10.3% and 3.8% in those that showed these behaviors, respectively. As mentioned above, these findings suggest that the engagement in these behaviors may also be explained by other variables, despite emotional intelligence playing a particularly important role in the absence of the engagement in these behaviors.

These findings have important practical implications in that emotional management/regulation and other components of emotional intelligence should be a target for interventions aiming to prevent or reduce the engagement in risk behaviors and NSSI in adolescence; higher levels of emotional intelligence will likely lead to higher levels of intra and interpersonal adjustment, which will also decrease the risk for these behaviors. For example, emotional intelligence should be promoted in individual interventions (e.g., with adolescents who engage in any of these behaviors), as well as in school settings (e.g., by the schools' counseling services) and in the family context (e.g., interventions aiming to promote positive parenting practices).

This study has some important limitations that should be noted, including the cross-sectional design, which does not allow us to make predictive inferences between emotional intelligence and risk behaviors and NSSI, and the use of self-report measures which increases the risk for social desirability responding. Another limitation was having measured only two components of emotional intelligence (i.e., emotional comprehension, emotional management/regulation), so future studies should explore the other components (i.e., emotional perception, emotional integration) in relation to the engagement in risk behaviors and NSSI in adolescence. Despite these limitations, this study has some strengths, including having assessed emotional intelligence using two objective ability measures, thus caution should be taken when interpreting these findings and comparing them to previous studies in adolescent samples examining this skill with subjective measures (i.e., perceptions of own emotional intelligence); another strength is being one of the first studies examining emotional intelligence in a Portuguese adolescent sample, providing the first results in this topic that should guide future studies. Moreover, despite one previous study (Monaci et al., 2013) having found that emotional intelligence buffers the negative effect of peer pressure on alcohol use and abuse, future studies should explore the relationship between other variables related to peer relationships

and emotional intelligence when explaining the emergence and maintenance of risk behaviors and NSSI in adolescence. Furthermore, future studies should explore the influence of specific parental behaviors (e.g., communication style) and other parental factors (e.g., parental emotional intelligence) on the development of emotional intelligence in adolescence. Lastly, future research should examine whether potential effects differ across socioeconomic groups, particularly given the finding that emotional intelligence varies between higher and lower socioeconomic status groups.

Conclusion

There is limited research at the regional level in Portugal exploring emotional intelligence and its relationships with risk behaviors and NSSI in adolescence. Furthermore, most previous studies have examined emotional intelligence in adolescents using subjective measures (i.e., perceptions), which may not fully capture this skill objectively (i.e., ability). To address these gaps, this study aimed to characterize two components of emotional intelligence (i.e., emotional comprehension, emotional management/regulation) in an adolescent sample living in a Portuguese region and explore their relationships with the engagement in risk behaviors and NSSI. Emotional management/regulation was found to be negatively associated with risk behaviors and NSSI, highlighting the relevance of promoting emotional intelligence in a variety of contexts when preventing or mitigating these behaviors during adolescence.

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Data Availability The data that support the findings of this manuscript are available from the corresponding author upon reasonable request.

Declarations

Ethical Approval This study was approved by the Ethics Committee of the University of the Azores and complied with the ethical standards as laid down in the 1964 Declaration of Helsinki and its later amendments or comparable ethical standards.

Informed Consent Informed consent was obtained from all participants included in the study.

Competing Interests The authors have no competing interests to declare that are relevant to the content of this manuscript.

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