

# Understanding and predicting profiles of compulsive sexual behavior among adolescents

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*Background and aims:* This two-study research was designed to define and predict profiles of compulsive sexual behavior (CSB) among non-clinical population of adolescents, and aimed to fill gaps in the current research. *Methods:* In Study 1 ( $N = 1,182$ ), we examined the profiles of CSB among adolescents using latent profile analysis. Results revealed the following three clusters: abstainers, sexual fantasizers, and individuals with CSB. In Study 2 ( $N = 618$ ), we replicated this classification and examined differences between the clusters in Big Five personality traits, locus of control, attachment orientations, loneliness, age, gender, socioeconomic status (SES), residence quality, use of pornography, and sex-related online activities. *Results:* Adolescents classified into different clusters significantly differed in personality traits, loneliness, age, SES, use of pornography, and sex-related online activities. Specifically, individuals with CSB had external locus of control, anxious attachment, greater loneliness, higher frequency of pornography use, and more sex-related online activities than the other groups. *Discussion:* The current research expands the knowledge about CSB by providing a more individualized approach to understanding CSB among adolescence.

**Keywords:** compulsive sexual behavior, adolescents, personality traits, loneliness

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## INTRODUCTION

Having taken the first steps on their own, there are junctions at which adolescents need a helping hand. Have I gone too far? Is what I am doing dangerous? Deviant? Often feeling lost, a growing number of adolescents seek guidance regarding sex and sexuality. Wondering whether their sex-related thoughts, emotions, and behaviors are normal, they turn to clinicians and online forums. In this new, uncharted territory, which is both exciting and scary, they want to know whether they are on a path to healthy development or to disaster.

Gaining their information from peers and the media, adolescents seek answers. With regard to the suggestion of the World Health Organization (WHO), the 11th edition of the International Classification of Diseases (ICD-11) has included compulsive sexual behavior (CSB) as a disorder (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). Professionals, however, are still grappling with the definition of excess sexual behavior during

adolescence and specifically with CSBD. In addition, research has yet to explore whether there are different profiles of CSB-related behavior among adolescents and what distinguished one profile from another. We designed the present two-study research to address this gap in knowledge.

Clinical observations of individuals revealed two subtypes of CSB: solitary CSB and interpersonal CSB. Solitary CSB refers to behaviors such as spending a great deal of time watching pornography and masturbating (often accompanied by obsessive sexual thoughts). Interpersonal CSB includes behaviors such as sexual conquests and a hot pursuit of partners. Solitary CSB is more prevalent in some populations than interpersonal CSB. For example, cultural constraints lead religious and conservative people to adopt more individual-based behaviors, such as watching pornography (MacInnis & Hodson, 2015; Lewczuk, Szmyd, Skorko, & Gola, 2017), than interpersonal ones. Adolescents, more often than adults, engage in solitary sexual behaviors (such as Internet pornography viewing and masturbation) than in intimate interpersonal sexual activities (Delmonico & Griffin, 2010).

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Adolescence, as “the second individuation process” (Blos, 1979), is a period of changes and as such, fraught with the need to adapt. This need for adaptation goes hand in hand with mental vulnerability, as young people become less dependent on their family and search for new, external objects of significance. Simultaneously, both hormonal development and peer group pressure dictate a great deal of preoccupation with sexuality (O’Sullivan & Thompson, 2014), risk taking (Arnett, 1992), and engaging in risky behaviors. Such behaviors may sometime lead to the development of CSB (De Crisce, 2013).

Despite growing research on CSB, there are many gaps in the current knowledge. First, it is not yet clear whether CSB is a monolithic (i.e., there is one profile of CSB) or multifaceted (i.e., there are several profiles of CSB) phenomenon (Gola, Miyakoshi, & Sescousse, 2015; Gola & Potenza, 2016), and second, whether we can define certain CSB subtypes. There is a need to better understand these two aspects. Most of the current literature (Efrati & Mikulincer, 2018; Gola et al., 2017; Kaplan & Krueger, 2010; Kor, Fogel, Reid, & Potenza, 2013; Kraus, Voon, & Potenza, 2016; Kühn & Gallinat, 2016; Love, Laier, Brand, Hatch, & Hajela, 2015; Reid, 2010; Reid, Garos, & Carpenter, 2011) simply use a measure of reported frequency and outcome of CSB, without investigating deeper into the possibility that different subtypes of CSB are at play. Such investigations may lead to the detection of different CSB profiles, offering a more detailed description of people with CSB, while also describing their characteristics.

The purpose of the present research is to start filling two gaps in the current literature by providing data on CSB symptoms among adolescents and by proposing profiles of CSB in this age group. In addition, to better describe the characteristics of these profile, we considered several factors that research has highlighted as important in deciphering CSB-related behavior: Big Five personality traits (extraversion, agreeableness, conscientiousness, neuroticism, and openness to experience), locus of control (internal, powerful others, and chance), attachment styles (anxious and avoidant), use of pornography, sex-related online activities, loneliness, age, socioeconomic status (SES), religiosity, and gender.

Specifically, personality characteristics and attachment styles may be an important component in understanding different profiles of adolescent CSB. Personality may be classified according to the Five Factor Model (McCrae & Costa, 1994), in which each person is scored on extraversion, agreeableness, conscientiousness, neuroticism, and openness to experience. Recently, research has found that adults with CSB scored higher on neuroticism and lower on agreeableness and conscientiousness than adults without CSB (Zilberman, Yadid, Efrati, Neumark, & Rassovsky, 2018). We hypothesize that profiles of adolescence CSB will be related to personality traits and specifically to neuroticism, agreeableness, and conscientiousness.

Another factor that may affect different profiles of adolescent CSB is attachment styles (Bowlby, 1973, 1980, 1982). Attachment styles are shaped during infancy via intimate interactions with caregivers, especially in times of threat and challenge (see Mikulincer & Shaver, 2007 for a

detailed account). When caregivers lend support and care, and the needs for comfort and security are consistently satisfied, the infant develops a secure bond toward the attachment figure (i.e., attachment security), which is characterized by a positive view of the self as lovable and of others as dependable. Secure people are more social and tend to develop healthy ties with family members, friends, and romantic partners. At times, however, parental support is insufficient and as a result, insecure attachment styles are developed. These styles are classified along two dimensions, referred to as attachment anxiety and avoidance (Brennan, Clark, & Shaver, 1998; Collins & Allard, 2004). If infants’ needs are not sufficiently met by caregivers and the availability of support and care is uncertain, fear of abandonment is developed alongside with an anxiety of being rejected. Individuals with this style are called anxiously attached and are characterized by a heightened desire for love and affection that is hindered by a high fear of rejection (Smith, Murphy, & Coats, 1999). These people have an unfulfilled hunger for affection regardless of the amount of affection they actually receive (Birbaum, Reis, Mikulincer, Gillath, & Orpaz, 2006). If the experience of neglect is repeated consistently enough, infants will view others as untrustworthy and undependable. Such people will develop an attachment style called attachment avoidance. They will tend not to trust the goodwill of others and will prefer to emotionally distance themselves from intimate relationships (Smith et al., 1999). According to our hypothesis, adolescents displaying insecure attachment styles (anxious and avoidant) may have higher symptoms of CSB than those with secure attachments. CSB may serve as compensation for inadequate and unsatisfactory social ties, in which needs for warmth, care, and affection are not met, as supported by previous research (Gilliland, Blue Star, Hansen, & Carpenter, 2015; Zapf, Greiner, & Carroll, 2008), which revealed a correlation between anxious and avoidant attachment styles and CSB symptoms among adults. In addition, in a recent study on adolescents, Efrati and Amichai-Hamburger (2018) have shown that pornography use (PU), which relates to CSB, serves as a compensation for insecure attachment.

Sex-related behavior might also be connected to the amount of control one perceives to have over his or her life (the so-called “locus of control;” Rotter, 1966) and to the person’s sense of loneliness. Previous studies have indicated that external locus of control is linked to risky sexual behavior among the adolescents (Pharr et al., 2015), and that loneliness relates to higher levels of CSB among adults (Bóthe, Tóth-Király, et al., 2018; Dhuffar, Pontes, & Griffiths, 2015; Yoder, Virden, & Amin, 2005). For example, Yoder et al. (2005) have shown that the greater the number of minutes per day spent on Internet pornography, and the greater the number of days per week spent on Internet pornography, the greater the sense of loneliness. Bóthe, Tóth-Király, et al. (2018) have also shown that low-risk and at-risk pornography users are lonelier than non-problematic pornography users. Of note, PU among adolescents was found to serve as a compensation for loneliness. According to our hypothesis, adolescents experiencing high levels of loneliness and external locus of control may present higher levels of CSB than

adolescents experiencing low levels of loneliness and have internal locus of control.

Finally, when examining the characteristics of different CSB profiles among adolescents, we also considered several sociodemographic factors that were found as important for understanding CSB among adults and/or adolescents. For example, as young people age, they seek more fulfilling sexual relationships (Herbenick et al., 2010). Sexuality might start with curiosity and move eventually to wishing sexual activities (Ševčíková, Blinka, & Daneback, 2018). Amichai-Hamburger and Efrati (under review) have shown that adolescents who are sexually active offline and/or online tend to be older (14–17 years) in comparison to those who are not sexually active at all (offline or online). In their study, they also found that adolescents who reported being sexually active online and offline had higher SES than those who were not active. Finally, higher CSB rates among adolescents were found among religious individuals (as compared with secular ones; e.g., Efrati, 2018a) and among boys (Efrati, 2018b). Accordingly, we examined the contribution of age, SES, religiosity, and gender when exploring the different CSB profiles.

To achieve the goals of the present research, we conducted two studies. In Study 1, 1,182 Israeli adolescents completed a measure of CSB and reported on their age and gender. Next, we conducted a latent profile analysis (LPA) to discover different CSB profiles. In Study 2, we wished to replicate the finding of Study 1 and to discover the different characteristics of each CSB profile.

## STUDY 1

Study 1 was designed to discover different CSB profiles among adolescents.

## METHODS

### Participants

A total of 1,182 Israeli school students, consisting of 500 boys (42.30%) and 682 girls (57.70%) who aged 14–18 years ( $M = 16.68$ ,  $SD = 1.54$ ), volunteered to participate in the study. Participants were sampled from six schools around various parts of Israel (south, center, and north districts).

### Procedure

We distributed the questionnaires using convenient sampling, attempting to maintain equal number of boys and girls. Before entering schools, we arranged personal meetings with school principals and coordinators of Grades 9–12 who were interested in having their students participate in the study. Following these meetings, we sent letters to parents informing them of the study, and an additional letter allowing them to object to their child's participation. The students completed the questionnaires in Hebrew after receiving an in-class explanation and assurance of complete anonymity. To verify that the questions were clear and

comprehensible, we read an item from the questionnaire out loud and assured students that we would be available to provide assistance as needed. Following the completion of the questionnaire, students were debriefed and thanked.

### Measures

*Individual-based Compulsive Sexual Behavior (I-CSB; Efrati & Mikulincer, 2018)*. Compulsive sexual behavior 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, ranging from 1 (*not at all*) to 7 (*very much*), participants were asked to rate the degree to which each statement is descriptive of their feelings. The questionnaire was successfully used in previous research on sexuality during adolescence (Efrati, 2018a, 2018b, 2018c) and in research on non-clinical populations and on clinical populations of Sexaholics Anonymous Twelve-Step program patients (Efrati & Gola, 2018; Efrati & Mikulincer, 2018). Cronbach's  $\alpha$  values were .86 for unwanted consequences, .86 for lack of control, .88 for negative affect, and .87 for affect regulation. We also computed a total CSB score by averaging the 24 I-CSB items (Cronbach's  $\alpha = .93$ ).

### Statistical analysis

LPA was used to examine the subtypes of hypersexual behavior among adolescents. The LPA included the four factors of the I-CSB questionnaire, and tested one- to four-cluster unconditional models. The best-fitting model was selected based on the lowest information criteria [Bayesian information criterion (BIC) and sample-sized adjusted BIC], a high entropy (range: 0–1), and statistically significant  $p$  values for both the Lo–Mendell–Rubin Test and Bootstrap Likelihood Ratio Test. LPAs were estimated using MPLUS 6.1. Model indices are presented in Table 1.

### Ethics

The study was approved by the Ethical Committee of the Chief Scientist of the Ministry of Education and by IDC Herzliya. Informed consent forms and parental consent were signed before the onset of the study.

## RESULTS

As observed in Table 1, the three-cluster solution was selected as the one best describing the three profiles of CSB behavior among adolescents (Figure 1). Specifically, the analysis revealed that 88% of the samples were non-CSB

Table 1. Fit indices for one- to four-cluster LPAs for CSB

	Fit indices	1 cluster	2 clusters	3 clusters	4 clusters
Study 1	BIC	16,483.11	14,890.69	14,385.15	7,558.86
	SABIC	16,457.70	14,849.39	14,327.97	7,485.85
	Entropy		0.86	0.87	0.86
	LMR <i>p</i> value		<.0001	.0013	.14
	BLRT <i>p</i> value		<.0001	<.0001	<.01
Study 2	BIC	9,555.68	8,611.16	8,307.31	8,181.97
	SABIC	9,530.28	8,569.89	8,250.16	8,108.95
	Entropy		0.90	0.85	0.85
	LMR <i>p</i> value		<.0001	.0035	.13
	BLRT <i>p</i> value		<.0001	.0041	.02

Note. BIC: Bayesian information criterion; SABIC: sample size-adjusted Bayesian information criterion; LMR: Lo–Mendell–Rubin Test; BLRT: Bootstrapped Likelihood Ratio Test; CSB: compulsive sexual behavior; LPA: latent profile analysis.

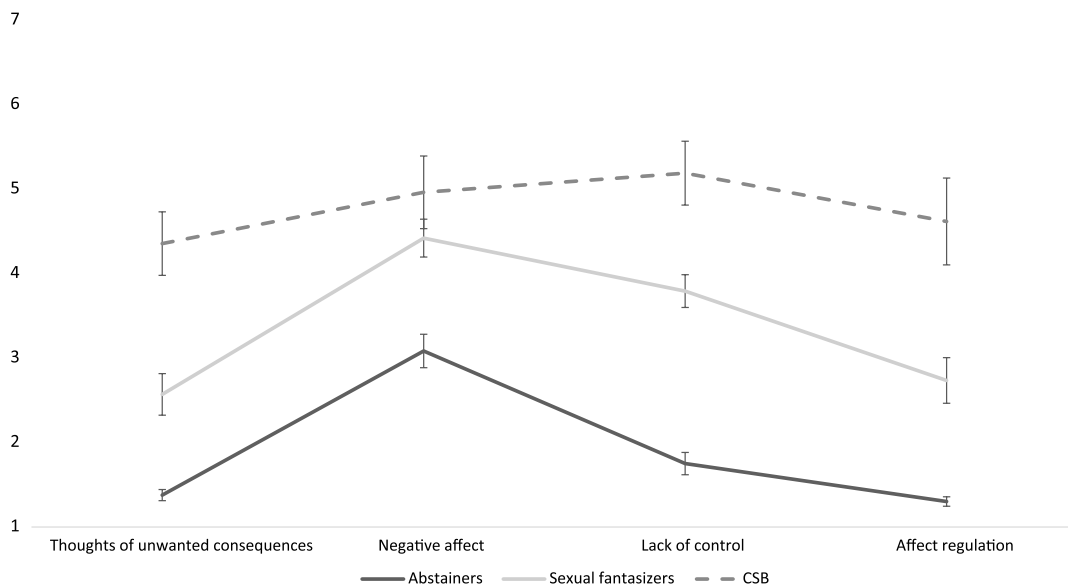


Figure 1. Classes of compulsive sexual behavior (CSB) (Study 1)

with two subclasses: 53.8% of the sample were classified as *abstainers* ( $n = 636$ ), showing low scores in all subscales of the I-CSB questionnaire, and 34.2% ( $n = 394$ ) of the sample as *sexual fantasizers* presenting high scores in lack of control relating to sexual fantasies and sex-related negative affect, and low scores in thoughts on unwanted consequences and affect regulation. The third group was classified as *CSBs* comprising 12.0% of the sample ( $n = 142$ ) and showed high scores in all four CSB factors.

Study 1 revealed three distinct profiles of CSB among adolescents. We designed Study 2 to replicate these findings and provide in-depth analysis of the different characteristics of these profiles.

## STUDY 2

Study 2 was designed to replicate the finding of Study 1 and provide in-depth analysis of the different characteristics of the CSB-related profiles found in Study 1. To do so, Israeli adolescents completed measures of I-CSB, PU, offline sexual experience, sex-related online activities, Big Five

personality traits, loneliness, locus of control, attachment styles, and sociodemographic measures.

## METHODS

### Participants

Participants were 618 Israeli adolescents (341 boys and 277 girls), aged 14–18 years ( $M = 16.69$ ,  $SD = 1.16$ ), volunteered to participate in the study. Their self-reported SES varied: 6% reported their status as being lower than average, 60.8% average, and 32.7% above average. The sample comprised 53.9% self-defined religious individuals and 46.1% secular ones. Participants were sampled from six schools around various parts of Israel (south, center, and north districts).

### Procedure

Questionnaires were uploaded to Qualtrics – an online platform for questionnaires – and forwarded by research



assistants to parents of adolescents aged 14–18 years. The parents, who were acquaintances of the research assistants, were asked to review the questionnaire prior to sending it out to the adolescents. Next, parents signed an informed parental consent form. Upon agreement, a link for the online survey was sent to the adolescents. After they had signed an informed consent form, they received the questionnaires. The order of questionnaires varied among participants (a feature of Qualtrics), and pertained to I-CSB, PU, offline sexual experience, sex-related online activities, Big Five personality traits, loneliness, locus of control, attachment styles, and sociodemographic measures. Finally, online debriefing was given.

### Measures

*Frequency of PU.* Participants were asked about watching online pornography (1 – *never*, 2 – *once or twice a month*, 3 – *once or twice a week*, and 4 – *once or twice a day*); those with scores of 2 and higher were asked to provide the average number of minutes per week spent on PU during the past month.

*Offline sexual behaviors.* Offline sexual behaviors (adapted from Ševčíková, Vazsonyi, Širůček, & Konečný, 2013) were measured by four dichotomous items (0 – no, 1 – yes) asking adolescents whether, in the past month, they had: (a) kissed, (b) petted or caressed someone's intimate body parts, (c) had oral sex, or (d) had intercourse. After computing scores for all the items, adolescents who had engaged in any of these behaviors were coded 1, whereas those who had not were coded 0. The measure was translated to Hebrew by Efrati and Amichai-Hamburger (2018).

*Sex-related online activities (SROA; Ševčíková et al., 2013).* Respondents were asked whether they had ever engaged in any of the following nine behaviors (yes/no): talked about sex to somebody known to them, talked about Internet-related sex to somebody unknown to them, discussed their own sexual experiences with somebody known to them, discussed their own sexual experience with somebody unknown to them, discussed somebody's sexual experiences with somebody known to them, discussed somebody's sexual experience with somebody unknown to them, received erotic photos from somebody, sent their own erotic photos to somebody, and had cybersex. For each participant, the number of sex-related online activities was counted (i.e., number of "yes" answers), such that the scores ranged from 0 (i.e., no sex-related online activities) to 9. The Kolmogorov–Smirnov test for assessing normality indicated that the measure was significantly skewed (skewness = 1.66 and kurtosis = 2.07). In other words, the sex-related online activities score is a count-type measure with a non-normal distribution, with a higher score indicating more online sexual experiences. To account for skewness, we used a specifically tailored analysis (see "Results" section). The measure was translated to Hebrew by Efrati and Amichai-Hamburger (2018).

*The Big Five Inventory Questionnaire (BFI; John, Donahue, & Kentle, 1991).* To assess the Big Five personality trait, we used the Hebrew version (Etzion & Laski, 1998) of the BFI (also see John & Srivastava, 1999). The 44 items in the questionnaire describe five personality constructs:

extraversion (8 items; e.g., "Like to talk a lot"), agreeableness (9 items; e.g., "Helpful and not selfish in relation to others"), openness to experiences (10 items; e.g., "Original, invents new ideas"), conscientiousness (9 items; e.g., "Does a thorough job"), and neuroticism (8 items; e.g., "Can be stressed out"). Participants are asked to rate the degree to which each statement describes them on a 5-point scale (ranging from 1 – *strongly disagree* to 5 – *strongly agree*), with Cronbach's  $\alpha$  .75–.90.

*Loneliness.* Participants completed the Hebrew version of the Revised UCLA Loneliness Scale (Russell, Peplau, & Cutrona, 1980; translated by Hochdorf, 1989). The 19 items in this self-rated instrument measure one's feelings of loneliness and social isolation. Participants are asked to indicate how often they experience feelings relating to such statements as "There is no one I can turn to" and "I feel isolated from others." Higher scores indicate greater subjective feelings of loneliness. The measure has high internal consistency (.89).

*Feelings of control.* Participants completed the Hebrew version (Amram, 1996) of Levenson's (1981) 24-item scale that measures feelings of control on a 6-point Likert scale (ranging from 1 – *strongly disagree* to 6 – *strongly agree*). Levenson's measure assesses three types of control: chance, powerful others, and internal. The first two types of control comprise an external locus of control. Agreement with statements such as "To a great extent my life is controlled by accidental happenings" and "When I get what I want, it's usually because I am lucky" indicates a *chance locus of control*. Agreement with statements such as, "My life is chiefly controlled by powerful others" and "Getting what I want requires pleasing those people above me" indicates a *powerful others locus of control*. Finally, agreement with statements such as, "I can pretty much determine what will happen in my life" and "When I get what I want, it's usually because I worked hard for it" indicates an *internal locus of control*. Each subscale contained eight statements. We formed separate subscales for internal control ( $\alpha = .73$ ), chance control ( $\alpha = .77$ ), and powerful others control ( $\alpha = .84$ ).

*Attachment styles.* To assess attachment style, the Hebrew version of the Experiences in Close Relationships Scale (ECR; Brennan et al., 1998; translated by Mikulincer & Florian, 2000) was used. The ECR is a 36-item scale that measures and assesses the two major dimensions of adult attachment styles – anxious attachment (e.g., "I worry a lot about my relationships") and avoidant attachment (e.g., "I don't feel comfortable opening up to other people"). Participants rated the degree to which each item described them on a 7-point scale (ranging from 1 – *not at all* to 7 – *very much*). In the current sample, Cronbach's  $\alpha$  values were high for the 18 anxiety items (.91) and the 18 avoidance items (.83). Therefore, we computed two scores by averaging the items on each subscale.

### Statistical analysis

To replicate the finding of Study 1 and so the existence of a three-cluster profile of hypersexual behavior among adolescents, LPA was employed. Following the LPA, the individual CSB profile (similar to that derived in Study 1:

abstainers, sexual fantasizers, and CSB) was saved and used in subsequent analyses. To examine differences between CSB profiles in quantitative measures (Big Five personality constructs, locus of control, attachment orientations, loneliness, age, family SES, residence quality, use of pornography, and sex-related online activities), we conducted a series of one-way analyses of variance (ANOVAs). The level of significance was adjusted by familywise Bonferroni correction to account for multiple comparisons. Sidak post-hoc analyses were employed when significant tests were revealed. To examine differences between hypersexual profiles in qualitative measures (religious status, gender, and offline sexual behavior), Fisher's exact  $\chi^2$  tests for independence of measures were employed.

Ethics

The study was approved by the institutional review board of IDC Herzliya. Informed consent forms and parental consent were signed before the onset of the study.

RESULTS

The LPA replicated the results of Study 1 and revealed similar CSB profiles. As observed in Figure 2, the analysis revealed that 86% of the samples were non-CSB with two subclasses: 51.5% of the sample were classified as *abstainers* ( $n = 317$ ), showing low scores in all subscales of the I-CSB questionnaire, and 35.1% ( $n = 217$ ) of the sample as *sexual fantasizers* presenting high scores in lack of control relating to sexual fantasies and sex-related negative affect, and low scores in thoughts on unwanted consequences and affect regulation. The third group was classified as *CSBs* comprising 14.0% of the sample ( $n = 84$ ) and showed high scores in all four CSB factors.

ANOVAs were next conducted to differentiate these groups in the following measures: Big Five personality

constructs, internal locus of control, attachment styles, loneliness, age, family economic status, residence quality, use of pornography, and sex-related online activities. Means, standard deviations, univariate statistics, and effect sizes are presented in Table 2.

The analyses revealed that adolescents with CSB (in comparison with adolescents without CSB) were characterized by external locus of control, anxious attachment style, higher levels of loneliness, higher frequency of PU, and more sex-related online activities, as well as higher family SES and residence quality. Adolescents with CSB were also higher in neuroticism and lower in agreeableness than abstaining adolescents but did not differ from sexual fantasizers in these measures. Finally, sexual fantasizers were more introvert than abstaining adolescents.

Fisher's exact  $\chi^2$  tests for independence of measures were next conducted to differentiate these groups based on religiosity (secular and religious), gender (boys and girls), and offline sexual behavior (had or did not have experience). The analyses revealed that the groups differed in gender [ $\chi^2(2) = 62.93, p < .001$ ] and offline sexual behavior [ $\chi^2(2) = 34.45, p < .001$ ], but not in religious status [ $\chi^2(2) = 1.31, p = .517$ ]. Specifically, adolescents with CSB and/or sexual fantasizers were more likely boys (73.8% and 70.5%, respectively) than abstaining adolescents (39.7%). In addition, more adolescents with CSB had offline sexual experience (72.6%) than sexual fantasizers (59.4%), which in turn is higher than the prevalence of offline sexual experience among abstaining adolescents (41.0%).

GENERAL DISCUSSION

The purpose of this research was to identify discrete clusters of CSB and to identify potential factors related to these clusters. To reach this goal, we conducted two different studies on approximately 1,800 Israeli adolescents. In Study 1, LPA uncovered a three-cluster solution that best

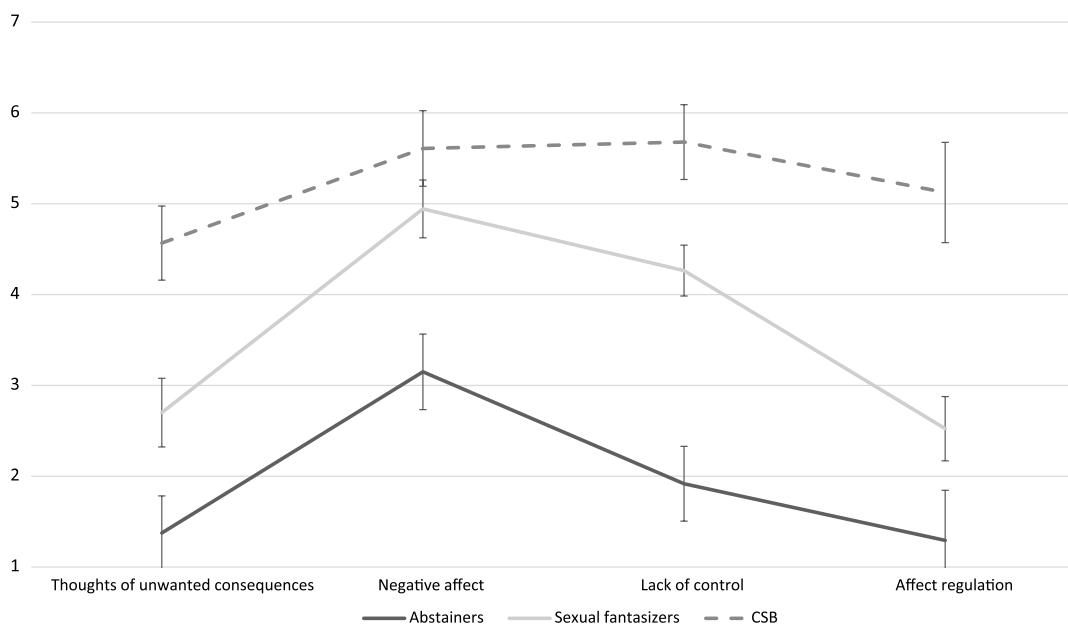


Figure 2. Classes of compulsive sexual behavior (CSB) (Study 2)

Table 2. Means, standard deviations (SDs), univariate statistics, and effect sizes for the differences between CSB profiles in quantitative measures

	Abstainers		Sexual fantasizers		CSB		F(2, 616)	$\eta^2$
	M	SD	M	SD	M	SD		
Extraversion	3.45 <sup>a</sup>	0.69	3.30 <sup>b</sup>	0.71	3.33	0.71	2.81 <sup>#</sup>	0.01
Agreeableness	3.60 <sup>a</sup>	0.58	3.52	0.60	3.37 <sup>b</sup>	0.54	4.85 <sup>**</sup>	0.02
Conscientiousness	3.48 <sup>a</sup>	0.65	3.29 <sup>b</sup>	0.62	3.32	0.65	5.48 <sup>**</sup>	0.02
Neuroticism	2.85 <sup>a</sup>	0.74	2.97	0.72	3.13 <sup>b</sup>	0.62	4.72 <sup>**</sup>	0.02
Openness to experience	3.72	0.83	3.66	0.79	3.74	0.70	0.43	0.00
Internal locus of control	3.62	0.67	3.64	0.61	3.65	0.62	0.08	0.00
Powerful others locus of control	2.13 <sup>a</sup>	0.70	2.48 <sup>b</sup>	0.65	3.19 <sup>c</sup>	0.85	61.83 <sup>***</sup>	0.20
Chance locus of control	2.33 <sup>a</sup>	0.64	2.51 <sup>b</sup>	0.59	2.84 <sup>c</sup>	0.92	17.17 <sup>***</sup>	0.06
Attachment anxiety	3.04 <sup>a</sup>	1.23	3.45 <sup>b</sup>	1.14	4.22 <sup>c</sup>	1.19	33.88 <sup>***</sup>	0.10
Attachment avoidance	3.23 <sup>a</sup>	0.94	3.39 <sup>a</sup>	0.90	3.88 <sup>b</sup>	1.01	16.12 <sup>***</sup>	0.05
Loneliness	31.31 <sup>a</sup>	9.04	34.25 <sup>b</sup>	9.29	42.70 <sup>c</sup>	11.08	48.69 <sup>***</sup>	0.14
Age	16.70	1.19	16.80 <sup>a</sup>	1.14	16.41 <sup>b</sup>	1.16	3.32 <sup>*</sup>	0.01
Family economic status	1.68 <sup>a</sup>	0.53	1.72 <sup>a</sup>	0.56	2.00 <sup>b</sup>	0.71	10.79 <sup>***</sup>	0.03
Residence quality	2.04 <sup>a</sup>	0.48	1.98 <sup>a</sup>	0.50	2.20 <sup>b</sup>	0.64	5.72 <sup>**</sup>	0.02
Use of pornography	1.49 <sup>a</sup>	0.83	2.29 <sup>b</sup>	1.05	2.83 <sup>c</sup>	0.89	92.63 <sup>***</sup>	0.23
Sex-related online activities	1.18 <sup>a</sup>	1.94	1.86 <sup>b</sup>	2.28	3.28 <sup>c</sup>	2.85	30.95 <sup>***</sup>	0.09

Note. Superscript letters represent means that are significantly different at .05. CSB: compulsive sexual behavior.

<sup>#</sup> $p < .10$ . \* $p < .05$ . \*\* $p < .01$ . \*\*\* $p < .001$ .

described the profiles of CSB among adolescents: *abstaining* adolescents (53.8%), *sexual fantasizers* (34.2%), and adolescents with *CSB*, (12.0%). In other words, whereas approximately half of the adolescents engaged in sexual activity (as part of psychological development), approximately one tenth of the sample was defined as presenting a high level of CSB. This ratio is in line with previous research indicating that 11.1% of college students (Giordano & Cecil, 2014) present hypersexual behavior.

In Study 2, we replicated Study 1's classification into three profiles and characterized these profiles by examining differences in personality traits, locus of control, attachment styles, loneliness, age, SES, residence quality, religiosity, and gender. We found that adolescents with high levels of CSB symptoms (classified as the CSB group), in comparison to sexual fantasizers and abstaining adolescents, are characterized by an external locus of control, anxious attachment, greater loneliness, higher frequency of PU, and more sex-related online activities. While some of our findings are in keeping with previous studies such as the links between CSB, loneliness (Dhuffar et al., 2015), and external locus of control (Pharr et al., 2015), the current research also yielded several unique and novel results.

External locus of control relates to the belief that events in one's life are caused by uncontrollable factors. This trait might explain why individuals with CSB are higher in lack of control of their sexual fantasies and impulses and have high negative affect in response to the inability to control sexual-related thoughts and behaviors. Because these individuals believe that people are driven by uncontrolled forces, they may feel inadequate to control their sexual impulses and so are afraid of the consequences of their unwanted thoughts. This perception distinguishes them from sexual fantasizers, who do not worry about the consequences of their sexual thoughts, and from abstaining adolescents who can control their sexual thoughts, and do

not suffer from high negative affect. Research has indeed linked external locus of control to risky sexual behavior (Pharr et al., 2015; St. Lawrence, 1993), such as lower likelihood of wearing a condom.

An anxious attachment style is typical of people who strive for closeness, support, affection, and love, but lack the conviction that they will be able to meet their goal and fear of rejection. Thus, CSB may serve as a substitute for those adolescents who harbor attachment anxiety. From different reasons, people who feel lonely may also seek compensation for lack of warmth, closeness, and sexual intimacy. Research has shown that PU, which relates to CSB, serves as a compensation for insecure attachment (anxiety and avoidance) and loneliness (Efrati & Amichai-Hamburger, 2018). Therefore, it is not surprising that individuals with CSB were more anxious with respect to attachment, lonelier, excessive use of pornography, and online sexual activities than sexual fantasizers and abstaining adolescents.

Finally, individuals with CSB had higher SES than sexual fantasizers and abstaining adolescents. Research has noted that high SES relates to various addictions such as drug and alcohol abuse (Hanson & Chen, 2007) and sexual risk behavior such as high number sex partners (Nesi & Prinstein, 2018). In addition, there are indications that high SES may be a risk factor for several negative health behaviors (Luthar & Becker, 2002; Luthar & D'Avanzo, 1999; Luthar & Latendresse, 2005). This risk may stem from overscheduling of activities, academic achievement pressure, and/or distance from parents because of highly demanding jobs. According to Luther and Latendresse (2005), high SES adolescents engage in negative health behaviors in order to combat the stress, anxiety, and depression they experience. Because CSB includes the use of sexual fantasies and sexual activities to regulate negative emotions (i.e., the negative affect

cluster of CSB), it may be that high SES adolescents use CSB as a search for escapism.

Apart from these differences, we found that individuals with CSB were significantly more neurotic and less agreeable than abstaining adolescents (but not sexual fantasizers). Research on adults has previously linked CSB to high neuroticism and lower agreeableness (Fagan et al., 1991; Pinto, Carvalho, & Nobre, 2013; Reid, Carpenter, Spackman, & Willes, 2008; Reid, Stein, & Carpenter, 2011; Rettenberger, Klein, & Briken, 2016; Walton, Cantor, & Lykins, 2017; Zilberman et al., 2018). Low agreeableness relates to lack of interest to maintain harmonious social relationships (Graziano & Eisenberg, 1997) and has significant negative implications for interpersonal adjustment throughout development (Laursen, Hafen, Rubin, Booth-LaForce, & Rose-Krasnor, 2010; Wang, Hartl, Laursen, & Rubin, 2017). Together with high neuroticism, which relates to intense responses to stress and need of escapism, it may explain the extensive use of porn and other form of online sexual behavior, such as sexting and cybersex, which more often than not include abuse of women.

In addition, the results from this study indicated that sexual fantasizers were more introverted than abstaining adolescents. Introvert behavior, as part of a classification of personality types, was first proposed by Jung (1921). According to Jung, an introvert stance is characteristic of a person whose actions are directed by subjective factors, which may lead to incompatibility between the action and external circumstances. Such behavior is manifested in withdrawal, preferring one's own company to that of others – in contrast to extrovert behavior. It seems that sexual fantasizers could be generated by the attempt of introvert individuals to create social contacts, so that a person's excessive need for sex may actually be a desire and need for a relationship, perhaps even a yearning for intimacy (Morrison, 2008; Stolorow, 1994, 2002).

Gender was also found as an important factor in CSB. Individuals with CSB and sexual fantasizers were more likely boys than abstaining adolescents who were more likely girls. Previous studies have demonstrated that boys are more likely to be sexually active, and that adolescent boys were found to have a higher level of sexual arousal than girls (Cantor et al., 2013; Reid, 2013). In addition, more adolescents with CSB had offline sexual experience than sexual fantasizers, which in turn had more offline sexual experience than abstaining adolescents. This latter finding with regard to the recent research shows that individuals who are sexually active offline are also sexually active online (Ševčíková et al., 2018). Because higher levels of CSB relate to higher use of porn and online sexual activities, it may explain why the groups also differ in offline sexual activities.

Overall, external locus of control, anxious attachment, and loneliness seem to be stronger antecedents of CSB than other factors. Although research has linked neuroticism and agreeableness with CSB in the past, it seems that at least among adolescents, these traits do not differentiate between CSB and non-CSB behaviors (specifically, sexual fantasizers). Knowing the antecedents of CSB among

adolescents could enable the detection of risk groups and assist therapists in offering therapy to those in need and thus to avoid the negative repercussions of CSB in adulthood.

Although our main premises were supported, the research has several limitations. The studies are correlational, which preclude the ability for causal conclusions. For example, it is unclear whether personality traits and insecure attachment are the cause of the CSB behavior. Longitudinal studies might be needed to further explore the bidirectional associations over time between personality traits, insecure attachment, and CSB. In addition, in the current research, we measured PU with a single item that do not cover all frequencies. Future studies would benefit from assessing PU in more depth (e.g., pornography acceptance, use and motivation for PU) and/or assess not only PU but also problematic use of pornography, which might be a more reliable indicator of CSB (Grubbs, Perry, Wilt, & Reid, 2018). Therefore, the current findings regarding pornography need to be considered with caution. Finally, although we covered a large array of factors, other factors might be in play. For example, it may be that sexual orientation is an important factor for explaining CSB even more so than gender (Bóthe, Bartók, et al., 2018). Future research ought to examine additional factors to increase the depth of the current research.

## CONCLUSIONS

Building upon existing scholarly work, this study sheds additional light upon CSB and its characteristics through an analysis that illustrated heterogeneity rather than homogeneity among adolescents who exhibit CSB. This research assists us to further understand CSB by classifying adolescents into three classes that include abstainers, sexual fantasizer, and CSB. Each of these classes has unique characteristics concerning Big Five personality constructs, locus of control, attachment style, loneliness, age, family SES, residence quality, use of pornography, sex-related online activities, gender, religiosity, and age. The current research emphasizes the importance of taking a more detailed look at CSB and promoting a more accurate and holistic approach to understanding CSB during adolescence.

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## REFERENCES

- Amichai-Hamburger, Y., & Efrati, Y. (under review). Who are the adolescents engaging in sexual behavior online, offline, both or neither?
- Amram, Y. (1996). *Therapist characteristics treatment outcome during treatment in therapeutic communities for drug addicts*. (Unpublished PhD Dissertation). The Hebrew University (Hebrew), Jerusalem, Israel.
- Arnett, J. J. (1992). Reckless behavior in adolescence: A developmental perspective. *Developmental Review, 12*(4), 339–373. doi:10.1016/0273-2297(92)90013-R
- Birnbaum, G. E., Reis, H. T., Mikulincer, M., Gillath, O., & Orpaz, A. (2006). When sex is more than just sex: Attachment orientations, sexual experience, and relationship quality. *Journal of Personality and Social Psychology, 91*(5), 929–943. doi:10.1037/0022-3514.91.5.929
- Blos, P. (1979). *The adolescent passage: Developmental issues*. New York, NY: International Universities Press.
- Bóthe, B., Bartók, R., Tóth-Király, I., Reid, R. C., Griffiths, M. D., Demetrovics, Z., & Orosz, G. (2018). Hypersexuality, gender, and sexual orientation: A large-scale psychometric survey study. *Archives of Sexual Behavior*. Advance online publication. 1–12. doi:10.1007/s10508-018-1201-z
- Bóthe, B., Tóth-Király, I., Zsila, Á., Griffiths, M. D., Demetrovics, Z., & Orosz, G. (2018). The development of the Problematic Pornography Consumption Scale (PPCS). *The Journal of Sex Research, 55*(3), 395–406. doi:10.1080/00224499.2017.1291798
- Bowlby, J. (1973). *Attachment and loss: Vol. 2. Separation: Anxiety and anger*. New York, NY: Basic Books.
- Bowlby, J. (1980). *Attachment and loss: Vol. 3. Sadness and depression*. New York, NY: Basic Books.
- Bowlby, J. (1982). *Attachment and loss: Vol. 1. Attachment* (2nd ed.). New York, NY: Basic Books.
- Brennan, K. A., Clark, C. L., & Shaver, P. R. (1998). Self-report measurement of adult romantic attachment: An integrative overview. In J. A. Simpson & W. S. Rholes (Eds.), *Attachment theory and close relationships* (pp. 46–76). New York, NY: Guilford Press.
- Cantor, J. M., Klein, C., Lykins, A., Rullo, J. E., Thaler, L., & Walling, B. R. (2013). A treatment-oriented profile of self-identified hypersexuality referrals. *Archives of Sexual Behavior, 42*(5), 883–893. doi:10.1007/s10508-013-0085-1
- Collins, N. L., & Allard, L. M. (2004). Cognitive representations of attachment: The content and function of working models. In M. B. Brewer, & M. Hewstone (Eds.), *Social cognition* (pp. 75–101, xii, p. 368). Malden, MA: Blackwell Publishing.
- De Crisce, D. (2013). Sexual addiction and hypersexual behaviors in adolescents. In R. Rosner (Ed.), *Clinical handbook of adolescent addiction* (pp. 362–376). Chichester, UK: Wiley.
- Delmonico, D. L., & Griffin, E. J. (2010). Cybersex addiction and compulsivity. In K. S. Young & C. N. de Abreu (Eds.), *Internet addiction: A handbook and guide to evaluation and treatment* (pp. 113–134). New York, NY: Wiley.
- Dhuffar, M., Pontes, H. M., & Griffiths, M. D. (2015). The role of negative mood states and consequences of hypersexual behaviours in predicting hypersexuality among university students. *Journal of Behavioral Addictions, 4*(3), 181–188. doi:10.1556/2006.4.2015.030
- Efrati, Y. (2018a). God, I can't stop thinking about sex! The rebound effect in unsuccessful suppression of sexual thoughts among religious adolescents. *Journal of Sex Research*. Advance online publication. doi:10.1080/00224499.2018.1461796
- Efrati, Y. (2018b). Adolescent compulsive sexual behavior: Is it a unique psychological phenomenon. *Journal of Sex & Marital Therapy*. Advance online publication. doi:10.1080/0092623X.2018.1452088
- Efrati, Y. (2018c). Adolescents with a disposition toward compulsive sexual behavior: The role of shame in willingness to seek help and treatment. *Sexual Addiction & Compulsivity*. Advance online publication. 1–18. doi:10.1080/10720162.2018.1454371
- Efrati, Y., & Amichai-Hamburger, Y. (2018). The use of online pornography as compensation for loneliness and lack of social ties among Israeli adolescents. *Psychological Reports*. Advance online publication. doi:10.1177/0033294118797580
- Efrati, Y., & Gola, M. (2018). Compulsive sexual behavior: A twelve-step therapeutic approach. *Journal of Behavioral Addictions, 7*(2), 445–453. doi:10.1556/2006.7.2018.26
- Efrati, Y., & Mikulincer, M. (2018). Individual-based Compulsive Sexual Behavior Scale: Its development and importance in examining compulsive sexual behavior. *Journal of Sex & Marital Therapy, 44*(3), 249–259. doi:10.1080/0092623X.2017.1405297
- Etzion, D., & Laski, S. (1998). *The 44-item BFF Inventory in Hebrew*. Tel Aviv-Yafo, Israel: Tel Aviv University, Faculty of Management, Institute of Business Research.
- Fagan, P. J., Wise, T. N., Schmidt, C. W., Jr., Ponticas, Y., Marshall, R. D., & Costa, P. T., Jr (1991). A comparison of five-factor personality dimensions in males with sexual dysfunction and males with paraphilia. *Journal of Personality Assessment, 57*(3), 434–448. doi:10.1207/s15327752jpa5703\_4
- Gilliland, R., Blue Star, J., Hansen, B., & Carpenter, B. (2015). Relationship attachment styles in a sample of hypersexual patients. *Journal of Sex and Marital Therapy, 41*(6), 581–592. doi:10.1080/0092623X.2014.958787
- Giordano, A. L., & Cecil, A. L. (2014). Religious coping, spirituality, and hypersexual behavior among college students. *Sexual Addiction & Compulsivity, 21*(3), 225–239. doi:10.1080/10720162.2014.936542
- Gola, M., Miyakoshi, M., & Sescousse, G. (2015). Sex, impulsivity and anxiety: Interplay between ventral striatum and amygdala reactivity in sexual behaviors. *Journal of Neuroscience, 35*, 15227–15229. doi:10.1523/jneurosci.3273-15.2015
- Gola, M., & Potenza, M. N. (2016). Paroxetine treatment of problematic pornography use: A case series. *Journal of Behavioral Addictions, 5*(3), 529–532. doi:10.1556/2006.5.2016.046
- Gola, M., & Potenza, M. N. (2018). Promoting educational, classification, treatment, and policy initiatives: Commentary on: Compulsive sexual behaviour disorder in the ICD-11 (Kraus et al., 2018). *Journal of Behavioral Addictions, 7*(2), 208–210. doi:10.1556/2006.7.2018.51
- Gola, M., Wordecha, M., Sescousse, G., Lew-Starowicz, M., Kossowski, B., Wypych, M., Potenza, M., & Marchewka, A. (2017). Can pornography be addictive? An fMRI study of men seeking treatment for problematic pornography use. *Neuropsychopharmacology, 42*(10), 2021–2031. doi:10.1038/npp.2017.78

- Graziano, W. G., & Eisenberg, N. (1997). Agreeableness: A dimension of personality. In R. Hogan, S. Briggs, & J. Johnson (Eds.), *Handbook of personality psychology* (pp. 795–824). San Diego, CA: Academic Press.
- Grubbs, J. B., Perry, S. L., Wilt, J. A., & Reid, R. C. (2018). Pornography problems due to moral incongruence: An integrative model with a systematic review and meta-analysis. *Archives of Sexual Behavior*. Advance online publication. 1–19. doi:10.1007/s10508-018-1248-x
- Hanson, M. D., & Chen, E. (2007). Socioeconomic status and health behaviors in adolescence: A review of the literature. *Journal of Behavioral Medicine*, 30(3), 263–285. doi:10.1007/s10865-007-9098-3
- Herbenick, D., Reece, M., Schick, V., Sanders, S. A., Dodge, B., & Fortenberry, J. D. (2010). Sexual behavior in the United States: Results from a national probability sample of men and women ages 14–94. *Journal of Sexual Medicine*, 7(Suppl. 5), 255–265. doi:10.1111/j.1743-6109.2010.02012.x
- Hochdorf, Z. (1989). *Prevention of suicidal behavior for high school students* (Thesis). School of Education, University of Haifa, Haifa, Israel.
- John, O. P., Donahue, E., & Kentle, R. (1991). *The Big Five Inventory – Version 4a and 54*. Berkeley, CA: University of California.
- John, O. P., & Srivastava, S. (1999). The Big Five Trait Taxonomy: History, measurement, and theoretical perspectives. In L. Pervin & O. P. John (Eds.), *Handbook of personality: Theory and research* (2nd ed., pp. 102–138). New York, NY: Guilford.
- Jung, C. J. (1921). *Psychologischen Typen* (H.G. Baynes, Trans., 1923). Zurich, Switzerland: Rascher Verlag.
- Kafka, M. P. (2010). Hypersexual disorder: A proposed diagnosis for DSM-V. *Archives of Sexual Behavior*, 39(2), 377–400. doi:10.1007/s10508-009-9574-7
- Kaplan, M. S., & Krueger, R. B. (2010). Diagnosis, assessment, and treatment of hypersexuality: Annual review of sex research. *Journal of Sex Research*, 47(2–3), 181–198. doi:10.1080/00224491003592863
- Kor, A., Fogel, Y. A., Reid, R. C., & Potenza, M. N. (2013). Should hypersexual disorder be classified as an addiction? *Sexual Addiction & Compulsivity*, 20(1–2), 27–47. doi:10.1080/10720162.2013.768132
- Kraus, S. W., Voon, V., & Potenza, M. N. (2016). Should compulsive sexual behavior be considered an addiction? *Addiction*, 111(12), 2097–2106. doi:10.1111/add.13297
- Kühn, S., & Gallinat, J. (2016). Neurobiological basis of hypersexuality. *International Review of Neurobiology*, 129, 67–83. doi:10.1016/bs.im.2016.04.002
- Laursen, B., Hafen, C. A., Rubin, K. H., Booth-LaForce, C., & Rose-Krasnor, L. (2010). The distinctive difficulties of disagreeable youth. *Merrill-Palmer Quarterly*, 56(1), 80–103. doi:10.1353/mpq.0.0040
- Levenson, H. (1981). Differentiating among internality, powerful others, and chance. In H. M. Lefcourt (Ed.), *Research with the locus of control construct: Vol. 1. Assessment methods* (pp. 15–63). New York, NY: Academic Press.
- Lewczuk, K., Szmyd, J., Skorko, M., & Gola, M. (2017). Treatment seeking for problematic pornography use among women. *Journal of Behavioral Addictions*, 56(4), 445–456. doi:10.1556/2006.6.2017.063
- Love, T., Laier, C., Brand, M., Hatch, L., & Hajela, R. (2015). Neuroscience of Internet pornography addiction: A review and update. *Behavioral Sciences*, 5(3), 388–433. doi:10.3390/bs5030388
- Luthar, S. S., & Becker, B. E. (2002). Privileged but pressured? A study of affluent youth. *Child Development*, 73(5), 1593–1610. doi:10.1111/1467-8624.00492
- Luthar, S. S., & D’Avanzo, K. (1999). Contextual factors in substance use: A study of suburban and inner-city adolescents. *Development & Psychopathology*, 11(4), 845–867. doi:10.1017/S0954579499002357
- Luthar, S. S., & Latendresse, S. J. (2005). Children of the affluent: Challenges to well-being. *Psychosomatic Medicine*, 14, 49–53. doi:10.1111/j.0963-7214.2005.00333.x
- MacInnis, C. C., & Hodson, G. (2015). Do American states with more religious or conservative populations search more for sexual content on Google? *Archives of Sexual Behavior*, 44(1), 137–147. doi:10.1007/s10508-014-0361-8
- McCrae, R. R., & Costa, P. T. (1994). The stability of personality: Observation and evaluations. *Current Directions in Psychological Science*, 3(6), 173–175. doi:10.1111/1467-8721.ep10770693
- Mikulincer, M., & Florian, V. (2000). Exploring individual differences in reactions to mortality salience: Does attachment style regulate terror management mechanisms? *Journal of Personality and Social Psychology*, 79(2), 260–273. doi:10.1037/0022-3514.79.2.260
- Mikulincer, M., & Shaver, P. R. (2007). A behavioral systems perspective on the psychodynamics of attachment and sexuality. In D. Diamond, S. J. Blatt, & J. D. Lichtenberg (Eds.), *Attachment and sexuality* (pp. 51–78). New York, NY: Analytic Press.
- Morrison, A. P. (2008). The analyst’s shame. *Contemporary Psychoanalysis*, 44(1), 65–82. doi:10.1080/00107530.2008.10745951
- Nesi, J., & Prinstein, M. J. (2018). In search of likes: Longitudinal associations between adolescents’ digital status seeking and health-risk behaviors. *Journal of Clinical Child & Adolescent Psychology*. Advance online publication. 1–9. doi:10.1080/15374416.2018.1437733
- O’Sullivan, L. F., & Thompson, A. E. (2014). Sexuality in adolescence. In D. L. Tolman, L. M. Diamond, J. A. Bauermeister, W. H. George, J. G. Pfaus, & L. M. Ward (Eds.), *APA handbook of sexuality and psychology, Vol. 1: Person-based approaches* (pp. 433–486). Washington, DC: American Psychological Association.
- Pharr, J., Enejoh, V., Mavegam, B. O., Olutola, A., & Karick, H., & Ezeanolue, E. E. (2015). Relationship between health locus of control and risky sexual behaviors among Nigerian adolescents. *Journal of AIDS and Clinical Research*, 6, 471. doi:10.4172/2155-6113.1000471
- Pinto, J., Carvalho, J., & Nobre, P. J. (2013). The relationship between the FFM personality traits, state psychopathology, and sexual compulsivity in a sample of male college students. *Journal of Sexual Medicine*, 10(7), 1773–1782. doi:10.1111/jsm.12185
- Reid, R. C. (2010). Differentiating emotions in sample men in treatment for hypersexual behavior. *Journal of Social Work Practice in the Addictions*, 10(2), 197–213. doi:10.1080/15332561003769369

- Reid, R. C. (2013). Personal perspectives on hypersexual disorder. *Sexual Addiction & Compulsivity, 20*(1–2), 4–18. doi:10.1080/10720162.2013.772876
- Reid, R. C., Carpenter, B. N., Spackman, M., & Willes, D. L. (2008). Alexithymia, emotional instability, and vulnerability to stress proneness in patients seeking help for hypersexual behavior. *Journal of Sex and Marital Therapy, 34*(2), 133–149. doi:10.1080/00926230701636197
- Reid, R. C., Garos, S., & Carpenter, B. N. (2011). Reliability, validity, and psychometric development of the Hypersexual Behavior Inventory in an outpatient sample of men. *Sexual Addiction & Compulsivity, 18*(1), 30–51. doi:10.1080/10720162.2011.555709
- Reid, R. C., Stein, J. A., & Carpenter, B. N. (2011). Understanding the roles of shame and neuroticism in a patient sample of hypersexual men. *The Journal of Nervous and Mental Disease, 199*(4), 263–263. doi:10.1097/NMD.0b013e3182125b96
- Rettenberger, M., Klein, V., & Briken, P. (2016). The relationship between hypersexual behavior, sexual excitation, sexual inhibition, and personality traits. *Archives of Sexual Behavior, 45*(1), 219–233. doi:10.1007/s10508-014-0399-7
- Rotter, J. B. (1966). Generalized expectancies for internal versus external control of reinforcement. *Psychological Monographs, 80*(1), 1–28. doi:10.1037/h0092976
- Russell, D., Peplau, L. A., & Cutrona, C. E. (1980). The revised UCLA Loneliness Scale: Concurrent and discriminant validity evidence. *Journal of Personality and Social Psychology, 39*(3), 472–480. doi:10.1037/0022-3514.39.3.472
- Ševčíková, A., Blinka, L., & Daneback, K. (2018). Sexting as a predictor of sexual behavior in a sample of Czech adolescents. *European Journal of Developmental Psychology, 15*(4), 426–437. doi:10.1080/17405629.2017.1295842
- Ševčíková, A., Vazsonyi, A. T., Širůček, J., & Konečný, Š. (2013). Predictors of online and offline sexual activities and behaviors among adolescents. *Cyberpsychology, Behavior, and Social Networking, 16*(8), 618–622. doi:10.1089/cyber.2012.0552
- St. Lawrence, J. S. (1993). African-American adolescents' knowledge, health-related attitudes, sexual behavior, and contraceptive decisions: Implications for the prevention of adolescent HIV infection. *Journal of Consulting and Clinical Psychology, 61*, 104–112.
- Smith, E. R., Murphy, J., & Coats, S. (1999). Attachment to groups: Theory and measurement. *Journal of Personality and Social Psychology, 77*(1), 94–110. doi:10.1037/0022-3514.77.1.94
- Stolorow, R. D. (1994). The nature and therapeutic action of psychoanalytic interpretation. In R. D. Stolorow, G. E. Atwood, & B. Brandchaft (Eds.), *The intersubjective perspective* (pp. 43–55). Northvale, NJ: Jason Aronson.
- Stolorow, R. D. (2002). From drive to affectivity. *Psychoanalytic Inquiry, 22*(5), 678–685. doi:10.1080/07351692209349012
- Walton, M. T., Cantor, J. M., & Lykins, A. D. (2017). An online assessment of personality, psychological, and sexuality variables associated with self-reported hypersexual behavior. *Archives of Sexual Behavior, 46*(3), 721–733. doi:10.1007/s10508-015-0606-1
- Wang, J. M., Hartl, A. C., Laursen, B., & Rubin, K. H. (2017). The high costs of low agreeableness: Low agreeableness exacerbates interpersonal consequences of rejection sensitivity in US and Chinese adolescents. *Journal of Research in Personality, 67*, 36–43. doi:10.1016/j.jrp.2016.02.005
- World Health Organization [WHO]. (2018). *ICD-11 (mortality and morbidity statistics). 6C72 Compulsive Sexual Behaviour Disorder*. Retrieved from <https://icd.who.int/dev11/l-m/en/http://id.who.int/icd/entity/1630268048>
- Yoder, V. C., Virden, T. B., & Amin, K. (2005). Internet pornography and loneliness: An association? *Sexual Addiction & Compulsivity, 12*(1), 19–44. doi:10.1080/10720160590933653
- Zapf, J. L., Greiner, J., & Carroll, J. (2008). Attachment styles and male sex addiction. *Sexual Addiction & Compulsivity, 15*(2), 158–175. doi:10.1080/10720160802035832
- Zilberman, N., Yadid, G., Efrati, Y., Neumark, Y., & Rassovsky, Y. (2018). Personality profiles of substance and behavioral addictions. *Addictive Behaviors, 82*, 174–181. doi:10.1016/j.addbeh.2018.03.007