

# Decision-making Styles in Adolescent Offenders and Non-offenders: Effects of Emotional Intelligence and Empathy

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## ABSTRACT

The literature indicates that adolescents with delinquent behavior have greater difficulty making rational decisions and show lower emotional intelligence and empathy. Decision-making is a set of complex processes associated with neurobiological, cognitive, emotional, and social factors which help regulate and guide behavior, which could be influenced by emotional intelligence and empathy. A comparative, correlational, and predictive study was conducted to analyze relationships and influence of emotional intelligence and empathy in decision-making styles in adolescent offenders and non-offenders. 808 Colombian adolescents between 14 and 18 years of age participated (50% offenders). The results indicated significant differences in emotional attention, perspective taking, fantasy, empathic concern, vigilance, and hypervigilance. Emotional repair and perspective taking were identified as favoring rational decision-making. Additionally, emotional attention and personal distress were found to influence hypervigilance, buck-passing, and procrastination. The importance of intervening in emotional intelligence and empathy to favor decision-making styles in adolescents is discussed.

## Los estilos de toma de decisiones en los adolescentes delincuentes y no delincuentes: la influencia de la inteligencia emocional y de la empatía

## RESUMEN

La literatura indica que los adolescentes que presentan conductas delictivas tienen mayor dificultad para tomar decisiones racionales y muestran menor inteligencia emocional y empatía. La toma de decisiones es un conjunto de procesos complejos asociados a factores neurobiológicos, cognitivos, emocionales y sociales que ayudan a regular y orientar la conducta, que podría estar influenciada por la inteligencia emocional y la empatía. Se realizó un estudio comparativo, correlacional y predictivo para analizar las relaciones y la influencia de la inteligencia emocional y la empatía en los estilos de toma de decisiones de adolescentes delincuentes y no delincuentes. Participaron 808 adolescentes colombianos entre 14 y 18 años (50% con conducta delictiva). Los resultados indicaron que había diferencias significativas en atención emocional, toma de perspectiva, fantasía, preocupación empática, vigilancia e hipervigilancia. Se observó que la reparación emocional y la toma de perspectiva favorecían la toma de decisiones racional. Además, se observó que la atención emocional y la angustia personal influían en la hipervigilancia, el escaqueo y la procrastinación. Se discute la importancia de intervenir en la inteligencia emocional y la empatía para favorecer los estilos de toma de decisiones en los adolescentes.

### Palabras clave:

Delincuentes juveniles  
Toma de decisiones  
Inteligencia emocional  
Empatía

The study of decision-making is complex, as it deals with processes that constantly affect life experience and behavior. Among other aspects, analyzing decision-making implies knowledge of neurobiological mechanisms, the role of learning and memory, and understanding the purpose and analyzing the motivations, the context, and the dynamics that lie at the bottom of each decision (Altman, 2017). Methods for the study of decision-making are complementary

to each other and include physiological and neuropsychological measures (van den Bos et al., 2013), self-reports, execution tests (Li et al., 2019; Sorge et al., 2015; Yao et al., 2019), and laboratory experiments (van Gelder et al., 2019). The decision-making analysis requires differentiation between situations, the level of importance of the decision, and cultural conditions. The individual styles that people use to decide should also be considered (Avsec, 2012; Ekel et al., 2020).

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From the perspective of rationalist theories, decision-making is affected by normative criteria, personal history, learning, beliefs, values, and metacognitions (Bruine de Bruin et al., 2015). Decision-making is considered a set of mainly cognitive complex processes which enable behavior and activities to be designed, planned, carried out, and controlled. These processes are directly associated with the level of motivation, objectives, and available resources (Ekel et al., 2020; Kahneman, 2011). Within the framework of the study of decision-making, researchers have defined competencies that evolve throughout life. These include resistance to loss, recognition of social norms, level of confidence in deciding, perception of risk, resistance to the regulatory framework, and application of decision rules (Bruine de Bruin et al., 2020).

There is consensus on the existence of decision-making styles: people make decisions that are satisfactory or seek to maximize profits. They can be more rational or intuitive, action-oriented or avoidant, and independent or dependent (Bruine de Bruin et al., 2015). The study of decision-making styles in adolescents seeks to identify judgment strategies, cognition, and emotions involved to help reduce risk behaviors and promote healthy lifestyles (Reyna, 2018). Rational decision-making styles associated with protective factors such as resilience, optimism, and social support favor mental health (Bavolar & Bacikova-Sleskova, 2020).

Evidence indicates that juvenile offenders use rational cost-benefit analysis to decide on their involvement in criminal acts (Zhao et al., 2021). Traumas caused by various types of abuse or neglect in early childhood have been found to significantly affect brain development, which in turn influences the ability to make decisions, increasing the risk of criminal behavior (Williams, 2020). It has also been proposed that failure of executive control affects self-regulation and facilitates a lack of moral commitment. Furthermore, judgments about the certainty of the punishment and the rewards of the offense seem to mediate the effects of self-control on criminal behavior (Altikriti, 2021).

### Emotional Intelligence and Empathy

In the skill model (Mayer et al., 2001; Mayer et al., 2004; Mayer et al., 2016; Mayer & Salovey, 1997; Salovey & Mayer, 1990), "emotional intelligence" (EI) describes four domains that identify emotionally intelligent people. They can accurately perceive emotions, use them to facilitate thinking, understand emotional meanings, and regulate feelings in themselves and others (Mayer et al., 2016; Mayer & Salovey, 1997). EI facilitates emotional assessment and prognosis that assists in making judgments and anticipating emotional and behavioral responses (Barrett et al., 2011; Hess et al., 2016; Zeidner et al., 2009).

Meanwhile, "empathy" has been defined as an emotional and cognitive state associated with understanding and the ability to feel other people's emotion (Dohrenwend, 2018). Empathy as a motivational process is determined by physiological and automatic mechanisms, makes use of information analysis, and integrates context determinants that affect the degree of empathic involvement (Longobardi et al., 2020; Zaki, 2014). It has been observed that in circumstances that would expose a person to suffering, material costs, or competitive losses, empathy decreases and tends to increase when there are positive affect, affiliation, and social convenience (Szuster & Jarymowicz, 2020; Zaki, 2014). Empathy is related to emotional regulation and other emotional skills because they include the skills of emotional perception, imitation, and self-reference that cause spontaneous resonance with another person's emotions. It is also related to cognitive processes that facilitate the inference of another person's emotional state and the ability to differentiate between their emotions and another person's (Thompson et al., 2019).

Empathy is a psychological construct closely related to EI because understanding and regulating emotions are required to

achieve empathy (Estévez et al., 2019; Sa et al., 2019). A relationship between empathy and EI has been observed in children and adolescents (Corbí et al., 2008; Gorostiaga et al., 2014). Empathy favors helpful behavior, altruism, and cooperation (Glen et al., 2020; Streit et al., 2020), and those behaviors necessarily involve decision-making (Marshall et al., 2020).

### Emotional Intelligence and Empathy in Offenders

EI has been observed as negatively correlating with antisocial behaviors (Mavroveli & Sánchez-Ruiz, 2011), and fewer EI skills have been identified in adolescent offenders than in their normative peers (Contreras & Cano, 2016; Fariña et al., 2008; Hayes & Reilly, 2013; Kahn et al., 2016). In adults, it has been observed that when emotional regulation problems increase, more psychopathic traits are manifested in the affective, lifestyle, and antisocial domains (Garofalo et al., 2020). Socialization problems and trauma have also been identified as affecting EI in male offenders (Wang et al., 2019).

Empathy has been shown to be associated with fewer antisocial behaviors in children and adolescents (Estévez et al., 2019; Garaigordobil & García de Galdeano, 2006; Thompson & Gullone, 2008). It can also help adolescents inhibit antisocial behavior and maintain better interpersonal relationships (Olthof, 2012). Evidence indicates that teen offenders show less empathy than their peers in the community (Lardén et al., 2006; Robinson et al., 2007). Empathy has also been observed to be inversely related to crime, and low empathy may be a predictor of criminal behavior (O'Neill, 2020).

### Emotional Intelligence, Empathy, and Decision-making

Evidence suggests that emotional responses influence decision-making more than cognitive evaluations (Bechara & Damasio, 2005; Damasio, 1994; Naqvi et al., 2006). Decision-making requires EI and empathy due to the process of self-awareness and the understanding of one's own emotions that enables one to understand others (Brabec et al., 2012), and is affected by emotion, the pursuit of profit, problem-solving, relationship management, emotions, and life orientation (Ekel et al., 2020; Farnia et al., 2018).

Decision-making models propose that rational decision-making processes are more appropriate than intuitive ones and that non-systematic and irrational decision-making actions lead to personal losses and risky behaviors (Ceschi et al., 2019). In a previous study, Avsec (2012) analyzed whether EI was a positive predictor of decision-making styles, and the results showed that higher EI is associated with more frequent use of rational and intuitive decision styles, and lower EI is related to avoidant, dependent, and spontaneous styles. Rationality, intuition, and emotional life are also considered to play a determining and positive role in decision-making (Reyna, 2018). Analyzing the role of EI in decision-making can help to understand the nature of judgments and decisions (Farnia et al., 2018). EI has been observed to facilitate intuitive decision styles and shows a negative mediation effect on dependent and avoidant decision-making styles (El Othman et al., 2020).

Studies with somatic markers (Bechara & Damasio, 2005) have reported that the brain areas related to empathy are more active when making moral decisions (Reniers et al., 2012) and that low EI is associated with less physiological control and higher risk behavior (Yip et al., 2020). In adolescent offenders, a higher level of risk decisions and less vigilance and control in decisions have been observed than in their non-offending peers (Poon, 2020).

This study considers that having EI and empathy positively affects individual well-being, interpersonal relationships, and social adjustment (Nguyen et al., 2019; Salavera et al., 2019), and the cognitive and emotional variables of the dimensions that make up

these constructs could influence more adaptive decision-making styles (Altman, 2017). In addition to helping the individual, they could also favor their context and society (Reyna, 2018). As background, EI in adolescents has been associated with better interpersonal relationships, higher levels of subjective well-being, better school performance, and mental health (MacCann et al., 2020; Nyarko et al., 2020). Meanwhile, empathy has been related to better interpersonal skills and greater prosocial behavior (Rodríguez et al., 2021; Taylor et al., 2020).

Outside of the legal field, the relationship and benefits of empathy and EI on decision making have been the subject of study in business and organizational contexts. From Goleman's emotional intelligence model, it has been identified that EI and empathy contribute to ethical decision-making and leadership (Hess & Bacigalupo, 2013; Issah, 2018). It has also been identified that EI can be useful for decision-making in professions that require specific skills, for example, in negotiators and police officers (Grubb et al., 2018). It has been observed in the educational domain that EI favors decision-making when adolescents and young adults choose professions (Santos et al., 2018).

## The Present Study

Decision-making is particularly important in adolescents due to its role in making judgments, predicting behavior, and planning goals (Fischhoff & Broomell, 2020). Risk decisions have been found to have foreseeable negative effects (Broniatowski & Reyna, 2018), and are more frequent in adolescent offenders (Poon, 2020). EI and empathy have also been observed to be related factors and for this research they have been considered as contributing to more adaptive decision-making styles. Studies that address EI and empathy as predictors of decision-making styles in adolescents have not been observed in the literature, so these constructs will be analyzed in offenders and non-offenders.

**Hypotheses of the study:** (1) adolescent offenders will present poorer performance in EI, empathy, and adaptive decision-making styles; (2) the variables of EI, empathy, and decision-making styles will be related in both populations; and (3) EI and empathy will be predictors of decision-making styles in adolescent offenders and non-offenders.

Concerning the first hypothesis, previous studies have indicated that adolescent offenders show less empathy than their normative peers (Lardén et al., 2006; Robinson et al., 2007) and fewer EI skills (Contreras & Cano, 2016; Kahn et al., 2016). Evidence indicates that adolescents with higher analytical decision-making skills show less antisocial behaviors (Crean, 2012). As for the second hypothesis, evidence indicates a positive relationship between EI and empathy (Corbí et al., 2008; Gorostiaga et al., 2014), and it has been indicated that EI could favor decision-making (Farnia et al., 2018). The third hypothesis is justified by previous studies that have suggested that EI and the emotional and cognitive components of empathy might influence decision making (Altman, 2017; Avsec, 2012).

This study could be useful for the prevention and intervention in socioemotional competencies in antisocial adolescents. Some explanatory and intervention models of criminal behavior have included socioemotional variables, such as the Risk-Need-Responsibility - RNR model (Andrews & Bonta, 2017). This model has identified that the development of self-control and problem-solving skills helps to control antisocial personality patterns. A positive effect is achieved through intervention in reducing dynamic criminological needs by "increasing self-control skills, fostering empathy, improving problem-solving skills, and controlling negative emotions" (p. 53). Addressing cognitive-emotional states associated with delinquency, such as anger and feelings of irritation or resentment, intervenes in criminal

attitudes, a predictor of persistence. Intervention in the RNR model contemplates "developing problem-solving skills, self-control skills, anger management, and coping skills" (p. 288).

## Method

### Participants

Eight hundred eight (808) adolescents from four cities in Colombia participated in a sample obtained by availability and convenience. Fifty percent ( $n = 404$ ) were from *Sistema de Responsabilidad Penal para Adolescentes* (SRPA), aging between 14 and 18 years old ( $M = 16.6$ ,  $SD = 1.04$ ), 17.3% being girls ( $n = 70$ ). They had been prosecuted for theft (33.2%,  $n = 134$ ), aggravated robbery (16.6%,  $n = 67$ ), drug manufacture and trafficking (20.5%,  $n = 83$ ), physical injuries (5.6%,  $n = 23$ ), attempted homicide (2.7%,  $n = 11$ ) and homicide (3.2%,  $n = 13$ ), sexual crimes (4.4%,  $n = 18$ ), carrying weapons and ammunition (4.5%,  $n = 18$ ), participation in organized crime (3.7%,  $n = 15$ ), extortion (2.7%,  $n = 11$ ), or other crimes (2.9%,  $n = 12$ ). The other group of participants, 50% ( $n = 404$ ), were regular school students, between 14 and 18 years old ( $M = 15.5$ ,  $SD = 1.29$ ), of whom 47.8% were girls ( $n = 193$ ). The sample inclusion criteria were being between 14 and 18 years old and not having been diagnosed with serious mental health problems. Twenty surveys from the sample of adolescent offenders and 16 surveys from the sample of adolescents in school were not included in the final sample due to errors in completing the questionnaires. The sample for the study was estimated with a confidence level ( $1 - \alpha$ ) of 99% and accuracy ( $d$ ) 3%. According to the analyses, the required sample for non-offenders was 350 participants. For offenders, 346 were required based on a population of 30,000 adolescents (the average number of individuals prosecuted per year). This indicates that the results obtained are representative of the population.

### Instruments

**The Trait Meta-Mood Scale** (TMMS-24) was used to assess emotional intelligence (Fernández-Berrocal et al., 2004). It consists of 24 items, with the following response options: *strongly disagree* (score 1), *disagree* (2), *neither agree, nor disagree* (3), *agree* (4), and *strongly agree* (5). Each subscale of the emotional intelligence measure is made up of 8 items that assess attention, clarity, and emotional repair. TMMS-24 reliability in the sample of offenders and non-offenders was .93 and .90, respectively. The reliability of each factor in each sample is presented in Table 1.

**Empathy** was evaluated with the Interpersonal Reactivity Index-IRI (Davis, 1980; Mestre-Escrivá et al., 2004). This scale evaluates cognitive and emotional factors of empathy and consists of 28 items distributed in 4 subscales: perspective taking, fantasy, empathic concern, and personal distress, with seven items each. The Likert-type format of the scale has five response options: *does not describe me very well* (1), *does not describe me well* (2), *describes me more or less* (3), *describes me well* (4), and *describes me very well* (5). The reliability of the IRI in the sample of offenders and non-offenders was .72 and .88, respectively.

**Decision-making styles** were assessed using the Melbourne Decision-making Questionnaire-MDMQ (Mann et al., 1997). This questionnaire is made up of 22 items, which have three response options: *very true for me* (score 2), *somewhat true for me* (score 1), and *not at all true for me* (score 0). It has four subscales that evaluate vigilance (6 items), hypervigilance (5 items), buck-passing (6 items), and procrastination (5 items). In decision-making styles, vigilance involves a careful, unbiased, thorough, and rational evaluation of alternatives; a hurried and anxious approach characterizes hypervigilance; procrastination refers to a delay in decision making; and buck-passing is a style that involves leaving decisions to others and avoiding res-

possibilities (Cotrena et al., 2018). The reliability of the MDMQ in the sample of offenders and non-offenders was .79 and .80, respectively.

**Procedure**

The procedures used for the data collection were carried out following the guidelines of the Declaration of Helsinki (World Medical Association, 2013). This research was approved by the Ethics Committee of the University of Valencia and authorized by the Instituto Colombiano de Bienestar Familiar-ICBF (SRPA).

Written informed consent and permissions were requested from the directors of schools and centers, parents, and legal guardians (including judges). Adolescents were informed about the research and participated voluntarily, anonymously, and free of charge. The evaluation was conducted in classrooms in groups of 3 to 5 adolescents during school hours. Researchers and principals of each grade were present. The duration of the application was approximately 40 minutes, and surveys in paper format were used.

**Data Analysis**

All statistical procedures were performed using the SPSS-25 program. First, reliability and descriptive analysis were performed for each of the factors evaluated in the study. Student's *t*-tests were then used to determine the existence of statistically significant differences in the mean between groups. The effect size of differences was also estimated (Cohen, 1988).

Second, bivariate Pearson correlations were performed between the variables of interest. Fisher's Z tests were used to examine whether the strengths of the correlations differed significantly between the groups. Finally, hierarchical linear regressions were performed to predict the decision-making styles in each of the samples, setting age, and gender as control variables; the dimensions of EI and empathy were the independent variables (Stockemer, 2019).

**Results**

**Descriptive Data and Differences in the Mean of the Variables**

The descriptive results indicate that the group of adolescent non-offenders show greater EI, empathy, and rationality in decision-making. When comparing the two groups (Table 1), the variables vigilance, fantasy, empathic concern, and perspective taking present statistically significant differences and greater effect size.

In EI, only emotional attention differences were observed between the two groups.

**Relationships between Study Variables**

All decision-making styles were positively and significantly related to emotional attention, perspective taking, fantasy, empathic concern, and personal distress in offending participants. Only vigilance, which is the most adaptive style of decision-making, was positively associated with all EI variables. No relationship between clarity and emotional repair with less adaptive decision-making styles was observed. Interestingly, vigilance was the variable most closely related to the variables of EI and empathy. Personal distress was closely related to less adaptive decision-making styles.

In non-offending participants, vigilance was positively related to EI variables and negatively to personal distress. Hypervigilance was negatively related to clarity and emotional repair and positively to fantasy and personal distress. However, there is no relationship between hypervigilance and emotional attention, and perspective taking. Meanwhile, buck-passing was positively related to emotional attention and fantasy and negatively to clarity and emotional repair. Finally, procrastination was negatively related to clarity and emotional repair and positively to fantasy and personal distress (Table 2). Fisher's Z-tests were performed to check for significant differences in the results of the correlations of adolescent offenders and non-offenders.

The results showed that some correlations between variables occurring in the sample of adolescent offenders are not present in adolescent non-offenders, such as the relationship between emotional clarity and personal distress and between reparation and empathic concern.

Statistically, significant differences are observed in the correlations of the EI and empathy variables when they occur simultaneously in offender and non-offender groups. No differences are observed in the relationship between emotional attention and buck-passing (Fisher's *Z* = 0.015, *p* = .49). In fantasy with hypervigilance (*Z* = -0.86, *p* = .19), and buck-passing (*Z* = -1.19, *p* = .11). There was also no difference in the relationship between personal distress with hypervigilance (*Z* = -0.88, *p* = .19), buck-passing (*Z* = -1.25, *p* = .10), and procrastination (*Z* = -0.46, *p* = .32). Similarly, in hypervigilance with buck-passing (*Z* = -1.17, *p* = .12), and procrastination (*Z* = -0.64, *p* = .26). The most significant differences are between personal distress with the variables emotional clarity (*Z* = -9.37, *p* = .001), emotional repair (*Z* = -9.43, *p* = .01), perspective taking (*Z* = -9.37, *p* = .001), and empathic concern (*Z* = -11.3, *p* = .001).

**Table 1.** Differences of Emotional Intelligence, Empathy, and Decision-making Styles in Adolescents

	Offenders (n = 404)			Non-offenders (n = 404)			<i>t</i> <sub>(1,806)</sub>	<i>p</i>	95% CI		Cohen's <i>d</i>
	<i>M</i>	<i>SD</i>	$\alpha$	<i>M</i>	<i>SD</i>	$\alpha$			<i>LL</i>	<i>UL</i>	
Emotional intelligence (TMMS-24)			.93			.90					
Attention	24.5	7.3	.86	26.6	6.8	.85	4.166	.001	1.09	3.04	0.40
Clarity	25.6	7.5	.88	25.1	6.8	.88	-0.940	.348	-1.46	0.51	0.06
Repair	27.4	7.3	.87	27.8	6.9	.86	0.891	.373	-0.54	1.45	0.06
Empathy (IRI)			.88			.72					
Perspective Taking	20.7	5.1	.67	23.4	4.9	.66	7.685	.001	1.99	3.36	0.54
Fantasy	19.6	5.6	.67	23.1	5.1	.65	9.280	.001	2.77	4.26	0.65
Empathic Concern	19.5	5.3	.68	25.2	4.3	.63	16.761	.001	5.03	6.36	1.18
Personal Distress	18.8	5.3	.70	18.7	4.9	.68	-0.310	.756	-0.81	0.59	0.02
Decision-making styles (MDMQ)			.80			.79					
Vigilance	7.2	2.7	.74	9.0	2.2	.65	10.75	.001	1.50	2.17	0.76
Hypervigilance	4.4	2.0	.65	5.2	1.9	.69	6.156	.001	0.58	1.13	0.43
Buck-passing	4.2	2.1	.66	4.0	2.4	.77	-1.228	.220	-0.51	0.11	0.08
Procrastination	4.1	2.3	.68	4.1	2.2	.67	0.094	.925	-0.29	0.32	0.004

Note. Effect size: *d* = 0.20 (small), *d* = 0.50 (moderate), and *d* = 0.80 (large) (Cohen, 1988);  $\alpha$  = Cronbach's alpha.

**Table 2.** Bivariate Correlations between Emotional Intelligence, Empathy, and Decision-making Styles in two Samples of Adolescents

	1	2	3	4	5	6	7	8	9	10	11
1. Attention	–	.38**	.25**	.29**	.17**	.18**	.057	.12*	.08	.17***	.07
2. Clarity	.67**	–	.49**	.22**	-.037	-.002	-.25**	.21**	-.23**	-.31**	-.25**
3. Repair	.55**	.66**	–	.31**	-.027	.08	-.29**	.29**	-.27**	-.23**	-.24**
4. Perspective taking	.40***	.43**	.44**	–	.21**	.34***	-.04	.31***	-.005	-.03	-.08
5. Fantasy	.37***	.38***	.29***	.57***	–	.23***	.18***	.069	.22***	.16***	.14**
6. Empathic concern	.33***	.36***	.31***	.64**	.57***	–	.12*	.078	.10*	.00	-.05
7. Personal distress	.37***	.38***	.36***	.61***	.58***	.73***	–	-.23**	.36**	.43**	.33**
8. Vigilance	.34**	.34**	.42**	.42*	.24**	.29**	.27**	–	-.051	-.12*	-.19**
9. Hypervigilance	.18**	.10*	.07	.26**	.28**	.33**	.41**	.15**	–	.53**	.53**
10. Buck-passing	.16***	.02	.06	.17**	.24**	.29**	.35**	.09	.58**	–	.60**
11. Procrastination	.18***	.05	-.003	.18**	.31**	.28**	.36**	-.02	.56**	.58**	–

Note. Correlations for offending participants ( $n = 404$ ) are presented below the diagonal and relationships for non-offending participants ( $n = 404$ ) are presented above the diagonal.

\* $p \leq .05$ , \*\* $p \leq .01$ , \*\*\* $p \leq .001$ .

### Decision-making Styles and the Influence of EI and Empathy

All regression models performed to analyze the influence of emotional intelligence and empathy on decision-making styles were significant. Models were specified in three steps: sociodemographic variables gender (boys 0, girls 1) and age were introduced in the first step, IE variables in the second step, and finally, the empathy variables in the third step.

The regression to predict vigilance was significant the offenders' sample,  $F(9, 393) = 15.286, p = .001$ , and in the non-offenders' sample,  $F(9, 394) = 9.498, p = .001$ . The regression model explained 18% of the variance of the dependent variable in adolescent non-offenders, and 26% in the sample of offenders (Table 3). Emotional repair and perspective taking are variables that contribute to the prediction of vigilance in both samples. Gender (girls,  $\beta = -.17, t = -3.47, p = .001$ ) and less personal distress ( $\beta = -.16, t = -3.09, p = .002$ ) were significant in adolescent non-offenders.

The regression to predict hypervigilance was significant in the sample of offenders,  $F(9, 394) = 10.484, p = .001$ , and in the non-offenders,  $F(9, 394) = 11.928, p = .001$ . The regression model explained 21% of the variance of the dependent variable in the sample of non-offenders, and 19% in the sample of offenders (Table 4). Emotional

attention and personal distress are variables that contribute to the prediction of hypervigilance in both samples. Less repair ( $\beta = -.21, t = -3.88, p < .001$ ), less clarity ( $\beta = -.17, t = -3.15, p = .002$ ) and fantasy ( $\beta = .14, t = -.2.96, p = .003$ ) were also significant in adolescent non-offenders.

The regression to predict buck-passing was significant in the sample of offenders,  $F(9, 394) = 9.228, p = .001$ , and in the non-offenders,  $F(9, 394) = 19.178, p = .001$ . The regression model explained 30% of the variance of the dependent variable in the sample of adolescent non-offenders and 17% in the sample of offenders (Table 5). Personal distress, attention, and less clarity are variables that contribute to the prediction of buck-passing in both groups.

The regression to predict procrastination was significant in the sample of offenders,  $F(9, 394) = 11.300, p = .001$ , and in the non-offenders,  $F(9, 398) = 9.971, p = .001$ . The regression model explained 19% of the variance of the dependent variable in the sample of adolescent non-offenders and 20% in the sample of offenders (Table 6). In both groups, attention, less clarity and emotional repair, and personal distress are variables that contribute to the prediction of procrastination in both groups. In offenders, fantasy ( $\beta = .19, t = 3.19, p = .001$ ), and in non-offenders, less empathic concern ( $\beta = -.11, t = -2.88, p = .003$ ) were significant.

**Table 3.** Hierarchical Multiple Regression for Vigilance Style in Decision-making in Adolescent Offenders ( $n = 404$ ) and Adolescent Non-offenders ( $n = 404$ )

Variable	Sample of offenders ( $n = 404$ )					Sample of Non-offenders ( $n = 404$ )								
	B	95% CI for B		SE B	$\beta$	$R^2$	$\Delta R^2$	B	95% CI for B		SE B	$\beta$	$R^2$	$\Delta R^2$
		LL	UL						LL	UL				
Step 1					.01	.01						.03	.03**	
Constant	5.832**	1.64	10.01	2.12			9.780***	7.25	12.30	1.28				
Gender (Girls 1)	-0.56	-0.12	1.25	0.35	.08		-0.74***	-1.16	-0.32	0.21	-.17***			
Age	-0.07	-0.17	0.32	0.12	.03		-0.25	-1.86	0.37	0.82	-.01			
Step 2					.20	.19***						.10	.07***	
Constant	3.422	-0.38	7.22	1.93			7.458***	4.20	10.06	1.32				
Attention	0.05*	0.00	0.09	0.02	.14***		0.12	0.02	-0.21	0.04	.04			
Clarity	0.01	-0.03	0.06	0.02	.05		0.18	-0.01	-0.18	0.54	.06			
Repair	0.11***	0.06	0.15	0.02	.31***		0.70***	0.03	0.10	0.17	.23***			
Step 3					.26	.06***						.18	.08***	
Constant	2.240	-1.47	5.95	1.89			7.137***	4.20	10.06	1.49				
Perspective taking	0.15***	0.08	0.21	0.03	.29***		0.107***	0.06	0.15	1.23	.24***			
Fantasy	-0.01	-0.07	0.03	0.03	.06		0.26	-0.01	0.16	0.21	.06			
Empathic concern	0.09	-0.03	0.09	0.03	.06		0.09	-0.04	0.06	0.26	.34			
Personal distress	-0.03	-0.10	0.03	0.03	-.07		-0.69**	-0.11	-0.02	0.02	.16**			
Durbin-Watson							1.794						1.937	

Note. B = non-standardized coefficient; CI = confidence interval; LL = lower limit; UL = upper limit; SE B = non-standardized coefficient standard error;  $\beta$  = standardized coefficient;  $R^2$  = coefficient of determination;  $\Delta R^2$  = change of coefficient of determination.

\* $p \leq .05$ , \*\* $p \leq .01$ , \*\*\* $p \leq .001$ .

**Table 4.** Hierarchical Multiple Regression for the Hypervigilance Style in Decision-making in Adolescent Offenders (n = 404) and Adolescent Non-offenders (n = 404)

Variable	Sample of Offenders (n = 404)						Sample of Non-offenders (n = 404)							
	B	95% CI for B		SE B	β	R <sup>2</sup>	ΔR <sup>2</sup>	B	95% CI for B		SE B	β	R <sup>2</sup>	ΔR <sup>2</sup>
		LL	UL						LL	UL				
Step 1													.04	.04 ***
Constant	3.906 **	0.74	7.07	1.60			7.035 ***	4.76	9.30	1.15				
Gender (girls 1)	0.05	-0.47	0.56	0.26	.01		-0.71 ***	0.34	1.09	0.19	.18 ***			
Age	0.03	-0.16	0.21	0.09	.01		-0.14	-0.28	0.00	0.07	-.09			
Step 2													.14	.10 ***
Constant	3.175	-0.02	6.32	1.60			8.241 ***	5.94	10.54	1.17				
Attention	0.06 ***	0.02	0.09	0.09	.22 ***		0.06 ***	0.03	0.01	0.01	.21 ***			
Clarity	-0.01	-0.05	0.06	0.03	-.03		-0.05 **	-0.08	-0.02	0.02	-.18 **			
Repair	-0.01	-0.04	0.15	0.03	-.02		0.06 ***	-0.09	-0.03	0.01	-.21 ***			
Step 3													.21	.07 ***
Constant	1.947	-0.97	4.86	1.48			4.596 ***	4.20	10.06	1.31				
Perspective taking	0.001	-0.05	0.05	0.03	.003		-0.02	-0.06	0.02	0.02	-.04			
Fantasy	0.02	-0.02	0.06	0.03	.07		0.05 *	0.02	0.09	0.02	.14 **			
Empathic concern	0.02	-0.03	0.07	0.03	.05		0.02	-0.02	0.07	0.02	.05			
Personal distress	0.13 ***	0.08	0.19	0.03	.36 ***		0.09 ***	0.05	0.13	0.02	.23 ***			
Durbin-Watson													1.810	1.636

Note. B = non-standardized coefficient; CI = confidence interval; LL = lower limit; UL = upper limit; SE B = non-standardized coefficient standard error; β = standardized coefficient; R<sup>2</sup> = coefficient of determination; ΔR<sup>2</sup> = change of coefficient of determination. \*p ≤ .05, \*\*p ≤ .01, \*\*\*p ≤ .001.

**Discussion**

Decision-making is a complex process that involves neurobiological, cognitive, emotional, and social conditions that enable strategies to plan, carry out, and control behavior to be designed. It is associated with level of motivation, objectives, and available resources (Ekel et al., 2020). The objective of this study was to analyze the relationships and influence of emotional intelligence and empathy decision-making styles in adolescent offenders and non-offenders.

The present study results indicate that EI and empathy affect decision-making styles and that variables with a higher cognitive component, such as emotional attention and perspective taking, favor rationality in decision-making and contribute to organized processes such as seeking information and evaluation of alternatives.

They also show that personal distress influences maladaptive styles such as hypervigilance, which is characterized by anxious thoughts and emotional states. This seems to indicate that personal distress, a variable of empathy characterized by affective and emotional discomfort, may be a factor that encourages avoiding decisions, postponing them, or experiencing the decision-making process anxiously.

It was considered important to examine the emotional and cognitive processes involved in decision-making styles in adolescent offenders and non-offenders because this provides a better understanding of associated factors and the design of strategies to guide decision processes. Some factors that affect decisions have been recognized, and strategies have been proposed to improve judgments (Kahneman, 2011; Reyna, 2018). Competencies that can be strengthened and applied throughout life have also been

**Table 5.** Hierarchical Multiple Regression for the Buck-passing Syle in Decision-making in Adolescent Offenders (n = 404) and Adolescent Non-offenders (n = 404)

Variable	Sample Offenders (n = 404)						Sample Non-offenders (n = 404)							
	B	95% CI for B		SE B	β	R <sup>2</sup>	ΔR <sup>2</sup>	B	95% CI for B		SE B	β	R <sup>2</sup>	ΔR <sup>2</sup>
		LL	UL						LL	UL				
Step 1													.02	.02 **
Constant	4.906 **	1.52	8.29	1.72			6.039 ***	3.20	8.87	1.44				
Gender (Girls 1)	-0.18	-0.47	0.56	0.28	-.03		0.63 **	0.16	1.10	0.24	.13 **			
Age	-0.04	-0.16	0.21	0.10	-.02		-0.15	-0.33	0.03	0.09	-.08			
Step 2													.20	.18 ***
Constant	4.066	0.70	7.42	1.71			7.399 ***	4.66	10.13	1.39				
Attention	0.07 **	0.04	0.11	0.02	.26 ***		0.13 ***	0.09	0.16	0.02	.34 ***			
Clarity	-0.05*	-0.09	-0.008	0.02	-.17*		-0.13 ***	-0.17	0.09	0.02	-.37 **			
Repair	0.01	-0.03	0.05	0.02	.04		-0.04 **	-0.08	-0.008	0.02	-.13 ***			
Step 3													.30	.10 ***
Constant	3.083 *	-0.83	6.25	1.61			3.963 **	0.94	6.98	1.53				
Perspective taking	-0.04	-0.09	0.02	0.03	.09		0.006	-0.04	0.05	0.02	.01			
Fantasy	0.03	-0.01	0.08	0.02	.10		0.03	-0.01	0.07	0.02	.06			
Empathic concern	0.04	-0.02	0.10	0.03	.10		-0.05	-0.10	0.001	0.03	-.09			
Personal distress	0.13 ***	0.07	0.18	0.03	.31 ***		0.16 ***	0.11	0.20	0.02	.32 ***			
Durbin-Watson													2.013	1.760

Note. B = non-standardized coefficient; CI = confidence interval; LL = lower limit; UL = upper limit; SE B = non-standardized coefficient standard error; β = standardized coefficient; R<sup>2</sup> = coefficient of determination; ΔR<sup>2</sup> = change of coefficient of determination. \*p ≤ .05, \*\*p ≤ .01, \*\*\*p ≤ .001.

**Table 6.** Hierarchical Multiple Regression for the Procrastination Style in Decision-making in Adolescent Offenders ( $n = 404$ ) and Adolescent Non-offenders ( $n = 404$ )

Variable	Sample Offenders ( $n = 404$ )					Sample Non-offenders ( $n = 404$ )								
	<i>B</i>	95% CI for <i>B</i>		<i>SE B</i>	$\beta$	$R^2$	$\Delta R^2$	<i>B</i>	95% CI for <i>B</i>		<i>SE B</i>	$\beta$	$R^2$	$\Delta R^2$
		<i>LL</i>	<i>UL</i>					<i>LL</i>	<i>UL</i>					
Step 1						.002	.002						.02	.02 ***
Constant	4.263 **	0.68	7.84	1.82				6.129 ***	3.51	8.73	1.32			
Gender (Girls)	-0.29	-0.88	0.29	0.29	.05			-0.47 *	0.34	1.09	0.22	.10 *		
Age	-0.006	-0.22	0.20	0.10	.03			-0.14	-0.28	0.00	0.08	-.08		
Step 2						.05	.05 **						.12	.10 ***
Constant	3.606 *	0.68	7.14	1.80				7.701 ***	5.05	10.34	1.34			
Attention	0.06 ***	0.02	0.10	0.02	.19 **			0.07 ***	0.03	0.10	0.01	.20***		
Clarity	-0.04	-0.08	0.001	0.01	-.14 *			-0.08 **	-0.11	-0.04	0.02	-.23***		
Repair	-0.05	-0.08	0.009	0.03	-.15*			-0.05 **	-0.09	-0.02	0.02	-.17 **		
Step 3						.20	.15***						.19	.07 ***
Constant	2.623	-0.66	5.90	1.67				5.401 ***	2.40	8.39	1.52			
Perspective taking	0.05	-0.10	0.009	0.03	-.11			-0.02	-0.05	0.04	0.02	-.03		
Fantasy	0.07 ***	0.03	0.12	0.02	.19 ***			0.04	-0.005	0.08	0.02	.08		
Empathic concern	0.01	-0.04	0.07	0.03	.03			-0.05 *	-0.10	-0.003	0.02	-.11 *		
Personal distress	0.15 ***	0.08	0.20	0.03	.34***			0.11 ***	0.06	0.15	0.02	.24 ***		
Durbin-Watson							1.842							1.755

Note. *B* = non-standardized coefficient; CI = confidence interval; *LL* = lower limit; *UL* = upper limit; *SE B* = non-standardized coefficient standard error;  $\beta$  = standardized coefficient;  $R^2$  = coefficient of determination;  $\Delta R^2$  = change of coefficient of determination.

\* $p \leq .05$ , \*\* $p \leq .01$ , \*\*\* $p \leq .001$ .

established, including the application of decisional rules of loss and gain, resistance, prospecting, self-confidence to decide, and consistency in the perception of risk (Bruine de Bruin et al., 2020). Similarly, the existence of decision-making styles, such as rational, intuitive, avoidant, and dependent styles has been identified (Bavolar & Bacikova-Sleskova, 2020; Bruine de Bruin et al., 2015), and some of these decision-making styles have been analyzed in this study.

The first hypothesis proposed that adolescent offenders would present a poorer performance in EI, empathy, and adaptive decision-making styles than normative adolescents. In the case of EI, a difference was observed in the measures of emotional attention, which partially corroborates the hypothesis. Previous studies had already indicated that adolescent offenders show poorer performance in EI than their peers (Contreras & Cano, 2016; Hayes & Reilly, 2013; Kahn et al., 2016). Although poorer EI performance can be seen in adolescent offenders, research on the causes is not conclusive. Multiple factors could influence adolescent offenders' decision-making problems, including genetics, difficulties in early learning and socialization processes, negative experiences, and factors associated with the formation of specific skills and knowledge (Wang et al., 2019; Zeidner et al., 2009).

The results for empathy suggest that normative adolescents are more empathetic than their offending peers. We observed that empathic concern and perspective taking are the variables with the greatest difference in the two groups. The literature has highlighted the importance of empathy as a factor opposed to antisocial behavior (O'Neill, 2020; Robinson et al., 2007). Empathy is a psychological construct closely related to EI because understanding and regulation of emotions are required to achieve empathy, and both are expected to be affected in juvenile offenders (Estévez et al., 2019; Sa et al., 2019). Similarly, helping behavior, altruism, and cooperation are also affected by the close relationship between empathy and prosocial behavior (Glen et al., 2020; Streit et al., 2020).

As for decision-making styles, adolescent offenders showed poorer performance in rational decision-making (vigilance) and greater anxiety to make decisions (hypervigilance). Evidence in this and other studies indicates that adolescent offenders have less developed rational skills to make decisions compared to their peers (Poon, 2020). Decision-making is associated with neurobiological,

cognitive, emotional, and social conditions. Problems associated with these factors can affect memory, judgment, learning, promote behavior difficulties, and increase choices of risk in adolescent offenders (Reyna, 2018). Protective factors such as social support, resilience, and greater decision-making capacity have been suggested as contributing to the well-being and mental health of adolescents (Bavolar & Bacikova-Sleskova, 2020).

The second hypothesis indicated that EI variables, empathy, and decision-making styles are related in both populations. The results support the hypothesis, but we observed that relationships between variables occur to different degrees in adolescent offenders and non-offenders. This does not occur with decision-making variables. Although it was observed that offending adolescents show lower development and skill, associations between variables in this group are stronger than in non-offending adolescents. While emotional attention in offenders is related to all variables of empathy and decision-making styles, in adolescent non-offenders, the association does not apply to personal distress, hypervigilance, and procrastination. This seems to indicate that in offenders, emotional attention is focused on conditions that cause distress and anxiety. Meanwhile, and only in non-offenders, negative relationships of clarity and emotional repair were observed with less adaptive decision-making styles (hypervigilance, buck-passing, and procrastination). Avsec (2012) observed a negative relationship between buck-passing and avoidance with EI. This result seems to suggest that adolescent non-offenders use EI skills to avoid using maladaptive decision-making styles. As our results show, vigilance is a factor that is related to EI and empathy in offenders and non-offenders, and this relationship favors problem-solving, relationship management, emotions, and behaviors (Ekel et al., 2020; Farnia et al., 2018).

In the case of empathy, all the construct variables are positively related to EI in adolescent offenders. A relationship of clarity and repair with fantasy and empathic concern was not observed in non-offenders. Although the evidence indicates that low empathy is related to antisocial behavior (Thompson & Gullone, 2008), the results of this study indicate that despite their low performance, empathy variables are also related to EI in adolescent offenders. We agree with previous observations that empathy is contrary to antisocial behavior

and could affect aspects of criminal behavior, including severity or persistence in the behavior (O'Neill, 2020).

The results support our third hypothesis, proposing that EI and empathy predict decision-making styles in adolescent offenders and non-offenders, although we observed that the processes occur differently; these differences in effects were also seen in how the variables are related in adolescent offenders and non-offenders. Fisher's Z results on the differences between the relationships of the variables analyzed indicate that emotional repair is important for rational decision making (vigilance) in adolescent offenders and that personal distress affects less adaptive decisions in both groups. However, in adolescent offenders, personal distress appears to influence EI due to a stronger relationship with these variables, suggesting that emotional empathy may have an important effect on EI in adolescent offenders, i.e., personal distress could mobilize emotional repair strategies.

Perspective taking and emotional repair are the factors that best help predict the adaptive decision-making (vigilance) style in both groups. While in adolescent non-offenders less clarity and emotional repair predict less adaptive styles, personal distress does so in offenders. The results for non-offenders are the same as in previous observations, where lower EI is related to dependent, evasive, and spontaneous styles (Avsec, 2012; El Othman et al., 2020). These results may be because perspective taking and emotional repair require cognitive analysis, assessing various points of view, and comparing options. These rational processes involve analysis of costs and benefits, which is recommended in rational theory and the theory of decision-making perspectives (Kahneman, 2011). Other studies have observed that adolescent offenders perform cost/benefit analysis processes when deciding whether to engage in antisocial behaviors, and their decision to perform the action depends on rewards, certainty of punishment, and moral commitment (Altikriti, 2021). The use of maladaptive decision-making styles due to personal distress and emotional attention could be explained as an attempt to discharge anguish and stress, generating irrational and inappropriate decisions that lead to personal losses and risky behaviors (Ceschi et al., 2019).

This study provides evidence in favor of the relationship and influence of EI and empathy in decision-making styles in adolescents. It also provides relevant information on how this relationship differs between adolescent offenders and non-offenders. The information could be useful for designing intervention programs to develop socio-emotional competencies and decision-making in adolescent offenders and non-offenders to promote responsible behaviors and risk reduction. Observations on the effect of personal distress on offenders' maladaptive styles could help address antisocial behavior. We highlight the relevance of intervening in this factor to improve decision-making. Likewise, we suggest intervening in clarity and repair to use these abilities positively by adolescent offenders just as their peers do. We consider that the results obtained could help in the intervention of risk factors associated with emotions. For example, in the RNR model, it has been indicated that intervening in emotions decreases antisocial personality patterns and criminal attitudes, key factors in the emergence and persistence of antisocial behavior (Andrews & Bonta, 2017).

Limitations of this research include the use of self-reports, which may present biases due to the conditions of application and social desirability of participants. Although widely recognized instruments were used, the use of EI execution measures and decision-making could contribute to a better interpretation of the results. The sample contains a small number of female offenders, limiting comparative analyses by gender, making it difficult to discriminate the effect of gender on the variables analyzed.

Future studies may consider the proportionality of the samples that enable the analysis based on sociodemographic variables. It is also important to use measures complementing self-reports, such as

execution tests (Li et al., 2019; Sorge et al., 2015; Yao et al., 2019), physiological, neuropsychological measures, and experiments in decision-making (van den Bos et al., 2013; van Gelder et al., 2019). Likewise, adolescent offenders' decision-making styles and the variables that affect them should be studied so that resources can be provided to foster improvements in judgment processes, well-being, mental health, and social adjustment (Fischhoff & Broomell, 2020).

### Conflict of Interest

The authors of this article declare no conflict of interest.

### Note

'Data that support the findings of this study are available with request to the corresponding author, Inmaculada Montoya Castilla. Data are not publicly available due to restrictions of Instituto Colombiano de Bienestar Familiar, the containing information could compromise the privacy of research participants (Share upon Request).

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