

## Compulsive sexual behavior and sexual offending: Differences in cognitive schemas, sensation seeking, and impulsivity

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*Background and aims:* People from the community seeking treatment in frameworks such as Sexaholics Anonymous (SA) and sex offenders are preoccupied with sex, sexual fantasies, and behaviors. The rates of compulsive sexual behavior disorder (CSBD), however, are reported to be substantially lower among sex offenders than SAs. In this study, we examined differences between SAs and sex offenders in CSBD and in processes that might be at the core of CSBD – maladaptive schemas about the self and others, impulsivity, and sensation seeking. *Methods:* The study comprised 103 sex offenders, 68 SAs, and 81 violence offenders who served as controls aged 18–74 years, who completed self-report measures regarding CSBD, maladaptive schemas, impulsivity, and sensation seeking. *Results:* SAs were higher on CSBD, maladaptive schemas, impulsivity, and sensation seeking than sex offenders. Sex offenders were higher on CSBD and impulsivity than violence offenders. Among all groups, maladaptive schemas were linked with higher CSBD. *Conclusions:* High rates of CSBD among SAs might partially be accounted by differences in maladaptive schemas. We discuss the implication of the study to the understanding of CSBD, sexual offences, and therapy for CSBD and sexual offending.

**Keywords:** compulsive sexual behavior disorder, sex offenders, maladaptive schemas

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### INTRODUCTION

The World Health Organization (WHO), in the 11th edition of the International Classification of Diseases (ICD-11), has included Compulsive Sexual Behavior (CSB) as a disorder (now called CSBD; classification number 6C72). CSBD is an impulse-control disorder characterized by a repetitive and intense preoccupation with sexual fantasies, urges, and behaviors, leading to clinically significant distress or impairment in social and occupational functioning and to other adverse consequences (ICD-11; Gola & Potenza, 2018; Kafka, 2010; WHO, 2018). This disorder may also be perceived as a non-paraphilic addictive behavior (i.e., non-paraphilic sex addiction; Efrati, Gerber, & Tolmacz, 2019) such that people who endorse the disorder have remarkable similarities in the five major facets of personality (neuroticism, conscientiousness, extraversion, agreeableness, and openness to experience) and impulsiveness with those addicted to exogenous psychoactive substances (Zilberman, Yadid, Efrati, Neumark, & Rassevsky, 2018). The definitions of non-paraphilic sex addiction (e.g., Carnes, 2000; Goodman, 1998) and CSBD (e.g., Kafka, 2010) also have many similarities. Recently, research on CSBD has indicated that, on one hand, people from the community seeking treatment in frameworks such as Sexaholics Anonymous (SA) have high prevalence of CSBD (Efrati & Gola, 2018; Efrati & Mikulincer, 2018) and low prevalence of sexual offenses (C. David, personal

communication from SA services, 2017). On the other hand, sex offenders have low prevalence of CSBD (Hanson, Harris, Scott, & Helmus, 2007; Kingston & Bradford, 2013). This contrast is baffling given that both populations are preoccupied with sexuality, sexual fantasies, and sexual behaviors. In this study, we aim to examine in depth the differences between these two populations (while comparing them to violence offenders) in CSBD clusters and processes that might be at the core of CSBD – dysfunctional schemas about the self and others, impulsivity, and sensation seeking. This exploration would not only facilitate better understanding of these two populations but also suggest new ways for tailored therapy interventions.

#### CSB and sex offenders

Sex offenders are individuals who have either been officially charged with a sexual crime (e.g., exhibitionism, child molestation, or rape), have performed an act that could be ended in an officially charged, or committed sexually abusive act against a victim's will (Gerardin & Thibaut, 2004; Miner et al., 2006; Thibaut, 2015).

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There are relatively few empirical investigations examining the prevalence of CSB among sexual offenders. Initially, Carnes (1989) suggested that approximately 50% of sexual offenders would exhibit hypersexual features, although he provided no empirical evidence supporting this figure. Subsequent studies, however, have supported Carnes' claims. For example, Krueger, Kaplan, and First (2009) have found that 33% of men who were arrested for sexually related Internet crimes had CSBD (which was called in the study, hypersexual behavior). Blanchard (1990) using self-report measures found that 55% of his sample of sexual offenders ( $n = 107$ ) met criteria for sexual addiction, although his criteria were not clear and the reliability of his diagnosis was not reported. Marshall and colleagues (Marshall, Marshall, Moulden, & Serran, 2008; Marshall, O'Brien, & Kingston, 2009) have examined the prevalence of hypersexual behavior by employing self-report measures in samples of incarcerated sexual offenders and compared these rates with socioeconomically matched community controls. Hypersexual behavior was determined using a clinical cut-off score on a measure of "sexual addiction" (The Sexual Addiction Screening Test; Carnes, 1989). The results were generally consistent with data reported by Krueger et al. (2009), Carnes (1989), and Blanchard (1990), such that approximately 44% of sexual offenders were considered to be hypersexual, whereas 18% of a socioeconomically matched community controls met the criterion. However, recent research using different and more up-to-date methods to assess CSBD have found significantly lower rates of CSBD among sex offenders.

Kingston and Bradford (2013), for example, found among 586 adult male sexual offenders that the average self-reported total sexual outlet (Kinsey, Pomeroy, & Martin, 1948) was low and that only 12% of individuals met the criterion for hypersexuality (which is defined as 7 or more orgasms per week). Hanson et al. (2007) reported that only 11.3% of their sample of adult male sexual offenders on community supervision met the criterion for sexual preoccupation. In a study on a representative sample of 244 adult male sexual offenders against child victims, Briken (2012) reported that only approximately 9% met the diagnostic criteria for hypersexual disorder, as delineated in the proposed DSM-5 criteria. Therefore, although sex offenders are preoccupied with sex, only a minority reach the clinical diagnosis of CSBD.

In contrast, people from the community seeking treatment in frameworks such as SA have much higher prevalence of CSBD (Efrati & Gola, 2018; Efrati & Mikulincer, 2018). Specifically, Efrati and Mikulincer (2018) found a CSBD rate of 87.7% among SAs (as compared with a rate of 4.3% in the general community), and in a different sample, Efrati and Gola (2018) indicated a CSBD rate of 82.6%. These rates were estimated using the novel individual-based compulsive sexual behavior (I-CSB) measure (Efrati & Mikulincer, 2018), which assesses the four known clusters of CSBD: (a) unwanted consequences because of sexual fantasies – how sexual fantasies carry harm to oneself by causing physical, mental, and spiritual distress (Reid, Garos, & Fong, 2012) and to one's close others such as family members (Reid, Carpenter, Draper, & Manning, 2010), colleagues, and

peers (Reid, Garos, & Carpenter, 2011); (b) lack of behavioral control – constant engagement with sexual fantasies without control of thoughts and exposure to pornography; (c) negative affect – negative feeling accompanied by guilt and shame because of sexual fantasies that feed feelings of unworthiness; and (d) affect dysregulation – escape to sexual fantasies and pornography because of pain, stress, and distress. Which factors could account for the differences between sex offenders and SAs in CSBD? In this study, we suggest that maladaptive schemas about the self and others, impulsivity, and sensation seeking might play an important role in explaining these differences.

### *Maladaptive schemas*

People with CSBD often report distorted cognition and emotion regulation strategies (Kalichman et al., 1994; Kalichman & Rompa, 1995; Reid et al., 2011). For example, Paunovic and Hallberg (2014) suggested that CSBD may be related to a cluster of negative and distorted beliefs and interpretations about one's sexual fantasies, urges, and behavior such that a person with CSBD might conclude that "I can't control my sexual behavior" and therefore "I am a bad person." People with CSBD are also known to hold maladaptive sexual cognitions regarding magnifying their perceived need for sex, minimizing self-efficacy for controlling one's sexual behavior, while also discounting the benefits of sex (Kraus, Rosenberg, & Tompsett, 2015; Pachankis, Redina, Ventuneac, Grov, & Parsons, 2014). In addition, people with CSBD are likely to exhibit patterns of rumination and cognitive rigidity about their inability to change their sexual behavior, thereby reinforcing a sense of failure, self-hostility, and personal inadequacy (Reid, 2010; Reid, Temko, Moghaddam, & Fong, 2014).

Recently, Szumskia, Bartels, Beech, and Fisher (2018) indicate in their Multi-Mechanism Theory of Cognitive Distortions that cognitive distortions are considered an important factor in the etiology and maintenance of sexual offending behavior and possibly any excessive sexual behavior. Cognitive distortions are attitudes and/or rationalizations that have historically been an important component of cognitive behavioral treatment for sex offenders (Maruna & Mann, 2006; Yates, 2013). Such distorted cognitions arise from underlying cognitive schemas that research suggests should be the primary target of treatment of sexual offenders (Beech, Bartels, & Dixon, 2013; Maruna & Mann, 2006; Yates, 2013). A schema may be defined as a cognitive structure that includes stable beliefs and assumptions about the self, others and the world, and functions as a broad organizing principle that directs the cognitive processing of one's life events (Beck, 1995; Young, Klosko, & Weishaar, 2003). For example, cognitive-behavioral treatment is the most widely accepted and empirically supported model of sexual offender treatment with respect to reducing recidivism (e.g., Hanson et al., 2002; Lösel & Schmucker, 2005), as it aims on altering patterns of behavioral, cognitive, and affective responding associated with sexual offending. With that being said, the effectiveness of such treatments is highly dependent on the ability to tailor the treatment to the specific distorted cognitions of individuals (e.g., Yates, 2013).

The Young Schema Questionnaire (YSQ) is a measure of Early Maladaptive Schemas (EMSs) developed for the understanding and treatment of enduring mental health problems. Originally, the YSQ was developed by Young (1990) for Schema Therapy, which is an adaptation of CBT with insights from attachment theory, experiential approaches, and concepts of emotional core needs (Young, 1990). The model underlying the approach proposes that maladaptive schemas might be divided into five general domains: (a) disconnection/rejection domain (individuals with schemas in this domain are unable to form secure and satisfying bonds to others); (b) impaired autonomy/performance domain (schemas from this domain characterize individuals with problems related to self-individuation and autonomy); (c) impaired limits domain (individuals with schemas in this domain present difficulties related to interpersonal reciprocity and self-discipline); (d) other directness domain (schemas from this domain characterize individuals consistently seeking other's approval); and (e) over vigilance/inhibition domain (individuals with schemas from this domain suppress feelings and impulses, being consistently alert and vigilant). A recent and large-scale factor analytic study has confirmed these domains in a large mixed (clinical and non-clinical) sample (Bach, Lockwood, & Young, 2018). To date, research has found that maladaptive schemas from this model have been found to be associated with sexual offending in sexually aggressive college males (Sigre-Leirós, Carvalho, & Nobre, 2013) and convicted sex offenders (Chakhssi, Ruiter, & Bernstein, 2013). Although these sexual-related maladaptive schemas have never been assessed among non-offenders, we maintain that they might be highly relevant to the study of CSBD and that people with higher CSBD would also show more distorted and less adaptive sexual-related schemas. Aside from the schemas that might account for the differences between sex offenders and SAs, another constructs that might be relevant are impulsivity and sensation seeking.

#### *Impulsivity and sensation seeking*

Impulsivity is described as the failure to resist a drive or impulse without considering potentially negative outcomes (Moeller, Barratt, Dougherty, Schmitz, & Swann, 2001). On the contrast, sensation seeking is the search for varied, novel, complex, and intense experiences and feelings, and the readiness to take physical, social, legal, and financial risks for the sake of such experiences. Research has revealed similar neural circuits that relate to the tendency to seek stimulation and act impulsively (Holmes, Hollinshead, Roffman, Smoller, & Buckner, 2016).

Schiffer and Vonlaufen (2011) found that sexual offenders (child molesters) appeared to be significantly more impulsive in a Go/No-go test (evaluating behavioral impulsivity) not only in comparison with healthy controls, but also in contrast with perpetrators of non-sexual crimes. In contrast, Ryan, Huss, and Scalora (2017) found differences between 417 male offenders (293 sexual offense) across the measures of general impulsivity and sensation seeking that were not statistically significant. Impulsivity and/or sensation seeking were more constantly linked with CSBD among the general community. Specifically, several studies

have found links between CSBD and self-report or task-related measures of impulsiveness (Antons & Brand, 2018; Miner, Raymond, Mueller, Lloyd, & Lim, 2009; Reid et al., 2011; Voon et al., 2014), and other studies (Walton, Cantor, Bhullar, & Lykins, 2017, 2018) found that one third of individuals with CSBD have impulsivity scores above the range of normal impulsivity. Because impulsivity and sensation seeking were more closely linked with CSBD and less with sexual offense (such that the null effect in Ryan et al., 2017), we believe that SAs will have higher scores of impulsivity and sensation seeking than sex offenders.

#### *The current study*

In this study, we aim to explore in depth the differences between sex offenders and SAs in the prevalence of CSBD, maladaptive schemas, impulsivity, and sensation seeking, and whether maladaptive schemas, impulsivity, and sensation seeking are indeed linked with higher CSBD. To do so, we sampled 103 sex offenders and 69 SAs and administered self-report measures of CSBD, early maladaptive sexual-related schemas, impulsivity, and sensation seeking. To compare the rates of these constructs not only between these two groups, but also to a control group, we sampled a group of 81 violence offenders. The comparison to a control group (and specifically to violence offenders) is imperative because of several reasons: first, to examine differences in CSBD, sexual-related cognitive tendencies (i.e., early maladaptive sexual-related schemas) and related constructs (impulsivity and sensation seeking), it is essential to know the level of these constructs among non-sexual-related control group. Second, the generalist position in criminological literature (Gottfredson & Hirschi, 1990; Lussier, Leclerc, Cale, & Proulx, 2007) holds that there are robust similarities between different types of offenders (such as sex offenders and non-sex offenders), which imply that there might be no specific characteristics for sex offenders (as opposed to our predictions and to other theorists that suggest that sex offenders are "specialists" and fundamentally different than non-sex offenders; Harris, Mazerolle, & Knight, 2009; Simon, 1997). For example, in support of the generalist position, a 10-year review of the literature from 1995 to 2005 found few differences between sex offenders and non-sex offenders on a wide range of variables including exposure to domestic violence, psychopathology, use of drugs, relationship with parents, and/or problems with peer relations (van Wijk et al., 2006). Therefore, it is essential to examine differences between sex and non-sex offenders to make sure that our arguments relate specifically to sex offenders and not to offenders as a whole.

In this study, we examined the following four hypotheses: (a) In keeping with previous research on the prevalence of CSBD, we predict that the prevalence of CSBD would be significantly and meaningfully higher among SA than among sex and violence offenders; the rates of CSBD are predicted to be higher among sex offenders than violence offenders. (b) Maladaptive schemas would be more pronounced among SAs than among sex and violence offenders; sexual-related schemas are predicted to be more pronounced among sex offenders than violence offenders. (c) In keeping with

previous research, impulsivity and sensation seeking would be higher among SAs than among sex and violence offenders; no differences in impulsivity and sensation seeking are expected between sex and violence offenders. (d) Sexual-related schemas, impulsivity, and sensation seeking would be associated with higher levels of CSBD, indicating the relevance of these constructs to the understanding of CSBD, regardless of group affiliation.

## METHODS

### Participants

In the sex offender group, 106 prisoners were approached in group meetings in order to participate in the current research, of whom 103 responded positively (97% response rate). In the violence offender group, 119 prisoners were approached, of whom 81 returned complete test protocols (68% response rate). In the SA group, all participants approached returned complete protocols (68 participants; 100% response rate). Demographic details of participants (age, number of children, and years of education) appear in Table 1.

### Procedure

Questionnaires were printed onto hard copies and administered by the researchers. The questionnaires were authorized by the institutional ethics committees (Academic and Israel Prison Service research committees). Next, the questionnaires were administered in three sex offender treatment units in different geographical locations in Israel. When the researchers arrived at the treatment units, a unit-wide meeting was held in which the rationale for the research and the research committees' authorizations were presented, together with an opportunity to ask questions, and principles for participation in the research, namely anonymity and the right to end participation at any point without giving a reason. The study was presented as a study on sexual behaviors. Similarly, questionnaires were also administered to violent offence prisoners in four different treatment units of the Israel Prison Service, following the same procedure as that of the sex offender units.

### Measures

*Individual-based compulsive sexual behavior (I-CSB; Efrati & Mikulincer, 2018).* CSB was assessed using the Hebrew version of the I-CSB (Efrati & Mikulincer, 2018).

The I-CSB was constructed to assess distinct aspects of CSB, such as sexual fantasies, obsessive sexual thoughts, and spending a great deal of time watching pornography. The I-CSB is a self-report questionnaire with 24 items measuring the following factors: unwanted consequences (e.g., "I feel that my sexual fantasies hurt those around me"), lack of control (e.g., "I waste lots of time with my sexual fantasies"), negative affect (e.g., "I feel bad when I don't manage to control my sexual urges"), and affect regulation (e.g., "I turn to sexual fantasies as a way to cope with my problems"). Using a 7-point Likert scale, participants were asked to rate the degree to which each statement is descriptive of their feelings [ranging from 1 (*not at all*) to 7 (*very much*)]. The questionnaire was successfully used in previous research on non-clinical populations and on clinical populations of SA Twelve-Step program patients (Efrati & Gola, 2018, 2019; Efrati & Mikulincer, 2018). Cronbach's  $\alpha$ s were .93 for unwanted consequences, .94 for lack of control, .88 for negative affect, and .91 for affect regulation. We also computed a total CSB score by averaging the 24 I-CSB items (Cronbach's  $\alpha = .97$ ).

*Young Schema Questionnaire – Short Form-3 (YSQ-S3; Young & Brown, 2005).* The YSQ-S3 is a 90-item self-report measure that assesses the 18 EMSs. Hebrew translation was carried out by permission of Young, Sobel, Faust, Derby, and Rafaeli (2010). The schemas are grouped into five general domains: (a) disconnection and rejection (includes abandonment/instability, mistrust/abuse, emotional deprivation, defectiveness/shame, and social isolation/alienation schemas), (b) impaired autonomy and performance (includes dependence/incompetence, vulnerability to harm- or illness, enmeshment/undeveloped self, and failure schemas), (c) impaired limits (includes entitlement/grandiosity and insufficient self-control/self-discipline schemas), (d) other-directedness (includes subjugation, self-sacrifice, and approval seeking/recognition seeking schemas), and (e) overvigilance and inhibition (includes negativity/pessimism, emotional inhibition, unrelenting standards/hypercriticalness, and punitiveness schemas). Cronbach's  $\alpha$  values for subscales range from .73 to .88.

*Sensation seeking and impulsivity.* Zuckerman's (1979) Sensation Seeking Questionnaire was constructed to measure the degree of need for seeking sensation and adventure, the need for new feelings and experiences, threshold of boredom, willingness to take risks, and the tendency toward uninhibited behavior. On this 40-item version, participants are asked to mark the degree to which they agree with the

Table 1. Means, standard deviations (SDs), univariate statistics, and canonical effect sizes for examining differences in background measures between study groups

	Sex offenders		SA		Violence offenders		$F_{(2, 250)}$	$\eta^2$
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>		
Age	43.57 <sup>a</sup>	16.59	32.26 <sup>b</sup>	14.98	35.67 <sup>b</sup>	9.98	11.08***	0.11
Number of children	2.48 <sup>a</sup>	2.45	2.22	2.55	1.54 <sup>b</sup>	1.66	3.94*	0.03
Years of education	11.78 <sup>b</sup>	2.47	13.58 <sup>a</sup>	4.04	10.76 <sup>b</sup>	3.06	8.11**	0.10

Note. Means with different superscript letters are significantly different at  $p < .05$  (e.g., means with the superscript letter "a" are different at  $p < .05$  from those with the superscript letter "b"). SA: Sexaholic Anonymous members.

\* $p < .05$ . \*\* $p < .01$ . \*\*\* $p < .001$ .



item on a 7-point scale [ranging from 1 (*do not agree at all*) to 7 (*agree absolutely*)]. In this study, we used 19 items, which comprise the scales that measure impulsivity and sensation seeking. The average for all items on each scale is the participant's score, with higher scores indicating higher rates of impulsivity and sensation seeking. In this study, Cronbach's  $\alpha$  was .80 for the impulsivity scale and .82 for the sensation-seeking scale.

### Ethics

The study procedure and materials (questionnaires and informed consent form) were submitted to Beit-Berl's Institution Review Board (IRB) and to the Israel Prison Service research committee (decision number: 47683817), who ethically approved the study. The prisoners signed Israel Prison Service participation agreements as part of the ethics committee's requirements and informed consent form. In the case of the SA group, questionnaires were administered individually, and the researcher similarly stressed the anonymity of the procedure and the freedom to stop participation at any time.

## RESULTS

### Group differences in sociodemographic measures

To examine differences in age, number of children, and years of education between study groups, we conducted a series of one-way analysis of variance with group (sex offenders inmates, SA members, violence offenders inmates) as the independent variable. Means, standard deviations, statistics, and effect sizes are presented in Table 1. Significance of post-hoc analyses was adjusted by Sidak correction.

The analyses indicated significant differences in all measures. Specifically, sex offenders were older than SAs and violence offenders, and have more children than violence offenders (but not SAs). SAs were more educated than sex and violence offenders.

Next, we examined differences in family status between study groups by employing  $\chi^2$  test for independence of measures with Fisher's exact test to estimate significance. We found that the prevalence of divorce was much higher among sex offenders (37.4%) than SAs (4.5%) or violence offenders (11.1%),  $\chi^2_{(4)} = 31.91, p < .001$ .

### Group differences in CSB

To examine differences in CSB clusters (sexual-related unwanted consequences, negative affect, lack of control, and affect dysregulation), we conducted a multivariate analysis of variance (MANOVA) with group (sex offenders inmates, SA members, violence offenders inmates) as the independent variable, followed by a discriminant analysis (also known as canonical regression) to examine relative strength of differences between groups. Means, standard deviations, univariate statistics, and canonical effect sizes are presented in Table 2. Significance of post-hoc analyses was adjusted by Sidak correction.

The analysis indicated that the study group significantly differed in the multivariate factor of CSB, Pillai's  $t = 0.68, F_{(8, 496)} = 31.65, p < .0001$ . Specifically, the analysis revealed that SA members had significantly and meaningfully higher CSB scores than sex and/or aggressive offenders. Sex offenders had significantly higher sexual-related unwanted consequences, negative affect, and affect dysregulation than violence offenders. Sex and aggressive offenders did not differ in sexual-related lack of control. Overall, the strongest differences emerged in sexual-related unwanted consequences and affect dysregulation.

To examine the stability of results, we followed the analyses with a multivariate analysis of covariance (MANCOVA) in which we also controlled for the contribution of age, number of children, years of education, and family status. Similar results were obtained.

Next, we conducted  $\chi^2$  analyses for independence of measures (with Fisher's exact test to estimate significance) to examine differences between study groups in the prevalence of clinical CSB. The analyses indicated that while 81.2% of the SAs had clinical CSB, only 5.8% of the sex offenders and 2.5% of the violence offenders had clinical CSB,  $\chi^2_{(2)} = 156.95, p_{\text{exact}} < .0001$ .

### Group differences in EMSs, sensation seeking, and impulsivity

To examine differences in EMSs (disconnection and rejection, impaired autonomy and performance, impaired limits, other-directedness, overvigilance, and inhibition), sensation seeking, and impulsivity, we conducted a MANOVA with group (sex offenders inmates, SA members, and violence offenders inmates) as the independent variable, followed by a discriminant analysis to examine relative

Table 2. Means, standard deviations (SDs), univariate statistics, and canonical effect sizes for examining differences in compulsive sexual behavior between study groups

	Sex offenders		SA		Violence offenders		$F_{(2, 250)}$	$\beta$
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>		
Unwanted consequences	2.19 <sup>a</sup>	1.20	5.18 <sup>b</sup>	1.34	1.63 <sup>c</sup>	0.98	195.11***	0.89
Negative affect	3.06 <sup>a</sup>	2.00	5.88 <sup>b</sup>	1.27	2.41 <sup>c</sup>	1.60	86.67***	0.59
Lack of control	2.08 <sup>a</sup>	0.99	4.75 <sup>b</sup>	1.66	1.80 <sup>a</sup>	0.98	135.79***	0.74
Affect dysregulation	2.03 <sup>a</sup>	1.17	4.99 <sup>b</sup>	1.59	1.53 <sup>c</sup>	0.68	185.41***	0.86

Note. Means with different superscript letters are significantly different at  $p < .05$  (e.g., means with the superscript letter "a" are different at  $p < .05$  from those with the superscript letter "b"). SA: Sexaholic Anonymous members.

\*\*\* $p < .001$ .

strength of differences between groups. Means, standard deviations, univariate statistics, and canonical effect sizes are presented in Table 3. Significance of post-hoc analyses was adjusted by Sidak correction.

The analysis indicated that SA members had significantly and meaningfully higher scores on EMSs (disconnection and rejection, impaired autonomy and performance, impaired limits, other-directedness, overvigilance, and inhibition) than sex and violence offenders as well as higher scores of sensation seeking and impulsivity. Sex offenders were only significantly higher on impulsivity than violence offenders. Other differences were not significant. To examine the stability of results, we followed the analyses with a MANCOVA in which we also controlled for the contribution of age, number of children, years of education, and family status. Similar results were obtained.

*Do EMSs, sensation seeking, and impulsivity relate to CSB?*

To revisit the assumption that EMSs, sensation seeking, and impulsivity relate to CSB, and to examine whether the associations between these constructs differ between study groups (sex offenders inmates, SA members, and violence offenders inmates), we estimated a multigroup structural equation model using MPlus (Muthén & Muthén, 1998–2010). Because of high correlations between the EMSs ( $r_s > .75$ ) and between sensation seeking and impulsivity ( $r = .53$ ), we used three latent factors: one on which the four CSB constructs were loaded, one on which the five EMSs were loaded, and one on which sensation seeking and impulsivity were loaded. Next, we estimated two models. In the first one, the paths between EMSs, sensation seeking, and impulsivity and CSB were freely estimated for each group, and the second one in which similar paths of each group were constrained to be equal. A significant  $\chi^2$  test for the difference in fit of these two models would indicate different processes for each study group. These models would allow us to confirm the hypothesized association between maladaptive sexual-related schemas and CSBD, which was not examined to date among non-offenders, and to examine whether or not sensation seeking and impulsivity relate to greater CSBD.

The freely estimated model had adequate fit, comparative fit index = 0.95, Tucker–Lewis index = 0.94, root mean square error of approximation = 0.05 (Figure 1). The model revealed that regarding each study group, the more maladaptive the early schemas, the higher the CSB ( $\beta = 0.43$  for sex offenders,  $\beta = 0.49$  for SAs, and  $\beta = 0.45$  for violence offenders, all  $ps < .001$ ). No significant difference was found between groups,  $\Delta\chi^2_{(2)} = 0.5, p = .78$ . Conversely, the factor of sensation seeking and impulsivity was not associated with CSB in any of the groups ( $\beta = 0.01$  for sex offenders,  $\beta = 0.11$  for SAs, and  $\beta = -0.23$  for violence offenders, all  $ps > .42$ ). Overall, the model explained 18.5% of the variance of CSB among sex offenders, 30.6% among SAs, and 20.0% among violence offenders.

DISCUSSION

In this study, we aimed to investigate in depth the differences between sex offenders and SAs in CSBD and processes that might be at the core of CSBD – maladaptive schemas, impulsivity, and sensation seeking. The results indicate a number of findings with direct clinical implications for the assessment and treatment of sexual offenders. First, CSB among sex offenders, although clearly present, would appear to affect only a small, albeit significant, minority of participants. Such a result is similar to that of earlier studies (Briken, 2012; Hanson et al., 2007; Kingston & Bradford, 2013); although in the current sample, the prevalence would appear to be even lower than previously estimated. In addition, the rates of CSBD among sex offenders were similar to that of violence offenders indicating that sex offenders do not endorse higher rates of CSBD than controls. While this is the case, the use of the I-CSB inventory enabled a deeper understanding of the various components of CSB among SAs, sex offenders, and violence offenders. Specifically, the sex offender group showed more difficulties in dealing with the unwanted consequences of their behavior, negative affect, and affect dysregulation than violence offenders (although all of these levels are subclinical). It should be noted that the sex offender group was selected from three different treatment units and so perhaps guilt and shame around

Table 3. Means, standard deviations (SDs), univariate statistics, and canonical effect sizes for examining differences in early maladaptive schemas, sensation seeking, and impulsivity between study groups

	Sex offenders		SA		Violence offenders		$F_{(2, 250)}$	$\beta$
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>		
Disconnection and rejection	2.44 <sup>a</sup>	1.01	3.59 <sup>b</sup>	1.22	2.04 <sup>a</sup>	0.78	36.09***	0.57
Impaired autonomy and performance	1.97 <sup>a</sup>	0.87	2.98 <sup>b</sup>	1.18	1.81 <sup>a</sup>	0.69	27.35***	0.49
Impaired limits	2.61 <sup>a</sup>	0.87	4.14 <sup>b</sup>	1.02	2.47 <sup>a</sup>	0.95	56.76***	0.71
Other-directedness	2.84 <sup>a</sup>	0.87	3.91 <sup>b</sup>	0.93	2.61 <sup>a</sup>	0.95	33.40***	0.55
Overvigilance and inhibition	2.94 <sup>a</sup>	0.86	3.78 <sup>b</sup>	1.02	2.84 <sup>a</sup>	1.02	16.82***	0.39
Sensation seeking	4.74 <sup>a</sup>	3.42	6.07 <sup>b</sup>	3.72	4.18 <sup>a</sup>	2.93	4.76*	0.20
Impulsivity	1.80 <sup>a</sup>	1.82	3.82 <sup>b</sup>	2.11	1.07 <sup>c</sup>	1.18	38.17***	0.58

Note. Means with different superscript letters are significantly different at  $p < .05$  [e.g., means with the superscript letter “a” are different at  $p < .05$  from those with the superscript letter(s) “b” and/or “c”]. SA: Sexaholic Anonymous members.  
\* $p < .05$ . \*\*\* $p < .001$ .

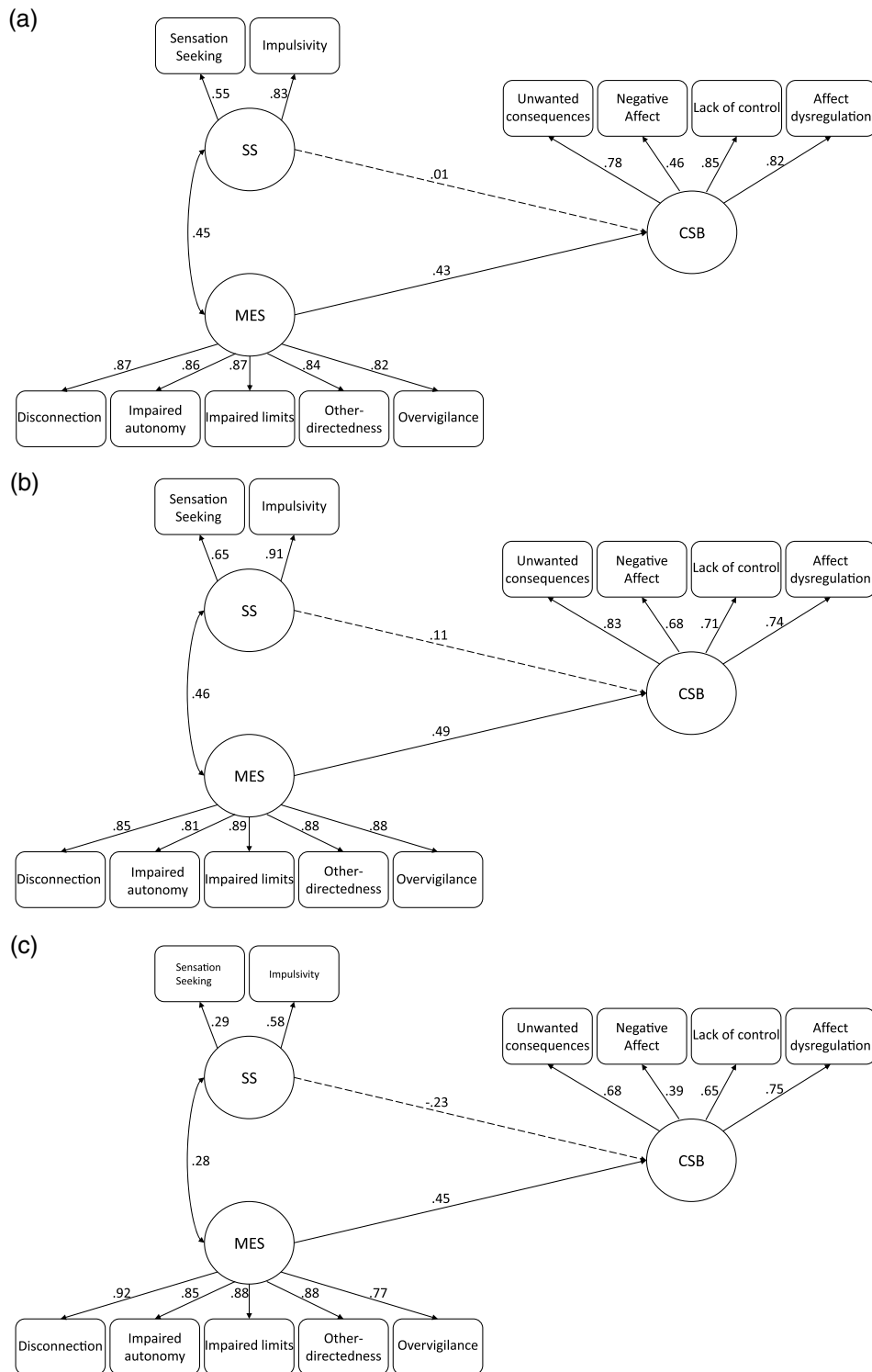


Figure 1. The links between early maladaptive schemas (EMSs), sensation seeking, and impulsivity and compulsive sexual behavior (CSB) among sex offenders (Panel a), SAs (Panel b), and aggressive offenders (Panel c). Results indicate that regardless of group, the more maladaptive the early schemas, the higher the compulsive sexual behavior

sexual behaviors may be expected. However, one of the leading sex offender typologies (the self-regulation model of Ward, Hudson, & Keenan, 1998) places negative affect, affect dysregulation, and post-offense shame at the center of the sexual offense process for two out of the four different pathways, and the current findings would support the continued use of such a model in explaining and working with sex offenders.

With that being said, the prevalence of CSBD among sex offenders is less pronounced than that of SAs. One possible reason for these differences is the significantly higher rates of the processes underlying CSBD – maladaptive schemas, impulsivity and sensation seeking – among SAs than sex offenders. Supporting this argument is the clear relationship between EMSs and CSB for all three groups. Such a relationship has been established for non-clinical groups

(e.g., Roemmele & Messman-Moore, 2011 found a clear relationship between EMSs among college women and risky sexual behaviors), as well as for females struggling with sexual addiction (McKeague, 2014). Therefore, because maladaptive schemas are significantly linked with CSBD, and because they are significantly more pronounced among SAs, the differences between the groups in the rates of CSBD are not surprising. Of note, the lack of significant differences in the rates of clinical CSBD among sex and violence offenders may be attributed to the same cause – lack of differences in early maladaptive sexual-related schemas between the groups – supporting the generalist position of criminological literature (Gottfredson & Hirschi, 1990; Lussier et al., 2007) and opposing the “specialists” position, at least regarding the distorted cognitions of sex and non-sex offenders (Harris et al., 2009; Simon, 1997).

Regarding treatment, it may be the case that the use of schema therapy could be an important adjunct for treatment of both people with CSBs and sex offenders. Research indicates that targeting specific known risk factors using cognitive-behavioral methods is most effective in reducing recidivism among sexual offenders (e.g., Yates, 2013). An explicit skills-based approach is recommended in order to enable participants under treatment to change cognition, affect, and behavior such that these become entrenched of their behavioral repertoire. Although the literature has indicated the importance of targeting schemas in sex offender treatment (Beech et al., 2013; Maruna & Mann, 2006; Yates, 2013), the current research adds to the existing knowledge by suggesting a direct link between early beliefs and aspects of CSBs. Theories of sexually abusive behavior often indicate the tendency of abusers to “objectify” their victims (e.g., Knight & Prentky’s, 1990 taxonomy of child sex offenders) or the commonality of intimacy deficits among them (Hanson & Morton-Bourgon, 2005). The current research would suggest that treating dysfunctional EMSs, particularly those that impact the ability to enjoy intimate relationships, may be an important part of treatment.

For instance, a widely used model of sexually offensive behavior with clear therapeutic applicability, the Good Lives model (Ward & Gannon, 2006; Willis, Yates, Gannon, & Ward, 2013), could contextualize such a relationship. The model suggests that sex offending can be explained when there is a distortion in the seeking of primary goods, the goods which all humanity essentially seek. These goods include relatedness, happiness, community, excellence, agency, and life (including healthy living, physical functioning and sexual satisfaction). Distortions of the model can include both the means used to attain such primary goods, as well as focusing on attaining a very limited scope of primary goods. An example of a distorted scope of primary goods would be the preference to obtain happiness or sexual satisfaction, without any interest in obtaining the goods of relatedness or agency (which may explain the tendency to sexually objectify victims). The Good Lives model does not necessarily explain the etiology of such distortions, but the current research would add to our understanding of the development and maintenance of such distorted primary goods. In particular, the schemas of rejection and disconnection would preclude the ability to form warm, close, and trusting adult relationships, increasing the likelihood of developing a sole focus on sexual satisfaction,

without interest in wider aspects of relatedness. Focusing on this specific schema domain may provide an effective therapeutic intervention for increasing the scope of primary goods and improving the skills to adaptively achieve them.

Although our main assumptions were supported, the study has several limitations that need to be acknowledged. The study is correlational, which precludes the ability to draw causal conclusions on the differences between SAs, sex, and violence offenders, and on the links between maladaptive schemas, impulsivity and sensation seeking, and CSB. In addition, the research population was homogeneous and of a distinct culture – Israelis. Future studies should examine diverse ethnic and cultural populations to ascertain the replicability and generalizability of the findings.

Despite the limitations of this study, we view this research as important for understanding sexual offense and its distinction from people with clinical CSB. The study also opens new venues for therapeutic interventions for both SAs and sex offenders.

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