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RESEARCH ARTICLE

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Personality disorder traits, maladaptive schemas, modes and coping styles in participants with complex dissociative disorders, borderline personality disorder and avoidant personality disorder

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Abstract

Objective: The schema mode model offers a new conceptualisation of complex dissociative disorders (CDD) as it explains shifts between identities as shifts between schema modes. Furthermore, in this model CDD is conceived as personality pathology, incorporating core features of personality disorders. This study tested the assumptions of this schema mode model of CDD.

Method: Questionnaires measuring personality disorder traits, schemas, schema modes and coping styles were filled out by patients with CDD, borderline personality disorder and avoidant personality disorder ($N = 210$), and their scores on the various constructs were compared.

Results: Participants with CDD were characterised by specific schizoid, schizotypal, borderline and avoidant personality traits and early maladaptive schemas in the domains of disconnection and rejection and over-vigilance and inhibition. The most pronounced schema modes were the dysfunctional parent modes, avoidant coping modes and the vulnerable child mode. For coping styles, no differences were found between the diagnostic groups.

Conclusion and discussion: On all outcome measures participants with CDD scored at the level of personality disorders and showed a unique pattern different from participants with borderline and avoidant personality disorder. This suggests that CDD shows features akin to a personality disorder. A clinical implication is that an adapted form of schema therapy might present a viable treatment option for CDD.

KEYWORDS

coping styles, dissociative disorders, maladaptive schemas, modes, personality disorder traits

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1 | INTRODUCTION

Research has shown a significant association between experiencing negative childhood events and the development of one or more psychological disorders (Felitti et al., 1998). One category associated with reports of early childhood maltreatment is that of dissociative disorders (DD). The most complex and chronic forms of DD are dissociative identity disorder and dissociative disorder not otherwise specified, classified together as complex DD (CDD). CDD are characterised by severe scores on all the dissociative symptoms clusters: depersonalisation, derealisation, dissociative amnesia, identity confusion and identity alteration. The Diagnostic and Statistical Manual of Mental Disorders, 5th edition (DSM-5), estimates the prevalence of dissociative identity disorder as 1.5% of American adults (American Psychiatric Association, 2013). The prevalence of dissociative disorder not otherwise specified was found to be around 8% in a community sample (Sar, 2011). Next to DD, early childhood traumatisation also plays an important role in the aetiology of personality pathology. However, DD have been categorised separately from personality disorders. The aim of the current study is therefore to investigate the idea that patients with CDD show significant overlap in personality pathology and related constructs compared to patients with personality disorders and can potentially be categorised as personality disorders. Recently, a new conceptualisation of CDD has been postulated, the mode model of CDD (Huntjens et al., 2019a, 2019b). The concept of modes stems from schema theory and was developed by Young et al. (2003). Schema theory assumes personality pathology to arise from the interaction between genetic vulnerability, temperament and environmental factors such as traumatisation in childhood. It is further hypothesised that experiencing childhood traumatisation and frustration with basic childhood needs leads to the development of maladaptive schemas, which are defined as self-defeating emotional and cognitive patterns that develop in early childhood and repeat throughout life. In order to deal with the activation of these dysfunctional schemas, individuals develop coping styles (i.e., surrender, avoidance and overcompensation; Young et al., 2003). In schema theory, modes are considered to result from a combination of an activated schema and a coping response and are defined as momentary emotional, cognitive and behavioural states. For example, the abandonment schema (the belief that others will abandon you), with an avoidant coping response (preventing the activation of the schema) results in the detached protector mode (keeping others at a distance) (Arntz et al., 2021). Shifts between modes are smooth and gradual in healthy individuals but can be more abrupt and extreme in people suffering from severe psychopathology as in CDD.

The mode model of CDD assumes that patients with CDD are characterised by maladaptive personality traits given the influence of maltreatment early in life. Previous research found that patients with dissociative identity disorder manifested with various personality disorders. Dell (1998) investigated personality pathology in patients with dissociative identity disorder using the Millon Clinical Multiaxial Inventory III. He found that 76% of the patients showed severe avoidant personality pathology, 53% severe borderline pathology, and

Key Practitioner Message

- This study suggests that complex dissociative disorders may be considered personality-related disorders.
- Participants with complex dissociative disorders scored on the various personality constructs at the level of participants with personality disorders and they showed a unique pattern of personality disorder traits, schemas and modes in comparison to participants with a personality disorder.
- Following these results, an adapted form of schema therapy using the presented mode model could be a viable option for the treatment of complex dissociative disorders.

45% severe passive-aggressive personality pathology. Of patients with dissociative disorder not otherwise specified, 50% presented with avoidant personality pathology and 31% with self-defeating personality pathology. Lauer et al. (1993) found that most patients with dissociative identity met the criteria for a personality disorder. Of these patients, 64% met the criteria for borderline personality disorder (BPD), 50% for avoidant personality disorder (APD), 43% for dependent personality disorder and 21% for schizotypal personality disorder.

The mode model as applied to CDD explains the perceived shifts between identities in people with CDD as shifts between modes. Patients with CDD may perceive their different identities as compartmentalised, characterised by inter-identity amnesia, but empirical evidence of recent decades contradicts this assumption (e.g., Dorahy & Huntjens, 2007; Huntjens et al., 2012; Marsh et al., 2018). In line with the empirical evidence, the mode model of CDD does not assume amnesic barriers between identities, whereas it does assume that CDD patients are characterised by cognitive avoidance (i.e., avoidance of internal or external trauma-related information) (Huntjens et al., 2019a). In line with this assumption, Gipple et al. (2006) found a moderate positive relation between the use of avoidant coping and dissociative experiences in a sample of female college students.

Given that dissociative experiences are included as a diagnostic criterium for BPD, Barazandeh et al. (2018) investigated which modes were associated with dissociative experiences in BPD patients. They found strong correlations between dissociative experiences and the modes *angry child*, *impulsive child*, and *detached protector* in a sample of adolescents with BPD. More specifically, the modes *detached protector* and *impulsive child* explained 58% of the variance in dissociative experiences in BPD.

In sum, the mode model of CDD conceptualises CDD in terms of pathological personality traits, schemas, modes and coping styles. These aspects have been investigated previously in various personality disorders. However, to our knowledge, no studies have compared personality disorder traits in patients with CDD to those suffering from various personality disorders. Moreover, there are no studies

that assessed and compared the full spectrum of maladaptive schemas, modes and coping styles in the aforementioned disorders. The aims of the current study were therefore to investigate (1) whether participants with CDD present with personality disorder traits and if so, whether this is at a level comparable to personality disorders, and (2) which maladaptive schemas, modes and coping styles are characteristic of participants with CDD. Two clinical comparison groups were included, participants with BPD and participants with APD. Personality disorder traits, schemas, modes and coping styles in the CDD group will be compared to those in the BPD and APD groups. The first comparison group was included because, in previous studies, dissociative identity disorder and BPD have been found to be highly comorbid disorders (Dell, 1998; Ellason et al., 1995). The APD group was included because several studies suggest a link between DD or dissociative experiences and cognitive avoidance and/or avoidance behaviour (Ellason et al., 1995; Gipple et al., 2006). It is hypothesised that participants with CDD present with pathological personality traits to a degree that is comparable to participants with personality disorders. As schemas and modes were not previously

investigated in patients with CDD, we did not have specific hypotheses regarding this aspect. With regards to coping style, in line with Gipple et al. (2006), we expected that participants with CDD show increased scores on avoidant coping.

2 | METHOD

2.1 | Participants

The sample of this study ($N = 210$) involved participants who completed questionnaires on the website of the Dutch Association of Schema Therapy. The link to the questionnaires was published on the website schematherapie.nl, a site mainly used by schema therapists. The primary purpose of data collection through this website was to investigate the relationship between schemas, modes and coping styles. The questionnaires could be used by therapists in their clinical work. As a service to therapists and patients, a report was automatically generated at the end of the questionnaires, containing the

TABLE 1 Participant demographic data across groups.

	CDD (<i>n</i> = 35)	BPD (<i>n</i> = 138)	APD (<i>n</i> = 37)
Age <i>M</i> (<i>SD</i>)	37.09 (11.40)	36.39 (10.27)	34.46 (8.93)
Gender <i>n</i> (%)			
Male	3 (8.57)	13 (9.42)	6 (16.2)
Female	32 (91.43)	125 (90.58)	31 (83.8)
Educational level <i>n</i> (%)			
Primary education	0	5 (3.62)	1 (2.7)
Lower general secondary education	2 (5.71)	27 (19.57)	1 (2.7)
Higher general secondary education	7 (20.0)	17 (12.32)	6 (16.2)
Intermediate vocational education	7 (20.0)	33 (23.91)	7 (18.9)
Higher professional education	7 (20.0)	36 (26.09)	12 (32.4)
University education	11 (31.43)	17 (12.32)	10 (27.0)
Other	1 (2.86)	3 (2.17)	0
In treatment <i>n</i> (%)			
Yes	35 (100)	134 (97.10)	37 (100)
No	0	4 (2.90)	0
Partner <i>n</i> (%)			
Yes	19 (54.29)	86 (62.32)	20 (54.1)
No	16 (45.71)	52 (37.68)	17 (45.9)
Number of reported diagnoses <i>n</i> (%)			
1	17 (48.57)	100 (72.46)	14 (37.8)
2	7 (20.0)	26 (18.84)	9 (24.3)
3	4 (11.43)	8 (5.80)	11 (29.7)
4	3 (8.57)	4 (2.90)	2 (5.4)
5	1 (2.86)	0	0
6	3 (8.57)	0	0
7	0	0	1 (2.7)

Abbreviations: APD, avoidant personality disorder; BPD, borderline personality disorder; CDD, complex dissociative disorders.

patient's scores on the various questionnaires. This service was provided regardless of whether the patient had given permission for their data to be used in research. Schema therapists frequently used this service during the assessment phase. Generally, the participants included in the current study were in a diagnostic procedure or received psychological treatment, during which the questionnaires on the schema therapy website were used. For this study, participants with a self-reported diagnosis of dissociative identity disorder ($n = 18$), dissociative disorder not otherwise specified ($n = 17$), BPD ($n = 138$) or APD ($n = 37$) were included. The diagnosis that was reported by the participants was not verified or objectified by a diagnostic procedure within the current study. Table 1 shows the demographic details for each group. More than half of the participants with CDD reported having multiple diagnoses, of whom eight reported comorbid BPD and/or APD. Analyses were repeated with the exclusion of these eight participants. Other prevalent comorbid disorders included depression ($n = 10$) and posttraumatic stress disorder ($n = 9$). The comparison groups were non-overlapping, that is, all participants who had a comorbid disorder belonging to the other comparison group were removed from the analyses. This applied to two participants.

2.2 | Measurements

2.2.1 | Assessment of DSM-IV Personality Disorders Questionnaire (ADP-IV; Schotte & De Doncker, 1996)

The ADP-IV uses 94 items to measure the 10 DSM-IV personality disorders and the passive-aggressive personality disorder and depressive personality disorder. Personality disorders are divided into three clusters: cluster A (paranoid, schizoid and schizotypal); cluster B (antisocial, borderline, histrionic and narcissistic); and cluster C (avoidant, dependent and obsessive-compulsive). The items were rated on a seven-point Likert scale, (1 = *completely disagree*, 7 = *completely agree*). Each personality disorder is measured with seven to 10 items and has a total (dimensional) score ranging from 7 to 70. An example item of the ADP-IV is 'I really can't bear the thought that someone would leave or abandon me. I therefore would do anything to prevent this happening', belonging to the subscale *borderline personality disorder*. The ADP-IV has good reliability, construct and concurrent validity (Doering et al., 2007). The internal consistency of the ADP-IV in the current study, as indicated by Cronbach's alpha was .97. Cronbach's alphas for the subscales ranged from .70 to .89.

2.2.2 | Young Schema Questionnaire—short form—3rd version (YSQ-S3; Young, 2005)

The YSQ-S3 contains 90 items measuring 18 maladaptive schemas. The items were rated on a 6-point scale (1 = *completely untrue*, 6 = *completely true*). Each schema is measured with five items and has

a total score ranging from 5 to 30. An example item of the YSQ-S3 is 'I feel that people will take advantage of me' belonging to the subscale *mistrust/abuse*. The YSQ-S3 has adequate test-retest reliability (Phillips et al., 2019) and good internal consistency in clinical and non-clinical samples (Kriston et al., 2013; Phillips et al., 2019). The internal consistency of the YSQ-S3 in the current study, as indicated by Cronbach's alpha was .99. Cronbach's alphas for the subscales ranged from .72 to .93.

2.2.3 | Schema Mode Inventory (SMI; Young et al., 2007)

The SMI contains 118 items, measuring 14 modes and the items are rated on a six-point Likert scale (1 = *completely untrue*, 6 = *completely true*). The number of items for each mode varies between four and 10 items and the total score ranges from 4 to 60. An example item of the SMI is 'I feel lost' belonging to the subscale *vulnerable child*. The SMI has good reliability and validity (Lobbestael et al., 2010). The internal consistency of the SMI in the current study, as indicated by Cronbach's alpha was .94. Cronbach's alphas for the subscales ranged from .61 to .94.

2.2.4 | Schema Coping Inventory (SCI; Rijkeboer et al., 2010)

The SCI consists of 12 items measuring three maladaptive coping styles: surrender, avoidance and overcompensation. The items were rated on a seven-point Likert scale (1 = *completely disagree*, 7 = *completely agree*). Each coping style is measured with four items and has a total score ranging from 4 to 28. An example item of the SCI is 'I prefer to avoid confrontation' belonging to the subscale *avoidance*. The SCI has good psychometric properties (Van Wijk-Herbrink et al., 2018). The internal consistency of the SCI total score in the current study, as indicated by Cronbach's alpha was .73. Cronbach's alphas for the subscales were .54 for overcompensation, .64 for surrender and .69 for the subscale avoidance.

2.3 | Procedure

Data were collected as part of a larger study on the relationships between schema-related constructs. Information regarding the study and a link to the questionnaires was published on the website of the Dutch Association of Schema Therapy. First, participants were asked to sign an informed consent form asking permission to use their data for research purposes. It was mentioned that irrespective of their decision, they could endorse all questionnaires and obtain a report with personal scores and a short general explanation on each scale. Only when they gave informed consent, their data were saved for research purposes. The study was approved by the local Ethics Review Committee.

2.4 | Statistical analyses

The three patient groups (CDD, BPD and APD) were compared on demographic variables using a chi-square test for independence. ANOVAs were conducted to explore group differences on the various subscales of the questionnaires. Several statistical outliers were detected: The percentage of outliers for the total sample on the various (sub)scales ranged from 0% to 4.76%. Analyses were repeated with and without outliers. For two subscales (the YSQ-S3 subscale *vulnerability to harm or illness* and the SMI subscale *vulnerable child*), ANOVAs differed with or without the inclusion of outliers; therefore, both results are reported. Thirty subscales met both assumptions of normality and homogeneity of variances. For these subscales, ANOVAs were performed with Gabriel post-hoc comparisons, given unequal group sample sizes, with eta-squared as the effect size (Gabriel, 1978). For eta-squared, a small effect size is .01, a medium is .09 and a large corresponds to .25 (Kahn, 2018). Sixteen subscales met the assumption of normality but not the assumption of homogeneity. For these subscales, Welch's *F*-test (Field & Miles, 2013) and Games–Howell post-hoc tests were used, with omega-squared as effect size. For omega squared, values of .01, .06 and .14 represent small, medium and large effects, respectively (Field & Miles, 2013). Corrections for multiple testing were performed per measurement instrument using the Benjamini–Hochberg method (Benjamini & Hochberg, 1995).

3 | RESULTS

The chi-square test for independence showed that the three groups did not differ regarding gender ($\chi^2 [2, n = 210] = 1.60, p = .49$, Cramer's $V = .09$), educational level ($\chi^2 [12, n = 210] = 20.56, p = .06$, Cramer's $V = .22$), age ($F [2, 207] = .688, p = .504, \eta^2 = .01$), and marital status ($\chi^2 [2, n = 210] = 3.46, p = .18$, Cramer's $V = .13$). Also, comparable percentages of patients in the three groups indicated to receive psychological treatment ($\chi^2 [2, n = 210] = 2.13, p = .35$, Cramer's $V = .10$). Regarding the number of current diagnoses reported by participants, the groups differed significantly ($\chi^2 [12, n = 210] = 49.50, p < .001$, Cramer's $V = .34$), with post-hoc comparisons showing that the BPD group reported fewer diagnoses compared to the CDD and the APD group. No differences were observed between the CDD and the ADP group.

Results on personality disorder traits, as measured by the ADP-IV (see Table 2), showed that participants with CDD scored above average on the dimensional scores of several personality disorders, consistent with the hypothesis. Participants with CDD showed heightened scores on the schizoid, schizotypal, borderline and APD traits according to the norm scores (Schotte & De Doncker, 1996). Figure 1 graphically represents the means on the ADP-IV scales for the three groups. In comparison to the BPD group, participants with CDD scored significantly lower on personality traits belonging to all cluster B personality disorders (antisocial, borderline, histrionic and narcissistic) and to the dependent personality disorder, with effect sizes ranging from

TABLE 2 Comparison of means and standard deviations of the ADP constructs across types of disorder.

ADP subscales	Disorders			<i>F</i>	<i>P</i>	η^2/ω^2	Post-hoc
	Dissociative disorders (<i>n</i> = 35)	Borderline personality disorder (<i>n</i> = 138)	Avoidant personality disorder (<i>n</i> = 38)				
Paranoid	21.97 (8.28)	25.02 (10.08)	18.73 (8.94)	6.72 ^a	.04	.06	A < B
Schizoid	24.46 (7.19)	22.38 (7.88)	20.38 (7.57)	2.51 ^a	.05	.02	
Schizotypal	32.40 (12.17)	32.54 (11.99)	23.65 (9.59)	8.83 ^a	.03	.08	A < B, D
Antisocial	15.74 (5.33)	22.44 (9.88)	11.97 (5.25)	38.49 ^b	.01	.26	D < B; A < B, D
Borderline	39.83 (12.30)	46.82 (13.82)	29.89 (11.47)	24.98 ^a	.01	.19	D < B; A < B, D
Histrionic	23.86 (7.23)	30.04 (10.23)	18.62 (7.00)	32.06 ^b	.01	.23	D < B; A < B, D
Narcissistic	19.89 (6.47)	24.56 (9.77)	17.57 (5.56)	17.05 ^b	.02	.13	A, D < B
Avoidant	29.02 (8.96)	29.67 (11.09)	35.43 (9.11)	6.10 ^b	.04	.05	B, D < A
Dependent	21.97 (6.13)	29.84 (10.67)	27.22 (8.38)	12.32 ^b	.02	.10	D < A, B
Obsessive–compulsive	29.38 (8.29)	30.35 (8.67)	30.60 (6.78)	0.08 ^a	.05	<.01	
Total score	300.38 (65.06)	348.47 (97.48)	278.11 (65.99)	14.01 ^a	.03	.09	A, D < B

Note: Values in parentheses are standard deviations. Critical *p*-value after Benjamini–Hochberg correction is .041. D is dissociative disorders. B is borderline personality disorder. A is avoidant personality disorder.

^aANOVA with Gabriel as post-hoc method and effect size eta squared.

^bWelch's *F*-test with Games–Howell as post-hoc method and effect size omega squared.

Graphical representation of APD-IV scores per group

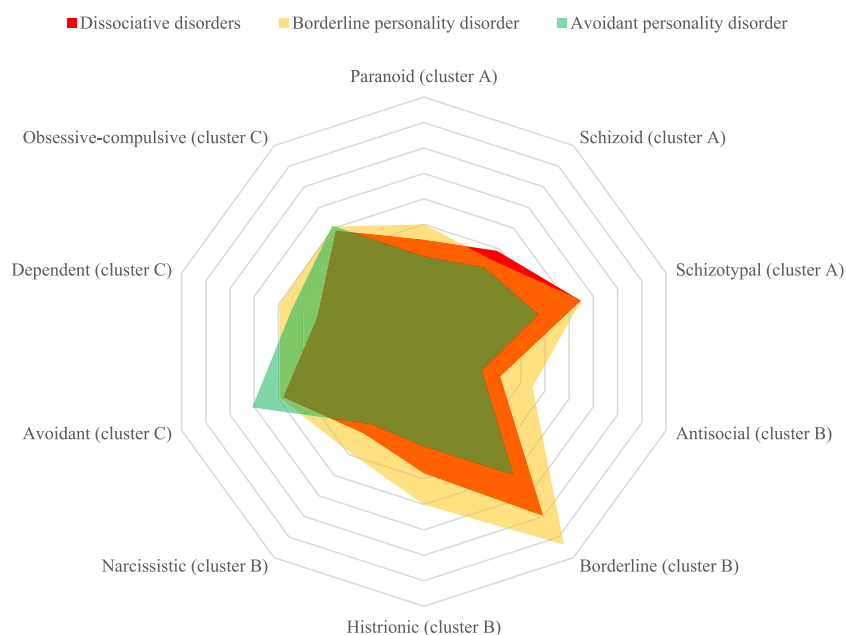


FIGURE 1 Graphical representation of the ADP-IV scores per group.

medium to large. Compared to the APD group, the CDD group scored significantly lower on personality traits of two of the cluster C personality disorders (avoidant and dependent), with effect sizes ranging from small to medium, and significantly higher on traits belonging to three of the cluster B personality disorders (antisocial, borderline and histrionic) and traits of the schizotypal personality disorder, with effect sizes ranging from medium to large. The analyses were repeated with the exclusion of CDD participants who reported comorbid BPD or APD (new sample size $n = 27$). The subscale histrionic was no longer significantly different between the CDD and the BPD group.

The most pronounced maladaptive schemas of the CDD group (see Table 3) were *emotional deprivation*, *social isolation/alienation*, *defectiveness/shame*, *unrelenting standards* and *punitiveness*. Compared to the BPD group, the CDD group scored significantly lower on *insufficient self-control/self-discipline*, *dependence/incompetence*, *failure to achieve*, *entitlement/grandiosity*, *abandonment/instability*, and *enmeshment/undeveloped self*, with effect sizes ranging from small to medium. Compared to the APD group, the CDD group scored significantly lower on *approval-seeking/recognition-seeking* and *subjugation*. With the exclusion of outliers, the ANOVA for the subscale *vulnerability to harm or illness* became significant, with the CDD group scoring higher compared to the APD group. For the group comparisons excluding CDD participants who reported comorbid BPD or APD ($n = 27$), the CDD group additionally scored significantly lower compared to BPD and APD on the subscales of *approval-seeking*, *subjugation*, and *enmeshment*.

The most pronounced maladaptive modes (see Table 3) in the CDD group were the *vulnerable child*, *demanding parent*, *punitive parent*, *detached protector*, *detached self-soother*, and *compliant surrender*. Figure 2 provides a mode model for CDD, summarising these results.

The CDD group scored significantly lower compared to BPD on modes relating to anger (*angry child* and *enraged child*) and lack of self-discipline (*impulsive child* and *undisciplined child*) and significantly higher on the *healthy adult mode*, with effect sizes ranging from small to medium. The CDD group scored significantly lower compared to the APD group on modes relating to acting passive and submissive (*compliant surrender*), and significantly higher on the modes relating to anger (*angry child* and *enraged child*), emotionally detaching (*detached protector*), hurting and deceiving others (*bully and attack*) and self-punishment (*punitive parent*), with effect sizes ranging from small to medium. For the group comparisons excluding CDD participants who reported comorbid BPD or APD ($n = 27$), the CDD group no longer differed from the APD group on the subscales of *angry child* and *enraged child*.

Regarding coping styles (see Table 3), no differences were found between the CDD group and the comparison groups, which is inconsistent with the hypothesis. When CDD patients with comorbid APD and BPD were excluded ($n = 27$), the group comparison on the subscale *surrender* became significantly different, with the CDD group scoring significantly lower compared to the BPD group.

4 | DISCUSSION

The aims of the present study were to investigate whether participants with CDD presented with personality disorder traits on a level that is consistent with personality disorders and to examine maladaptive schemas, modes, and coping styles in participants with CDD compared to participants with BPD or APD. Regarding the first aim, consistent with the hypothesis, the CDD group showed scores within the range found for full-blown personality disorders, especially for

TABLE 3 Comparison of means and standard deviations of the YSQ-SR, SMI and SCI constructs across types of disorder.

YSQ-SR subscales	Disorders			F	p	η^2/ω^2	Post-hoc
	CDD (n = 35)	BPD (n = 138)	APD (n = 38)				
Insufficient self-control/self-discipline	2.78 (0.91)	3.71 (1.22)	2.95 (0.99)	15.76 ^b	<.01	.12	A, D < B
Emotional deprivation	4.07 (1.38)	3.70 (1.37)	3.76 (1.36)	1.10 ^a	.04	.01	
Dependence/incompetence	2.59 (0.99)	3.36 (1.33)	2.83 (1.17)	8.17 ^b	.01	.06	D < B
Emotional inhibition	3.54 (1.09)	3.33 (1.15)	3.51 (0.99)	0.74 ^a	.03	.01	
Approval-seeking/recognition-seeking	3.31 (1.02)	3.83 (1.25)	4.23 (1.23)	5.12 ^a	.02	.05	D < A
Social isolation/alienation	4.43 (1.23)	3.97 (1.39)	3.81 (1.43)	2.08 ^a	.04	.02	
Vulnerability to harm or illness	3.53 (0.89)	3.24 (1.19)	2.85 (1.07)	3.38 ^a	.03	.03	
Defectiveness/shame	3.73 (1.14)	3.57(1.54)	3.05 (1.23)	2.25 ^a	.03	.02	
Failure to achieve	2.99 (0.99)	3.63 (1.44)	3.42 (1.24)	4.80 ^b	.02	.04	D < B
Negativity/pessimism	3.33 (1.01)	3.66 (1.30)	3.20 (1.11)	2.58 ^a	.03	.02	
Unrelenting standards/hypercriticalness	3.95 (1.17)	3.89 (1.13)	3.94 (0.99)	0.07 ^a	.05	<.01	
Subjugation	3.14 (1.05)	3.56 (1.18)	4.05 (1.15)	5.64 ^a	.01	.05	D < A
Self-sacrifice	3.64 (1.16)	3.64 (1.14)	4.07 (1.21)	2.06 ^a	.04	.02	
Entitlement/grandiosity	2.92 (0.99)	3.46 (1.19)	2.58 (0.83)	13.91 ^b	.01	.09	A, D < B
Punitiveness	3.75 (1.12)	3.56 (1.35)	3.22 (1.14)	1.61 ^a	.04	.02	
Abandonment/instability	3.17 (1.18)	3.95 (1.38)	2.90 (0.96)	15.73 ^b	.01	.12	A, D < B
Enmeshment/undeveloped self	2.05 (1.01)	2.76 (1.17)	2.52 (1.12)	5.45 ^a	.02	.05	D < B
Mistrust/abuse	3.59 (1.09)	3.52 (1.40)	2.98 (1.34)	2.63 ^a	.03	.03	
SMI subscales							
Vulnerable child	3.57 (0.90)	3.83 (1.95)	3.40 (0.97)	3.07 ^a	.04	.03	
Angry child	2.97 (0.86)	3.34 (0.98)	2.54 (0.97)	10.91 ^a	<.01	.10	A < B, D; D < B
Enraged child	1.69 (0.80)	2.19 (1.00)	1.35 (0.50)	24.52 ^b	.01	.18	A < B, D; D < B
Impulsive child	2.16 (0.86)	3.16 (1.07)	1.85 (0.77)	40.53 ^b	.01	.27	A, D < B
Undisciplined child	2.82 (0.81)	3.54 (0.98)	3.00 (0.91)	11.00 ^a	.01	.10	A, D < B
Happy child	2.79 (0.73)	2.69 (0.83)	2.99 (0.77)	2.09 ^a	.04	.02	
Compliant surrender	3.31 (0.93)	3.54 (0.99)	4.08 (0.84)	6.14 ^a	.03	.06	B, D < A
Detached protector	3.40 (0.79)	3.12 (0.97)	2.68 (0.82)	5.72 ^a	.03	.05	A < B, D
Detached self-soother	3.31 (0.98)	3.49 (0.92)	3.27 (0.96)	1.11 ^a	.05	.01	
Self-aggrandizer	2.53 (0.73)	2.75 (0.86)	2.29 (0.60)	7.14 ^b	.02	.06	A < B
Bully and attack	2.03 (0.76)	2.12 (0.79)	1.60 (0.47)	13.63 ^b	.02	.11	A < B, D
Punitive parent	3.51 (1.12)	3.06 (1.16)	2.69 (0.95)	4.81 ^a	.04	.04	A < D
Demanding parent	3.82 (.77)	3.74 (0.96)	4.01 (0.89)	1.21 ^a	.05	.01	
Healthy adult	3.76 (0.55)	3.42 (0.82)	3.72 (0.53)	5.84 ^b	.03	.04	B < A, D
SCI subscales							
Surrender	3.68 (1.22)	4.27 (1.39)	4.03 (1.10)	3.00 ^a	.03	.03	
Avoidance	3.76 (1.38)	3.81 (1.47)	3.80 (1.21)	0.01 ^a	.05	<.01	
Overcompensation	3.97 (1.13)	4.36 (1.24)	3.48 (0.95)	8.66 ^a	.02	.08	A < B

Note: Values in parentheses are standard deviations. For the YSQ-SR, the critical p -value after Benjamini–Hochberg correction is .022; for the SMI, the critical p -value after Benjamini–Hochberg correction is .036; for the SCQ, the critical p -value after Benjamini–Hochberg correction is .017; D is dissociative disorders; B is borderline personality disorder; A is avoidant personality disorder.

Abbreviations: APD, avoidant personality disorder; BPD, borderline personality disorder; CDD, complex dissociative disorders; SCI, Schema Coping Inventory; SMI, Schema Mode Inventory; YSQ, Young Schema Questionnaire.

^aANOVA with Gabriel as post-hoc method and effect size eta squared.

^bWelch's F -test with Games–Howell as post-hoc method and effect size omega squared.

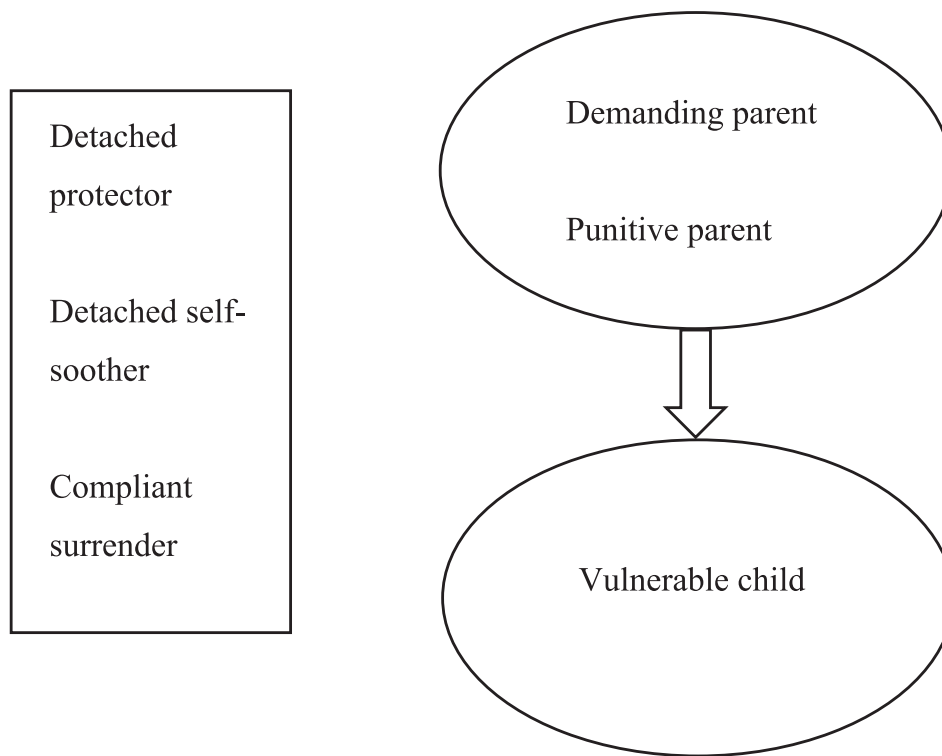


FIGURE 2 Schema mode model of CDD.

schizoid, schizotypal, borderline and avoidant personality traits. The participants with CDD score above the cutoff on various personality disorders and these results were similar when participants with comorbid personality disorders were kept out of the analyses. Compared to BPD and APD, CDD scores on cluster B and C traits are in between BPD and APD scores. Regarding cluster A traits, the CDD group showed scores not significantly different from participants with BPD and APD, with the exception of schizotypal personality traits on which the CDD group scored significantly higher compared to the APD group. Importantly, these results were comparable when CDD participants with comorbid BPD or APD were removed from the analyses.

Regarding the second aim, the most pronounced schemas of the CDD group were *emotional deprivation*, *social isolation/alienation*, and *defectiveness/shame*, which belong to the domains of disconnection and rejection, as well as *punitiveness* and *unrelenting standards*, which are part of the domain over-vigilance and inhibition (Young et al., 2003). In comparison to participants with BPD and APD, the CDD group scored significantly lower in relation to the BPD group on schemas from the domains impaired limits and impaired autonomy. Compared to the APD group, CDD patients scored significantly lower on schemas within the domain of other directedness. The most pronounced modes were the *vulnerable child*, *demanding parent*, *punitive parent*, *detached protector*, *detached self-soother*, *compliant surrender*, and the *healthy adult mode*. Compared to the BPD group, the CDD group scored lower on the modes related to anger and a lack of self-discipline. Compared to the APD group, the CDD group scored lower on acting submissive, and higher on modes relating to anger, hurting and deceiving others, emotional detachment and self-punishment. No

significant differences between the groups were found in coping styles.

The results on personality disorder traits showed that the level of the CDD scores on the ADP-IV were comparable to BPD and APD. The same pattern was found for the YSQ-S3: The scores within the CDD group matched those previously found in personality disorders (Bach et al., 2016; Rijkeboer et al., 2005). Rijkeboer et al. (2005) investigated the discriminative and classifying ability of the YSQ-SR in 172 patients with personality disorders in relation to 162 students without pathology. For all subscales, the patient group scored significantly higher, and 88% of the participants were classified correctly. Although there were significant differences, one can still argue that symptomatic distress influenced these differences and not personality pathology perse. Yet, Lee et al. (1999) compared EMS scores between patients with and without personality disorders. Patients with a personality disorder scored significantly higher on all EMS, compared to patients with an axis-I disorder. In this study, all participants suffered from symptomatic distress, yet there was no control for symptomatic distress. Nordahl et al. (2005), however, did control for the level of symptomatic distress in their study in which they investigated EMS in patients with and without personality disorders. They also found a significant difference in EMS strength between these patient groups, indicating that EMS strength is specifically related to personality pathology and not to the level of symptomatic distress. The strength of the EMS therefore points to personality pathology. These independent studies showed that, based on the scoring patterns of the YSQ, a clear distinction can be made between patients suffering from personality disorders, and those with other clinical disorders, as well as non-clinical controls. The CDD group, as well as the comparison groups in

the present study all scored within the range of patients with personality disorders. This was also the case when CDD participants with comorbid personality disorders (APD and BPD) were removed from the analysis, showing that comorbid personality pathology does not explain the level of personality pathology among CDD patients. Taken together, these results indicate the possibility that severe dissociative symptoms might also be understood as personality pathology.

Several personality constellations were found to be characteristic of participants with CDD. The personality disorder trait on which CDD participants scored highest was recurrent para-suicidal behaviour, gestures or threats and self-harm, one of the BPD traits. Several functions of self-harming behaviour have previously been identified, for example, as an emotion regulation strategy to alleviate negative emotions, as self-punishment, to die, and multiple other functions (Klonsky, 2007). Previous research found that self-punishment and self-harming behaviour is a clinical phenomenon often found in DD (Moskowitz et al., 2017) and in the current study, CDD patients scored high on the schema *punitiveness* and the internalised critical modes (i.e., *punitive parent* and *demanding parent*).

Regarding the schizotypal personality disorder traits, CDD patients indicated to believe in supernatural occurrences, such as 'magic, psychic perception, or telepathy'. It was also common in the group of CDD participants to 'give explanations to chance events that are unusual or bizarre in the eyes of others'. These results are in agreement with previous research on the occurrence of magical thinking and fantasy proneness in patients with DD. Merckelbach, Rassin and Muris (2000) found strong associations between magical thinking (i.e., the belief that unrelated events are causally connected despite the absence of a plausible causal link) and dissociative experiences. Additionally, Giesbrecht et al. (2007) investigated the relationship between dissociation and schizotypy and found that fantasy proneness is an important factor contributing to this link (i.e., a tendency to exhibit deep, profound and longstanding involvement in fantasy and imagery).

CDD patients scored high on the personality disorder traits related to being alone and choosing mostly solitary activities, possibly related to a fear of rejection, as found in the high levels of APD traits among CDD patients. The CDD patients scored highest on avoiding social contact due to the fear of being criticised or rejected and due to feelings of insufficiency and inferiority. In accordance with this high score on avoiding social contact, the CDD group showed high levels of maladaptive schemas belonging to the domains of disconnection and rejection, indicating that CDD patients are often unable to form secure, satisfying attachments to others. They feel essentially different, insufficient and disconnected from others.

Another personality disorder trait on which CDD patients scored high is being impressionable, that is, thoughts and feelings are strongly influenced by others or circumstances. This is in accordance with previous literature, where dissociation has been linked to higher levels of suggestibility. In one etiological model of dissociative identity disorder, the Sociocognitive model (Giesbrecht et al., 2008) suggestibility, but also cognitive distortions, fantasy proneness, and media influence are suggested to contribute to dissociative experiences and DD. Even

though there is some debate on the exact role of suggestibility, this factor has been found to be linked to dissociation (Merckelbach, Muris, et al., 2000).

Regarding the mode model for CDD patients, we found the *vulnerable child mode*, among others, to be prevalent in the CDD group. This mode is associated with depressed and/or anxious feelings such as shame, loneliness, anxiety, sadness or threat (Young et al., 2003). In previous studies, this mode was related to the experience of negative childhood events (Lobbestael et al., 2005). Note that DD have often been found to be associated with reported abuse and neglect in early childhood (Brand et al., 2009). However, since trauma history was not measured in this study, no conclusion on aetiology is formulated. It would be interesting for future research to include a measure of trauma history, as the mode model of CDD assumes an influence of early childhood adversity on personality development. Internalised critical modes (i.e., *punitive parent*, *demanding parent*) were also pronounced in the CDD group. These are modes in which people criticise and punish themselves. Regarding the coping modes, especially those related to avoidance were pronounced, that is the *detached protector*, the *detached self-soother* and the *compliant surrender*. The reliability of the subscale *detached self-soother* was low, so the interpretation should be made with caution. The presence of avoidant coping modes is in line with the mode model of CDD that emphasises the central role of avoidance in this disorder (Huntjens et al., 2019a). The main function of avoidant coping modes is to prevent the activation of maladaptive schemas, and their accompanying aversive feelings (Arntz et al., 2021).

Comparing the CDD mode model to the mode models previously formulated for APD (Bamelis et al., 2011) and BPD (Arntz et al., 2005), several differences were found. For participants with APD, the mode model consists of the *punitive parent*, *abandoned child*, *detached protector*, *compliant surrender* and *healthy adult* (Brand et al., 2009). In the current study, both the APD and CDD groups showed the presence of avoidance coping modes and high vulnerability, but the CDD group scored higher on internalised critical modes. For participants with BPD, the mode model consists of the *abandoned child*, *angry/impulsive child*, *punitive parent* and *detached protector* (Arntz et al., 2005). The mode model for participants with BPD highlights the presence of the angry and impulsive modes (Young et al., 2003), which in the current study were not found to be characteristic of the CDD group. In previous literature, modes in relation to dissociation have only been investigated in people with BPD, and in these studies, angry child modes were found to be related to dissociation (Barazandeh et al., 2018). It appears that the modes emphasizing anger are more indicative of the BPD group than of the CDD group.

The current study did not find any differences between the groups on coping styles measured with the SCI. The subscale overcompensation had low reliability in this study, so the results could not be interpreted. The measured coping styles reflect coping responses to triggered maladaptive schemas; surrender (giving in to the schema) and avoidance (avoiding the painful emotions associated with the schema) (Van Wijk-Herbrink et al., 2018). Results showed that the DD group used all three coping styles to deal with the activation of the

maladaptive schemas. The pattern of how the DD group deals with activation of the schemas did not differ from the other two groups.

Limitations of the current study include the lack of diagnosis verification through clinical (structured assessment by a therapist or therapist records. We used self-reported diagnoses as indicated by the participants. There was no access to patient files containing formal clinical diagnoses of the participants. Participants participated anonymously through the website of the Dutch Association of Schema Therapy. Note, however, that previous research on the concordance between clinician-assessed and self-reported symptoms of posttraumatic stress disorder, found moderate concordance between self-reported and therapist-assessed diagnoses in a sample of three ethn racial groups (Macdonald et al., 2013). Moreover, the scores on the ADP-IV in the current study were consistent with the expected scores of the particular patient groups based on self-reported diagnoses. The BPD group for instance scored highest on the borderline scale, whereas the APD group had the highest score on the avoidant scale, providing at least partial evidence that self-reported diagnoses were quite accurate. Future research should try to replicate results from the current study in a sample where clinical diagnoses are formally verified. Furthermore, to ensure that the results were not due to comorbidity, we repeated the analyses without the CDD patients who reported comorbid personality disorders.

A second limitation was that depersonalisation/derealisation disorder, dissociative amnesia, and other specified DD were not included. Therefore, results are only generalisable to most CDD. Future research should include measures of dissociation to control for levels of dissociation in the comparisons between the groups.

Clinical implications of the findings in the current study involve further substantiation of the possibility to treat DD with a schema therapy approach. The current treatment for participants with CDD consists of a phase-oriented treatment, involving three phases (stabilisation, trauma processing and identity integration; International Society for the Study of Trauma and Dissociation, 2011). However, the evidence for this form of treatment is limited and there is ample room for improvement (Huntjens et al., 2019a). Dropout rates are relatively high, with rates of 60% (Ellason & Ross, 1997), 52% (Coons & Bowman, 2001), and 54% (Myrick et al., 2017). The percentage of patients that finish treatment and achieve the final state of identity integration is estimated between 16.7% and 33.3% (Brand et al., 2009; Coons & Bowman, 2001; Ellason & Ross, 1997). Additionally, treatment duration is long, and treatment is very expensive. The results of the present study may indicate the possibility of an adapted form of schema therapy for CDD in clinical practice because the CDD group scored within the personality disorder range of both the ADP-IV and the YSQ-S3. Schema therapy has been found effective for patients with BPD (Bakos et al., 2015; Giesen-Bloo et al., 2006), patients with cluster C and other personality disorders (Bamelis et al., 2014) and patients with post-traumatic stress disorder (Cockram et al., 2010). Because CCD patients show characteristics of all of these patient groups, schema therapy could potentially offer an integrated treatment for CDD, as it focuses on dissociative

complaints, the perception of identity fragmentation and common comorbid psychiatric problems such as PTSD (see for more detailed elaboration Huntjens et al., 2019a).

In conclusion, the current study found that people with CDD scored on the various personality constructs at the level of participants with personality disorders in general. This suggests that CDD may be considered a personality-related disorder. There was considerable overlap between the CDD group and the personality disorder comparison groups; however, the CDD group presented with a unique pattern of personality disorder traits, schemas and modes. Most importantly, the results for the CDD participants showed the prevalence of modes regarding internalised critical messages, avoidance and vulnerability. Following these results, an adapted form of schema therapy using the presented mode model could be a viable option for the treatment of CDD.

CONFLICT OF INTEREST STATEMENT

The authors declare no conflict of interest.

DATA AVAILABILITY STATEMENT

The participants of this study did not give written consent for their data to be shared publicly; so, due to the sensitive nature of the research, supporting data are not available.

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