



Research Article

Trait emotional intelligence in mothers of children with autism spectrum disorders

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ABSTRACT

Studies that point to the difficulties in terms of communication, social skills, reading and interpreting emotions in parents of children with autism spectrum disorder (ASD), as well as those regarding the protective function of trait emotional intelligence (TEI), are not complemented by studies directly comparing TEI of caregivers of children with ASD and those of neurotypical children. The aim of this study was to examine differences in TEI between mothers of children with ASD and mothers of children of typical development, as well as the effect of different sociodemographic factors on maternal TEI. Participants were 156 mothers, divided into two groups: 1) mothers of children with ASD (ASD group) (N = 78) and 2) mothers of neurotypical children (control group) (N = 78). Participants completed the Serbian adaptation of the Trait Emotional Intelligence Questionnaire (TEIQue), short form, and answered various questions about their own and their children's sociodemographic characteristics. Results suggest equivalence of global and factor-level TEIQue scores. Inspection of facet-level differences revealed higher scores on Stress management, and lower scores on Assertiveness in the ASD group compared to controls. Maternal age was not related to their TEI, while Well-being and Optimism of mothers decreased with increasing of ASD child's age. Mothers with lower education had significantly lower TEI scores on several factors and facets regardless of the child's ASD status.

Obtained findings significantly contribute to the knowledge of perceived emotional self-efficacy in mothers of children with ASD which could elicit additional research and various mental health professional programs aimed at this vulnerable population.

Keywords: Autism spectrum disorder, Trait emotional intelligence, Caregivers, Parental functioning, Emotional self-efficacy

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Introduction

Theory and research argue that autism-like traits are not limited to individuals diagnosed with autism spectrum disorder (ASD), but rather that they vary throughout the general population, with less severity (Gökçen et al., 2014). Therefore, the scientific community has introduced the term “broad autism phenotype”, which refers to the findings that individuals from the general population, and especially relatives of persons with ASD, often have mild forms of autistic-like characteristics, such as social and communication difficulties (Bishop et al., 2008; Hurley et al., 2006; Ruser et al., 2007). For example, research shows that parents of children with ASD achieve lower scores on pragmatic language (Hurley et al., 2006) and emotion recognition tasks (Hu et al., 2018; Palermo et al., 2006), and show higher levels of alexithymia, social anhedonia (Berthoz et al., 2013), as well as an aloof and rigid personality (Hurley et al., 2006).

Furthermore, experience of caring for an offspring diagnosed with ASD is immensely reflected in personal well-being (Gray, 2002; Lovell et al., 2014; Machado Junior et al., 2014; Preece & Almond, 2008; Stuart & McGrew, 2009; Whitehead et al., 2015), family dynamics (Marquenie et al., 2011; Shakhmalian, 2005) and work and social life of caregivers (Benderix et al., 2007; Blanchard et al., 2006; Shakhmalian, 2005). On the other hand, use of adaptive coping strategies, resilience, ability to tolerate uncertainty, and wider social support network have all been linked to better psychological adjustment (Jones & Passey, 2004; Smith et al., 2012; Su et al., 2017; Whitehead et al., 2015).

The intensity of parental difficulties increases with the severity of the child's symptoms (Herring et al., 2006; Hoffman et al., 2009; Ruiz-Robledillo & Moya-Albiol, 2014). Furthermore, parental stress increases as the child with ASD grows older, because parents become increasingly aware of the permanence of their difficulties, the system lacks support, and there is a risk of burnout in parents (Milačić Vidojević, 2008). Although there are differences in the symptomatology of male and female children with ASD (Baron-Cohen, 2000), research in our country shows that parental stress is not related to the

gender of the child with ASD. It seems that parents do not differentiate between boys and girls and are equally concerned about their children (Milačić Vidojević, 2008).

One personality trait that affects processing of stressful events – the trait emotional intelligence (TEI) – has been largely neglected in previous studies with caregivers of children with ASD. TEI is conceived as a constellation of self-perceptions pertaining to efficiency in perceiving, understanding, managing, and utilizing our own and other people's emotions (Petrides et al., 2018). TEI represents "emotional self-efficacy" and denotes the construct of emotional intelligence (EI) that is within the personality domain and is implied by the application of self-reporting measures (Petrides et al., 2007). Petrides and Furnham (2001) identified 15 facets which represent the sampling TEI domain: Self-esteem, Emotion expression, Self-motivation, Emotion regulation, Happiness, Empathy, Social awareness, Impulsiveness (low), Emotion perception, Stress management, Emotion management, Optimism, Relationships, Adaptability and Assertiveness. According to the TEI theory, these facets are organized into four interrelated factors: Well-being (features related to dispositional mood), Self-control (self-efficacy in regulating emotions and/or impulses), Emotionality (self-efficacy in perceiving and expressing emotions), and Sociability (self-efficacy in interpersonal utilization and management of emotions) (Petrides, 2009).

Findings within the general population show that TEI is a strong predictor of well-being and mental health (Martins et al, 2010), in part because high TEI individuals show superiority in coping with stressful situations, which they tend to perceive as a challenge rather than as a threat (Mikolajczak & Luminet, 2008; Mikolajczak et al., 2006). Research in specific populations (e.g., dementia caregivers) confirms that TEI could be particularly important in reducing stress, anxiety, and depression of those living in prolonged stressful circumstances (Weaving et al., 2014). Mental health benefits of TEI are also evident in a small number of studies performed on caregivers of children with ASD. Self-assessed emotional intelligence is negatively related to the level of perceived stress (Lovell & Wetherell, 2016) and positively associated with the

maternal quality of life (Alibakhshi et al., 2018). It can decrease perceived burden levels (Ebied et al., 2021) and contribute to better physical health outcomes (Ruiz-Robledillo & Moya-Albiol, 2014).

Research shows that EI components may develop over time with age or life changes (Palmer et al., 2003). While some authors found that EI scores are positively related to age, but begin to decrease past the age of 65 (Bar-On, 1997, as cited in Derksen et al., 2002), other researchers indicated that TEI is negatively correlated with age (Jolić Marjanović & Altaras Dimitrijević, 2014). The findings unequivocally show that TEI is positively associated to level of education (Altaras Dimitrijević & Jolić Marjanović, 2021; Pérez-Díaz et al., 2021) and academic performance (Perera & DiGiacomo, 2013; Petrides et al., 2004).

Aims and rationale for this study

Findings from studies that point to possible difficulties in terms of communication, social skills, as well as in reading and interpreting emotions in parents of children with ASD, and generally promising findings about the protective function of TEI are not complemented by studies directly comparing TEI of caregivers of children with ASD and those of neurotypical children. To the best of our knowledge, only one study has previously reported such findings (Premanand et al., 2014), showing that parents of children with ASD in India score lower than controls on Trait Emotional Intelligence Questionnaire-Short Form (TEIQue-SF), specifically on TEI global score, Well-being, Self control and Sociability. Though parents of children with ASD scored low on Emotionality, the difference was not statistically significant.

Following this gap, the current study compared TEI of mothers of children with ASD and mothers of neurotypical children, specifically focusing on facet-level TEI profile differences. Based on previous findings (Premanand et al., 2014), we assumed that mothers of children with ASD will have lower scores on TEI compared to mothers of neurotypical children (H1). More specifically, we believe that significant between group differences will be

present in both TEI factor-level scores (H1a) and in the overall facet-level TEI profile (H1b). We also put this hypothesis in line with the findings of studies that have shown that parents of children with ASD have difficulties with reading, recognizing and processing emotions (Berthoz et al., 2013; Hu et al., 2018; Palermo et al., 2006), which represent abilities integrated within the EI domain.

Building upon previous findings about significant age and education effects on TEI (cf. Altaras Dimitrijević & Jolić Marjanović, 2021), this study also sought to investigate differences in maternal TEI when we take into account maternal demographic characteristics. Being that older and less educated individuals exhibit lower levels of TEI, while older and less educated caregivers experience higher stress levels (Duarte et al., 2005; Smith et al., 2001), we expect that older and less educated mothers will obtain lower TEI scores in comparison to younger and more educated mothers (H2).

Furthermore, we expected to find significant interaction effect between mother's group membership and level of education: we believe that less educated mothers of children with ASD will obtain the lowest TEI scores (H3). We put this hypothesis in line with the findings of studies that have shown that parents of children with ASD exhibit higher levels of stress than parents of neurotypical children (Machado Junior et al., 2014), and those which indicate that less educated caregivers experience higher stress levels than caregivers with higher level of education (Duarte et al., 2005; Smith et al., 2001). Thus, we believe that the interaction of stressful circumstances will be associated with lower perceived self-efficacy, that is, maternal TEI.

As ASD child's age is positively correlated with higher parental stress (Milačić Vidojević, 2008), but the ASD child's gender does not contribute to parental functioning (Herring et al., 2006), we expected to find significant negative correlation between maternal TEI and ASD children's age, but no association with ASD child's gender (H3).

Method

Participants and Procedure

Data for this study was gathered in a convenience sample of 78 mothers of children with clinically verified ASD (ASD group) and 78 mothers of neurotypical children (control group).

Age range of the ASD group of mothers was 24 to 62 years ($M = 38.54$, $SD = 7.81$). With respect to education, 55.1% had finished high school and 44.9% had a university diploma; 50% was unemployed. The majority of mothers was from urban settlements (89%) and married (83.3%). Approximately one third (37.2%) of mothers had one child ($N = 29$), 42.3% of mothers had two children ($N = 33$) and 20.5% of mothers had three children ($N = 16$).

Their ASD children aged from 3 to 30 years ($M = 7.99$, $SD = 5.73$) and 77% were male. Mothers were recruited either during the child's regular speech and language therapy within Institute for Experimental Phonetics and Speech Pathology „Đorđe Kostić“ in Belgrade, Serbia ($N = 25$) or through Facebook groups whose names contained keywords referring to ASD ($N = 53$).

This study was conducted in accordance with the Declaration of Helsinki and it complied with APA ethical standards. All mothers completed the questionnaire on a voluntary basis and gave informed consent to participate. Confidentiality of data was guaranteed.

The subsample of mothers for the control group was drawn from a larger community sample of employed adults from urban and suburban settlements employed at various positions within a large dairy company, that had been recruited in a separate study (see details in Jolić Marjanović & Altaras Dimitrijević, 2014). Selection for the control group was based on four criteria: age, number of children, education level (high school/university), and marital status (single/married). As a result, the age range of mothers in the control group was 26 to 58 ($M = 41.63$, $SD = 6.63$), 17.9% had one child, 33.3%

finished university, and 83.3% were married. As mentioned earlier in the text, all mothers from the control group were employed.

Statistical comparison showed that the two subsamples were matched with respect to number of children ($F_{(1,154)} = 2.36, p = .127$), education ($\chi^2_{(1)} = 2.18, p = .095$) and marital status ($\chi^2_{(1)} = .00, p = .585$), but somewhat different when it comes to the mean age ($F_{(1,154)} = 7.10, p = .009$). Mothers also differed in terms of their employment status ($\chi^2_{(1)} = 52.00, p = .000$).

Measures

All mothers made self-assessments on 30 items of the Trait Emotional Intelligence Questionnaire (TEIQue), short form (TEIQue-SF) (Petrides, 2009), using a 7-point Likert scale ranging from 1 (completely disagree) to 7 (completely agree). In our study, we used the Serbian translation of TEIQue-SF (Jolić Marjanović & Altaras Dimitrijević, 2014). The TEIQue-SF yields a global TEI score, as well as four factor scores (Well-being, Self-control, Emotionality and Sociability). Factor scores are derived from items examining 15 facets (Adaptability, Assertiveness, Emotion expression, Emotion management, Emotion perception, Emotion regulation, Impulsiveness (low), Relationships, Self-esteem, Self-motivation, Social awareness, Stress management, Empathy, Happiness and Optimism). Alphas for this sample resonated with previously established values in our and other countries (cf. Feher et al., 2019), for Global score ($\alpha = .84$), as well as for factors: Well-being ($\alpha = .66$), Self-control ($\alpha = .44$), Emotionality ($\alpha = .63$) and Sociability ($\alpha = .50$).

All participants also completed questions of the TEIQue's 'About you' section supplying relevant demographic information, while mothers from the ASD group additionally provided data on age, gender, and treatment status of their ASD diagnosed child.

Data Analysis

To analyse and describe the sample, descriptive statistic measures were used. Whilst controlling for maternal age, between group differences in TEI were inspected using ANCOVA (global score) and MANCOVA (factor and facet scores). Also, to examine the effect of ASD child's gender on maternal TEI, we used ANOVA (global score) and MANOVAs (factor and facet scores).

To inspect the interaction effects between mother's group membership and education on their TEI, we used a two-way ANOVA (global score) and two separate two-way MANOVAs (factor scores). Bivariate correlations were used to examine the relationship between TEI and maternal and child's age. Data was analyzed in SPSS package, v. 20.

Results

Between group differences in maternal TEI were first inspected using ANCOVA (global score) and MANCOVA (factor scores), suggesting equivalence of global and factor-level TEIQue scores, when maternal age is being controlled.

Additional MANCOVA was performed to inspect facet-level differences in TEI, whilst controlling for maternal age, resulting in a significant outcome for multivariate tests (Wilks $\lambda=.81$, $F_{(15,139)} = 2.18$, $p = .010$, partial $\eta^2 = .190$). Further inspection confirmed that this result was due to significant differences in just two facets: Stress management and Assertiveness. The ASD group reported higher means for the former, and lower means for the latter facet. All data is shown in Table 1.

Table 1*Differences on TEI global, factor and facet level between two maternal groups*

	ASD	Control	$F(df_1, df_2)$	p	partial η^2
	group	group			
	$M (SD)$	$M (SD)$			
Global score	5.06 (.81)	5.11 (.63)	.44 (1, 153)	.506	.003
Factors					
Well-being	5.49 (1.06)	5.63(.78)	1.38 (1, 153)	.364	.005
Self control	4.92 (.93)	4.81 (.86)	.83 (1, 153)	.440	.004
Emotionality	5.15 (1.02)	5.19 (.87)	.21 (1, 153)	.648	.001
Sociability	4.65 (1.07)	4.76 (.78)	1.12 (1, 153)	.291	.007
Facets					
Self-esteem	5.87 (.95)	5.87 (1.04)	.02 (1,153)	.900	.000
Emotion expression	5.03 (1.48)	5.00 (1.46)	.00 (1, 153)	.992	.000
Self-motivation	5.07 (1.25)	4.99 (1.15)	.02 (1, 153)	.898	.000
Emotion regulation	4.72 (1.30)	4.92 (1.22)	.76 (1, 153)	.386	.005
Happiness	4.73 (1.70)	5.04 (1.19)	2.31 (1, 153)	.130	.015
Empathy	4.88 (1.37)	5.16 (1.67)	1.84 (1, 153)	.177	.012
Social awareness	5.15 (1.36)	5.11 (1.23)	.01 (1, 153)	.940	.000
Impulsiveness (low)	4.90 (1.27)	4.89 (1.54)	.01 (1, 153)	.937	.000
Emotion perception	5.15 (1.32)	5.04 (1.07)	.07 (1, 153)	.798	.000
Stress management	5.15 (1.40)	4.63 (1.21)	6.91 (1, 153)	.009	.043
Emotion management	4.67 (1.29)	4.38 (1.01)	2.01 (1, 153)	.158	.013
Optimism	5.86 (1.25)	5.97 (1.05)	.64 (1, 153)	.423	.004
Relationships	5.56 (1.46)	5.55 (1.48)	.04 (1, 153)	.840	.000
Adaptability	5.01 (1.37)	5.29 (1.39)	1.84 (1, 153)	.177	.012
Assertiveness	4.13 (1.91)	4.78 (1.45)	7.85 (1, 153)	.006	.049

Note. ASD group=Mothers of children with ASD; Control group=Mothers of typically developing children

A two-way ANOVA, with mother's group membership and education as fixed factors and global TEI score as a dependent, resulted in non-significant interaction and group membership effects, along with significant education effect ($F_{(1,152)} = 8.85$, $p = .003$, partial $\eta^2 = .055$), implying that mothers with a university diploma had a higher overall score on TEIQue-SF than mothers with high school education.

Next, two separate two-way MANOVAs with the above independent variables and factor, that is, factor-level TEI scores as dependent variables, were performed. The first resulted in non-significant multivariate test results and significant between-subject effects of education for Well-being, Self-control, and Sociability, showing that mothers with high school education had significantly lower means on these subscales regardless of the ASD status of their child. Neither of the effects was significant for Emotionality.

The second two-way MANOVA, again resulted in non-significant multivariate tests, but revealed several significant effects of both facets and their interaction: significant group membership effect was confirmed for Stress management (higher in the ASD group) and Assertiveness (higher in the control group) (Table 1). Education had a significant effect on Self-motivation, Impulsiveness (low), Adaptability and Assertiveness, all in favor of mothers holding a university degree. Interaction effect was present for Emotion regulation, where university educated mothers of children with ASD were more similar to mothers with a high school diploma from the control group than to their education level counterparts ($F_{(1,152)} = 5.84, p = .017, \text{partial } \eta^2 = .037$). All descriptive measures are shown in Table 2.

Table 2

Effect of education on maternal TEI global, factor and facet level scores

		ASD	Control	$F(df1, df2)$	p	Partial η^2
		group	group			
		$M (SD)$	$M (SD)$			
Global score	HS	4.91 (.85)	4.99 (.60)	8.85 (1,152)	.003	.055
	UN	5.25 (.73)	5.35 (.61)			
Factors						
Well-being	HS	5.38 (1.02)	5.48 (.77)	4.85 (1,152)	.029	.031
	UN	5.62 (1.11)	5.91 (.74)			
Self-control	HS	4.70 (.95)	4.78 (.81)	4.40 (1,152)	.038	.028
	UN	5.20 (.83)	4.89 (.97)			
Emotionality	HS	5.08 (1.09)	5.06 (.95)	3.14 (1,152)	.079	.020
	UN	5.25 (.93)	5.45 (.62)			
Sociability	HS	4.50 (1.24)	4.60 (.70)	6.80 (1,152)	.010	.043

	UN	4.83 (.78)	5.07 (.86)			
		Facets				
Self-esteem	HS	5.83 (1.06)	5.73 (1.10)	2.576 (1,152)	.111	.017
	UN	5.93 (.81)	6.15 (.86)			
Emotion expression	HS	4.88 (1.61)	4.91 (1.46)	1.472 (1,152)	.227	.010
	UN	5.21 (1.30)	5.17 (1.47)			
Self-motivation	HS	4.81 (1.24)	4.84 (1.10)	7.105 (1,152)	.009	.045
	UN	5.39 (1.22)	5.31 (1.20)			
Emotion regulation	HS	4.44 (1.25)	5.04 (1.16)	.412 (1,152)	.522	.003
	UN	5.07 (1.30)	4.67 (1.33)			
Happiness	HS	4.56 (1.52)	4.90 (1.20)	2.651 (1,152)	.106	.017
	UN	4.94 (1.90)	5.31 (1.13)			
Empathy	HS	4.80 (1.46)	5.07 (1.16)	1.202 (1,152)	.275	.008
	UN	4.99 (1.25)	5.35 (1.18)			
Social awareness	HS	5.01 (1.54)	4.99 (1.31)	2.365 (1,152)	.126	.015
	UN	5.31 (1.09)	5.35 (1.02)			
Impulsiveness (low)	HS	4.64 (1.22)	4.65 (1.65)	8.043 (1,152)	.005	.050
	UN	5.23 (1.27)	5.36 (1.21)			
Emotion perception	HS	5.22 (1.25)	4.88 (1.10)	.563 (1,152)	.454	.004
	UN	5.06 (1.41)	5.35 (.97)			
Stress management	HS	5.02 (1.57)	4.63 (1.24)	.404 (1,152)	.526	.003
	UN	5.30 (1.16)	4.63 (1.18)			
Emotion management	HS	4.72 (1.45)	4.27 (.97)	.289 (1,152)	.592	.002
	UN	4.60 (1.06)	4.60 (1.08)			
Optimism	HS	5.74 (1.29)	5.82 (.95)	3.462 (1,152)	.065	.022
	UN	6.00 (1.21)	6.27 (1.18)			
Relationships	HS	5.42 (1.51)	5.36 (1.65)	3.214 (1,152)	.075	.021
	UN	5.73 (1.39)	5.92 (.98)			
Adaptability	HS	4.72 (1.39)	5.19 (1.46)	4.512 (1,152)	.035	.029
	UN	5.37 (1.27)	5.50 (1.23)			
Assertiveness	HS	3.78 (2.04)	4.54 (1.42)	7.625 (1,152)	.006	.048
	UN	4.57 (1.67)	5.27 (1.39)			

Note. HS= Mothers with high school education; UN=Mothers with university degree

No significant maternal employment status differences within the ASD group were revealed by means of ANOVA for the global score ($F_{(1, 76)} = 3.83, p = .054, \text{partial } \eta^2 = .048$) and MANOVAs for factor (Wilks $\lambda = .94, F_{(4,73)} =$

.47, $p = .375$, partial $\eta^2 = .056$) and facet-level scores (Wilks $\lambda = .76$, $F_{(15,62)} = 1.28$, $p = .240$, partial $\eta^2 = .237$).

Bivariate correlations of TEI global, factor, and facet-level scores with mother's age were non-significant in both groups, which is why age was not included as a covariate to improve estimation of TEI means in mother groups.

No significant child gender differences within the ASD group were revealed by means of ANOVA for the global score ($F_{(1,76)} = .00$, $p = .956$, partial $\eta^2 = .000$) and MANOVAs for factor (Wilks $\lambda = .98$, $F_{(4,73)} = .47$, $p = .759$, partial $\eta^2 = .025$) and facet-level scores (Wilks $\lambda = .86$, $F_{(15,62)} = .69$, $p = .790$, partial $\eta^2 = .142$). In both MANOVAs subsequent tests of between subject effects were also non-significant. In addition, only two bivariate correlations between the child's age and TEI scores were statistically significant in the ASD group: *Well-being* ($r = -.22$, $p = .048$) and *Optimism* ($r = -.23$, $p = .041$).

Discussion

The present study aimed to examine the TEI of mothers of children with ASD, and compare it with TEI of mothers of neurotypical children showed equivalent global and factor-level TEIQue scores for the two maternal groups. Such results contradict our hypothesis set in accordance with the findings of a study in which parents of children with ASD achieve significantly lower scores on Well-being, Self-control and Sociability (Premanand et al, 2014). The obtained discrepancies can be interpreted within the cultural and status differences, as well as the different sample structures. In India, where the previous research was carried out, ASD children are stigmatized and discriminated, while professional services are rare and mostly inaccessible (Minhas et al., 2015; Premanand et al., 2014), which can lead to lower perceived emotional self-efficacy of this vulnerable parental population. In contrast, the respondents in our study were mothers from urban areas who had higher socioeconomic status and whose children were included in treatment, which could speak to certain TEI levels. In support of this hypothesis, there are studies which show that the EI of children from rural areas is lower than EI of children from urban areas (Herrera et al., 2015), as well

as those showing that students' stress (which is related to their TEI) is higher in students from urban areas in comparison to students coming from rural areas (Shi et al., 2022). Also, some studies show that TEI measures perform differently and have different meanings for collectivistic and individualistic societies (Feher, 2019), which is important for moving forward with cross-cultural comparisons of TEI. Finally, we should bear in mind that parents of both sexes participated in the study conducted in India, while only mothers participated in our research. As the findings of previous studies indicate that females seem to manage their emotions better than males (e.g. Brackett et al., 2004; Craig et al., 2009; Hall & Mast, 2008; Petrides & Furnham, 2000; Schutte et al., 2002) and that fathers of children with ASD are more likely to exhibit autistic-like traits than mothers (Bishop et al., 2008; Hurley et al., 2006; Ruser et al., 2007), perhaps we can assume that the TEI differences appear due to the differences in sample structures.

Additional inspection revealed that mothers of children with ASD obtained higher scores on Stress management and lower scores on Assertiveness than mothers from the control group. As ASD caregivers are exposed to high stress levels over a long period of time needed for the process of diagnosing, treating and educating their children (Machado Junior et al., 2014; Whitehead et al., 2015), they most likely eventually develop mechanisms and coping strategies which help them handle pressure and regulate stress effectively (Petrides, 2010). Some authors (Nelis et al., 2009) demonstrated that EI can be acquired and improved. More specifically, as parents of children with ASD are constantly confronted with a child's world which is different from their own, it leads them to consequently develop specific emotional skills. Therefore, some EI skills might be strategies developed by mothers to cope with the challenges of having a child with ASD (Manicacci et al., 2019).

However, raising a child with ASD is full of challenges-their caregivers have difficulties in setting boundaries and saying 'no', so they often end up doing things unwillingly (Petrides, 2010). This learned helplessness consequently leads to a lack of initiative, reduced persistence, and avoidance of contacts (Tomić et al., 2011). Social isolation due to stigmatization and

rejection by society (Benderix et al., 2007; Gray, 2002) probably also contributes to their reduced willingness to stand up for their rights, so caregivers tend to backdown even if they know they are right (Petrides, 2010).

Maternal level of education has a significant effect on their TEI, even if the child's status is controlled. Our results show similarity to those who posed that TEI is positively associated to the level of education (Pérez-Díaz et al., 2021). Although parental education is not directly related to the increased incidence of ASD (in terms that less educated parents are not at a greater risk of having a child with ASD) (King & Bearman, 2011; Rai et al., 2012), parents of lower SES are more focused on meeting the child's basic and material needs (Brezis et al., 2015) and have less information about professional support services (Pickard & Ingersoll, 2016). More educated individuals with higher incomes can be more committed to their parenting roles and interacting with the child (Brezis et al., 2015), so they seek professional help earlier-their children get examined by experts more regularly, and diagnosed at a younger age (Thomas et al., 2011), so they probably have a higher sense of emotional self-efficacy. Also, taking into account the fact that TEI is positively associated with academic performance (Perera & DiGiacomo, 2013; Petrides et al., 2004), and therefore probably with academic intelligence too, we can assume that more educated ASD mothers probably show a higher capacity to recognize the child's problem, understand their life situation and use their problem-solving abilities. Therefore, their sense of perceived emotional self-efficacy is probably higher than in mothers with lower education.

Maternal TEI is not related to their age, which is contradictory to other research conducted in our study (Jolić Marjanović & Altaras Dimitrijević, 2014), but complementary to the findings of the authors indicating that there is no association between TEI and age (Pérez-Díaz et al., 2021). The obtained results can be explained by the sample's selectivity. The fact that this study included mothers who included their children in treatment and took steps towards problem-solving, probably speaks of a generally higher perceived emotional self-efficacy. Also, the obtained results can speak in favor of the hypothesis

that EI components may develop over time with age or life changes (Palmer et al., 2003). That is, one gets the impression that age itself does not contribute to TEI, but rather the experiences that individuals face during their lifetime.

Parents of older children with ASD score lower on Well-being and Optimism—they have low self-regard and self-esteem and are generally pessimistic, disappointed about their life as it is, and not inclined to “look at things from the positive side” (Petrides, 2010). Obtained results are not surprising, considering the increasing parental stress as the ASD child grows older (Milačić Vidojević, 2008) because of the anxiety regarding the child's ability to fulfill the next developmental and educational tasks (Connolly, 2015), parental increased burnout and awareness of the permanence of child's difficulties, as well as a general lack of system and professional support for older children and adults with ASD in our country (Gosto, 2016; Milačić Vidojević, 2008).

The study limitation is the sample size and the fact that only mothers participated in the study, so no conclusions on gender differences in terms of parental TEI could be made. The fact that mothers from our sample come from urban settlements, have at least high school education, and were able to perceive the child's difficulties and included them in treatment, already speaks of a pre-selected sample and higher levels of perceived emotional self-efficacy. Therefore, future studies should include parents whose children do not receive treatment and/or grow up in slightly different socioeconomic conditions.

Conclusion

Having a child with ASD affects parental perceived emotional self-efficacy. However, as certain sociodemographic factors also play a role, further studies are needed to examine the effect of other mediator and moderator variables on TEI of parents of children with ASD, as well as those aimed at monitoring the dynamics of development and changes in TEI at

different time points. Focused programs aimed at minimizing or decreasing negative outcomes for caregivers of persons with ASD are needed.

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Conflict of interest

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Data availability statement

Data files are available upon a reasonable request.

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