



Article

# **Empathy and Socio-Emotional Competencies: The Perception of Portuguese Adolescents in Today's Changing Environment**

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Abstract: According to the literature, recent world events seem to play a significant influence in the acquisition and upgrowth of empathy and socio-emotional competencies (SEC), especially in adolescents. In this study we sought to assess the level of socio-emotional competencies and interpersonal reactivity of Portuguese adolescents in today's context and analyze differences due to sex, relationship status, residence, and educational level on the dimensions of inter-personal reactivity and socio-emotional competencies. Participants were 230 adolescents of both sexes, living in Portugal, with ages between 16 and 18 years old, mostly female, with a secondary educational level, living in an urban area, and not in a relationship. An online questionnaire was applied using the Social and Emotional Competencies (SEC-Q) scale and the Interpersonal Reactivity Index (IRI). The results were that adolescents had an above-average global interpersonal reactivity, with empathic concern and perspective-taking presenting the higher values. Adolescents showed a medium-high average level of SEC, with the highest domains being self-awareness, social awareness, and pro-social behavior. Girls showed significantly more interpersonal reactivity in empathic concern, personal distress, and fantasy, and boys presented more self-awareness. As for the relationship status, adolescents not in a relationship manifested more personal distress, while those in a relationship presented higher values in all dimensions of SEC. Neither residence, nor educational level, presented significant main effects. These results can contribute to thinking about youth protection policies and designing more appropriate interventions to promote well-being in this crucial period of life, especially in times of change.

Keywords: adolescents; social and emotional competencies; empathy; environment



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# 1. Introduction

It is in their relationships with others that children develop emotional (self) regulation and build internal models which result in representations about themselves, their own value, and about others [1]. The context in which they live has been shown to play a prominent role, influencing the way they evaluate themselves, their self-esteem, their self-concept, their perception of social support, and their conduct [2]. Thus, growing up with adverse experiences in childhood and adolescence has been associated with psychological, behavioral, educational, and social problems [3].

In recent years, there have been numerous adverse events that have contributed to the possibility of salutogenic development, such as the COVID-19 pandemic, war, climate change, and economic and financial instability. Several studies have addressed the repercussions of this reality on the dynamics of individual functioning and, more specifically, on socio-emotional competencies and empathic capacity [4–8]. In the process of acquisition and development of social and emotional competencies (SEC), the context in which the individual is immersed (not only the personal or the proximate, but also

the global) seems to have a significant role [9]. The pandemic due to COVID-19 created abrupt changes in lifestyle and interpersonal relationships, economic difficulties, and uncertainty about the future [10]. Several studies have indicated that social isolation, lack of contact with friends and family, and uncertainty about the future had a negative impact on adolescents' SEC during the COVID-19 pandemic [11,12], leading to increased anxiety, loneliness, depression, and decreased empathy and pro-social behavior [13–16]. Some studies have also suggested that children and adolescents were more psychologically affected by COVID-19 than adults in certain domains, reporting higher levels of anxiety and depression [17], greater loneliness, and lower levels of subjective well-being [18]. Also, war and the perceived consequences of climate change are identified as stressful events and appear to be related to SEC in adolescents. The exposure to violence has proven to have a negative impact on adolescents' mental health and social adjustment [4,19,20], negatively affecting their SEC and reflecting in a higher risk of emotional and behavioral problems [5,6,21], and less meaningful and supportive interactions with others.

Empathy plays a vital role in building and maintaining positive relationships. Considered as a multidimensional construct, which exerts influence on the behavior of the individual, the empathic capacity is distinguished by cognitive and affective dimensions [22,23]. Although some of the literature describes early adolescence as a critical period in empathy development and adolescence as a period when fundamental changes occur in the regulation of emotions [24], the way this occurs is not yet fully known. However, several studies have revealed that there are age-related differences in the ability to feel empathy, suggesting that empathy develops throughout adolescence [24,25] and that there are gender differences during this stage of development [26–28]. Children and adolescents with high levels of empathy tend to have fewer problematic and aggressive behaviors, and more pro-social competencies and problem-solving abilities [28–31]. Children and adolescents with lower levels of empathy tend to show greater involvement in conflict situations, more aggression, and bullying behaviors [32]. While the advantages of higher empathic levels have been highlighted by the literature, negative aspects have also been found. For example, an association has been found between high levels of empathy and internalizing problems, specifically depression [33]. The affective and cognitive dimensions appear to be distinctly associated with behavioral results. The affective dimension is associated with a decrease in relational and overt aggression, while the cognitive dimension has been shown to be positively related to indirect forms of aggression [34]. Furthermore, in the absence of sufficient socio-emotional competencies to surpass negative mental states, high levels of affective empathy can lead to co-rumination and increase the risks of emotional overload [34,35].

Empirical research has shown that empathy in adolescence is a strong predictor of positive social competencies in adulthood, including communication competencies, conflict resolution, and collaboration [36], and more engagement in pro-social behaviors, including altruism, helpfulness, and co-operation [28,37,38]. Emotional awareness is also considered as an important factor for adaptive empathic reactions, while emotional dysregulation can cause distress when witnessing others' negative feelings [39].

Taking into consideration the discussion held, the following objectives were defined: to assess the level of socio-emotional competencies and interpersonal reactivity of Portuguese adolescents and analyze differences due to sex, relationship status, residence, and educational level on the dimensions of inter-personal reactivity and social and emotional competencies.

# 2. Materials and Methods

## 2.1. Participants

In this research, 230 adolescents of both sexes living in Portugal participated, aged between 16 and 18 years old. Three inclusion criteria were defined: be an adolescent (aged between 16 and 18 years old), be currently attending school/a training course, and have been living in Portugal for more than a year (according to permanent resident status). Most

participants were Portuguese (93.0%), female (63.9%), with a secondary educational level (65.2%,), living in an urban area (61.3%), and were not in a relationship (56.5%), as shown in Table 1.

Table 1. Sociodemographic	characteristics of the sam	ple (	N = 230).

	n	%
Gender		
Male	83	36.1
Female	147	63.9
Age		
16	79	34.3
17	75	32.6
18	76	33.1
Nationality		
Portuguese	214	93.0
Other	16	7.0
Relationship status		
Not in a relationship	130	56.5
In a relationship	100	43.5
Educational level		
3rd cycle	45	19.6
Secondary	150	65.2
Professional Course	35	15.2
Residence		
Rural area (<2000 residents)	32	13.9
Semi-urban area (>2000 <5000 residents)	57	24.8
Urban area (>5000 residents)	141	61.3

Note: n—number of participants; %—percentage. Source: elaborated by the authors.

#### 2.2. Instruments

Sociodemographic characterization was analyzed, taking as references the variables of sex, nationality, relationship status, educational level, and place of residence.

Socio-emotional competencies were evaluated through the Social and Emotional Competencies Questionnaire (SEC-Q), proposed by Zych et al. [40] and adapted by Lobo [41] to the Portuguese population. Consisting of 16 items divided into four dimensions: (a) self-awareness (4 items), (b) self-management and motivation (3 items), (c) social-awareness and pro-social behavior (6 items), and (d) decision-making (3 items), it evaluates SEC from the individual's own perception, considering the events of the last 12 months. This structure was confirmed through confirmatory factorial analysis.

The self-awareness dimension refers to items such as, "I know how to label my emotions" and "I can differentiate one emotion from another", while the self-management and motivation dimensions mention items such as, "I know how to motivate myself" and "I have my goals clear", the social awareness and pro-social behavior dimensions present items such as, "I pay attention to the needs of others" and "I usually listen in an active way", and, finally, the decision-making dimension includes items such as, "I make decisions analyzing carefully possible consequences" and "I do not make decisions carelessly".

SEC are evaluated according to the degree to which the respondents agree or disagree with the statement presented, in a 5-point Likert scale with a range from 1 (strongly disagree) to 5 (strongly agree). The compute values for each dimension were calculated, and the resulting mean average extracted. Higher mean scores in any of the dimensions reflect higher levels of the competencies that are being assessed. SEC-Q presented good psychometric qualities in two samples, one with 643 university students ( $\alpha$  = 0.87) and another with 2.139 adolescents ( $\alpha$  = 0.80) [40]. In the present study, we used McDonald's Omega coefficient, which ranged from 0.69 (self-awareness) to 0.80 (decision making) in the subscales, and presented a value of 0.84 for the total scale.

The Portuguese version of this instrument does not establish norms or classes, although it refers values between 2.9 and 3.2 for the mean values of the scales and total score.

However, we advise interpreting the scores by taking the mean value of the scale (which runs from 1 to 5) as an intermediate point [41]. Therefore, values below 2.5 or above 3.5 should be considered as below (medium low) or above the mean (medium high).

Empathy was evaluated through the Interpersonal Reactivity Index (IRI), developed by Davis [22] and adapted by Limpo et al. [42], and applied to the Portuguese population. IRI is a self-reporting scale that assesses empathy in its cognitive and affective dimensions. The original version is composed of 28 items, but the Portuguese version is composed of only 24 items. Through these items an attempt is made to evaluate thoughts and feelings experienced by individuals in various situations. The items are divided into four subscales, with six items each: (a) Perspective Taking, which reflects the tendency to adopt another's point of view (e.g., "sometimes I try to understand my friends better by imagining their perspective of seeing things"); (b) Empathic Concern, which measures the ability to experience feelings of concern and compassion for others (e.g., "I often have feelings of tenderness and concern for people less fortunate than myself"); (c) Personal Distress, which assesses feelings of discomfort, anxiety, and apprehension in strained interpersonal contexts (e.g., "in emergency situations, I feel uncomfortable and apprehensive"); and (d) Fantasy, which evaluates a person's propensity to place him/herself in fictional situations (e.g., "I easily become involved in the feelings of the characters in a novel").

The answers are evaluated on a five-point Likert scale, where zero corresponds to "does not describe me well" and four "describes me very well". Cognitive empathy is measured through the Perspective Taking subscale, and affective empathy is obtained by adding and averaging the remaining three subscales. The evaluation is made by adding up these values by subscale and taking the average, and in the inverted items the evaluations are also inverted (0 becomes 4, 3 becomes 1, and so on). Higher scores in any of the dimensions reflect higher levels of the competencies that are being assessed.

In the Portuguese version, applied to a sample of 487 university students, the mean values referred by the authors for the subscales and total score were 2.76 (SD = 0.56) for Perspective Taking, 2.77 (SD = 0.760) for Empathic Concern, 1.70 (SD = 0.61) for Personal Distress, 2.58 (SD = 0.83) for Fantasy, and 2.45 (SD = 0.66) for the total score. The internal consistency of the subscales proved to be adequate (with a range of  $\alpha$  = 0.73 for the Perspective Taking subscale and 0.84 for the Fantasy subscale).

In the present study, the global McDonald's omega was 0.77 [with a min  $\Omega$  = 0.66 for the Empathic Concern subscale and a max  $\Omega$  = 0.76 for the Perspective Taking subscale].

## 2.3. Procedure

After approval by the ethics committee of our university, the study was disseminated through social networks (Facebook (latest version is 442.0.0.31.67 for iOS and 442.0.0.27.119 for Android), LinkedIn (latest version is 4.1.832 for iOS and 4.1.817 for Android), and Instagram (latest version is 300.0.0.0.93 for iOS and 305.0.0.35.110 for Android)). A total of 269 adolescents between 16 and 18 years old expressed their interest in participating in the study. After obtaining their informed consent (Portuguese legislation waives guardians' or legal representatives' authorization after the age of 16), a Google Forms link was sent (restricted to one response per IP address), with SEC-Q and IRI questionnaires. Data collection was carried out over a period of three months (July to September 2022). After this, 230 completed responses were received and validated.

# 2.4. Statistical Analysis

Statistical analysis was performed using the Statistical Package for the Social Sciences (IBM, SPSS Statistics, version 28.0 of Windows). First, the descriptive values for both the IRI and the SEC-Q were calculated in their individual dimensions and full-scale scores. Two multivariate analyses of variance were performed, with the four dimensions of each of the instruments as dependent variables. In the first analysis, sex and relationship status were used as factors, and in the second one the factors were residence and educational level. In both cases, a full factorial model was used, accounting for both main effects as well as

interaction effects. Finally, in order to understand if the values had changed from before the pandemic until now, a t test for independent samples was used. Statistical values (F and t) are presented along with their effect size value (using partial eta squared for F test and Cohen's d for t test) for each case.

#### 3. Results

#### 3.1. Descriptive Values

The interpersonal reactivity in our sample was slightly above the mean values (M = 2.4; SD = 0.5), with Empathic Concern (M = 2.8; SD = 0.7) and Perspective Taking (M = 2.7; SD = 0.7) presenting the highest means, while personal distress was the subscale with the lowest value (M = 1.8; SD = 0.8). We can also see that the perception of socio-emotional competencies may be considered as a medium-high level (M = 3.9; SD = 0.5), with Social Awareness, Pro-social Behavior (M = 4.0; SD = 0.5), and Self-Awareness (M = 3.9; SD = 0.6) being the dimensions with the highest mean scores (see Table 2).

**Table 2.** Descriptive values of the dimensions of IRI and SEC-Q (N = 230).

	Min	Max	Mean	SD
IRI				
Perspective Taking	0.17	4.00	2.71	0.75
Empathic Concern	0.67	4.00	2.84	0.74
Personal Distress	0.00	4.00	1.82	0.77
Fantasy	0.00	4.00	2.20	0.90
IRI Total	1.17	3.63	2.39	0.52
SEC-Q				
Self-Awareness	1.75	5.00	3.89	0.58
Self-Management and Motivation	1.00	5.00	3.78	0.75
Social Awareness and Pro-social Behavior	1.00	5.00	3.95	0.53
Decision-Making	1.00	5.00	3.66	0.86
SEC-Q Total	1.19	5.00	3.85	0.48

Note: IRI—Interpersonal Reactivity Index; SEC-Q—Social and Emotional Competencies Questionnaire. Source: elaborated by the authors.

## 3.2. Multivariate Analysis

Two multivariate analyses of variance (MANOVA) were performed to analyze (i) the effect of sex and relationship status, and (ii) the effect of residence and educational level on the dimensions of interpersonal reactivity and social and emotional competencies. Type III sum of squares was used with a full factorial model.

## 3.2.1. Multivariate Analysis with Gender and Relationship Status as Factors

Multivariate tests revealed that both sex (Wilks'  $\lambda = 0.812$ , p < 0.001) and relationship status (Wilks'  $\lambda = 0.879$ , p < 0.001) presented significant main effects, while no significant interaction between the effects of sex and relationship status was observed (Wilks'  $\lambda = 0.955$ , p = 0.242).

The descriptive values for the dimensions considered are shown in Table 3.

In Table 4 we can see that sex had a significant effect in three of the interpersonal reactivity dimensions—empathic concern, personal distress, and fantasy—with females presenting higher means in all of these dimensions, while self-awareness was the only socio-emotional competence that differs by sex, with higher values in males. Significant differences in interpersonal reactivity according to relationship status occurs only in personal distress, which was higher in the participants without a partner. In the socio-emotional competencies, all dimensions differed significantly (see Table 4), with Self-Awareness, Self-Management and Motivation, Social Awareness and Pro-social Behavior, and Decision-Making presenting higher values in the participants with a partner. No significant effects were found for the interaction of sex with relationship status.

	Male		Fei	nale	Total			
	Without (n = 47)	With (n = 36)	Without (n = 83)	With (n = 64)	Male (n = 83)	Female (n = 147)	Without (n = 130)	With (n = 100)
IRI								
Perspective Taking	2.65 (0.67)	2.58 (0.69)	2.79 (0.79)	2.72 (0.78)	2.62 (0.68)	2.76 (0.78)	2.73 (0.75)	2.68 (0.75)
Empathic Concern	2.56 (0.67)	2.61 (0.70)	3.06 (0.79)	2.92 (0.69)	2.58 (0.68)	2.99 (0.75)	2.87 (0.77)	2.81 (0.70)
Personal Distress	1.67 (0.75)	1.33 (0.63)	1.96 (0.74)	1.96 (0.72)	1.53 (0.72)	1.96 (0.74)	1.87 (0.76)	1.74 (0.78)
Fantasy SEC-Q	1.84 (0.96)	1.86 (0.89)	2.44 (0.86)	2.29 (0.75)	1.85 (0.93)	2.37 (0.82)	2.23 (0.94)	2.14 (0.82)
Self-Awareness	3.98 (0.67)	4.05 (0.60)	3.85 (0.53)	3.79 (0.57)	4.01 (0.64)	3.83 (0.54)	3.90 (0.58)	3.88 (0.59)
Self-Management and Motivation	3.76 (0.83)	4.01 (0.65)	3.72 (0.72)	3.76 (0.74)	3.86 (0.77)	3.73 (0.73)	3.72 (0.76)	3.85 (0.72)
Social Awareness and Pro-social Behavior	3.89 (0.66)	3.92 (0.40)	3.98 (0.53)	3.97 (0.48)	3.90 (0.56)	3.98 (0.51)	3.94 (0.57)	3.95 (046)
Decision-Making	3.45 (0.82)	3.75 (0.77)	3.76 (0.85)	3.63 (0.95)	3.57 (0.81)	3.70 (0.89)	3.64 (0.84)	3.67 (0.89)

Note: IRI—Interpersonal Reactivity Index; SEC-Q—Social and Emotional Competencies Questionnaire; Without/With—Relationship Status (without/with partner). Source: elaborated by the authors.

**Table 4.** Results of the between-subjects effects of the multivariate analysis of IRI and SEC-Q by sex and relationship status.

		Se	ex			Relationship Status				Sex × Relationship Status			
	MS	F (1,226)	p	h <sup>2</sup>	MS	F (1,226)	p	h <sup>2</sup>	MS	F (1,226)	p	h <sup>2</sup>	
IRI													
Perspective-Taking	0.69	1.23	0.190	0.011	0.26	0.46	0.500	0.002	0.00	0.01	0.992	0.000	
Empathic Concern	4.22	8.11	< 0.001	0.067	0.11	0.21	0.645	0.001	0.51	0.96	0.327	0.004	
Personal Distress	6.52	12.21	< 0.001	0.097	1.53	2.87	0.092	0.012	0.68	1.28	0.259	0.012	
Fantasy SEC-Q	7.17	9.74	< 0.001	0.079	0.19	0.25	0.614	0.001	0.39	0.53	0.467	0.002	
Self-Awareness	2.02	6.08	0.014	0.003	1.37	4.14	0.043	0.002	0.31	0.93	0.336	0.000	
Self-Management and Motivation	1.21	2.28	0.133	0.001	6.63	12.49	< 0.001	0.052	1.41	2.66	0.105	0.11	
Social Awareness and Pro-social Behavior	0.24	0.94	0.334	0.001	5.21	20.21	< 0.001	0.082	0.06	0.25	0.619	0.000	
Decision-Making	0.48	0.67	0.414	0.000	6.11	8.44	0.004	0.036	2.09	2.89	0.091	0.013	

Note: MS—mean squares;  $h^2$ —partial eta squared; IRI—Interpersonal Reactivity Index; SEC-Q—Social and Emotional Competences Questionnaire. Source: elaborated by the authors.

# 3.2.2. Multivariate Analysis with Residence and Educational Level as Factors

A second MANOVA was performed, this time using residence and educational level as factors. Multivariate tests revealed that neither residence (Wilks'  $\lambda$  = 0.907, p = 0.163) nor educational level (Wilks'  $\lambda$  = 0.922, p = 0.329) presented significant main effects, and also no significant interaction between the effects of residence and educational level was observed (Wilks'  $\lambda$  = 0.866, p = 0.475). The descriptive values (means and SD) of the empathy and SEC scales are presented in Table 5.

Table 5. Means (SD) of the dimensions of the IRI and SEC-Q by residence and educational level.

	Residence			Educational Level		
Rural (n = 32)	Semi-Urban (n = 57)	Urban (n = 141)	3rd Cycle (n = 45)	Secondary (n = 150)	Professional Course (n = 35)	Total (N = 230)
2.46 (0.68)	2.80 (0.72)	2.72 (0.75)	2.54 (0.77)	2.72 (0.72)	2.87 (0.78)	2.70 (0.74)
2.74 (0.58)	2.76 (0.78)	2.89 (0.76)	2.56 (0.74)	2.92 (0.74)	2.83 (0.69)	2.83 (0.74)
1.95 (0.73)	1.83 (0.83)	1.79 (0.75)	1.72 (0.77)	1.82 (0.75)	1.93 (0.81)	1.82 (0.76)
2.06 (0.75)	2.38 (0.90)	2.15 (0.91)	2.1 (0.91)	2.25 (0.87)	2.08 (0.94)	2.19 (0.89)
3.67 (0.45)	3.91 (0.55)	3.92 (0.61)	3.76 (0.69)	3.91 (0.56)	3.93 (0.50)	3.88 (0.58)
3.61 (0.63)	3.72 (0.81)	3.83 (0.73)	3.51 (0.87)	3.8 (0.70)	3.98 (0.65)	3.77 (0.74)
3.77 (0.49)	3.91 (0.56)	4.00 (0.50)	3.77 (0.65)	3.98 (0.49)	4.02 (0.41)	3.94 (0.52)
3.55 (0.82)	3.50 (0.89)	3.74 (0.85)	3.46 (0.95)	3.67 (0.83)	3.81 (0.86)	3.65 (0.86)

Note: IRI—Interpersonal Reactivity Index; SEC-Q—Social and Emotional Competencies Questionnaire; Source: elaborated by the authors.

In Table 6 we can see the results of this multivariate analysis. As already pointed out in the multivariate tests, no significant differences were found in empathy or in the SEC when residence and educational level were taken as factors.

**Table 6.** Results of the between-subjects effects of the multivariate analysis of IRI and SEC-Q by residence and educational level.

	Residence					<b>Educational Level</b>				Residence × Educational Level		
	MS	F (2,225)	p	h <sup>2</sup>	MS	F (2,225)	p	h <sup>2</sup>	MS	F (2,225)	p	h <sup>2</sup>
IRI												
Perspective-Taking	1.343	2.525	0.082	0.022	0.787	1.479	0.230	0.013	1.299	2.443	0.288	0.022
Empathic Concern	0.003	0.006	0.994	0.000	0.999	1.832	0.163	0.016	0.380	0.696	0.596	0.012
Personal Distress	0.066	0.111	0.895	0.001	0.253	0.428	0.653	0.004	0.633	1.072	0.371	0.019
Fantasy SEC-Q	2.291	2.915	0.056	0.025	0.350	0.446	0.641	0.004	0.557	0.709	0.586	0.013
Self-Awareness	0.859	2.547	0.081	0.022	0.467	1.383	0.253	0.012	0.267	0.793	0.531	0.014
Self-Management and Motivation	0.085	0.157	0.855	0.001	1.955	3.611	0.078	0.037	0.552	1.019	0.398	0.018
Social Awareness and Pro-social Behavior	0.133	0.505	0.604	0.005	0.779	2.952	0.054	0.026	0.561	2.125	0.079	0.037
Decision-Making	0.335	0.451	0.638	0.004	0.939	1.261	0.285	0.011	0.311	0.418	0.796	0.007

Note: MS—mean squares; h<sup>2</sup>—partial eta squared; IRI—Interpersonal Reactivity Index; SEC-Q—Social and Emotional Competences Questionnaire. Source: elaborated by the authors.

# 3.3. Mean Differences

In order to see if the values of the present study differed from those before the pandemic, we compared them to those of the validation study of the IRI. We did not use the values of the SEC-Q because, although available, they dated from 2023.

In comparison with the 2010 values of the IRI Portuguese validation study, personal distress increased significantly ( $t_{(715)} = 2.363$ , p = 0.018), and fantasy decreased significantly ( $t_{(715)} = -5.568$ , p < 0.001). In the other dimensions, our study revealed higher values in Empathic Concern and lower values in perspective taking and total score, but none of these differences was significant (see Table 7).

Table 7. Comparison of our study with the validation study (Limpo et al. 2010 [42]).

	Our Study (N = 230)		Limpo et (N =				
_	M	SD	M	SD	t(715)	p	d
Perspective-Taking	2.71	0.75	2.76	0.56	-0.997	0.319	0.076
Empathic Concern	2.84	0.74	2.77	0.60	1.350	0.178	0.104
Personal Distress	1.82	0.77	1.70	0.61	2.363	0.018	0.173
Fantasy	2.20	0.90	2.58	0.83	-5.568	< 0.001	0.439
IRI Total	2.39	0.52	2.45	0.66	1.212	0.223	0.101

Note: *d*—Cohen's *d*.

# 4. Discussion

This study aimed to assess the level of socio-emotional competencies and interpersonal reactivity of Portuguese adolescents in today's context and analyze differences due to sex, relationship status, residence, and educational level on the dimensions of interpersonal reactivity and social and emotional competencies.

Data analysis showed that the participants had a medium level of interpersonal reactivity (slightly above reference values), with higher competencies in empathic concern and perspective-taking. These results seem to suggest that Portuguese adolescents taking part in the study were proficient in the ability to experience feelings of compassion and concern for others, and tended to adopt the another's point of view. In fact, median levels of empathic concern and perspective taking, and reduced levels of personal distress, seem to indicate the probability that, in the future, these adolescents will exhibit less problematic

and aggressive behaviors and more pro-social competencies and problem-solving abilities, as evidenced in the literature [28–31].

Also, in the socio-emotional competencies domain, results showed that the participants presented an overall medium-high level of perception, with Self-Awareness, Social Awareness, and Pro-social Behavior presenting the highest scores. According to Zych et al. [40], good levels of SEC enable individuals to comprehend and manage emotions and social interactions, and develop pro-social behaviors, facilitating healthy interpersonal relationships, the reduction of risk behaviors and, consequently, the promotion of health and personal well-being.

As for the perception of the level of socio-emotional competencies and interpersonal reactivity of Portuguese adolescents in a current context of change, although the relationship between the changing society, SECs, and empathy of the adolescents is widely evidenced in the literature—with several studies indicating how events such as the pandemic of COVID-19 had a negative impact on adolescents' SECs, leading to decreased empathy and pro-social behavior [13-16]—this was not verified in the present study. Despite personal distress increasing significantly and fantasy decreasing significantly (in comparison with the 2010 values of the IRI Portuguese validation study), the results revealed that Portuguese adolescents taking part in the study, even in a macrosocial context of instability, had medium-high values of SEC (particularly regarding Social and Self-Awareness, and Pro-social Behavior), and medium values of empathy (mainly when it came to Empathic Concern and Perspective-Taking), seemingly maintaining an internal locus of control, characterized by SEC and empathic capacity directed towards understanding and supporting other(s). However, these results may be influenced by the fact that this study took into consideration only older adolescents (16–18 years), who, as highlighted by the literature [24,25], tend to have higher levels of SEC and empathic abilities when compared with younger adolescents (13-15 years).

Regarding the effect of sex and relationship status on the dimensions of empathy and socio-emotional competencies, the results revealed that both sex and relationship status had significant main effects, but with no significant interaction between them. Female adolescents showed consistently higher scores in affective empathy than did male adolescents. Specifically, female adolescents reported more empathic concern, more personal distress, and fantasy. Unlike affective empathy, cognitive empathy—which has been associated with perspective-taking processes—does not show any differences between the sexes. These results are consistent with previous studies that report higher scores in female than in male adolescents [36,43-45], either in all four IRI subscales [22] or in some of the four IRI subscales [46,47]. This may be due to differences in general emotional responsiveness [48], with females being described as more able than males in recognizing other people's emotions, as well as more perceptive and empathetic [49], but also related to physiological maturity—females have more oxytocin, which correlates positively with emotional empathy, while males have more testosterone, which is negatively related to cognitive empathy—and gender roles—while the orientation of woman's gender role is focused on others, the orientation of man's gender role is focused on justice and equity, which have no relation to empathy [50]. Still, according to these last authors, after acquiring their gender roles, men and women have differences in empathy, especially in affective empathy.

Several studies have shown sex differences in socio-emotional competencies during adolescence [51–54].

However, in the present study, Self-Awareness was the only socio-emotional competence that differed by sex, with higher values in males. Emotional self-awareness is considered a prerequisite for the development of self-other differentiation, and an important factor in the performance by individuals of daily activities [46]. In their study, Trentini et al. [46] found significant differences between sexes, with girls reporting greater difficulty in identifying feelings than boys. In girls, difficulty in identifying feelings can affect their ability to differentiate between their own emotions and those of others, which can lead to more aversive, self-centered responses when confronted with the suffering of

others. On the other hand, in boys, more self-awareness can mitigate personal distress when confronted with the discomfort of others [46]. The fact that there were no significant differences between the sexes in the other SEC dimensions (although the scores in the Social Awareness, Pro-social Behavior, and Decision-Making categories were higher among female adolescents) is an aspect that deserves further investigation in future studies.

As for relationship status, significant differences in interpersonal reactivity occurred only in Personal Distress, which is higher in adolescents without a relationship. In the socioemotional competencies, all dimensions differed significantly, with Self-Awareness, Self-Management and Motivation, Social Awareness, Pro-social Behavior, and Decision-Making presenting higher values in adolescents in a relationship. Although these correlations are not easily corroborated by the literature (a lack of empirical evidence bearing on this issue leaves the understanding of the role played by empathic and socio-emotional competencies in adolescent romantic relationships unknown), several studies using adolescent populations have evidenced that competencies such as empathy lead to more positive peer relations, including better friendship quality, higher status within peer networks, and better romantic functioning [55], and that romantic relationships contribute to the development of a positive self-concept and greater social integration, which are associated with higher rates of self-esteem, safety, satisfaction with life, positive affect, and achievement of personal and relational goals [56]. However, it is important to remember, as stressed by these last authors [56], that the romantic development of adolescents does not take place in 'a social vacuum' and that is vital to know adolescents' social contexts (which provide support and emotional understanding) and their contribution to the well-being of adolescents, namely to their development of socio-emotional competencies and empathic abilities.

#### 5. Conclusions

The results show that Portuguese adolescents have an above-average global empathic capacity, with higher competencies in terms of empathic concern and perspective-taking, and lower competencies in terms of personal distress. As for the perception of SEC, they presented an overall medium-high level, with social awareness, pro-social behavior, and self-awareness being the dimensions with the highest scores. Neither residence nor educational level presented significant main effects, and no significant interaction between the effects of residence and educational level was observed.

Results also showed that both sex and relationship status had significant main effects on socio-emotional competencies and empathic abilities, though with no significant interaction between them. Female adolescents showed more emphatic concern, personal distress, and fantasy, while male adolescents exhibited higher values of self-awareness. As for relationship status, on the other hand, results showed that personal distress was higher in adolescents not in a relationship. Participants in a relationship also showed higher values in all SEC dimensions.

Although the perception of Portuguese adolescents does not seem to have been greatly affected by recent world events, the findings of this study can contribute to thinking about youth protection policies and designing more appropriate interventions to promote well-being in this crucial period of life, especially in times of instability.

*Limitations and Suggestions for Future Studies* 

Although the study provides information on the level of SEC and empathy of Portuguese adolescents who took part in the study facing today's changing environment and of the differences related to sex and relationship status in those domains, some limitations should be considered when interpreting the results.

The difficulty in defining SEC in the literature may have meant that some domains indicated by some authors were not included, which could lead to a less robust interpretation of the results.

The study design can be understood as a limitation. The decision to disseminate the questionnaire through social networks, although it facilitated access to a larger sample,

made its control more difficult. In addition, the fact that this study evaluated the perception of adolescents at a specific moment does not allow us to understand the evolution of socio-emotional competencies and empathic abilities, or the effect that current world events have on them over time. Another limitation has to do with the sample size (230), which does not allow us to extrapolate to all Portuguese adolescents. Furthermore, when considering only older adolescents, we are unable to understand the evolution in SEC and empathic abilities throughout this phase of development. According to Napolitano et al. [57], SEC is important due to the role it plays in many social transitions that permeate adolescence, so it would be interesting in future studies to compare SEC and empathic abilities in the different periods of adolescence. Also, the fact that there are no normative values for the Portuguese adolescent population for the SEC-Q (only 2023 data and young university students), a more detailed and sustained analysis was not possible. This would be relevant for a future study.

The assessment of empathy and SEC used in this study can also be discussed. While questionnaires are a common way to measure these concepts, it is possible that participants' responses were influenced by factors such as self-image or the desire to provide socially desirable responses. According to Bouffard and Narciss [58], people by nature tend to overestimate various positive aspects of themselves and their lives, which act as an essential adaptive mechanism for healthier functioning by improving their well-being, mental health, and personal and social functioning. So, in order to obtain more robust results, it would be interesting to complement the SEC-Q self-report measure with another type of assessment, such as parents and close friends. Future studies may consider concurrently using heteroevaluation measures by other players to validate these results.

Another limitation was that we only assessed whether or not the adolescents were in a relationship and did not take into account how long it had lasted.

Finally, we did not use other socio-demographic and contextual variables to assess how these factors could affect the level of socio-emotional competencies and interpersonal reactivity of Portuguese adolescents. Thus, dynamic relations among these variables should be studied in the future.

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