Research paper

Parental overcontrol is associated with dysmorphic concern severity: A cross-sectional study

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ABSTRACT

Background: Dysmorphic concern (DC) is a symptom affecting both clinical and non-clinical populations, with a severe impact on individuals' physical and psychological well-being. While Childhood Trauma (CT) has been identified as a risk factor for DC, there is a lack of research on a specific form of CT, that is, parental overcontrol. Therefore, the current study aimed to investigate the association between DC and parental overcontrol in a community sample of adults, controlling for other forms of CT and potential confounding variables.
Method: 714 adults (508 females; mean age: 30.29 ± 11.67 years; age range: 18–77) participated in an online survey including the *Body Image Concern Inventory* (BICI), the *Overcontrol* subscale of the *Measure Of Parental Style,* and the *Childhood Trauma Questionnaire - Short Form* (CTQ-SF).
Results: Parental overcontrol was independently associated with DC symptoms ($\beta = 0.111$; $p = .005$; CI = [0.119;0.666]), even after controlling for other forms of CT and sociodemographic and clinical confounding variables.
Limitations: The cross-sectional design of the study, the unbalanced sex ratio, the retrospective self-reported data about parental overcontrol and CT should be considered.
Conclusions: This finding suggests that parental overcontrol may play a role in the development and maintenance of DC symptoms, remarking the urge to take more into account parental overcontrol in the assessment of CT.

1. Introduction

Dysmorphic concern (DC) refers to an intense preoccupation with a perceived defect in appearance that may be accompanied by compulsive-like behaviors (e.g., body checking, skin picking) and avoidance of social situations (Vashi, 2016). DC is the critical symptom of the Body Dysmorphic Disorder (BDD), but it is also commonly detected in other psychiatric disorders, in several medical settings (e.g., cosmetic surgery), and in non-clinical samples (Krebs et al., 2017; Mufaddel et al., 2013; Vashi, 2016).

Despite the serious impact of DC on physical and psychological well-being (Vashi, 2016), research on risk factors is still underdeveloped (Krebs et al., 2017). A recent meta-analysis by Longobardi et al. (2022) highlights a robust association between DC and Childhood Trauma (CT), which has been defined as the repeated and protracted experience of stressful overwhelming events most commonly occurring within care-giving relationships (Farina et al., 2019; Massullo et al., 2023). CT

generally includes several forms of maltreatment, such as physical abuse (PA), emotional abuse (EA), sexual abuse (SA), physical neglect (PN), and emotional neglect (EN) and recent studies suggest that parental overcontrol should also be included (Massullo et al., 2023; Şar et al., 2021; Wu et al., 2022). Indeed, alarming parental overcontrol can be likened to emotional abuse as it exposes the child to the care of a frightened caregiver, a world perceived as always threatening, and a weak and endangered view of self (Farina et al., 2021). More specifically, parental overcontrol is described as a paternal and/or maternal attitude of over-protection and intrusion, with considerable limitation of child's age-appropriate autonomy and independence (Parker et al., 1979).

Similar to CT (Lippard and Nemeroff, 2020), high levels of perceived parental overcontrol are associated with neurophysiological alterations (Adenzato et al., 2019; Chen et al., 2022; Farber et al., 2019), various psychopathological manifestations, especially depressive and anxiety symptoms (Chen et al., 2017; de Roo et al., 2022; Farina et al., 2021;

Vigdal and Brønnick, 2022), and poorer treatment outcomes (Asano et al., 2013). While previous research has documented a relationship between parental overcontrol and symptoms of the obsessive-compulsive spectrum (e.g., hoarding in obsessive-compulsive disorder and eating disorder-related pathology; Chen et al., 2017; Grogan et al., 2020), the association of parental overcontrol with DC has received far less attention, especially when compared with other forms of CT (Longobardi et al., 2022) and other parental bonding types (Badenes-Ribera et al., 2021; Farrell et al., 2016). For example, a recent meta-analysis (Longobardi et al., 2022) on 9167 individuals demonstrated that several types of adverse childhood experiences (e.g., abuse, neglect) were positively associated with BDD psychopathology. Similarly, a rejecting parenting style and parental criticism have been found to be strong predictors of body dysmorphic symptoms (Farrell et al., 2016) and muscle dysmorphic-related pathology (Badenes-Ribera et al., 2021), respectively. Therefore, the main aim of the current study was to extend previous findings investigating the association between DC and parental overcontrol in a community sample of adults. We hypothesized that parental overcontrol would be independently associated with the severity of DC, even after controlling for other forms of CT and potential confounding variables.

2. Materials and methods

2.1. Participants and procedure

An a priori power analysis was performed using G*Power 3.1 software (Faul et al., 2009). It showed that, given a probability level of 0.05, a sample size of 395 was required to achieve a small effect size ($f^2 = 0.02$) with power = 0.80 in a linear regression analysis with one tested predictor and 18 total number of predictors (see statistical analysis section).

For the current study, 714 participants (508 females; mean age: 30.29 ± 11.67 years; age range: 18–77) were recruited between November 2022 and December 2022. After having provided an informed consent, participants were asked to complete an online survey shared by mailing lists, social media, and instant messaging. They participated in the study voluntarily and anonymously without receiving compensation. The inclusion criteria were (i) age ≥ 18 years, (ii) native Italian language, (iii) no previous response to the same survey, (iv) correct response to two attentional quality check items, and (v) giving formal informed consent. The ethics review committee of the European University of Rome evaluated and approved the study procedure in accordance with the principles of the Helsinki Declaration.

2.2. Measures

Participants were asked to provide the following sociodemographic and clinical information: age, sex, weight and height, education level, occupation, tobacco use, frequency of alcohol use, use of illegal substances in the last two weeks (i.e., cannabis, cocaine, heroin or other opiates, and/or other unlisted illegal substances), ever having suffered or currently suffering from a psychiatric or neurological disorder, and use of psychiatric medication in the last two weeks. Frequency of alcohol use was quantified using the first item of the *Alcohol Use Disorders Identification Test* (Babor et al., 2001), and weight and height were used to calculate the Body Mass Index (BMI). Participants also answered the following questionnaires: the *Body Image Concern Inventory* (BICI; Littleton et al., 2005), the *Overcontrol* subscale of the *Measure Of Parental Style* (MOPS; Parker et al., 1997), and the *Childhood Trauma Questionnaire - Short Form* (CTQ-SF; Bernstein et al., 2003). Socio-demographic and clinical data are shown in Table 1.

2.2.1. BICI

The BICI (Littleton et al., 2005) is a 19-item questionnaire designed to measure the severity of DC. Respondents are asked to indicate on a 5-

Table 1
Socio-demographic and clinical data of the sample ($N = 714$).a

Variables	
Age - M ± SD	30.29 ± 11.67
Women - N (%)	508 (71.15)
BMI - M ± SD	22.93 ± 3.68
Underweight - N (%)	59 (8.26)
Normal Weight - N (%)	483 (67.65)
Overweight - N (%)	138 (19.33)
Obesity - N (%)	34 (4.76)
Education	
Elementary or middle school diploma - N (%)	14 (1.96)
High school diploma - N (%)	293 (41.04)
Bachelor's degree - N (%)	407 (57.00)
Occupation	
Student - N (%)	307 (43.00)
Worker - N (%)	365 (51.12)
Tobacco use - N (%)	285 (39.92)
Alcohol use	
0 = Never - N (%)	73 (10.22)
1 = Monthly or less - N (%)	128 (17.93)
2 = 2–4 times a month - N (%)	305 (42.72)
3 = 2–3 times a week - N (%)	155 (21.71)
4 = 4 or more times a week - N (%)	53 (7.42)
Illegal substances useª - N (%)	114 (15.97)
Self-reported psychiatric or neurological disorder - N (%)	79 (11.06)
Psychiatric medication use – N (%)	34 (4.76)
CTQ-SF - M ± SD	37.68 ± 12.07
PA - M ± SD	5.83 ± 1.93
EA - M ± SD	9.00 ± 4.40
SA - M ± SD	6.01 ± 2.88
PN - M ± SD	6.30 ± 1.85
EN - M ± SD	10.54 ± 4.45
MD - M ± SD	0.41 ± 0.84
MOPS_OVERCONTROL - M ± SD	7.66 ± 4.65
BICI - M ± SD	48.17 ± 16.40
BICI >72 – N (%)	63 (8.82)

Abbreviations: BICI = Body Image Concern Inventory; BMI = Body Mass Index; CTQ-SF = Childhood Trauma Questionnaire- Short Form; EA = Emotional Abuse; EN = Emotional Neglect; MD = Minimization/Denial; MOPS = Measure of Parental Style; PA = Physical Abuse; PN = Physical Neglect; SA = Sexual Abuse.
ª Number of individuals who reported to have used, in the previous two weeks, at least one of the following psychoactive substance: cannabis, cocaine, heroin or other opiates, and/or other not listed illegal substances.

point Likert scale, from 1 = "never" to 5 = "always", how often they have experienced the feelings or behaviors described by each item, in the last week (an example item is: "*I spend a significant amount of time checking my appearance in the mirror*"). Scores can range from 19 to 95, with higher scores indicating higher DC.

A cut-off score of 72 is considered a clinically relevant score (Littleton et al., 2005). We used the Italian adaptation of the scale (Luca et al., 2011). In this sample, the Cronbach's alpha for the total score was .95.

2.2.2. Overcontrol subscale of the MOPS

The *Overcontrol* subscale of the MOPS (Parker et al., 1997) consists of 8 items that assess the level of maternal and paternal psychological overprotection, intrusion and restriction of autonomy and independence. Participants are asked to provide separate responses for paternal and maternal attitudes, relying on their childhood memories up to age 16 ("*During your first 16 years how 'true' are the following statements about your MOTHER's/FATHER's behavior towards you*"). Each item (e.g., "*Overprotective of me*", "*Over controlling of me*") is scored on a scale of 0 to 3, with higher scores indicating higher parental overcontrol. We used the Italian adaptation of the scale (Picardi et al., 2013). In the current study, the Cronbach's alpha was 0.73 for the Overcontrol total score.

2.2.3. CTQ-SF

The CTQ-SF (Bernstein et al., 2003) is a self-report questionnaire consisting of 5 subscales assessing exposure to different types of CT: PA, EA, SA, PN, and EN. Each item of the questionnaire is rated on a 5-point Likert scale ranging from 1 = "never" to 5 = "very often", with higher total scores indicating higher exposure to CT. The questionnaire includes an additional 3-item scale measuring Minimization/Denial (MD) as an index of possible underestimation of maltreatment. We used the Italian adaptation of the scale, which demonstrated good psychometric properties (Sacchi et al., 2018). In our sample Cronbach's alpha was 0.71 for PA, 0.86 for EA, 0.91 for SA, 0.54 for PN, 0.87 for EN, and 0.80 for the CTQ total score.

2.3. Statistical analysis

All statistical analyses were performed using Statistical Package for the Social Sciences 25 (IBM, Armonk, NY, USA). In accordance with the recommendations of Kim (2013) for large samples (i.e., >300), variables were considered normally distributed if the absolute skew or kurtosis values of the distribution were smaller than 2 and smaller than 7, respectively. Relationships among variables were assessed using Spearman's *rho* correlation coefficients because of the non-normality of the distribution of the PA, SA, and PN subscales of the CTQ. To assess the independent predictive role of parental overcontrol on DC severity, a multiple linear regression analysis was performed. In particular, the overcontrol subscale total score was set as the independent variable and the BICI total score was set as the dependent variable. CTQ subscale scores (i.e., PA, EA, SA, PN, EN, and MD), clinical records (self-reported present or past psychiatric disorders, BMI, tobacco, alcohol, illegal substances and/or psychiatric medication use) and socio-demographic data (i.e., age, sex, education level, and student or worker status) were also included in the model. Assumptions on multiple regression were tested in accordance with Williams et al. (2013). Multicollinearity was assessed by calculating the tolerance value and the Variance Inflation Factor (VIF) for each variable. Influential data points were determined using Cook's distances. Final results were reported as standardized beta coefficients (β) and their corresponding *p*-values.

3. Results

In our sample, 63 individuals (8.82 %) met the criteria for a clinically relevant DC, 79 (11.06 %) reported suffering or having suffered from a psychiatric or neurological disorder, and 34 (4.76 %) reported taking psychiatric medication. Lastly, according to the BMI classification, 59 (8.26 %) participants were classified as underweight, 483 (67.65 %) as normal weight, 138 (19.33 %) as overweight, and 34 (4.76 %) as obese.

The correlations are detailed in Table 2. BICI scores correlated positively with the overcontrol subscale of MOPS ($rho = 0.229\ p < .01$) and with every CTQ subscale except PN (EA: $rho = 0.359\ p < .01$; PA: $rho = 0.089\ p < .05$; SA: $rho = 0.147\ p < .01$; EN: $rho = 0.194\ p < .01$).

All assumptions of multiple regression were met. Tolerance and VIF

statistics indicated the absence of a relevant multicollinearity problem (i.e., tolerance values > 0.10 and VIF < 10), and Cook's distances were also acceptable (i.e., max value = 0.070). The model accounted for 30 % of the BICI variance ($F_{18;713} = 17.993$; $p < .001$). Parental overcontrol was independently associated with severity of DC (Overcontrol: $\beta = 0.111$; $p = .005$; CI = [0.119;0.666]; Table 3 and Fig. 1). EA, SA, age, sex, BMI, education level, tobacco use, frequency of alcohol use, and the MD were also independently associated with the BICI total score.

4. Discussion

The main aim of the current study was to investigate the relationship between perceived parental overcontrol and DC severity in a community sample of adults. Consistent with our hypothesis, parental overcontrol was independently associated with DC severity, even after controlling for other types of CT and potentially confounding variables. This finding suggests that parental overcontrol may play a role in the development and maintenance of DC symptoms. Our results are in accordance with previous reports showing that dysfunctional parental bonding characterized by excessive overcontrol may represent a risk factor for vulnerability to psychopathology (Farina et al., 2021; Raffagnato et al., 2021), especially for depression and anxiety (Borelli et al., 2015; Chen et al., 2017; de Roo et al., 2022; Vigdal and Brønnick, 2022). Recent investigations have also confirmed that excessive overcontrol is involved in obsessive-compulsive spectrum-related psychopathology. For example, Chen et al. (2017) showed that maternal overprotection and maternal overcontrol are associated with hoarding in women with obsessive compulsive disorder (OCD). Similarly, a recent systematic review (Grogan et al., 2020) reported that numerous studies found dysfunctional parental bonding characterized by excessive overcontrol in individuals with eating disorders (EDs). Of relevance, several studies showed that DC and these psychiatric manifestations are often comorbid. For example, a large study on psychiatric outpatients (van der Meer et al., 2012) reported that major depression and social anxiety disorder were the most common comorbid diagnoses in BDD patients (46.3 % and 35.2 %, respectively). Similarly, empirical studies have shown that BDD is frequently comorbid with lifetime OCD (i.e., 27.5 %; Frias et al., 2015) as well as with lifetime EDs (i.e., 32.5 %; Ruffolo et al., 2006), suggesting possible similar etiopathogenetic processes (Phillips and Kaye, 2007).

Different factors may explain the relationship between DC severity and excessive overcontrol. On the one hand, it has been suggested that parental attitudes of replacing the child in managing his or her own life may create a sense of Self characterized by defectiveness, frailty and inadequacy, and may foster perceptions of the world as demanding, threatening, judgmental, and "*a place from which to be protected*" (Affrunti and Ginsburg, 2012; Bruysters and Pilkington, 2023; Farina et al., 2021). Involving body image, these altered internal representations would explain DC through shame, anxiety, and the expectation of social rejection, as found in individuals with high DC symptoms (Bonassi et al., 2021; Borelli et al., 2015; Ono et al., 2017; Weingarden and Renshaw, 2015).

Table 2
Spearman's rho correlation among variables (N = 714).

	1.	2.	3.	4.	5.	6.
1. CTQ-SF_EA	–					
2. CTQ-SF_PA	0.416**	–				
3. CTQ-SF_SA	0.337**	0.383**	–			
4. CTQ-SF_EN	0.639**	0.349**	0.236**	–		
5. CTQ-SF_PN	0.457**	0.327**	0.186**	0.625**	–	
6. MOPS_OVERCONTROL	0.593**	0.297**	0.145**	0.440**	0.309**	–
7. BICI	0.359**	0.089*	0.147**	0.194**	0.070	0.229**

Abbreviations: BICI = Body Image Concern Inventory; CTQ-SF = Childhood Trauma Questionnaire- Short Form; EA = Emotional Abuse; EN = Emotional Neglect; MOPS = Measure of Parental Style; PA = Physical Abuse; PN = Physical Neglect; SA = Sexual Abuse.

** $p<. 01$.
* $p < .05$.

**Table 3**

Linear regression analysis in all sample (N = 714).

Dependent Variable BICI	Adjusted R^2 = 0.300	$F_{18, 713}$ = 17.993*	Independent Variables	β	p	[95 % CI]
			Age	**−0.247**	**<0.001**	**[−0.459;-0.236]**
			Sex	**0.278**	**<0.001**	**[7.654;12.460]**
			BMI	**0.115**	**0.001**	**[0.218;0.806]**
			Education	**−0.079**	**0.020**	**[−4.447;-0.381]**
			Student	0.008	0.918	[−4.753; 5.282]
			Worker	−0.009	0.894	[−4.843; 4.227]
			Tobacco use	**0.091**	**0.008**	**[0.808;5.294]**
			Alcohol use frequency	**−0.073**	**0.031**	**[−2.191;-0.102]**
			Illegal substances use	−0.048	0.161	[−5.142;0.854]
			Psychiatric medication use	0.048	0.172	[−1.629;9.081]
			Self-report psychiatric or neurological disorder	0.010	0.779	[−3.173;4.234]
			CTQ-SF_MD	**−0.082**	**0.024**	**[−2.997;-0.215]**
			CTQ-SF_EA	**0.243**	**<0.001**	**[0.502;1.306]**
			CTQ-SF_PA	−0.038	0.346	[−0.999;0.351]
			CTQ-SF_SA	**0.083**	**0.027**	**[0.053;0.897]**
			CTQ-SF_EN	−0.026	0.621	[−0.485;0.290]
			CTQ-SF_PN	−0.080	0.059	[−1.456;0.028]
			MOPS_OVERCONTROL	**0.111**	**0.005**	**[0.119;0.666]**

Significant values are in bold.

Abbreviations: BICI = Body Image Concern Inventory; BMI=Body Mass Index; CTQ-SF = Childhood Trauma Questionnaire- Short Form; EA = Emotional Abuse; EN = Emotional Neglect; MD = Minimization/Denial; MOPS = Measure of Parental Style; PA = Physical Abuse; PN=Physical Neglect; SA = Sexual Abuse.

Coding System: Sex: 0 = man; 1 = woman; Student: 0 = no, 1 = yes; Worker: 0 = no, 1 = yes; Educational Achievement: 1 = Elementary School Diploma; 2 = Middle School Diploma, 3 = High School Diploma, 4 = Bachelor's Degree; Tobacco Use: 0 = no, 1 = yes; Other Illegal Substances Use: 0 = no, 1 = yes; Psychiatric Medication Use = 0 = no, 1 = yes; Self-Reported Psychiatric Disorder = 0 = no, 1 = yes.

* $p < .001$.
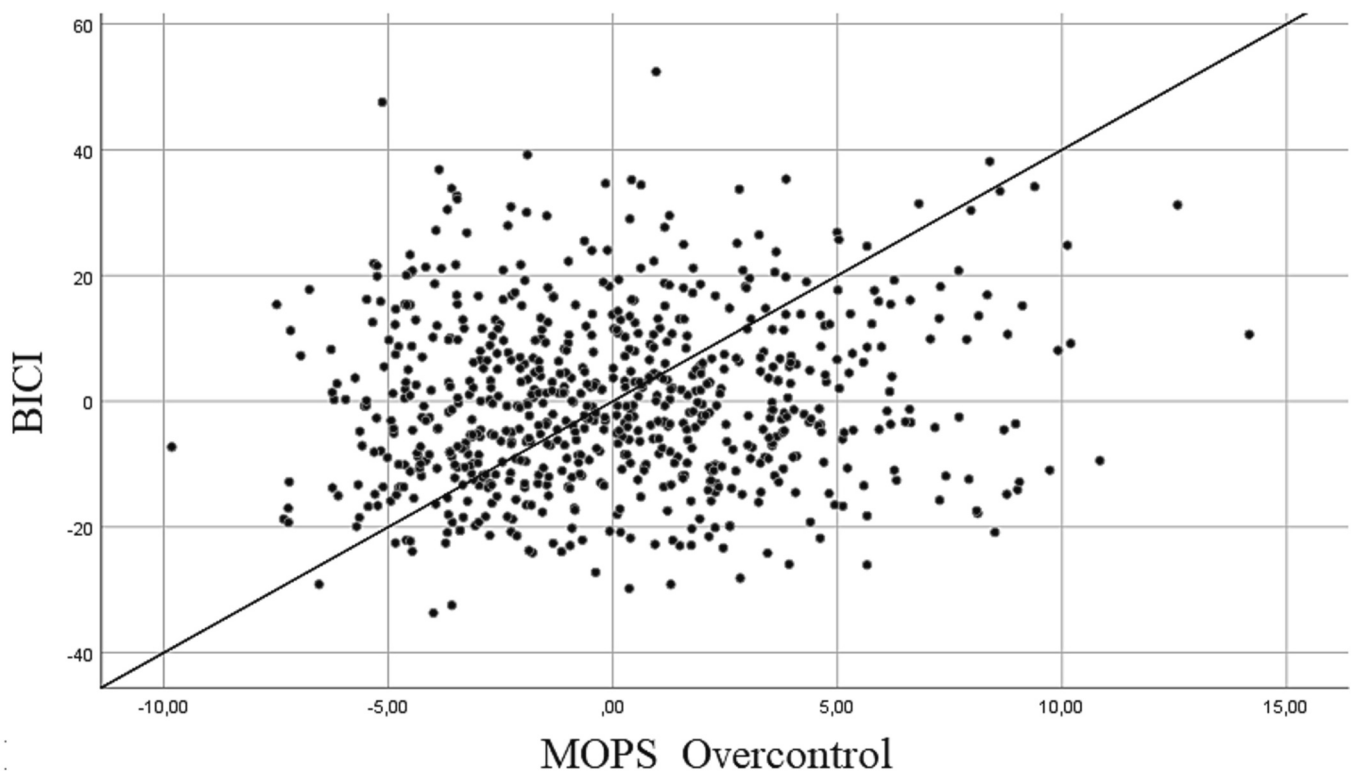
Fig. 1. Scatterplot of the association between Overcontrol scores of the MOPS and BICI total scores, controlling for confounding variables (β = 0.111; p = .005; CI = [0.119;0.666]).

On the other hand, parental intrusiveness may undermine the child's ability to self-identify and manage internal states (Borelli et al., 2017; Farina et al., 2021), leading to automatic dysfunctional strategies to respond to perceived body faultiness and social apprehension (Bateman and Fonagy, 2012; Longobardi et al., 2022). Indeed, recent studies have shown that DC-related behaviors (e.g., body checking, reassurance seeking and comparing oneself to others) are compulsive-like behaviors that may result from intrusive thoughts about self-appearance (Cili and Stopa, 2015; Onden-Lim and Grisham, 2013) and top-down control deficits (Borghesi et al., 2022; Sloover et al., 2022). These speculations

would be consistent with previous research showing that dysfunctional parenting, including overcontrol, can affect the development of mentalizing (Bateman and Fonagy, 2012). Coherently, in a recent study (Adenzato et al., 2019) a significant association was found between maternal overcontrol severity and decreased connectivity between brain areas involved in mentalizing following activation of early attachment memories.

In addition to overcontrol, our results also showed that EA and SA were independently associated with DC. Overall, these data are only partially consistent with the results of a recent meta-analysis (Longobardi et al., 2022), which reported that EA and PN, but not SA, are associated with DC. The inconsistencies could be due to our specific statistical model and/or the characteristics of the DC assessment measure (i.e., BICI), study design (i.e., random sample), and population sampled (i.e., 71 % of females) as relevant differences from the studies considered in Longobardi et al. (2022). Moreover, our data showed that the MD scale of the CTQ was independently and negatively associated with DC severity. According to Malcolm et al. (2021) these results may be explained by both a reduced self-serving recalling bias and an increased selective bias for negative emotional information in individuals who voluntarily report a higher DC, leading to a more negative (or realistic) perception of past events. Finally, the associations of DC severity with younger age, female sex, higher BMI, lower education level, and smoking habit overall appear to be consistent with previous studies (Brohede et al., 2015; Krebs et al., 2017; Stickney and Black, 2008; Tatiana Soler et al., 2019), whereas the negative association with the frequency of alcohol use appears to be in contrast (Cunningham et al., 2017). However, research on the association between DC severity and these variables (especially alcohol use) is limited and sometimes contradictory. Discrepancies between studies could be attributable to factors related to the study design and methods, such as the use of different questionnaires and/or sample sociodemographic characteristics (e.g., proportion of males, and/or cultural differences). Thus, future studies are encouraged in order to clarify the relationship between these variables.

Despite the compelling nature of our findings, some limitations should be considered, such as the unbalanced sex ratio and the use of retrospective self-report measures. To our knowledge, this is the first study to investigate the relationship between parental overcontrol and DC in adults. In summary, our results indicate that parental overcontrol can be deemed a relevant feature in conceptualizing the severity of DC and that it should be considered alongside other forms of CT (Şar et al., 2021; Wu et al., 2022). Taking this into consideration, our study could have important implications for prevention policies as well as clinical interventions. On the one hand, our data suggest that parenting behavior characterized by excessive overcontrol could represent a key target of psychoeducational interventions to support family relationships (Bellina et al., 2020). On the other hand, our findings suggest that parental overcontrol and the quality of the relationship with parents should be carefully evaluated in individuals with high levels of DC in order to achieve a more comprehensive case conceptualization and improve the identification of the mechanisms that may underlie the pathology. Finally, consideration of the maltreating nature of parental overcontrol is important for the purposes of therapy because it alerts clinicians to other typical effects of child maltreatment that compromise treatment outcomes, such as emotional dysregulation and problems in the therapeutic relationship (Farina et al., 2019; Ford and Courtois, 2021). In conclusion, although a causal relationship cannot be established and future longitudinal studies are needed, our results showed that parental overcontrol should be given greater consideration when assessing traumatic childhood experiences and their detrimental effects on DC symptoms.

CRediT authorship contribution statement

Conceived and designed the study: EDR, BF, MA, RBA, CI. Data analyses: EDR, CI, GAC. Interpretation of data: EDR, BF, MA, GAC, RBA, CI. Wrote the paper: EDR, CI. Supervision: MA, BF, RBA.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Data availability

The data that support the findings of this study are available from the last author upon reasonable request.

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