The Influence of Trait Emotional Intelligence and Gender Interaction on Draw-A-Person Emotional Indicators during Childhood

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Abstract

The Draw-a-Person (DAP) test is a projective tool particularly suitable for understanding intellectual development, emotional dimensions and personality traits in children. The present study seeks to examine the relationship between trait Emotional Intelligence (EI) and DAP emotional indicators accounting for gender interaction in a sample of Italian primary school-aged children (8–9 years of age). Participants were asked to complete the child version of the Trait Emotional Intelligence Questionnaire (TEIQue-CF) and the DAP test. Results showed that: a) both genders had the same score on trait EI but females had a significantly higher score on the levels of emotional indicators than males, and b) trait EI significantly moderated the effects of gender on the DAP scores. Specifically, females showed higher levels of emotional indicators than their male counterparts for DAP only at high trait EI levels. The implications of these results for clinical assessment and future directions for research are discussed.

Keywords

Trait emotional intelligence
Childhood
TEIQue-CF
Draw-a-person test
Gender differences
Psychological well-being

The evaluation of psychological suffering in pre-school and school age requires reliable and sensitive evaluation techniques that are respectful and non-intrusive for young patients. They should take into account the complex relational processes involving the child/educator/clinical psychologist based on the narrative modalities that emerge during the psycho-diagnostic assessment (Weatherston 2000). In clinical practice, projective tools are particularly widespread and recognized as being suitable for this purpose. As regards their validity and reliability, projective techniques have been the target of extensive

debate, among both clinicians and academics, since the 1940s (see Piotrowski 2015 for a systematic review). Specifically, although Human Figure Drawings (HFDs) have in the past been used and accepted by both clinicians and educators as psychological instruments for measuring cognitive capacities (El-Shafie et al. 2019a) and emotional and personality functioning (Koppitz 1968), their value in terms of validity has been widely disputed. For instance, critics of the Draw-a-person (DAP) projective technique have long criticized the lack of empirical evidence supporting its validity (e.g. Dumont and Smith 1996). They identified some confounding variables that destabilize its scientific accuracy, such as the artistic ability and training of the drawer, the drawing quality, and clinicians' biases regarding both the rating and the interpretation of HFD indicators (Joiner et al. 1996; Williams et al. 2005). Opponents have also argued that the qualitative nature of this technique, the lack of standardized norms regarding HFD indicators, and the ambiguous test-retest and inter-rater reliability, weaken its recognition as a psychometrically valid technique (Motta et al. 1993; Rae and Hyland 2001).

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However, a 20-year review of the literature debate (1995–2015) on projective techniques in applied settings (Piotrowski 2015) has concluded that, although there has been a slight decrease in their use, HFDs are valuable for both clinicians and academics (e.g., Imuta et al. 2013; Lally 2001). Specifically, DAP supporters remain resolute in their beliefs concerning the clinical and diagnostic value of the DAP projective technique (Thomas and Jolley 1998) and this instrument remains one of the most used tools among child psychologists. For instance, recent studies have used the Draw-a-Person (DAP) test to provide indications for visual motor development, levels of cognitive functioning, and intellectual maturity in primary school-aged children (El-Shafie et al. 2019b). Other research has used DAP for screening emotional disturbances in children (Zeini et al. 2018) or identifying and monitoring domestic violence in children (Popa-Velea et al. 2017). Hence, it is worthwhile using the graphic projective tests because drawing is a useful way for understanding intellectual development, emotional dimensions and personality traits. Drawing may indeed facilitate children's ability to communicate (Driessnack 2005) and to talk about their emotional experiences (Gross and Hayne 1998) in different contexts. The human figure is one of the earliest subjects drawn by the child and remains common throughout childhood and into preadolescence. Research related to how

children's drawings change and develop is well-documented and an extensive scientific literature on this area can be traced back to the past decades (see Skybo et al. 2007 for a critical review).

Among the most widely used drawing-tests in both clinical and experimental settings is the Draw-a-Person test (DAP test, or Goodenough–Harris Draw-a-Person test) originally developed by Goodenough in 1926 and revised many times by various scholars (Buck 1948, 1981; Levy 1950; Machover 1953). Over time, many authors have conducted studies to allow for the identification of indices for a more objective reading of the test. Notably, Koppitz (1968) was the first to systematically examine the HFDs of children aged 5–12 years for developmental and emotional signs and symbols, providing a new and different method for the interpretation of the DAP test. The method is based on a list of emotional indicators. Items were grouped into those concerned with the quality of the human figure (such as asymmetry and figure size, placement of the arms, etc.), those regarding special features in the drawing (such as genitals or teeth, inclusion of shading, transparency, etc.), and omitted items (e.g. omission of body parts, such as nose or feet). These indicators became the final set of items used in any further analysis (see Koppitz 1968, scoring manual for emotional indicators). The emphasis on the use of these indicators is not their single value but the total number the children achieve. The total amount of indicators provides a rating that reflects the child's emotional maturity and psychological health. Emotional maturity refers to a set of abilities (such as awareness of one's own emotions, recognition of facial expressions and adequacy of the affective response in social interactions) that enable children to understand and manage how they respond when faced with situations that elicit an emotional reaction (Western Australian Department of Education 2018). Emotional maturity supports children to manage the demands of the social and education environments, helping to form positive relationships with peers, recover from negative emotions, develop resilience, overcome frustration, and express emotions in socially acceptable ways. Bar-on (2000) highlighted the link between emotional maturity and Emotional Intelligence, defined as a wide array of individual differences that consist of emotional self-awareness as well as various skills or characteristics that may stem from the effective use or regulation of emotions. A number of studies indicates that, overall, there are significant relationships between Emotional Intelligence and mental-, psychosomatic-, and physical- health (see Schutte et al. 2007 for a meta-analytic

investigation). Specifically, research into trait EI in children has suggested that a higher trait EI level appears to be an important predictive factor of health-related outcomes, such as improved well-being and social interactions during development (Andrei et al. 2014).

Individual differences in the way children perceive, regulate and express emotions are considered central variables with which to explore the emotional experiences emerging during childhood. From this point of view, the construct of trait Emotional Intelligence (trait EI or trait emotional self-efficacy) can comprehensively account for individual emotional differences. Trait EI is defined as a set of emotional perceptions located at the lower level of personality hierarchies (Petrides et al. 2007), which comprises dispositions from the domain of personality as well as elements of social intelligence and personal intelligence (Petrides et al. 2004; Petrides and Furnham 2000a). Numerous studies have suggested that trait EI theory could be employed as a framework to explain individual variability in relation to affect-related criteria in adolescent as well as adult samples (see Petrides et al. 2016 for a review). Moreover, Mavroveli and co-workers (Mavroveli et al. 2008; Mavroveli et al. 2009) undertook a systematic content analysis of the literature on emotional and social development with a view to establishing the sampling domain of the construct in children and developing a measure to assess it. Trait EI is strongly predictive of socioemotional criteria (Mavroveli et al. 2009) and of health-related outcomes (see Andrei et al. 2014 for a review) throughout development, over and above higher order personality dimensions (Russo et al. 2012). Trait EI has been associated with self-reported and peer-rated pro-social behavior in primary schoolchildren (Mavroveli and Sánchez-Ruiz 2011). High trait EI scores are conducive to adaptive behaviors in childhood and adolescence, like socioemotional competence (Frederickson et al. 2012), and inhibitory to maladaptive behaviors, like bullying (Kokkinos and Kipritsi 2012). Instead, pupils who have been excluded from school or have received unauthorized absences showed lower trait EI scores as compared with their well-adjusted counterparts (Petrides et al. 2004). In a clinical perspective, a longitudinal study of the transition from primary to secondary school showed that trait EI was a negative predictor of psychopathology, concurrently as well as prospectively (Williams et al. 2010).

An early investigation into the relationship between trait EI and Koppitz's

emotional indicators in children's drawings (Mancini 2018) has highlighted a positive relationship between the variables, supporting the hypothesis that the level of trait EI and, consequently, traits pertaining to the expression of emotions, can affect the way of representing the human figure during childhood. Thus, the DAP test could be a nonverbal way of indicating the trait EI level, having positive implications in both clinical and educational settings, since drawing may support children's ability to talk about their emotional experiences.

The aim of the present research is to examine the relationship between Emotional Intelligence (EI) conceptualized as a trait (Petrides and Furnham 2001) and DAP emotional indicators during childhood, as well as to examine gender differences with respect to children's graphic expression. As regards gender differences on emotional expression in Western cultures, women are habitually considered more emotional than men: they seem to be more able to perceive, experience and express their emotions (Kring and Gordon 1998), and are more emotionally aware than men (Feldman Barrett et al. 2000; Ciarrochi et al. 2003). Studies that have discussed the female advantage on emotional expression have revealed that gender differences in terms of emotions should generally be accounted for in terms of the social and cultural context, especially as a result of gender-stereotypical socialization (Fischer et al. 2004). This remark is particularly significant from a developmental perspective. Kollmayer et al. (2018) provide an overview on existing gender differences across the lifespan, providing psychological theories of development dealing with the adoption of gender typical preferences and behaviors in children, and draw a connection with the role parents' and teachers' gender stereotypes play in this process. However, emotional expression is an important feature of healthy child development that has been found to show gender differences in specific contexts (Chaplin and Aldao 2013).

An interesting and less investigated issue concerns gender differences in the ability to draw human figures. It would appear that girls outperform boys in human figure drawing, but the reasons for these gender differences are still unclear (Picard 2015). In particular, to our knowledge, no study has investigated gender differences with the use of the DAP test with respect to Koppitz emotional indicators. Using different indicators, Goodenough (1926) and Harris (1963) reported an overall superiority in girls, while other authors (Lange-Kuttner and Edelstein 1995; Cox et al. 2001) point out that some disagreement

exists regarding gender differences in drawing ability.

Although gender differences in emotional functioning and expression have been widely documented (see Chaplin and Aldao 2013 for a review), and a developmental bio-psycho-social model of gender differences in emotional expression in childhood has been well described (Chaplin 2015), the results are often contradictory particularly during the developmental age. This inconsistency may depend on whether the focus of the study is personality, social, cultural, or situational variables, as well as which type of emotional process lies at the core of the analysis (Brody and Hall 2008).

For instance, gender differences in emotional awareness found across adult samples emerged in children and preadolescents as well, with female participants outperforming males (Bajgar et al. 2005; Mancini et al. 2013a; Veirman et al. 2011). However, as concerns emotional recognition, a female advantage has not been demonstrated across all studies (e.g. Calvo and Lundqvist 2008; Vassallo et al. 2009). A study by Mancini and colleagues (Mancini et al. 2013a, b) showed a developmental transition in the effect of gender on the recognition of specific facial expressions of emotions during late childhood, rather than a general stable effect of this variable with a constant female advantage. Moreover, some studies on preschool and school-aged children showed that some gender differences in the field of emotions do not emerge until adulthood (Brody 1997) and that the display in boys and girls of various emotional behaviors and skills tend to change across age (Bradley and Lang 2000). These results suggest that gender differences emerge in accordance with cultural gender roles (Wood and Eagly 2002). Studies focusing on emotional education have consistently shown that parents express both a wider variety of emotions and discuss emotions more with their daughters than with their sons (Kuebli and Fivush 1992; Kuebli et al. 1995). This could explain the advantage of females in terms of empathy during childhood (Litvack-Miller et al. 1997) and, more generally, in the field of emotional awareness and expression.

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As concerns gender differences on trait EI, the results are controversial. With respect to research on the adult sample, Schutte et al. (1998) predicted and found gender differences in their measurement of trait EI, with females scoring higher than males. In contrast, Petrides and Furnham (2000b) did not find a significant

difference between males and females in total measured trait EI. With respect to gender differences in children, a first study of Mavroveli et al. (2008) detected an absence of differences in trait EI means, while a subsequent study (Mavroveli et al. 2009) revealed significant gender differences in trait EI on a sample of children aged between 8 and 12 years, with an advantage for girls. Likewise, Russo et al. (2012) found that girls scored higher on some of the facets (including emotional expression, perception and emotion regulation) as well as on global trait EI. Finally, a recent investigation (Agnoli et al. 2019) confirmed higher trait EI scores in girls than in boys on a large sample of children and preadolescents.

The main aim of the present work is to study the relationship between trait EI and Draw-A-Person emotional indicators during childhood, and to investigate the interaction between trait EI and gender on children HFDs. To our knowledge, no work has explored the influence of trait EI and gender interaction on DAP emotional indicators. The present study may lead to a better understanding of the emotional functioning of children, looking at gender interaction, with respect to the link between trait EI levels and the graphic expression of emotions. Investigating several converging lines of evidence between children's drawings (DAP) and a self-report measure of trait EI (via TEIQue-CF), by adopting a multi-method approach, may provide more reliable indicators of children's emotional experiences.

1. Hypotheses

First of all, we expected a positive relationship between trait EI and the DAP test, so the higher the score on TEIQue, the higher the score on the emotional indicators. Secondly, based on the literature concerning gender differences in expressing emotions, we hypothesized that girls would score higher than boys on the emotional indicators in the DAP test. Finally, we expected a gender interaction, so that the positive relation between trait EI and the DAP test is stronger for girls than for boys, based on their better familiarity with the area of emotions.

2. Methods

2.1. Participants

A convenience sample of 150 children (48.7% females) aged 8–9 ($M = 8.16$; $SD = 0.37$) participated in this study. The participants were pupils attending the third year of Primary education, and were enrolled in two different public schools located in the Province of Bologna (Northern Italy). The sample coming mostly from a medium socioeconomic level. Almost all the participants were of Italian origin (i.e. were born in Italy), while the remaining pupils were nonetheless fluent speakers of Italian. No significant relationship of interdependence between gender and age probability distributions was found ($\chi 2 = 0.56$, $p = .45$; Cramer's $V = 0.06$, $p = .45$). Parents provided written consent to participate in the investigation for each child; they could withdraw their child from the study at any time.

2.2. Procedure

The purpose of the study was presented to the school principals and teachers in each school, indicating that the study was aimed at evaluating social relationships and perceived wellbeing in school-aged children. Informed consent was obtained from parents and the participants were asked for their personal assent. The questionnaires were briefly presented in each classroom. All the participants filled out the tests individually in their classrooms, following concise group instructions on the answer formats. Administration lasted for about 20–30 min. Authors followed the norms laid down by the Italian National Psychological Association for ethical practice in psychological research.

2.3. Measures

Trait Emotional Intelligence Questionnaire-Child Form (TEIQue-CF)

The TEIQue-CF (Mavroveli et al. 2008) is specifically designed to measure global trait EI in children between 8 and 12, and comprises 75 short statements (e.g., 'It's easy for me to show how I feel') that are responded to on a 5-point Likert scale, ranging from "completely disagree" to "completely agree". The child form of the TEIQue has been developed on a content analysis of the literature on socioemotional development. It comprises nine facets (i.e., adaptability, affective disposition, emotion expression, emotion perception, emotion regulation, low impulsivity, peer relations, self-esteem, and self-motivation). These facets were based on a comprehensive review of the literature on children's social and emotional development and were supported by rigorous

statistical examination on data from child samples (Mavroveli and Sánchez-Ruiz 2011). The TEIQue-CF has shown satisfactory levels of internal consistency and temporal stability over a 3-month interval (see Mavroveli et al. 2008; Mavroveli and Sánchez-Ruiz 2011). In the present study, the Italian version of the TEIQue-CF was used (Russo et al. 2012). For each participant, a global trait EI score was computed. The reliability of the global TEIQue-CF score was very high (Cronbach alpha = .85).

Draw a Person (DAP) The DAP (Goodenough 1926) is a projective drawing task, completely non-invasive and non-threatening to the children. Test administration requires the children to complete an individual drawing. The child is given an 8.5 × 11-in. blank piece of paper and an HB 2 pencil and is told to: "Draw one whole person. You can draw any kind of person you want, but not a stick figure" (Koppitz 1984, p. 10). No further instructions are given, and the child is free to make the drawing in whichever way he or she would like, so there is no 'right' or 'wrong' type of drawing. While the test has no time limit, children rarely take longer than about 10 or 15 min to complete the task. Drawings can be assessed for developmental level and evidence of emotional indicators. Each human figure drawing was scored for the presence of Koppitz's (1968) emotional indicators (such as specific body parts, including presence or absence, detail, and proportion), according to her scoring manual (see also Pate and Nichols 1971). Specifically, based on a previous study (Mancini 2018), and in agreement with Koppitz, 15 different aspects of the HFDs were considered for a total final score (ranging from 0 to 15). As for the rating procedure, a higher score denotes high levels of a child's emotional maturation, whereas a lower score reveals possible emotional distress (see Table 1, for the specification of each aspect). The inter-rate reliability of the original Koppitz scoring system was calculated using three judges, with a similar degree of education and professional competence in assessing the human figure in children's drawings. Specifically, three child psychologists, with the same level of expertise (4 years' training in developmental psychopathology) and experience (at least 10 years of treatment practice), independently examined the same protocols, assigning a score between 0 to 15 to each drawing. Inter-rater reliability was computed using 'Cohen's kappa': magnitude values were within the range .81 and 1, indicating an almost perfect agreement (Landis and Koch 1977), and therefore experimentally congruous. In the few cases where major discrepancies occurred, the coders reviewed their scores and agreed with each other about the exact ratings to be

assigned.

Table 1

Aspects of the Draw-a-Person (DAP) Test

Aspects	Score = 0	Score = 1
1. Human Figure (integration)	Poor integration of parts (one or more parts not joined to rest of figure, part only connected by a single line or barely touching); clear asymmetry of limbs (one arm or leg differs markedly in shape from the other arm or leg); tiny head (height of head less than one-tenth of total figure)	Full-length human figure and good integration between parts of the figure
2. Human figure (size)	Inadequate size (tiny or big figure in height)	Good size
3. Shadings	Shading of face (deliberate shading of whole face or part of it), of body and/or limbs, of hands and/or neck	Absent
4. Transparencies	Transparencies involving major portions of body or limbs	Absent
5. Monster or grotesque figure	Figure representing nonhuman, degraded or ridiculous person (the grotesqueness of figure must be deliberate and not the result of individual immaturity or lack of drawing skill)	Absent
6. Body	Absence of body, or cut shape.	Presence of a whole body
7. Eyes	Complete absence of eyes; closed eyes or vacant circles for eyes; crossed eyes (both eyes turned in or out)	Presence of eyes drawn in a normal way
8. Arms	No arms or arms clinging to body (no space between body and arms); short stubs for arms, arms not long enough to reach waistline; long arms (arms excessively long, arms long enough to reach below knee or where knee should be)	Present
9. Hands	Big hands as big or bigger than the face; hands cut off (arms with neither hands nor fingers; hands hidden behind or in the pockets)	Present
10. Legs	No legs; legs drawn together with no space in between	Present
11. Genitals	Realistic or unmistakably symbolic representation of genitals	Absent
12. Nose	Absent	Present

Aspects	Score = 0	Score = 1
13. Mouth	Absent	Present
14. Feet	Absent	Present
15. Neck	Absent	Present

2.4. Data Analysis

First of all, in order to explore the relationships between trait EI and the DAP test, Pearson's bivariate correlations were computed. Second, differences between girls and boys on these two variables were computed using one-way ANOVA. Third, to investigate the interaction between trait EI and gender on DAP, a moderation analysis was estimated with the Process macro for SPSS provided by Hayes (2013, Model 1).

3. Results

Bivariate correlations (see Table 2, left part) showed that as a confirmation of previous studies (Mancini 2018), trait EI and DAP were significantly and positively correlated. As concern sex differences, the ANOVA (see Table 2, right-hand side) showed that girls scored higher than boys on the DAP, while no significant difference was found on trait EI.

Table 2

Descriptive Statistics, Correlations and ANOVA Differences for Sex among the Study Variables

			r		ANOVA for Sex		
Measures	***M***	***SD***	**1**	**2**	***M* girls**	***M* boys**	***F***
1. TEIQue-CF (1, 5)	3.61	0.36	–		3.66	3.57	2.47
2. DAP (5, 15)	9.78	2.29	.25**	–	10.31	9.29	7.58**
Sex (0, 1)	–	–	−.13	−.22**	–	–	–
The numbers in parentheses represent the scale range. Sex is coded as 0 = girls and 1 = boys							
*** $p < .001$. ** $p < .01$. * $p < .05$							

After that, a moderation analysis was computed to see whether there is an interaction between trait EI and gender on the results of the DAP test. The analysis showed a significant interaction between trait EI and gender on DAP: $\beta = -.16$, $p < .05$. As can be seen in Fig. 1, when trait EI is low there was no difference on the DAP test. Instead, when trait EI is high, girls scored higher than boys. That is, gender moderates the effect of trait EI on DAP: regardless of the low-high level of trait EI, boys had low DAP scores ($M_{low} = 9.18$ and $M_{high} = 9.43$, respectively), while the more girls had a high trait EI, the higher they scored on DAP ($M_{low} = 9.35$ and $M_{high} = 11.04$, respectively).

Fig. 1

The effect of trait EI on DAP moderated by gender

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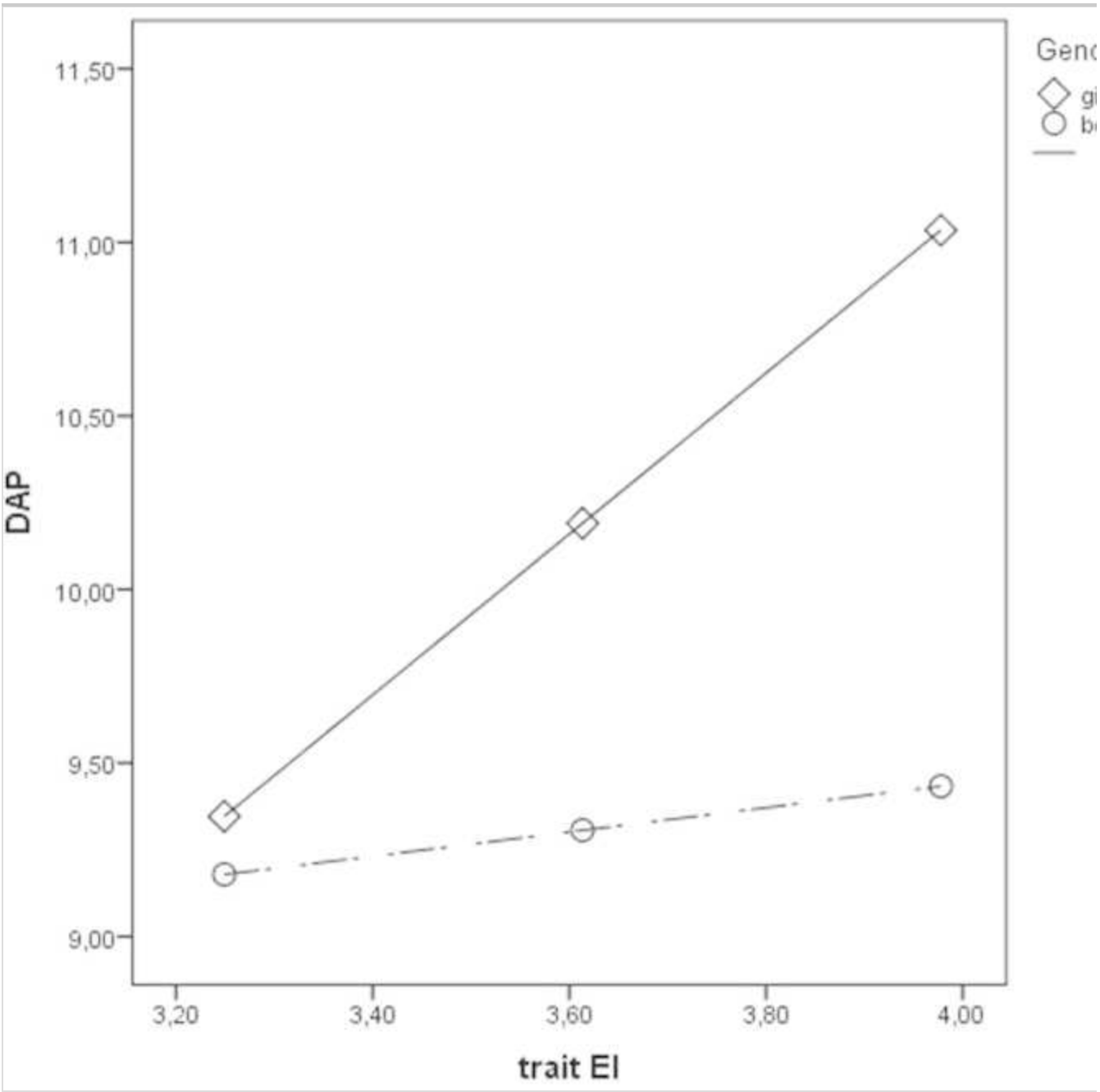

4. Discussion

The present study was designed to test the relation between trait EI and DAP emotional indicators during childhood, and to investigate the interaction between trait EI and gender on children HFDs assessed by Koppitz's original scoring system. The results confirm the hypotheses. Specifically, as a first result, we find a positive correlation between trait EI scores and DAP emotional indicators. As already highlighted by Mancini (2018), the more children show good emotional intelligence, the higher are the indicators of well-being shown by the DAP. The

link between the emotional indicators in the drawing and trait EI levels provides clinicians and researchers with an opportunity to have a more comprehensive approach to the knowledge of the child's emotional world. A large amount of information about the child is obtained from the parent interview, but through the combined use of the DAP test and a self-reported questionnaire of trait EI the child becomes the actor of the knowledge process and has the opportunity to express him/herself through different communication paths.

Second, as hypothesized, there is a difference between boys and girls at the DAP test: females show higher levels of emotional indicators than their male counterparts. This result corroborates the scarce literature showing that girls outperform boys in human figure drawing (Picard 2015).

Third, as expected, the moderation analysis displayed a significant interaction between trait EI and gender on DAP: when trait EI is high, girls scored higher than boys. The interaction effect shows us that this difference emerges only for high trait EI scores. Why does the high trait EI affect the emotional indicators of the DAP test on females but not on males? To answer this question, two explanations can be raised. First, one might suppose that females are able to use their trait EI disposition in drawing more and better, while males use less of this emotional self-efficacy to express themselves through the graphic activity. This is consistent with the idea that boys and girls differ in the expressive component of emotion, which has found the strongest research support (Saarni 1999), and suggests that these gender differences extend to the expressive drawing domain (Picard and Boulhais 2011). These differences may be attributed to divergences in the education patterns of males and females. Generally, girls receive a more emotion-focused education, while boys are taught to reduce certain emotions (Fivush et al. 2000; Sánchez-Núñez et al. 2008). Therefore, it can be assumed that girls, more than boys, have been socialized in a way that favors the development of skills oriented towards empathic disposition and this is reflected in the graphical expression at the DAP test. Thus, in drawings, boys more easily express a tendency of response to action than to focus on the emotional indicators of the human figure, due to their lower aptitude for sharing feelings and emotions. They do not mediate by using their trait EI, but more impulsively engage with the drawing, which is mainly action-oriented. On the contrary, girls appear to be more interested in introducing emotional content in the drawing to characterize the human figure, profiting from their set of dispositions and self-

perceptions related to emotions, and showing a different degree in complexity of emotion representations.

The second assumption pertains to a self-enhancing bias in males, linked to possible gender differences in measured (psychometrically assessed) and self-estimated, multifaceted trait EI. Petrides and Furnham (2000b) suggest that there is a bias in self-estimation of EI, showing that males believe they have higher EI than females. This significant effect of gender as predictor of self-estimated trait EI is referred to young adults, but one might argue that it also emerges in children, with boys having less insight into their perceptions of their emotional world, while believing they have high levels of trait EI and thus rating high scores at the TEIQue.

This research has some limitations that should be borne in mind for future research. First of all, the results cannot be generalized and must be interpreted with caution, both with respect to the convenience sample selected, and in light of the studies that assessed cultural variations in HFDs by children from different countries. Findings from diverse ethnic groups are inconsistent with drawings from Western children and this trend does not allow us to make comparisons between groups (Skybo et al. 2007). Obviously, much more investigation is needed to establish cultural variations and the validity of using DAP test.

Moreover, it is well-known that the accuracy and real-life importance of self-reports information has been questioned because some children may hold unrealistic or biased self-perceptions (see Stone and Lemanek 1990 for a review). Although from research on child samples it is becoming increasingly clear that the foundations of the multifaceted role of trait EI in the life domains are quite well established in childhood (Petrides et al. 2016), trait EI is not yet well understood in childhood and further research is needed to confirm this finding. On the other hand, the exclusive use of self-reporting measures may be a limitation in terms of assessment, as social desirability and premeditated bias may affect responses to the questionnaires of emotional problems. Nonetheless, scholars (see Perez et al. 2005) have noted that the assessment of trait EI, given its nature as a combination of self-efficacy and affective-personality dispositions, requires the use of self-reports.

Another limitation concerns the use of a projective drawing technique. We are

aware that the DAP test is considered a controversial tool. However, the instrument appears among the top ten tools used by practitioners (Cummings 1986; Yama 1990). Despite the various potential sources of error compared to other standardized instruments, the projective drawing techniques and self-reports remain valid and reliable measures especially suitable for children.

Notwithstanding these limitations, the results presented in this article are promising. The present research provides novel insights into children's DAP test performances influenced by trait EI and gender interaction and that may be relevant for a better understanding of children's emotional world as a function of successful adaptation. Indeed, the current recommendations on psychological assessment report that clinicians must rely on multi-method approach and, by using different sources, verify the consistency of the observations they make (Solomon 2002; Groth-Marnat 2009). The combined use of DAP test and TEIQue for collecting information, fast and simple to administer, can be applied both in psycho-diagnostic settings and in educational and school contexts, as informal assessment, by appropriately trained practitioners. They aim to provide a deeper operationalization of emotion-related individual differences, limiting the anxiety of evaluation and facilitating the expression of emotional content. Thus, the multi-method assessment gives child psychologists and teachers valuable and individualized data about children's emotional well-being (for instance, emotional deficits related to a lower level of trait EI), and allow us to recognize individuals who are vulnerable to psychological disorders and to arrange for early emotional care. We expect that further investigation will be conducted in order to corroborate our results, by exploring the complex relationship between trait EI and the DAP test also by means of different sets of instruments.

Publisher's Note

Acknowledgements

The authors are grateful to primary school teacher's Cristina Sorella for her assistance in data collection.

Compliance with Ethical Standards

Conflict of Interest The authors declare that he has no competing or potential conflicts of interest.

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