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Personality features of sexual offenders who committed offences against children

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ABSTRACT

While attention has been given to maladaptive personality traits in the sexual offending literature, little is known about how individuals who engage in child sexual abuse (CSOs) score on general personality traits, and how subgroups of CSOs vary in these traits. This study investigated general personality traits of (subgroups of) CSOs (n=57) as compared to those who engage in nonsexual offending (n=33) and nonoffending controls (n=36) by using the HEXACO model and the Reinforcement Sensitivity Theory. Results revealed that the personality features of the CSOs are more similar to those of the nonoffending subgroup than to those of the nonsexual offending subgroup. Whereas the nonsexual offending subgroup showed personality traits that may affect their self-regulatory abilities, the CSOs showed traits that may impair their socio-affective functioning. However, the subgroup of CSOs that showed an enduring pattern of offending did display a constellation of personality traits typically found in antisocial individuals. These findings can inform treatment strategies for CSOs.

Practice impact statement

This article assists clinicians in designing tailored treatment strategies for individuals who perpetrate sexual offences against children (CSOs) by identifying how CSOs score on general personality traits. In contrast to nonsexual offenders who showed personality traits that may affect their self-regulatory abilities, CSOs showed personality traits that may affect their socio-affective functioning. This highlights the importance of addressing problems in the socio-affective domain such as intimacy deficits and emotional regulation difficulties in treatment programmes for CSOs. The present research also revealed personality differences within CSOs and showed how these differences should be taken into account when designing treatment strategies for CSOs.

Sexual offending against children can lead to enormous human suffering (Maniglio, 2009). Much attention has, therefore, been given to developing treatment strategies that are effective in reducing the risk of sexual recidivism. To this end, gaining a sound understanding of the factors that contribute to sexual offending behaviour, and of the factors that need to be targeted through treatment is crucial (i.e. need principle; Bonta & Andrews, 2016; Harkins & Beech, 2007). Since those who sexually

offend against children (CSOs) form a heterogeneous population and are commonly divided into subgroups (see Dillien et al., 2020), treatment efforts should address potential differences between the subgroups with respect to their characteristics and therapeutic needs. The longstanding distinction between paedophilic (i.e. CSOs who are driven by a sexual interest in children) and nonpaedophilic CSOs (i.e. CSOs who are sexually attracted to adults) appears to be of particular interest in this regard (Groth et al., 1982). Recent studies have suggested that these subgroups differ not only in clinical features, but also in criminogenic factors that contribute to their offending behaviour, and therefore also in treatment needs (e.g. Eastvold et al., 2011; Strassberg et al., 2012; Suchy et al., 2009).

Personality traits seem to be among the most important factors contributing to engaging in sexual abuse of children. Until now, there has been a focus on studying maladaptive personality traits in CSOs, in particular those linked to antisocial tendencies and disinhibited behaviours (e.g. impulsivity, low self-control) (Hanson & Morton-Bourgon, 2005; Mann et al., 2010). While managing the impact of such maladaptive traits is very important in the forensic psychiatric setting, there is a substantial body of work highlighting associations between *general* personality traits and antisocial behaviours (Jones et al., 2011). However, relatively little empirical research has been undertaken to explore how CSOs score on general personality traits described in structural models of personality, and how subgroups of CSOs differ with respect to these traits. Only a few studies have targeted general personality traits in CSOs, and these mainly focused on the Five Factor Model of personality (FFM or Big Five model; McCrae & Costa, 1990). This model assumes that personality can be measured through the constellation of five basic dimensions of personality: Openness to experience, Conscientiousness, Extraversion, Agreeableness, and Neuroticism. Studies ofCSOs have found distinguishable FFM traits between CSOs and nonoffender controls. More specifically, CSOs displayed significantly higher levels of Neuroticism and lower levels of Extraversion and Conscientiousness than nonoffender controls (Becerra-García et al., 2013; Boillat et al., 2017; Dennison et al., 2001). Interestingly, high Neuroticism, low Agreeableness, and low Conscientiousness have been associated with aggression and antisocial behaviour across populations (Jones et al., 2011; Miller et al., 2012; Miller & Lynam, 2001), suggesting that high Neuroticism and low Conscientiousness could present features shared among different antisocial populations, rather than being specific toCSOs (Becerra-García et al., 2013; Burt & Donnellan, 2008). Neuroticism and Conscientiousness are related to affective and behavioural dysregulation, which contribute to poor behavioural control (Burt & Donnellan, 2008; Garofalo et al., 2018; Miller et al., 2012; Miller & Lynam, 2001). From this perspective, the findings concerning general personality features in CSOs agree with theories of sexual offending and research on recidivism that emphasise the role of disinhibition in the development and maintenance of sexual offending behaviour (e.g. Hanson & Morton-Bourgon, 2005; Seto, 2019).

However, focusing only on FFM personality traits provides an incomplete understanding of the personality (features) of CSOs. The FFM has been criticised for not capturing a number of important personality characteristics, such as honesty, manipulativeness, and conceitedness, which are relevant to the study of offending behaviour (Paunonen & Jackson, 2000). As a result, the HEXACO model of personality (Ashton et al., 2004; Lee & Ashton, 2004) caught the interest of personality researchers in the forensic field, as it promised better coverage of the personality features of offenders (Ashton & Lee, 2008). The HEXACO model of personality (Ashton et al., 2004; Lee & Ashton, 2004) was developed as an alternative to the Big Five model, and describes personality in terms of six dimensions: The Honesty-Humility dimension assesses individual differences in the tendency to be sincere, fair, and modest versus manipulative, exploitative, and pretentious. The Emotionality dimension describes individual differences in the tendency to experience negative affect and in the need for emotional support from others. The Extraversion dimension assesses individual differences with respect to self-confidence in social situations, self-esteem, gregariousness, and the experience of positive affect. The Agreeableness dimension measures individual differences in the tendency to be forgiving, lenient, cooperative, and in control of anger. The Conscientiousness dimension describes the individual's degree of organisation, diligence, and level of impulse control. The

Openness to experience dimension assesses the extent to which an individual shows appreciation of aesthetics, intellectual curiosity, imaginativeness, and willingness to accept unconventional ideas. Whereas the HEXACO dimensions of Extraversion, Conscientiousness, and Openness to experience are equivalent to the same-named Big Five factors, HEXACO Emotionality and Agreeableness differ somewhat from their Big Five counterparts. The addition of the Honesty-Humility dimension is, however, the most notable difference between the two models, and it is this dimension that makes the HEXACO model highly promising for the study of antisocial behaviour (Ashton & Lee, 2008). Empirical evidence confirms the link between low Honesty-Humility and antisocial behaviour, but also underlines the contribution of low Agreeableness, low Conscientiousness, and low Emotionality to the explanation of antisociality (Ashton & Lee, 2008; Dunlop et al., 2012; Međedović, 2017). Some studies, however, deviate from this latter finding, and show a relationship between high Emotionality and antisocial behaviour. This relationship fits the evidence that emotion processing deficits and emotional under-regulation play a role in the offending behaviour of certain groups of offenders (Knight et al., 2018; Rolison et al., 2013). As a type of offending behaviour that is particularly exploitative and often very manipulative, we can assume that sexual offending behaviour against children is also associated with the low pole of Honesty-Humility. For example, sexual offences against children are often preceded by a grooming process in which CSOs manipulate their victims into trusting them, into complying with the sexual abuse, and into keeping the abuse hidden (Craven et al., 2006), suggesting low levels of Honesty-Humility. However, up to now, the HEXACO model has not been applied to the study of CSOs.

Also, findings obtained in various offender populations suggest that reward sensitivity and punishment sensitivity, which are personality traits not incorporated in the FFM or the HEXACO model, might also play important roles in understanding the characteristics of CSOs (e.g. Brunelle et al., 2009; Leue et al., 2008; Wallace et al., 2009). According to the original Reinforcement Sensitivity Theory of personality (RST; Corr, 2008; Gray, 1987), two cognitive systems underlie individual differences in motivated behaviour and emotions. The first system, the behavioural activation system (BAS), is activated by signals of impending reward or non-punishment, and evokes positive affect and approach behaviour. The second system, the behavioural inhibition system (BIS) is engaged by cues of punishment or non-reward, and activation of this system leads to negative affect and avoidance behaviour. Whereas research links a balanced BIS and BAS to 'normal' and adaptive behaviour, both heightened and lowered sensitivity to reinforcement are related to psychopathology and problematic behaviour (Bijttebier et al., 2009), including antisocial behaviour (e.g. Hoppenbrouwers et al., 2015). With respect to the latter, BIS and BAS sensitivity have been studied primarily in the psychopathy literature. It has been found that antisocial behaviour in offenders with high levels of psychopathy is linked to a hypoactive BIS or a hyperactive BAS, respectively (Newman et al., 2005; Uzieblo et al., 2007; Wallace et al., 2009). More recently, studies have shown that nonpsychopathic offender groups are also characterised by a hyperactive BAS and a hypoactive BIS, relative to nonoffending controls (Brunelle et al., 2009; Morgan et al., 2014). These findings indicate that BIS and BAS sensitivity are also relevant to the explanation of antisocial behaviour across offending subpopulations. In this regard, the study by Morgan et al. (2014) identified BAS sensitivity as a more robust predictor of antisocial behaviour than BIS sensitivity, with associations being found between BAS hypersensitivity and various indices of antisocial behaviour in adolescents. These findings fit the notion that an overactive BAS and, to a lesser extent, an underactive BIS may be part of a vulnerability for developing poor behavioural control, which constitutes a prominent criminogenic factor that contributes to (further) offending behaviour (Bonta & Andrews, 2016; Gottfredson & Hirschi, 1990).

Leue et al. (2008) were the first to show that reinforcement sensitivity also contributes to the understanding of sexual offending behaviour. In their study that examined BIS and BAS sensitivity in a mixed group of sexual offenders consisting of individuals who sexually offended against adults and CSOs, Leue et al. (2008) showed that sexual offenders demonstrated heightened BAS sensitivity relative to nonoffending controls. This, however, was only the case for sexual offenders who

did not meet the criteria for paraphilia, who were found to show increased BAS and decreased BIS relative to the paraphilic sexual offending group. It is important, though, to consider that the study group consisted of both individuals who sexually offended against children and individuals who sexually offended against adults. Since CSOs and those who sexually offend against adults are not (necessarily) similar in their personality features (Carvalho & Nobre, 2019), it remains to be seen whether the finding of heightened BAS sensitivity will hold for a sample of CSOs only.

Although preliminary findings and theoretical considerations suggest that CSOs and nonsexual offenders show similarities in their HEXACO and BIS/BAS traits, rigorous empirical evidence is lacking. The aim of the present study was to empirically examine whether CSOs show similar HEXACO and BIS/BAS traits to other antisocial populations. To achieve this, a HEXACO measure and two BIS/BAS measures were administered to a group of CSOs and to two control groups: (a) a nonoffending group and (b) a group of individuals with nonsexual offence histories. By using these two control groups, we were able to determine the HEXACO and BIS/BAS traits of CSOs, as well as to assess the specificity of these traits for CSOs. We, furthermore, aimed to explore whether the HEXACO and BIS/BAS traits that were found, differ within CSOs. To this end, CSOs were divided in subgroups on the basis of clinical factors that have been proven to be relevant for personality functioning. Following Leue et al. (2008), a distinction was made between paedophilic CSOs and nonpaedophilic CSOs. Additionally, in line with Morgan et al. (2014), CSOs were distinguished by severity of antisociality, which was operationalised as 'having a previous conviction or not'.

Method

Sample

This study was part of a larger study on the neuropsychological functioning of CSOs, involving 128 participants. Data from 2 CSOs had to be omitted due to a large number of missing values. The final sample consisted of 126 men, made up of 57 CSOs, 33 nonsexual offenders, and 36 nonoffender controls. The CSOs and the nonsexual offenders were imprisoned at the time of the study, and were recruited from 8 prisons across Flanders, Belgium. All CSOs were convicted for at least one sexual offence against a child ($\leq$ 13 years of age), with 22 of them being classified as paedophilic CSOs and 35 as nonpaedophilic CSOs. Of the CSOs, 21 were convicted for the first time (first time CSOs; Ft-CSOs), and 35 already had a previous conviction (repeat CSOs; R-CSOs). All in the nonsexual offending group had a conviction for at least one violent offence (i.e. assault and battery, attempted murder, and murder/manslaughter). None of these participants had a prior conviction for a sexual offence and none of them reported a paedophilic sexual interest. The nonoffending control group were volunteers from the community who had never been criminally convicted and who reported no paedophilic sexual interest.

Data were collected between February 2016 and July 2017. The inclusion criteria for participation in this study required participants to (1) be between 18 and 65 years of age, (2) have an IQ above 79, (3) not have abused any substance within the preceding 12 months, and (4) have no (history of) neurological disorder or diagnosis of bipolar disorders, schizophrenia and other psychotic disorders, or schizotypal personality disorder. Participants with these conditions were excluded from this study because of the potential for adverse effects on neuropsychological functioning, which was the focus of the research project of which this work was a part (for demographic information see Table 1).

Procedure

All offending participants were preselected by prison psychologists on the basis of file information and were then individually assessed by the principal investigator to establish whether they fulfilled the inclusion criteria. To this end, a semi-structured interview that was designed especially for this

Table 1. Demographic Characteristics of the CSOs, the Nonsexual Offender Controls, and the Nonoffender Controls.

	CSOs			Nonsexual offenders			Nonoffender controls			Analysis		
Variable	M	SD	Range	M	SD	Range	M	SD	Range	Statistic	P	Post-hoc
Age (years)[a]	47.75	10.94	22–65	36.85	10.63	20–60	37.19	10.27	19–64	15.78[c]	<.001	CSOs > NOC*** CSOs > NSO*** NSO = NOC
IQ (NLV)[b]	100.88	11.56	84–130	97.55	9.61	80–114	108.18	4.83	95–118	20.16[d]	<.001	CSOs = NSO CSOs < NOC** NSO < NOC***

Note. CSOs = individuals who sexual offended against children; NOC = nonoffending controls; NSO = nonsexual offending controls; NLV = 'Nederlandse Leestest voor Volwassenen', Dutch version of the National Adult Reading Test.
[a]n CSOs = 57, n NSO = 33, n NOC = 36.
[b]n CSOs = 49, n NSO = 33, n NOC = 34 (8 CSOs and 2 NOCs did not complete the NLV due to Dutch not being their native language).
[c]F ANOVA, Bonferroni corrected post-hoc tests. [d] Welch ANOVA, Games-Howell post-hoc tests.
** $p < .01$. *** $p < .001$.

study and the Dutch version of the National Adult Reading Test (NLV; Nelson, 1982; Schmand et al., 1992) were administered. All offending participants were also administered selected modules of the Dutch versions of the Structured Clinical Interview for DSM-IV Axis I disorders (SCID-I; First et al., 1996; Van Groenestijn et al., 1999) and the Structural and Clinical Interview for DSM-IV personality disorders (SCID-II; First et al., 1997; Weertman et al., 2000) to rule out schizophrenia and other psychotic disorders, bipolar disorders, and schizotypal personality disorder. Besides evaluating the inclusion and exclusion criteria during this individual screening session, the CSOs were classified as paedophilic CSOs or nonpaedophilic CSOs, by assessing them for the presence of a paedophilic disorder according to the Diagnostic and Statistical Manual of Mental Disorders (4th ed. text rev; *DSM-IV-TR*; American Psychiatric Association, 2000). DSM-IV-TR lists three diagnostic criteria that must be fulfilled to make this diagnosis. Criterion A refers to the presence of "recurrent, intense sexually arousing fantasies, sexual urges, or behaviours involving sexual activity with a prepubescent child or children" present for at least six months. Criterion B stipulates that "the person has acted on these sexual urges, or the sexual urges or fantasies cause marked distress or interpersonal difficulty". Criterion C states that "the person is at least age 16 years and at least 5 years older than the child or children in criterion A" (American Psychiatric Association, 2000, p. 572). Since criterion A can only be confidently assessed when sexual preferences are accurately evaluated, the viewing time task from the Explicit and Implicit Sexual Interest Profile (EISIP; Schmidt et al., 2014) and/or the Screening Scale for Pedophilic Interest (SSPI; Seto & Lalumière, 2001) were used to verify self-reported sexual preferences. The nonoffender controls were recruited by an advertisement that was spread by social media and word-of-mouth. The men who responded to this advertisement were screened using the same inclusion criteria, and the same measures as for the offender participants. Three potential participants (all CSOs) were excluded on the basis of the inclusion criteria. The participation rate for the CSOs was 71% and 61% for the nonsexual offending group.

Shortly after the screening session, individual testing sessions were conducted during which Dutch versions of the BIS/BAS scales (Carver & White, 1994; Franken et al., 2005), the Sensitivity to Punishment and the Sensitivity to Reward Questionnaire (SPSRQ; Franken & Muris, 2006; Torrubia et al., 2001), and the HEXACO Personality Inventory – Revised (HEXACO-PI-R; Ashton & Lee, 2008; Lee & Ashton, 2018) were completed. This study was approved by the medical ethics committee of the University of Antwerp and informed consent was obtained from all participants. Participants were compensated for their participation in this study and received 10 euros.

Measures

Semi-structured interview
A semi-structured interview was used to collect demographic data and information on sexual behaviour, psychiatric and neurological disorders, substance abuse, offending behaviour, and criminal history. Self-reported information on offending and offending behaviour was verified by consulting prison records, if permission was given.

SCID-I and SCID-II (*First et al., 1997, 1996; Van Groenestijn et al., 1999; Weertman et al., 2000*)
The SCID-I and the SCID-II are semi-structured interviews designed to diagnose DSM Axis I and Axis II disorders. The Dutch versions of these instruments demonstrate fair to excellent interrater reliability. Lobbestael et al. (2011) reported kappa values of between .61 and .83 for the Axis I disorders, and between .77 and .94 for the Axis II disorders.

The NLV (*Nelson, 1982; Schmand et al., 1992*)
The NLV is a Dutch translation of the National Adult Reading Test (NART), and provides an index of intellectual functioning. This measure consists of 50 irregular words that participants are asked to pronounce correctly from which a (verbal) IQ score is obtained. The NART demonstrates excellent

test-retest stability ($r = .98$ within a 10-days interval) and interrater reliability (r ranges between .96 and .98), as well as criterion validity in a sample of healthy adults (Crawford et al., 1989). Schmand et al. (1991) found the NLV score to correlate highly ($r = .85$) with verbal intelligence.

The SSPI (*Seto & Lalumière, 2001*)

The SSPI is a screening scale to assess paedophilic interests in CSOs. It has four items covering victim and offence characteristics, that are scored to obtain a proxy measure of sexual interest in children. The convergent validity of the SSPI is demonstrated with correlations between .51 and .70 with other indicators of paedophilic interests (i.e. items of risk assessment instruments that measure paedophilic interests). The SSPI has also been shown to predict sexual recidivism ($AUC = .64$) (Helmus et al. 2015).

The viewing time task from the EISIP (*Schmidt et al., 2014*)

The EISIP is a computerised multi-method battery that consists of both direct and indirect (e.g. the viewing time task) measures of sexual interest in children. In the viewing time task, participants are presented with images depicting individuals of varying ages in bathing suits and asked to rate the sexual attractiveness of the images. During this rating process, time spent looking at the various images is recorded and used as an indicator of sexual interest in children. The viewing time task demonstrates excellent internal consistency (Cronbach's α ranged between .90 and .95 for the images of girls, boys, women, and men), and the convergent validity is supported by a moderate correlation between the viewing time task and the SSPI ($r = .48$) (Schmidt et al., 2014).

BIS/BAS scales (*Carver & White, 1994; Franken et al., 2005*)

The BIS/BAS scales assess BIS and BAS sensitivity, and are comprised of one BIS scale and three BAS scales (i.e. BAS Drive, BAS Fun Seeking, and BAS Reward Responsiveness). The BIS scale measures the degree to which respondents experience behavioural inhibition or negative affect when confronted with punishment cues. The BAS Drive scale reflects the degree to which desired goals are pursued. The BAS Fun Seeking scale reflects the degree to which rewarding and novel experiences are desired and approached. The BAS Reward Responsiveness scale reflects the degree to which respondents experience positive affect in the context of potential reward. The responses are given on a four-point scale ranging from strongly disagree (1) to strongly agree (4). The BIS/BAS scales show (near-) adequate to good internal consistency (Cronbach's α ranged between .68 and .83), and correlate in the expected direction with personality measures that are theoretically similar (Heubeck et al., 1998). The psychometric properties of the Dutch version of the BIS/BAS scales are largely comparable to those of the original English version (Franken et al., 2005; Smits & Boeck, 2006).

The SPSRQ (*Franken & Muris, 2006; Torrubia et al., 2001*)

The SPSRQ consists of 2 subscales that are designed to assess individual differences in sensitivity to punishment and reward: the Sensitivity to Punishment subscale and the Sensitivity to Reward subscale. Both subscales consist of 24 items that are answered as 'yes' or 'no'. Caseras et al. (2003) found the SPSRQ to be internally consistent (Cronbach's α for the 2 scales > 0.70), and to correlate in the expected direction with theoretically relevant measures. Similar psychometric properties are reported for the Dutch SPSRQ (Franken & Muris, 2006).

The HEXACO-PI-R (*Ashton & Lee, 2008; Lee & Ashton, 2018*)

The HEXACO-PI-R is a personality measure that assesses the 6 dimensions of the HEXACO model: Honesty-Humility, Emotionality, Extraversion, Agreeableness, Conscientiousness, and Openness to experience. Three different versions of this measure are available (i.e. a 200-item version, a 100-item version, and a 60-item version), of which the 100-item version was used in this study. All items are scored on a five-point scale ranging from strongly disagree (1) to strongly agree (5). In

the study by Lee and Ashton (2018) all factor scales are internally consistent (all Cronbach's α range between 0.81 and 0.89), and principal components analyses confirmed the six-factor structure of the HEXACO-PI-R. The Dutch version of this measure demonstrates similar psychometric properties (de Vries et al., 2009).

Data analysis

A one-factor multivariate analysis of variance (MANOVA), followed by ANOVA's and Bonferroni corrected post-hoc comparisons, was used to examine differences between the CSOs, the nonsexual offending controls, and the nonoffending controls on the personality scale scores. In order to examine differences in personality traits within the CSOs two separate MANOVA's were performed. The first examined differences in personality traits between the paedophilic CSOs and the nonpaedophilic CSOs, and the second examined differences in personality traits between the CSOs who were convicted for the first time (Ft-CSOs) and the CSOs who already had a previous conviction (R-CSOs). Statistically significant MANOVA's were followed by Bonferroni corrected post-hoc tests.

Results

Between-Group differences on the personality scale scores

The MANOVA performed on the HEXACO-PI-R dimension scores and the measures of the BIS and BAS constructs indicated a significant difference between the personality scale scores of the CSOs, the nonsexual offending controls, and the nonoffending controls [Wilks' lambda = 0.62, $F_{(24, 224)} = 2.49$, $p < .001$]. The results of the follow-up univariate ANOVA's are shown in Table 2. These analyses revealed significant between-group differences with respect to Extraversion [$F_{(2,125)} = 3.34$, $p = .039$], Agreeableness [$F_{(2,125)} = 6.21$, $p = .003$], and Openness to experience [$F_{(2,125)} = 6.02$, $p = .003$]. Bonferroni corrected post-hoc tests indicated that the CSOs scored significantly lower on Extraversion (CSOs: $M = 3.21$, $SD = 0.54$; nonsexual offending controls: $M = 3.51$, $SD = 0.48$, $p = .034$) and significantly higher on Agreeableness (CSOs: $M = 3.28$, $SD = 0.44$; nonsexual offending controls: $M = 2.89$, $SD = 0.62$, $p = .002$) than the nonsexual offending controls. No differences were found between the CSOs and the nonoffending controls (Extraversion: $M = 3.35$, $SD = 0.60$, $p = .705$; Agreeableness: $M = 3.11$, $SD = 0.51$, $p = .368$), or between the nonsexual offending controls and the nonoffending controls on these variables (Extraversion: $p = .610$; Agreeableness: $p = .214$). With respect to Openness to experience, the CSOs ($M = 3.00$, $SD = 0.58$) scored significantly lower than the nonoffending controls ($M = 3.45$, $SD = 0.62$, $p = .002$), but did not differ significantly from the nonsexual offending controls ($M = 3.16$, $SD = 0.69$, $p = .679$). In the follow-up ANOVA's on the reward and punishment sensitivity scales, significant group differences were found on the BAS Fun Seeking scale [$F_{(2, 125)} = 5.22$, $p = .007$] and the BIS scale [$F_{(2, 125)} = 3.19$, $p = .044$] of the BIS/BAS scales, and on the Sensitivity to Reward scale [$F_{(2,125)} = 7.38$, $p = .001$] and the Sensitivity to Punishment scale [$F_{(2,125)} = 3.96$, $p = .022$] of the SPSRQ. Bonferroni corrected post-hoc comparisons revealed that the CSOs scored significantly lower than the nonsexual offending controls on the BAS Fun Seeking scale (CSOs: $M = 2.54$, $SD = 0.58$; nonsexual offending controls: $M = 2.90$, $SD = 0.46$, $p = .005$) and the Sensitivity to Reward scale (CSOs: $M = 8.60$, $SD = 4.35$; nonsexual offending controls: $M = 12.27$, $SD = 5.28$, $p = .001$), but significantly higher than the nonsexual offending controls on the Sensitivity to Punishment scale (CSOs: $M = 10.40$, $SD = 6.06$; nonsexual offending controls: $M = 6.91$, $SD = 4.69$, $p = .018$). With respect to the BIS scale, the nonoffending controls ($M = 2.98$, $SD = 0.49$) were found to score significantly higher than the nonsexual offending controls ($M = 2.65$, $SD = 0.57$, $p = .050$). No other between-group differences on the personality scale scores reached significance (all other p's $> .05$).

Table 2. Differences between the CSOs, Nonsexual Offending Controls, and Nonoffending Controls on the Scale Scores of the Personality Measures.

Personality measures	CSOs			Nonsexual offenders			Nonoffender controls			Univariate Analyses		
	M	SD	Range	M	SD	Range	M	SD	Range	F-ratio	p	Post-hoc[a]
HEXACO-PI-R												
Hon-Hum	3.80	0.53	2.19-5.00	3.63	0.55	2.38-4.63	3.66	0.55	2.25-4.81	1.32	.272	
Emot	3.01	0.58	1.38-4.25	2.81	0.51	1.56-4.19	2.91	0.60	1.88-4.50	1.26	.286	
Extrav	3.21	0.54	2.06-4.25	3.51	0.48	2.06-4.31	3.35	0.60	1.88-4.81	3.34	.039	CSOs < NSO* CSOs = NOC NSO = NOC
Agreeab	3.28	0.44	2.19-4.25	2.89	0.62	1.75-4.00	3.11	0.51	2.06-4.00	6.21	.003	CSOs > NSO** CSOs = NOC NSO = NOC
Conscient	3.60	0.38	2.75-4.31	3.64	0.48	2.38-4.63	3.50	0.49	2.69-4.44	1.00	.370	
Openness	3.00	0.58	1.75-4.38	3.16	0.69	1.81-4.19	3.45	0.62	2,06-4,69	6.02	.003	CSOs < NOC** CSOs = NSO NSO = NOC
BIS/BAS scales												
BAS	2.80	0.46	1.62-3.92	2.97	0.43	2.23-3.85	2.91	0.35	2.08-3.77	1.80	.170	
BAS Dr	2.55	0.69	1.00-4.00	2.67	0.79	1.00-4.00	2.60	0.59	1.25-4.00	0.23	.726	
BAS FS	2.54	0.58	1.25-3.75	2.90	0.46	2.00-3.75	2.68	0.47	1.75-3.75	5.22	.007	CSOs < NSO** CSOs = NOC NSO = NOC
BAS RR	3.21	0.47	1.40-4.00	3.26	0.50	2.00-4.00	3.33	0.32	2.60-4.00	0.87	.424	
BIS	2.90	0.61	1.00-4.00	2.65	0.57	1.29-3.86	2.98	0.49	2.00-3.86	3.19	.044	NSO < NOC* CSOs = NSO CSOs = NOC
SPSRQ												
Sen Rew	8.60	4.35	2.00-18.00	12.27	5.28	0.00-22.00	10.25	3.47	5.00-20.00	7.38	.001	CSOs < NSO** CSOs = NOC NSO = NOC
Sen Pun	10.40	6.06	0.00-22.00	6.91	4.69	0.00-19.00	8.86	5.93	0.00-23.00	3.96	.022	CSOs > NSO* CSOs = NOC NSO = NOC

Note. CSOs = sexual offenders against children; NSO = nonsexual offender controls; NOC = nonoffender controls; HEXACO-PI-R = HEXACO Personality Inventory – Revised; Hon-Hum = Honesty-Humility; Emot = Emotionality; Extrav = Extraversion; Agreeab = Agreeableness; Conscient = Conscientiousness; Openness = Openness to experience; BAS Dr = BAS Drive; BAS FS = BAS Fun Seeking; BAS RR = BAS Reward Responsiveness; SPSRQ = the Sensitivity to Punishment and the Sensitivity to Reward Questionnaire; Sen Rew = Sensitivity to Reward subscale; Sen Pun = Sensitivity to Punishment subscale.
[a]Bonferroni corrected post-hoc tests.
* $p < .05$. ** $p < .01$.

Table 3. Differences between the CSOs who were Convicted for the First Time and the CSOs who already had a Previous Conviction on the Scale Scores of the Personality Measures.

	First-time CSOs			Repeat CSOs			Analyses	
Personality measures	M	SD	Range	M	SD	Range	Post-hoc[a]	p
HEXACO-PI-R								
Hon-Hum	3.88	0.56	3.65-4.10	3.72	0.47	3.55-3.90	Ft-CSOs > R-CSOs	.282
Emot	2.82	0.44	2.59-3.04	3.17	0.56	2.99-3.34	Ft-CSOs < R-CSOs	.018
Extrav	3.10	0.54	2.87-3.34	3.24	0.53	3.06-3.42	Ft-CSOs < R-CSOs	.350
Agreeab	3.41	0.44	3.22-3.60	3.22	0.44	3.07-3.36	Ft-CSOs > R-CSOs	.117
Conscient	3.68	0.36	3.52-3.84	3.53	0.37	3.41-3.66	Ft-CSOs > R-CSOs	.149
Openness	3.14	0.48	2.89-3.39	2.93	0.62	2.74-3.12	Ft-CSOs > R-CSOs	.179
BIS/BAS scales								
BAS	2.69	0.37	2.49-2.89	2.85	0.50	2.70-3.00	Ft-CSOs < R-CSOs	.217
BAS Dr	2.30	0.70	2.00-2.59	2.69	0.66	2.46-2.91	Ft-CSOs < R-CSOs	.042
BAS FS	2.56	0.39	2.31-2.81	2.50	0.66	2.30-2.70	Ft-CSOs > R-CSOs	.710
BAS RR	3.11	0.31	2.91-3.32	3.26	0.54	3.01-3.42	Ft-CSOs < R-CSOs	.273
BIS	2.81	0.49	2.57-3.05	3.00	0.59	2.82-3.19	Ft-CSOs < R-CSOs	.206
SPSRQ								
Sen Rew	7.00	3.46	5.18-8.82	9.71	4.51	8.31-11.12	Ft-CSOs < R-CSOs	.021
Sen Pun	9.67	4.66	7.02-12.31	11.06	6.73	9.01-13.11	Ft-CSOs < R-CSOs	.408

Note. CSOs = individuals who sexually offended against children; Ft-CSOs = CSOs who were convicted for the first time (first-time CSOs); R-CSOs = CSOs who already had a previous conviction (repeat CSOs); HEXACO-PI-R = HEXACO Personality Inventory – Revised; Hon-Hum = Honesty-Humility; Emot = Emotionality; Extrav = Extraversion; Agreeab = Agreeableness; Conscient = Conscientiousness; Openness = Openness to experience; BAS Dr = BAS Drive; BAS FS = BAS Fun Seeking; BAS RR = BAS Reward Responsiveness; SPSRQ = the Sensitivity to Punishment and the Sensitivity to Reward Questionnaire; Sen Rew = Sensitivity to Reward subscale; Sen Pun = Sensitivity to Punishment subscale.
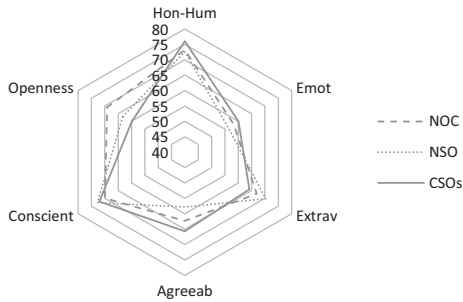[a]Bonferroni corrected post-hoc tests.

Within-Group analysis for the CSOs

The MANOVA examining differences on the personality scale scores between the paedophilic and the nonpaedophilic CSOs was not significant [Wilks' lambda = 0.82, F(12, 44) = 0.83, p = .622]. Significant differences were, however, found in the MANOVA comparing the R-CSOs to the Ft-CSOs [Wilks' lambda = 0.63, F(12, 43) = 2.09, p = .039]. Bonferroni corrected post-hoc comparisons showed that the R-CSOs scored higher than the Ft-CSOs on Emotionality (R-CSOs: M = 3.17, SD = 0.56; Ft-CSOs: M = 2.82, SD = 0.44, p = .018), BAS Drive (R-CSOs: M = 2.69, SD = 0.66; Ft-CSOs: M = 2.30, SD = 0.70, p = .042), and Sensitivity to reward (R-CSOs: M = 9.71, SD = 4.51; Ft-CSOs: M = 7.00, SD = 3.46, p = .021, see Table 3).

Discussion

In this study, the CSOs showed different personality features than the nonsexual offending subgroup. Extraversion scores were significantly lower and Agreeableness scores were significantly higher in the CSOs than in the nonsexual offending subgroup. Moreover, the CSOs scored significantly higher on Sensitivity to Punishment, and lower on BAS Fun Seeking and Sensitivity to Reward than the nonsexual offending subgroup. When comparing the CSOs to the nonoffending controls, the CSOs were significantly lower in Openness to experience than the nonoffending controls with no other differences being significant. The fact that few significant differences existed between the CSOs and the nonoffending controls contrasts with studies that showed that Big Five Neuroticism, Extraversion, and Conscientiousness, and BAS sensitivity distinguish between CSOs and nonoffending controls of which high Neuroticism, low Conscientiousness, and high BAS sensitivity are probably shared with other antisocial groups (Becerra-García et al., 2013; Boillat et al., 2017; Burt & Donnellan, 2008; Dennison et al., 2001; Leue et al., 2008). The inconsistency between results from this study and those from other studies may be partially explained by differences in sample composition. Since CSOs are a heterogeneous group of people (see Dillien et al., 2020), the personality traits that are found in CSOs may vary depending on the sample that was
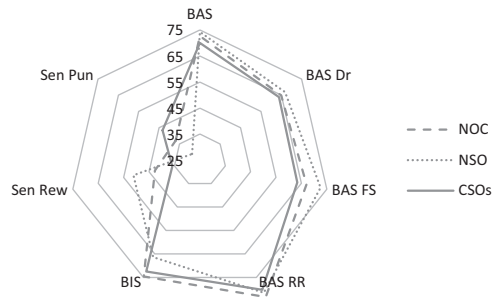
Figure 1. This figure shows the scores of the CSOs, the nonsexual offender controls, and the nonoffender controls on the HEXACO factors (left plot), the BIS/BAS scales and the SPSRQ scales (right plot).

Note: CSOs = sexual offenders against children; NSO = nonsexual offender controls; NOC = nonoffender controls; Hon-Hum = Honesty-Humility; Emot = Emotionality; Extrav = Extraversion; Agreeab = Agreeableness; Conscient = Conscientiousness; Openness = Openness to experience; BAS Dr = BAS Drive; BAS FS = BAS Fun Seeking; BAS RR = BAS Reward Responsiveness; Sen Rew = Sensitivity to Reward subscale; Sen Pun = Sensitivity to Punishment subscale.

studied. Although results from this study did not support that personality traits of CSOs vary according to sexual preference as was suggested by Leue et al. (2008), this study did find that personality traits of CSOs vary according to the level of antisociality. Although this hypothesis might offer a partial explanation, the unexpected findings when comparing the CSOs to the nonoffending controls need further clarification. Notwithstanding this, these findings seem to indicate that CSOs are more similar to nonoffending controls than to other antisocial populations in their HEXACO and BIS/BAS traits (see Figure 1), which is in line with the aforementioned differences in personality traits between the CSOs and the nonsexual offending controls that were found in this study. Whereas this holds for the whole group of CSOs, the subgroup of R-CSOs did show elevated prevalence of some of the personality traits typically found in antisocial individuals (e.g. Ashton & Lee, 2008; Knight et al., 2018; Morgan et al., 2014), in particular those that impact on their ability to control their behaviour. More specifically, the R-CSOs scored higher on BAS Drive, Sensitivity to reward, and Emotionality than the subgroup of Ft-CSOs.

As shown in this study, CSOs as a group and the nonsexual offending controls are characterised by distinct personality traits, with only the nonsexual offending subgroup showing personality traits that have been associated with persistent antisocial behaviour and personality constructs like psychopathy (Brunelle et al., 2009; Dunlop et al., 2012; Jones et al., 2011; Knight et al., 2018; Međedović, 2017; Miller et al., 2012; Morgan et al., 2014; Newman et al., 2005; Rolison et al., 2013; Uzieblo et al., 2007; Wallace et al., 2009). Two superordinate dimensions underlie both 'normal' and 'abnormal' personality according to the literature. The first dimension, termed Anxious-Inhibited, reflects the manner in which individuals engage their inner and social worlds (e.g. self-confident and sociable versus submissive and avoidant), and incorporates personality disorders that are characterised by internalising features such as dependent, avoidant, schizoid, and schizotypal personality disorder. The second dimension, Acting Out, captures the extent to which individuals can control themselves, restrain their impulses, and regulate their hostility and aggression. This dimension underlies antisocial, narcissistic, and histrionic personality disorders, and overlaps with psychopathy (Blackburn et al., 2004; Blackburn & Logan, 2005). Based on the personality differences that were found between the CSOs and nonsexual offending subgroup, it is reasonable to assume that the Acting Out dimension would be more pronounced in nonsexual offenders, whereas the Anxious-Inhibited dimension would be more pronounced in CSOs. This assumption should however be tested in future studies that incorporate structured assessments of personality disorders in addition to questionnaires that assess general personality traits.

Interestingly, the observed personality differences between CSOs and nonsexual offenders parallel the differences between these groups in clinical presentation, criminogenic needs, and risk level (Craig et al., 2006; Gudjonsson & Sigurdsson, 2000; Hanson et al., 1995) and correspond with the idea that CSOs are a specific group of offenders (see Chapman et al., 2018). Most CSOs commit a single sexual offence and refrain from reoffending. Their offending behaviour appears to be a one-off event and a temporary deviation from the course of their life (Harris & Hanson, 2004). This would be difficult to reconcile with the presence of personality traits that are associated with a more enduring impulsive and rule-breaking lifestyle, which are, however, more prevalent among nonsexual offenders (e.g. Ashton & Lee, 2008). In contrast to those who perpetrate nonsexual offences who are generally antagonistic, extraverted, sensitive to reward, and indifferent to punishment, CSOs as a group are under assertive, introvert, and sensitive to punishment and negative emotions. The presence of such personality traits is in line with theories and research on sexual offending against children that document interpersonal difficulties, intimacy deficits, and negative mood states in CSOs, and that describe CSOs as socially withdrawn, submissive, distressed, and as having low self-esteem (e.g. Dreznick, 2003; Hudson & Ward, 2000; Ward & Beech, 2006). Although the personality traits that were observed in CSOs may play a role in the offending behaviour of CSOs by affecting their interpersonal functioning and emotional well-being, these traits are unlikely to put them on a chronic trajectory of criminal behaviour, which concords with the finding that most CSOs succeed in leading a crime-free life after their conviction (Hanson & Morton-Bourgon, 2005; Harris & Hanson, 2004). The latter is probably more difficult for those who perpetrate nonsexual offences, and who generally show personality traits that interfere with their ability or willingness to suppress antisocial impulses. Notwithstanding the fact that most CSOs will not commit further sexual offences after being convicted (Hanson & Morton-Bourgon, 2005; Harris & Hanson, 2004), more than half of our sample of CSOs showed an enduring pattern of offending (i.e. R-CSOs). This is probably due to the fact that we studied a sample of imprisoned CSOs that most likely includes more high-risk CSOs (Redondo et al., 2007). Unlike the CSOs as a whole, the R-CSOs also appeared to be characterised by traits that affect their self-regulatory abilities, so that nonsexual offenders and R-CSOs resemble each other in this regard. In accordance with this, recidivism research identifies poor behaviour control as a prominent risk factor that increases the risk of recidivism both in sexual and in nonsexual offenders (Bonta & Andrews, 2016; Hanson & Morton-Bourgon, 2005; Piquero et al., 2005). Moreover, the finding that R-CSOs display personality traits that set them apart from the group of CSOs as a whole, corresponds with Hanson and Morton-Bourgon (2005) who claimed that CSOs who show a more enduring pattern of antisocial behaviour are distinct from more common CSOs.

One of the main clinical implications of the differences in personality traits that are observed between the group CSOs as a whole and the nonsexual offending subgroup is that CSOs require a different emphasis in treatment programmes than other offending groups. For example, although disinhibition has been shown to play a role in the offending behaviour of both offender groups (Bonta & Andrews, 2016), only nonsexual offenders, and not CSOs, show personality traits that contribute to their failure to control their behaviour. This finding implies that CSOs, for whom disinhibition may be more of a temporary state resulting from overwhelming negative feelings or intoxication (Seto, 2019), have different treatment needs than nonsexual offenders. Furthermore, in light of the personality features that were found for CSOs, CSOs will require particular therapeutic attention to socio-affective functioning, intimacy deficits, and emotional reactivity, with these treatment needs being rather specific to them (Yates, 2013). This emphasises the importance of allocating CSOs to specialised treatment programmes that are tailored to their specific needs (Bonta & Andrews, 2016; Brazil et al., 2018; Lösel & Schmucker, 2005). Notwithstanding this, it is important to consider that CSOs are a heterogeneous population with individual CSOs differing from one another in clinical presentation and criminogenic needs and, therefore, also in their treatment needs (e.g. Dillien et al., 2020). The present study demonstrates that the subgroup of R-CSOs presents with personality traits that have an impact on their capacity to regulate their behaviour and emotions unlike the group

CSOs as a whole, but similar to nonsexual offenders. Adequate treatment for R-CSOs should therefore not only be aimed at the more specific treatment needs for CSOs, but also incorporate interventions to target more generic forensic therapeutic needs such as impulse control interventions. This fits with the idea that 'one size does not fit all' when treating CSOs (Laws & Ward, 2006).

Although these findings are encouraging, this study has some limitations that should be noted. The first, and probably the most important limitation, is that the sample size was small, which makes it difficult to generalise our results. Secondly, although the same inclusion criteria and exclusion criteria were employed for all participants in this study, significant differences were found between the CSOs and the nonoffending controls in age and intelligence, and between the CSOs and the nonsexual offending subgroup in age. Therefore, it is possible that the difference in Openness to experience between the CSOs and the nonoffending controls that was observed in this study was (partly) due to between-group differences in age and/or IQ. In a similar way, the personality differences between the CSOs and the nonsexual offending subgroup found in this study could be explained (in part) by differences in age between the groups. Because age and IQ were, however, not independent from the grouping variable, the explanatory value of these variables as covariates could not be established (Field, 2013; Miller & Chapman, 2001). Given this and the previous limitation, our findings should be regarded as preliminary, and need to be confirmed in future larger studies in which groups are matched on age and IQ in order to address the effects of these variables on the personality features that were found. Another limitation is that we did not include a comprehensive assessment of personality disorders in our study sample. The use of a structured assessment of personality disorders in addition to self-report questionnaires assessing general personality traits would provide a more complete understanding of the personality traits of CSOs and nonsexual offenders. It would moreover allow to determine how both offender groups score on the Anxious-Inhibited dimension and the Acting out dimension. Finally, due to the nature of the cross-sectional study design, we cannot rule out that the subgroup of Ft-CSOs might include some CSOs who will commit another offence in the years after their imprisonment. Since this will decrease the differences found between the CSOs for whom their offending behaviour appears to be a one-off event (i.e. Ft-CSOs) and the CSOs who show a more enduring pattern of antisocial behaviour (R-CSOs), our results are probably an under-estimate of the personality differences between these groups. Notwithstanding this, our results should be confirmed by longitudinal studies that collect recidivism data over a sufficiently long follow-up period.

Conclusion

Our findings indicated that CSOs and nonsexual offenders are dissimilar in their personality features. Whereas the nonsexual offending subgroup were found to show personality traits that might impair their ability to control their behaviour, CSOs showed traits that might affect their socio-affective functioning. Differences were, however, found within CSOs, with the subgroup of R-CSOs displaying a constellation of personality traits that resemble those found in other offending groups. These findings parallel differences between CSOs and nonsexual offenders, and between CSOs as a whole and CSOs who appear to be on a persistent antisocial path (i.e. R-CSOs) in criminogenic needs and risk level, and therefore also in treatment needs. In this way, a more complete understanding of how (subgroups of) CSOs score on general personality traits, may help inform more tailored treatment, which may ultimately increase the effectiveness of sexual offender treatment.

Conflict of interest statement

All authors declare not to have any financial interest in the results of this study or any other conflict of interest and agree to transfer copyrights if the manuscript is accepted.

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