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*Review*

# Common Features in Compulsive Sexual Behavior, Substance Use Disorders, Personality, Temperament and Attachment—A Narrative Review

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**Abstract:** Do addictions share common traits of an "addictive personality" or do different addictions have distinct personality profiles? This narrative review examines the differences in the associations between substance use disorder (SUD) and compulsive sexual behavior disorder (CSBD), on the one hand, and personality traits, attachment dispositions, and temperament, on the other hand. We found that both people with a SUD and people with CSBD tended to be more spontaneous, careless, and less reliable, to place self-interest above getting along with others, to show emotional instability and experience negative emotions such as anger, anxiety, and/or depression, to be less able to control their attention and/or behavior, and to be engulfed with a constant sensation of "wanting". Only people with CSBD, but not SUD, noted concerns with their social ties, fear of losing close others, and/or trusting others around them. Results also suggested that people with a SUD and people with CSBD share high commonalities in personality traits and temperament, yet there are noted differences in their social tendencies, especially with close others. People with CSBD reported more concerns with possible relationship losses compared to people with SUD issues, who may be more worried about losing their source of escapism.

**Keywords:** compulsive sexual behavior; substance use disorder; big five personality; temperament; attachment orientations

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## 1. Introduction

Laypeople often relate the definition of addiction to substance use disorder (SUD). Research, however, has indicated that addictions do not only comprise the consumption of exogenous psychoactive substances such as drugs or alcohol, but also include behaviors. Non-substance behavioral addictions include internet addiction, internet gaming disorder, gambling disorder (formerly known as pathological gambling), compulsive buying, exercise dependence, food addiction, work addiction, and compulsive sexual behavior (often referred in the academic and popular culture as "sexual addiction") [1,2]. Prior work has already examined whether there is an "addictive personality" that predisposes people to various forms of addictions [3,4], or whether there are different personality dispositions that predispose people to different forms of addictions. In the current review, we will draw similarities between SUD and one common behavioral addiction—compulsive sexual behavior disorder (CSBD)—in various trait-like dispositions—the big-five personality traits, attachment styles, and temperament. To date, most studies examined SUD and behavioral addiction separately [5,6] with only a few studies contrasting SUD and CSBD directly [4,7].

*SUD and Compulsive Sexual Behavior*

SUD is a psychiatric disorder characterized by a pathological and compulsive pattern of substance-seeking and substance-taking behaviors that occupy most of a person's time and efforts, leading to significant functional impairments at work, school, and/or home [8]. Persistent use of psychoactive drugs may lead to long-term changes in the brain (i.e., the development of new reward pathways), leading to multiple symptoms and features of addictions, including craving, withdrawal, and tolerance [9,10]. The disruptive pattern of substance-seeking behaviors persists despite the negative consequences of addiction (e.g., relationship, legal, health), with many individuals struggling to reduce or abstain from substance use [11,12]. Definitions of behavioral addictions, such as CSBD, share many commonalities with the definition of SUD, though this area still remains largely unexplored as new research continues to elucidate the etiology of this condition [13].

CSBD is defined as an impulse control disorder [14] characterized by a repetitive and intense preoccupation with sexual fantasies, urges, and behaviors, as well as an extensive pornography use and masturbation, use of paid sexual services, and risky sexual behaviors leading to clinically significant distress or impairment in social and occupational functioning and to other adverse consequences [14–17]. Although CSBD is officially classified as an impulse control disorder, the psychiatric classification of CSBD is still hotly debated [13,18]. In addition, most therapeutic interventions treat CSBD as an addiction [19], because it shares many addiction-like neurocognitive mechanisms and clinical characteristics [20]; however, despite some evidence of shared similarities, clinical studies examining the neurobiology of CSBD remain scarce.

Thus far, research on SUD and CSBD indicates that compulsive behavior, craving, and extensive preoccupation with the condition, which leads to impaired psychosocial functioning, are central characteristics in both addictions [21,22]. Do these disorders share commonalities in personality dispositions because they are all a result of an "addictive personality" that confers an inclination to addiction [23], or is the reason that one person is addicted to drugs (i.e., has SUD) and another to a sexual behavior a different personality profile of the affected person? To answer this question, we conducted a review on the correlation between SUD and CSBD, on the one hand, and three common personality-like dispositions—big five personality traits, attachment orientations, and temperament, on the other.

One of the most used personality classifications is known as the Five Factor Model (FFM) [24]. This classification emerged out of a series of attempts to understand the organization of trait descriptors in natural language [25–27]. Structural analyses of these descriptors consistently revealed five broad factors: extraversion (outgoing/energetic vs. solitary/reserved), agreeableness (friendly/compassionate vs. challenging/detached), conscientiousness (efficient/organized vs. easy-going/careless), neuroticism (sensitive/nervous vs. secure/confident), and openness to experience (inventive/curious vs. consistent/cautious). This structure has proven to be remarkably robust, with the same five factors observed in both self- and peer-ratings [28], in analyses of both children and adults [29], and across a wide variety of languages and cultures [30,31]. The big five personality traits have been extensively studied in relation with various addictions including SUD, though less literature is available on its relationship with CSBD.

Another domain in which people with SUD and people with CSBD might share commonalities is their temperament—individual differences in behavior that unlike personality are believed to be innate and relatively independent of learning, systems of values, and attitudes. One common classification of temperament perceives it as a 4-facet construct: negative affect including the inborn tendency for fear, sadness, discomfort, and frustration; effortful control comprising the innate ability for attentional, inhibitory and/or activation control; extraversion/surgency consisting of the inborn tendency for sociability, positive affect, and high-intensity pleasure; and orienting sensitivity comprising the innate neural and affective perceptual sensitivity. The dimension of "effortful control" re-

ceived much attention in the etiology of psychopathology [32] and specifically of addictive behavior [33]. High effortful control includes the abilities to voluntarily manage attention (attentional regulation) and inhibit (inhibitory control) or activate (activational control) behavior as needed to adapt. For example, the abilities to focus attention when there are distractions, to not interrupt others and sit still in class or a movie theater, and to force oneself to do a tedious task are aspects of effortful control.

A second common classification of temperament relates to Cloninger's biosocial model of personality [34] which emphasizes the biological background of personality. According to the model, personality could be assessed by four heritable, temperament dimensions of personality, and three additional character dimensions. The four temperament dimensions are: novelty seeking, comprising the innate tendency to respond actively to novel stimuli (a tendency supported by a correlation between novelty seeking and heighten functioning of the dopaminergic system); harm avoidance, consisting of the innate tendency towards an inhibitory response to signals of aversive stimuli leading to avoidance of punishment (often related to the functioning of the serotonergic system); reward dependence, comprising the inborn tendency for positive responses to signals of rewards in maintaining behaviors (often associated with the functioning of noradrenergic system); and, lastly, persistence, consisting of the inborn ability to maintain behaviors despite frustration and fatigue.

The three character dimensions are: self-directedness, comprising the ability of an individual to control, regulate and adapt one's behavior in accordance with chosen goals and values; cooperativeness, consisting of the tendency towards social tolerance, empathy, helpfulness, and compassion; and self-transcendence, comprising the tendency for spirituality.

A final domain in which people with SUD and people with CSBD might share commonalities is people's attachment orientations—trait-like dispositions that relate to social tendencies and emotion and stress regulation.

Attachment orientations are shaped during infancy via intimate interactions with caregivers in times of need [35]. When caregivers lend support and care, and the needs for comfort and security are consistently satisfied, the infant develops a secure bond towards the attachment figure (i.e., attachment security), which is characterized by a view of the self as lovable and of others as dependable. Secure people are generally 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, infants might develop insecure attachment orientations that are classified along two dimensions, referred to as attachment anxiety and avoidance [36,37]. If infants' needs are not sufficiently met by caregivers and the availability of support and care is uncertain, fear of abandonment can develop alongside an internalized anxiety of being rejected. Individuals with this attachment orientation are called anxiously attached and are characterized by an unfulfilled need for affection regardless of the amount of affection they receive [38]. If infants' needs are not fulfilled and met with cold and distancing caregiving, infants will view others as untrustworthy and undependable and develop an attachment avoidance orientation. These individuals do not trust the goodwill of others and prefer to emotionally distance themselves from intimate relationships [39].

Research has indicated that attachment insecurities (both anxiety and avoidance) are associated with a general vulnerability to mental disorders [40,41]. For example, attachment insecurities are correlated with depression [42], generalized anxiety disorder [43], obsessive–compulsive disorder [44], posttraumatic stress disorder (PTSD) [45], eating disorders [46], and suicide ideation [47]. Therefore, attachment insecurities have transdiagnostic characteristics [48,49] and should be explored as they relate to behavioral disorders such as CSBD. Therefore, the goal of the current review is to examine the commonalities and differences in the big five personality traits, temperament, and attachment orientations between people who have a SUD and those with CSBD.

## 2. Methodology

*Search Strategy*

The current review was conducted in accordance with the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines. The process is presented in Figure 1. We conducted an electronic search for literature updated from January 1st, 2000 to November 30th, 2020. To identify relevant studies, we conducted two separate searches in the following six online databases: PsycINFO, PsychARTICLES, Open Grey, PubMed, Web of Science, and Psychiatric Abstracts (PubPsych, which includes PSYNDEX; PASCAL; ISOC-Psicologa; MEDLINE®; ERIC; NARCIS; NORART; PsychOpen; and PsychData). The first search was conducted on the association between CSB and personality-related aspects (i.e., attachment styles, the big five personality model, and temperament), and the second between SUD and personality-related aspects. In the first search, we used the following searching terms: ("Sex addiction" or "Hypersexual" or "Compulsive sexual behavior" or "Compulsive sexual behavior disorder" or "Compulsive sexual behaviour" or "Compulsive sexual behaviour disorder" or "CSBD" or "CSB") AND ("big five Personality" or "five factor model" or "Temperament" or "Attachment Style" or "Attachment Orientation"). In the second search, we used the following searching terms: ("Drug addiction" or "Drug abuse" or "drug dependence" or "substance use disorder" or "substance dependence") AND ("big five Personality" or "five factor model" or "Temperament" or "Attachment Style" or "Attachment Orientation"). Additionally, a snowball search was also conducted within Google Scholar to identify further studies which did not appear in the initial search.

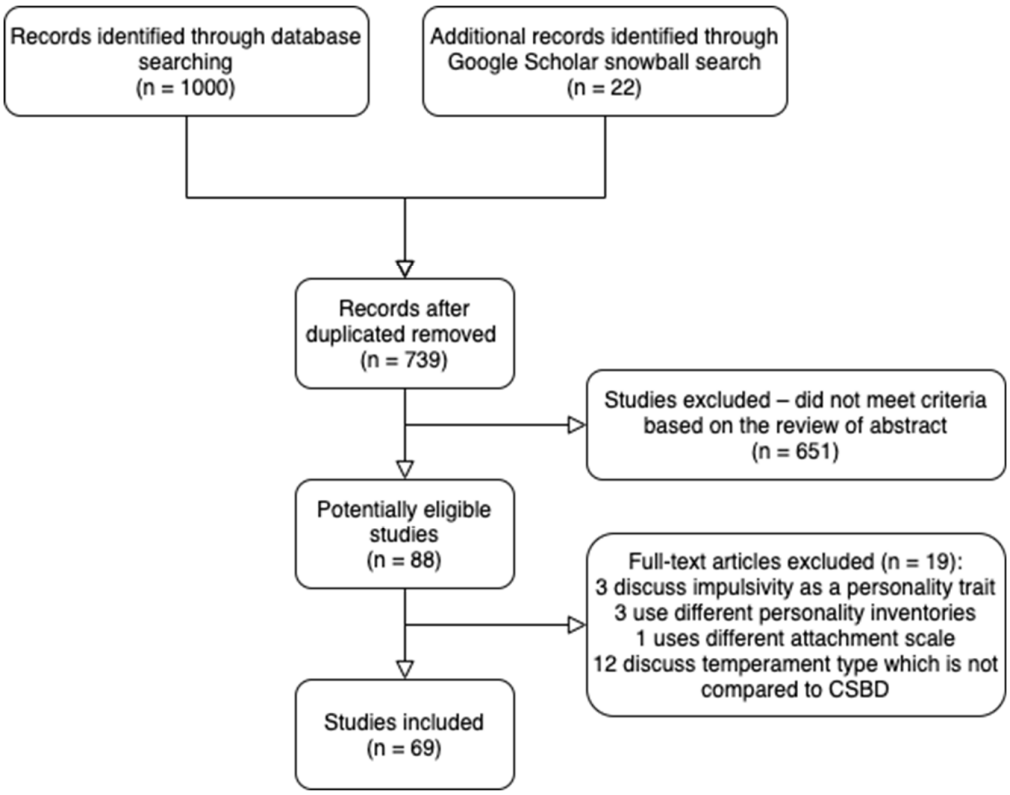


**Figure 1.** PRISMA flow chart regarding paper selection process (*n*= 1022).

After combining the two sets of database searches and the snowball search, and after removing duplicates, we were left with 739 articles. We then screened articles by abstract and title and screened by full-text evaluation according to the inclusion criteria. We in-

cluded studies: (1) addressing the association between CSBD and personality-related aspects (i.e., attachment styles, the big five personality model, and temperament), or the association between SUD and personality-related aspects; (2) including 27 subjects or more for a clinical sample and 150 or more for a non-clinical sample; (3) based on a quantitative research design; and (4) published in the English language. Next, we excluded results that were derived from: (1) conferences or not a published article or chapters; (2) individuals younger than 16 years of age; (3) sex offenders; (4) individuals with psychiatric disorders other than CSBD and SUD; (5) animal models (i.e., non-human participants); (6) addictions that are not substance related; and/or (7) participants with comorbid psychiatric disorders. This screening process led to 88 potentially eligible papers. After reviewing the articles' full text, 19 additional papers were excluded (see Figure 1) for a total of 69 papers in the final review. Methodology reported based on Orilisi et al. [50].

## 3. Results

### *3.1. Commonalities and Differences in Big Five Personality Dispositions*

To date, a few dozen studies have been published on the correlation between SUD and the big five personality traits [6,51,52]. In contrast, only 9 studies correlated compulsive sexual behavior and the big five personality traits [1,2,5,53–57], and only one study compared SUD and people with compulsive sexual behavior directly [4]. Table 1 summarizes the main findings.

**Table 1.** Personality traits on CSBD and SUD.

| Study | Design | Sample (*n*, Sex) | Mean Age (Year) | Measure | CSBD | | | | | Substance Abuse | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | A | C | O | N | E | A | C | O | N | E |
| Zilberman et al., 2018 [4] | CSS | Drugs (*n* = 58): 45 male and 13 Female. CSBD (*n* = 65): 57 male and 4 Female. | Age (mean rank): Drug- 149 CSBD- 132 | Drug- DAST [58]. CSBD: Individual-based compulsive sexual behavior scale [59] | - 29.44 (5.74) | - 28.62 (6.078) | + 36.89 (6.54) | | | - 28.67 (7) | - 29.88 (6.725) | | + 26.97 (5.68) | |
| Efrati & Gola [5] | CSS | 618 Israeli adolescents (341 boys and 277 girls) | Aged 14–18 years (M = 16.69, SD = 1.16), | Individual-based compulsive sexual behavior scale [59] | - 3.37 [0.54] | | | + 3.13 [0.62] | | | | | | |
| Pinto et al., 2013 [53] | CSS | 152 male college students recruited in a Portuguese university | 22 years (standard deviation [SD] = 2.63) raging from 18 to 33 | Compulsive Sexual Behavior Inventory; CSBI-22 [60] | - B = −0.35 | | | + B = 0.21 | | | | | | |
| Rettenberger et al., 2016 [61] | CSS | 1749 German students, 56.5% (*n* = 988) were female, 42.9% (*n* = 750) male, and 0.6% (*n* = 11) described themselves as neither male nor female (e.g., transgender). | M = 24.42 (SD = 4.37, range 18–62). | Hypersexual Behavior Inventory; HBI [62] | - r = −0.05 | + r = −0.22 | | - r = 0.07 | | | | | | |
| Walton et al., 2017 [54] | CSS | 510 Australian participants (267 males and 243 females) | The respective mean age of male and female participants was 36.52 years (SD = 12.66) and 30.38 years (SD = 12.12). | Hypersexual Behavior Inventory; HBI [62] | - b = −0.44 | - b = −0.16 | | + b = 0.44 | + b = 0.25 | | | | | |

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| Shimoni et al., 2018 [63] | CSS | 267 Israeli participants (186 males and 81 females) | mean age of 30.2 years (*SD* = 9.8) and age range of 18–68. | Sexual Addiction Screening Test; SAST [64] | - β = −0.21 | + β = 0.18 | + β = 0.15 | | | | |
| Amamou et al., 2020 [55] | CSS | 510 Tunisian volunteers. 360 women (60%) and 204 men (40%) | The average age was 31.5 +/− 9.3 years | Sexual Addiction Screening Test; SAST [64] | - 3.30 [0.64] | | + 3.61 [0.94] | | | | |
| Paz et al., 2021 [56] | CSS | Israeli participants. The sample comprised solely of men. Of these, 113 identified themselves as heterosexuals (63.8%), 48 as gay men (27.1%), and the remaining 16 as bisexuals (9%). | The participants' mean age was 32.44 years (SD = 8.41), ranging from 19 to 70 years. | Bergen–Yale Sex Addiction Scale; BYSAS [65] | - r = −0.152 | | + r = 0.173 | | | | |
| Soraci et al., 2021 [57] | CSS | 1230 Italian participants. (26.7% males, 73.1% females, other 0.2%) | Mean age 24.9 years [SD ± 5.60]; | Bergen–Yale Sex Addiction Scale; BYSAS [65] | | + 7.01 [1.83] | | + 5.72 [2.43] | | | |
| Fehrman et al., 2019 [6] | CSS | 1885 participants (male/female = 943/942) | 18–24 years (643; 34.1%), 25–34 years (481; 25.5%), 35–44 years (356; 18.9%), 45–54 years (294; 15.6%), 55–64 (93; 4.9%), and over 65 (18; 1%). | Participants were questioned concerning their use of 18 legal and illegal drugs. | | | | | - ≤44–49 | - ≤44–49 | + ≥51–56 | + ≥51–56 |
| Dash et al., 2019 [52] | CSS | Participants were 3785 twins and siblings from Australian Twin Registry (1365 men, 2420 women). | Age: M = 32 years, range 21–46 years | Australian version of the Semi-Structured Assessment of the Genetics of Alcoholism [66,67] | | | | | - 3.6 SE-0.01 | - 3.7 SE-0.02 | | + 2.47 SE-0.02 |

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| Kotov et al., 2010 [51] based on studies up to 2007 | CSS +LS | The review included 175 studies published from 1980 to 2007, which yielded 851 effect sizes. For a given analysis, the number of studies ranged from three to 63 (total sample size ranged from 1076 to 75,229). | N/A | Diagnoses were made by a trained rater according to one of the modern classification systems, namely the DSM–III, DSM–III–R, DSM–IV, ICD–9, ICD–10, or Research Diagnostic Criteria [68] | - d = −0.75 | - d = −1.02 + d = 1.13 - d = 0.33 |
| Sattler & Schunck, 2016 [69] | CSS | German employees: N = 6454 (Male: 0.53) | Age: M = 40.63, SD = 8.64. | Cognitive Enhancement for drug use | - OR = 0.774 | + OR = 1.352 |
| Terracciano et al., 2008 [70] | CSS | 1102 Participants from the East Baltimore (About 62% of the sample was female; 63%) | age ranged from 30 to 94 years (M = 56.6; SD = 12.4) | Classified: "never use"; "former use" (as those who use but not in the last seven days), and 'current use' as those who use in the last seven days | - 40.3 (1.77) | + 57.6 (1.77) |
| Lackner et al., 2013 [71] | CSS | 63 Austrian male substance dependents (30 alcohol abusers, 33 polydrug abusers) | The alcohol abusers mean age was 42 years (SD = 8.54), whereas the polydrug abusers mean age was 31 years (SD = 8.39 | Expert assessment (not further specified) | - d = −0.42 | - d = −0.64 - d = −1.10 + d = 0.64 |
| Raketic et al., 2017 [72] | CSS | 62 woman outpatients from Serbia +30 control group. 30 women who had alcohol use disorder and 32 women who | Opiate dependent (M = 35.4, SD = ±5.2); Alcohol dependent (M = 39.9, SD = ±5.1); Control group (M = 36.1, SD = ±5.6). | Expert assessment (not further specified) | - 165.0 [±16.4] | + 148.0 [±21.6] |

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| | | had opioid use disorder. | | | | | | |
| Hwang et al., 2014 [73] | CSS | 30 patients from Korea, diagnosed with alcohol dependence (mean age, 30.03 ± 5.89 years), and 30 healthy controls | Alcohol Dependence: (M = 30.03, SD = ±5.89 years); healthy controls (M = 25.33, SD = ±2.77 years). | Expert assessment (not further specified) | - 37.33 [6.09] | - 36.43 [9.93] | + 39.07 [8.37] | - 36.37 [8.50] |

*Note*. A = Agreeableness, C = Conscientiousness, O = Openness, N = Neuroticism, E = Extraversion, + = positive correlation, - = negative correlation; CSS = cross-sectional study; LS = longitudinal study; OR = Odds Ratios.

Zilberman and colleagues [4] revealed that the "addictive personality" of people with compulsive sexual behavior and those with SUD is remarkedly similar with respect to the five major facets of personality. Both groups score low on agreeableness and conscientiousness and high on neuroticism. Research that has separately examined the big five traits among people with a SUD and people with compulsive sexual behavior shows high agreement with Zilberman and colleagues' [4] findings. Specifically, in 8 out of 9 studies on compulsive sexual behavior and personality dispositions, compulsive sexual behavior was correlated with higher neuroticism; 7 out of 9 studies correlated it with lower conscientiousness, and 4 out of 9 with lower agreeableness. These seemingly robust results share high commonality with studies on the correlation between SUD and personality dispositions such that all studies show that SUD is correlated with higher neuroticism and lower conscientiousness; most studies (but not all) related SUD with lower agreeableness.

This pattern of results also indicates that people with a SUD and people with compulsive sexual behavior tend to be more spontaneous, careless, and less reliable (i.e., low conscientiousness), to place self-interest above getting along with others (i.e., low agreeableness), and to show greater emotional instability and experience negative emotions, such as anger, anxiety, and/or depression (i.e., high neuroticism).

The final two personality dispositions—openness to experience and extraversion—were only sporadically correlated with addictive behavior. Whereas openness to experience was not reliably correlated with addictive behavior, there are inconsistencies regarding extraversion in both groups (i.e., compulsive sexual behavior and SUD). A meta-analysis covering 175 studies (published until 2007) on SUD and the big five personality traits indicated that people with a SUD are lower on extraversion—i.e., are more solitary and reserved. However, studies that were published since then did not reveal significant associations between SUD and extraversion. Similarly, the findings on people with compulsive sexual behavior are also equivocal such that some do not find any association [4,5,53,55,56,63], one found lower extraversion [61], and two, higher [54,57]. Thus, a meta-analysis regarding the correlation with extraversion is warranted to examine the role of extraversion in addictions. Here, we would like to suggest one possible moderator that might explain the inconsistent correlation between CSBD and extraversion—the type of CSBD in question.

### *3.2. Commonalities and Differences in Temperament*

Research on the association between the 4 facets of temperament (negative affect, effortful control, extraversion/surgency, and orienting sensitivity) and addictive behavior highlighted effortful control as a key player in addictions. The current reviewed studies agree with this finding (see Tables 2 and 3). Specifically, studies examining the role of effortful control in SUD found that low effortful control (i.e., lower ability to regulate or control behaviors) reliably relates to SUD at all stages of addiction [33,74–79]. High effortful control was correlated with less SUD [80] and a lower drinking frequency [81]. For example, Santens and colleagues [82] conducted a study on 712 SUD adult patients and found that high effortful control was characteristic of the "resilient" group, whereas low effortful control was typical with the "anxious" and "reward-sensitive" groups. This review did not reveal any other associations between the remaining temperament clusters (e.g., negative affect, extraversion/surgency, and orienting sensitivity) and SUD.

**Table 2.** Temperament traits (TCI; Temperament and Character Inventory) on CSBD and substance abuse.

| | | | | | Substance Abuse | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Study** | **Design** | **Sample (*n*, Sex)** | **Mean Age (Year)** | **Measure** | **NS** | **HA** | **RD** | **PS** | **SD** | **CO** | **ST** |
| Bozkurt et al., 2014 [84]; Alcohol | CSS | N = 94 male alcohol-dependent inpatients and A healthy control group (*n* = 63). | male alcohol-dependent (M = 44.04), A healthy control group (M = 35.24) | The substance dependence section of the SCID-I [83] | + r = 0.46 | + r = 0.45 | - r = −0.29 | - r = −0.36 | - r = −0.49 | - r = −0.48 | |
| Tomassini et al., 2012 [85]; Alcohol | CSS | Twenty-seven abstinent alcohol-dependent subjects (21 males and 6 females | Age (M = 46.15, SD = ±7.67) | Expert assessment (not further specified) | - r = −0.34 | | | | | | |
| Abassi et al., 2015 [86]; Morphine | CSS | 120 Iranians with morphine (opioid) use disorder | Age of addicts was M = 36.45, SD = 4.37 year, with a range of 20–40 years old. | Expert assessment (not further specified) | + r = 0.54 | + r = 0.33 | - r = −0.44 | - r = −0.41 | - r = −0.57 | - r = −0.52 | |
| Can et al., 2014 [87]; Substance abuse | CSS | 87 male substance abusers from Turkish and 50 healthy male volunteers | Age (M = 21.3, SD = ±2.3) | Expert assessment (not further specified) | + 21.5 [4.2] | + 1.6 [5.7] | | - 3.7 [1.9] | - 18.9 [5.5] | - 17.9 [7.9] | |
| Hashemi et al., 2019 [88]; Drug | CSS | 58 men and 52 women from addiction treatment clinics-Iran. Control group, 58 men and 52 women from the general population | Men: (M = 36.00, SD = 7.66) Woman: (M = 30.94) SD = 6.94. | Expert assessment (not further specified) | + 8.74 [2.12] | + 8.04 [1.97] | - 5.61 [1.72] | - 2.50 [0.94] | - 8.79 [3.25] | | |

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| Amirabadi et al., 2015 [89]; Opiate | CSS | 45 male nicotine use disorder and 45 male opioid use disorder individuals | Opiate addicts M = 35.97, SD = 7.24) Nicotine addicts M = 39.02, SD = 6.22 | Expert assessment (not further specified) | + 86.08 (8.51) | | | | - 87.46 (6.52) | |
| Fassino et al., 2004 [90]; Heroin | CSS | 180 heroin abusers. (83.3% of these were men, 16.7% were women) | Man: 31.38 years (SD = 6.06). Woman: 28.78 years (SD = 6.30). | The Structured Clinical Interview; SCID II [83] | + 20.92 (4.73) | + 14.98 (6.31) | - 15.05 (4.21) | | - 30.29 (4.03) | - 29.07 (6.18) | + 14.56 (6.40) |
| Hosák et al., 2004 [91]; Methamphetamine | CSS | 41 inpatients dependent on methamphetamine, and 35 controls. | Age (M = 24.0, SD = ±3.9) years. Range: 19–32. Women (n = 12). | Expert assessment (not further specified) | + 26.8 [4.7] | + 18.0 [6.5] | | - 3.9 [1.8] | - 20.2 [6.2] | - 26.0 [7.1] | + 18.2 [6.7] |
| Steingrimsson et al., 2020 [94]; Drug | CSS | 6917 individuals from Sweden (58% women) | N/A | The alcohol use disorders identification test; AUDIT [92]. Drug Use Disorders Identification Test; DUDIT [93] | | | | | - r = −0.11 | - r = −0.09 | |
| Chang et al., 2007 [95]; Substance abuse | CSS | 60 males with history of substance abuse | Age: M = 17.68, SD = 1.45 years (range, 14–20 years) | Substance abuse index (SAI) | + 19.0 [3.4] | | | | | | |
| Sarra et al., 2014 [96]; Substance abuse | CSS | 84 participants from drug treatment services in Italy, 74 (88.1%) are males and 10 (11.9%) females. | M = 30 (minimum = 17, maximum = 47, SD = 7.5) years. | Expert assessment (not further specified) | + E = 0.319 [0.141] | | + E = 0.410 [0.168] | | | + E = 0.853 [0.153] | - E = −0.330 [0.165] |
| Lukasiewicz et al., 2008 [97]; Substance abuse | CSS | Alcohol abuse and dependence: N = 167 (95.2% Male), Drug | Age: M = 39, SD = ±13 Years. | Expert assessment (not further specified) | + 11.2 [2.6] | | | | | | |

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| | | abuse and dependence: N= 270 (93.0% Male). General population-N = 998 (90.1% Male). | | | | | | | | | |
| Watanabe et al., 2011 [98]; Substance abuse | CSS | 3802 Japanese university students. 1109 men and 2693 women. | Age: M = 20.2, SD = 1.5. | Prevalence of smoking and alcohol use | + r = 0.18 | - r = −0.13 | + r = 0.06 | - r = −0.09 | - r = −0.10 | | |
| Milivojevic et al., 2012 [99]; Opiate and Alcohol | CSS | Opiate addicts: 312 subjects from Serbia, 66 females and 246 males. Alcoholics: 100 subjects, 36 females and 64 males. Control group: 346 volunteers (177 females and 169 males). | Alcohol addicts: 39.21 years (SD 11.1), Opiate addicts 26.32 years (SD 5.99), and Normal controls 23.33 years (SD 6.79). | Clinical interview by a psychiatrist and DSM IV TR criteria. | + OR = 3.61 (2.68–4.86) | | - OR0 = 0.76 (0.60–0.96) | | - OR= 0.64 (0.46–0.88) | | + OR = 1.37 (1.08–1.71) |
| Conway et al., 2003 [100]; Substance abuse | CSS | 326 addiction treatment from USA was 44.2% male, 54.9% | Age: 32.9 (SD = 7.9) | Lifetime history of most serious substance of dependence. | + 23.67−24.44 | | | | | | |
| Herrero et al., 2008 [102]; Cocaine | CSS | 120 individuals from Spain, 38.3% were women. | Age: 23.8 years (SD = 3.4; range 18–31) | Preferred Reporting Items for Systematic Reviews and Meta-Analyses [101] | | | | | - 41.9 (10.4) | - 42.3 (9.4) | + 53.8 (10.5) |
| | | | | **Compulsive sexual behavior disorder** | | | | | | | |
| | | | | | NS | HA | RD | PS | SD | CO | ST |
| do Amaral et al., 2015 [104] | CSS | 69 sexually compulsive MSM from Brazil | Age: M = 35.2, SD = 8.2. | Sexual Compulsivity Scale; SCS [103] | + 25.92 (5.22) | | | | - 15.72 (6.36) | | |

*Note*. NS = Novelty Seeking, HA = Harm Avoidance, RD = Reward Dependence, PS = Persistence, SD = Self-Directedness, CO = Cooperativeness, ST = Self-Transcendence, + = positive correlation, - = negative correlation, CSS = cross-sectional study, E = Estimate.

**Table 3.** Temperament traits (ATQ; Adult Temperament Questionnaire) on substance abuse and CSBD.

| | | | | | | **Substance Abuse** | | |
|---|---|---|---|---|---|---|---|---|
| **Studies** | **Design** | **Sample (*n*, Sex)** | **Mean Age (Year)** | **Measure** | **NA** | **EC** | **E/S** | **OS** |
| Mun et al., 2018 [33]; Tobacco, alcohol, and marijuana | LS | 311 adolescents with parents from USA. | LS-from 16 to 27 | Composite International Diagnostic Interview [105] | | - r = −0.05 | | |
| Cheetham et al., 2010 [74]; Substance use | Review | N/A | N/A | N/A | + N/A | - N/A | | |
| Nigg et al., 2004 [80]; Alcohol | LS | boys from 198 families | LS- followed between 3 and 14 years | Alcoholism subtype groups | | - N/A | | |
| Wong et al., 2013 [81]; Alcohol and drug | CSS | 644 undergraduate students (67.2% female) | 23.58 (SD = 6.861) | Drinking and other Drug Use History Questionnaire; DDHQ [106] | | - R = −0.86 OR = 0.42 | | + R = 0.03 OR = 1.03 |
| Santens et al., 2018 [82]; Substance use | CSS | 700 adult Caucasian patients on treatment program for SUDs. (68.1% males and 31.9% females). | 45.7 years (SD = 11.25). | Addicted group | | - M ≥ −0.500000 | | |
| | | | | | | CSBD | | |
| | | | | | NA | EC | E/S | OS |
| Efrati, 2018 [107] | CSS | 310 high-school students (183 male, 127 female) | age 16 to 18 years (M = 16.94, SD = 0.65), | Individual-based compulsive sexual behavior scale [59] | | - r = −0.11 | | + r = 0.11 |

*Note*. NA = Negative affect, EC = Effortful control, E/S = Extraversion/Surgency, OS = Orienting sensitivity, + = positive correlation, − = negative correlation, CSS = Cross-sectional study; LS = Longitudinal study.

To date, only a single study on 310 adolescents has examined the associations between temperament (i.e., negative affect, effortful control, extraversion/surgency, and orienting sensitivity) and CSBD [107] using the current classification of temperament. In accordance with the correlation between SUD and low effortful control, lower effortful control was found to be related to more severe symptoms of CSBD [107]. Furthermore, this study also noted positive associations between higher orienting sensitivity and CSBD. Because only a single study examined the association between temperament and CSBD, it is premature to draw conclusions regarding the role of orienting sensitivity.

Research on the association between Cloninger's biosocial clusters of personality and SUD revealed one reliable heritable, temperament cluster—novelty seeking. People with an SUD seem to have an overly active dopaminergic system and thus a greater innate tendency to actively explore novel stimulation, while exhibiting impulsive decision making. The dopaminergic system is part of the reward system and relates to the sensation of "wanting" [108], which correlated perfectly with SUD. The single study that examined the association between CSBD and Cloninger's biosocial clusters of personality [104] revealed a similar positive association with novelty seeking, which also correlated the compulsive engagement of people with CSBD with sexuality and the "wanting" sensation of sexual-related behaviors and/or cognitions [109].

The review also revealed two additional (somewhat) consistent associations between SUD: self-directedness (53% consistency) [84,86–88,90,91,94,98,102] and cooperativeness (53% consistency) [84,86,87,89–91,94,96,102]. People with an SUD are less able to control and/or regulate their behavior following chosen goals and values, or to demonstrate social tolerance, empathy, helpfulness, and compassion towards others. CSBD was also found to be related with lower self-directedness [104], which fits well with the inability to control one's behavior (i.e., impaired control) and maintain a goal-directed path in one's life. This tendency is also consistent with the association of SUD, CSBD, and low effortful control (i.e., less ability to control one's attention and goal directed behavior).

### *3.3. Commonalities and Differences in Attachment Orientations*

The associations between attachment orientations and SUD have been extensively examined in cross-sectional and longitudinal studies [110]. In a meta-analysis summarizing 34 longitudinal samples and comprising 56,721 participants, a significant correlation was noted between attachment insecurity (both anxiety and avoidance) and SUD such that the higher people's attachment anxiety and/or avoidance, the higher the likelihood for SUD. In addition, researchers found that, whereas earlier attachment insecurity predicts later SUD, earlier SUD does not predict later attachment insecurity—a finding supporting attachment insecurity as a predisposition for SUD and not an outcome of it. Of note, however, the correlations between insecure attachment orientations and SUD are generally weak to negligible, with a shared variance of approximately 2%. Recently, Estévez and colleagues [111] directly compared the associations between attachment orientations, SUD, and several behavioral addictions (problematic internet use, video game addictions, and gambling disorders; but did not include compulsive sexual behavior) and found that, whereas attachment insecurity reliably correlated with higher likelihood for all behavioral addictions, it was not, however, correlated with SUD.

In contrast to SUD, the associations between attachment orientations and CSBD are more indicated [5,105,112–119]. Specifically, attachment insecurity (both anxiety and avoidance) relates to greater likelihood of CSBD and higher symptom severity of CSBD, with a shared variance ranging from 5% to 21%. Thus, it seems possible that attachment insecurity that relates to various social dysfunctions, greater distress, and emotion dysregulation is a predisposition for addictions, but this could be particularly salient for development of CSBD.

## 4. Discussion

In sum, people with an SUD and people with compulsive sexual behavior tend to be more spontaneous, careless, and less reliable (i.e., low conscientiousness), to place self-interest above getting along with others (i.e., low agreeableness), to show emotional instability and experience negative emotions such as anger, anxiety, and/or depression (i.e., high neuroticism), to be less able to control their attention and/or behavior (i.e., low effortful control and self- directedness), and to be engulfed with a constant sensation of "wanting" (i.e., high novelty seeking). These correlational clusters may shed further light on our understanding of the psychology of addictive behaviors, particularly as it relates to possible differences between clinical and non-clinical populations. However, only people with compulsive sexual behavior, but not SUD, are especially concerned with their social ties, fear of losing close others, and/or trusting others around them. These latter differences seem to fit well with the differences in addiction type—addiction to a substance versus addiction to a behavior. Acknowledging these commonalities and differences may allow a better detection of risk factors attributed to the development of addictive behaviors and possibly offer better-suited therapies for people reporting issues with addictions. Further research is particularly needed to examine personality classification among individuals seeking treatment for CSBD given the considerable absence of clinical data. Moreover, additional research is needed to examine possible gender differences in personality classification, particularly as it relates to the clinical manifestation of CSBD, which remains still understudied. Moreover, examining personality classification within subtypes of CSBD (e.g., exclusive problematic pornography use, engagement in anonymous/casual sex with strangers or paid sex workers) could also elucidate possible personality differences between solitary and dyadic sexual behavior, which in turn could inform treatment strategies for help seeking individuals. In a similar vein, further research is also needed to examine the specific relationships between CSBD, personality dispositions, attachment style, and temperament as a function of substance use (e.g., stimulant, sedative, alcohol, cannabis) since such information could possibly help to identify possible symptoms and personality clusters in clinical and non-clinical populations.

## 5. Conclusions

In conclusion, we view this research as important in studying the personality classification (personality traits, temperament, and attachment dispositions) related to people with SUD or CSBD. These findings add to the body of data that may help to better understand the personality underpinnings of people with SUD or CSBD even when their symptoms are below the clinical threshold. In addition, the current research may help to better tailor interventions aimed at reducing SUD or CSBD and its negative outcomes by targeting specific personality classification considered highly indicative of SUD or CSBD.

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## References

1. Griffiths, M. Behavioural Addiction: An Issue for Everybody? *Emil. Couns. Today* **1996**, *8*, 19–25. https://doi.org/10.1108/13665629610116872.
2. Karim, R.; Chaudhri, P. Behavioral Addictions: An Overview. *J. Psychoact. Drugs* **2012**, *44*, 5–17. https://doi.org/10.1080/02791072.2012.662859.
3. Kornør, H.; Nordvik, H. Five-Factor Model Personality Traits in Opioid Dependence. *BMC Psychiatry* **2007**, *7*, 37. https://doi.org/10.1186/1471-244X-7-37.

4. Zilberman, N.; Yadid, G.; Efrati, Y.; Neumark, Y.; Rassovsky, Y. Personality Profiles of Substance and Behavioral Addictions. *Addict. Behav.* **2018**, *82*, 174–181. https://doi.org/10.1016/j.addbeh.2018.03.007.
5. Efrati, Y.; Gola, M. Understanding and Predicting Profiles of Compulsive Sexual Behavior among Adolescents. *J. Behav. Addict.* **2018**, *7*, 1004–1014. https://doi.org/10.1556/2006.7.2018.100.
6. Fehrman, E.; Egan, V.; Gorban, A.N.; Levesley, J.; Mirkes, E.M.; Muhammad, A.K. *Personality Traits and Drug Consumption: A Story Told by Data*; Springer International Publishing: Cham, Switzerland, 2019. https://doi.org/10.1007/978-3-030-10442-9.
7. Efrati, Y.; Gerber, Z.; Tolmacz, R. The Relation of Intra-Psychic and Relational Aspects of the Self to Compulsive Sexual Behavior. *J. Sex Marital Ther.* **2019**, *45*, 618–631. https://doi.org/10.1080/0092623X.2019.1599092.
8. American Psychiatric Association. *Diagnostic and Statistical Manual of Mental Disorders*, 5th ed.; American Psychiatric Association: Arlington, VA, USA, 2013. https://doi.org/10.1176/appi.books.9780890425596.
9. Alvarez-Monjaras, M.; Mayes, L.C.; Potenza, M.N.; Rutherford, H.J. A Developmental Model of Addictions: Integrating Neurobiological and Psychodynamic Theories through the Lens of Attachment. *Attach. Hum. Dev.* **2019**, *21*, 616–637. https://doi.org/10.1080/14616734.2018.1498113.
10. Volkow, N.D.; Wang, G.-J.; Fowler, J.S.; Tomasi, D.; Telang, F. Addiction: Beyond Dopamine Reward Circuitry. *Proc. Natl. Acad. Sci. USA* **2011**, *108*, 15037–15042. https://doi.org/10.1073/pnas.1010654108.
11. Johnson, B. Addiction and Will. *Front. Hum. Neurosci.* **2013**, *7*, 545. https://doi.org/10.3389/fnhum.2013.00545.
12. Robinson, T.E.; Berridge, K.C. The Incentive Sensitization Theory of Addiction: Some Current Issues. *Philos. Trans. R. Soc. B Biol. Sci.* **2008**, *363*, 3137–3146. https://doi.org/10.1098/rstb.2008.0093.
13. Grubbs, J.B.; Hoagland, K.C.; Lee, B.N.; Grant, J.T.; Davison, P.; Reid, R.C.; Kraus, S.W. Sexual Addiction 25 Years on: A Systematic and Methodological Review of Empirical Literature and an Agenda for Future Research. *Clin. Psychol. Rev.* **2020**, *82*, 101925. https://doi.org/10.1016/j.cpr.2020.101925.
14. International Classification of Diseases (ICD). Available online: https://www.who.int/standards/classifications/classification-of-diseases (accessed on 11 December 2021).
15. Kraus, S.W.; Krueger, R.B.; Briken, P.; First, M.B.; Stein, D.J.; Kaplan, M.S.; Voon, V.; Abdo, C.H.N.; Grant, J.E.; Atalla, E.; et al. Compulsive Sexual Behaviour Disorder in the ICD-11. *World Psychiatry* **2018**, *17*, 109–110. https://doi.org/10.1002/wps.20499.
16. Kafka, M.P. Hypersexual Disorder: A Proposed Diagnosis for DSM-V. *Arch. Sex. Behav.* **2010**, *39*, 377–400. https://doi.org/10.1007/s10508-009-9574-7.
17. ICD-11 for Mortality and Morbidity Statistics. Available online: https://icd.who.int/dev11/l-m/en#/http://id.who.int/icd/entity/1630268048 (accessed on 11 December 2021).
18. Gola, M.; Lewczuk, K.; Potenza, M.N.; Kingston, D.A.; Grubbs, J.B.; Stark, R.; Reid, R.C. What Should Be Included in the Criteria for Compulsive Sexual Behavior Disorder? *J. Behav. Addict.* **2020**, *1*. https://doi.org/10.1556/2006.2020.00090.
19. Efrati, Y.; Gola, M. Treating Compulsive Sexual Behavior. *Curr. Sex. Health Rep.* **2018**, *10*, 57–64. https://doi.org/10.1007/s11930-018-0143-8.
20. Kowalewska, E.; Grubbs, J.B.; Potenza, M.N.; Gola, M.; Draps, M.; Kraus, S.W. Neurocognitive Mechanisms in Compulsive Sexual Behavior Disorder. *Curr. Sex. Health Rep.* **2018**, *10*, 255–264. https://doi.org/10.1007/s11930-018-0176-z.
21. Ballester-Arnal, R.; Castro-Calvo, J.; Giménez-García, C.; Gil-Juliá, B.; Gil-Llario, M.D. Psychiatric Comorbidity in Compulsive Sexual Behavior Disorder (CSBD). *Addict. Behav.* **2020**, *107*, 106384. https://doi.org/10.1016/j.addbeh.2020.106384.
22. Kraus, S.W.; Popat-Jain, A.; Potenza, M.N. Compulsive Sexual Behavior and Substance Use Disorders. In *Compulsive Sexual Behavior Disorder Understanding, Assessment, and Treatment*; American Psychiatric Association Publishing: Washington, DC, USA, 2021; pp. 21–34.
23. Davis, C. Addictive Personality. In *Encyclopedia of Personality and Individual Differences*; Zeigler-Hill, V., Shackelford, T.K., Eds.; Springer International Publishing: Cham, Switzerland, 2016; pp. 1–5. https://doi.org/10.1007/978-3-319-28099-8_1198-1.
24. McCrae, R.R.; Costa, P.T. The Stability of Personality: Observation and Evaluations. *Curr. Dir. Psychol. Sci.* **1994**, *3*, 173–175. https://doi.org/10.1111/1467-8721.ep10770693.
25. Goldberg, L.R. The Structure of Phenotypic Personality Traits. *Am. Psychol.* **1993**, *48*, 26–34. https://doi.org/10.1037/0003-066X.48.1.26.
26. John, O.P.; Srivastava, S. The Big Five Trait Taxonomy: History, Measurement, and Theoretical Perspectives. In *Handbook of Personality: Theory and Research*, 2nd ed; Guilford Press: New York, NY, USA, 1999; pp. 102–138.
27. McCrae, R.R.; Costa, P.T.; Ostendorf, F.; Angleitner, A.; Hrebícková, M.; Avia, M.D.; Sanz, J.; Sánchez-Bernardos, M.L.; Kusdil, M.E.; Woodfield, R.; et al.. Nature over Nurture: Temperament, Personality, and Life Span Development. *J. Pers. Soc. Psychol.* **2000**, *78*, 173–186. https://doi.org/10.1037//0022-3514.78.1.173.
28. McCrae, R.R.; Costa, P.T. Validation of the Five-Factor Model of Personality across Instruments and Observers. *J. Pers. Soc. Psychol.* **1987**, *52*, 81–90. https://doi.org/10.1037//0022-3514.52.1.81.
29. Digman, J.M. Higher-Order Factors of the Big Five. *J. Pers. Soc. Psychol.* **1997**, *73*, 1246–1256. https://doi.org/10.1037//0022-3514.73.6.1246.
30. Allik, J. Personality Dimensions across Cultures. *J. Personal. Disord.* **2005**, *19*, 212–232. https://doi.org/10.1521/pedi.2005.19.3.212.
31. McCrae, R.R.; Costa, P.T. Personality Trait Structure as a Human Universal. *Am. Psychol.* **1997**, *52*, 509–516. https://doi.org/10.1037//0003-066x.52.5.509.
32. Rothbart, M.K.; Sheese, B.E.; Posner, M.I. Executive Attention and Effortful Control: Linking Temperament, Brain Networks, and Genes. *Child Dev. Perspect.* **2007**, *1*, 2–7. https://doi.org/10.1111/j.1750-8606.2007.00002.x.

33. Mun, C.J.; Dishion, T.J.; Tein, J.-Y.; Otten, R. Adolescence Effortful Control as a Mediator between Family Ecology and Problematic Substance Use in Early Adulthood: A 16-Year Prospective Study. *Dev. Psychopathol.* **2018**, *30*, 1355–1369. https://doi.org/10.1017/S0954579417001742.
34. Cloninger, C.R.; Svrakic, D.M.; Przybeck, T.R. A Psychobiological Model of Temperament and Character. *Arch. Gen. Psychiatry* **1993**, *50*, 975–990. https://doi.org/10.1001/archpsyc.1993.01820240059008.
35. Mikulincer, M.; Shaver, P.R. Adult Attachment and Emotion Regulation. In *Handbook of Attachment: Theory, Research, and Clinical Applications*; Guilford Publications: New York, NY, USA, 2016; pp. 507–533.
36. Brennan, K.A.; Clark, C.L.; Shaver, P.R. Self-Report Measurement of Adult Attachment: An Integrative Overview. In *Attachment Theory and Close Relationships*; The Guilford Press: New York, NY, USA, 1998; pp. 46–76.
37. Collins, N.L.; Allard, L.M. Cognitive Representations of Attachment: The Content and Function of Working Models. In *Social Cognition, Perspectives on Social Psychology*; Blackwell Publishing: Malden, MA, USA, 2004; pp. 75–101.
38. Birnbaum, G.E.; Reis, H.T.; Mikulincer, M.; Gillath, O.; Orpaz, A. When Sex Is More than Just Sex: Attachment Orientations, Sexual Experience, and Relationship Quality. *J. Pers. Soc. Psychol.* **2006**, *91*, 929–943. https://doi.org/10.1037/0022-3514.91.5.929.
39. Smith, E.R.; Murphy, J.; Coats, S. Attachment to Groups: Theory and Measurement. *J. Pers. Soc. Psychol.* **1999**, *77*, 94–110. https://doi.org/10.1037//0022-3514.77.1.94.
40. Mikulincer, M.; Shaver, P.R. An Attachment Perspective on Psychopathology. *World Psychiatry Off. J. World Psychiatr. Assoc. WPA* **2012**, *11*, 11–15. https://doi.org/10.1016/j.wpsyc.2012.01.003.
41. Sroufe, L.A.; Duggal, S.; Weinfield, N.; Carlson, E. Relationships, Development, and Psychopathology. In *Handbook of Developmental Psychopathology*; Sameroff, A.J., Lewis, M., Miller, S.M., Eds.; Springer: Boston, MA, USA, 2000; pp. 75–91. https://doi.org/10.1007/978-1-4615-4163-9_5.
42. Cantazaro, A.; Wei, M. Adult Attachment, Dependence, Self-Criticism, and Depressive Symptoms: A Test of a Mediational Model. *J. Pers.* **2010**, *78*, 1135–1162. https://doi.org/10.1111/j.1467-6494.2010.00645.x.
43. Marganska, A.; Gallagher, M.; Miranda, R. Adult Attachment, Emotion Dysregulation, and Symptoms of Depression and Generalized Anxiety Disorder. *Am. J. Orthopsychiatry* **2013**, *83*, 131–141. https://doi.org/10.1111/ajop.12001.
44. Doron, G.; Moulding, R.; Kyrios, M.; Nedeljkovic, M.; Mikulincer, M. Adult Attachment Insecurities Are Related to Obsessive Compulsive Phenomena. *J. Soc. Clin. Psychol.* **2009**, *28*, 1022–1049. https://doi.org/10.1521/jscp.2009.28.8.1022.
45. Ein-Dor, T.; Doron, G.; Solomon, Z.; Mikulincer, M.; Shaver, P.R. Together in Pain: Attachment-Related Dyadic Processes and Posttraumatic Stress Disorder. *J. Couns. Psychol.* **2010**, *57*, 317–327. https://doi.org/10.1037/a0019500.
46. Illing, V.; Tasca, G.A.; Balfour, L.; Bissada, H. Attachment Insecurity Predicts Eating Disorder Symptoms and Treatment Outcomes in a Clinical Sample of Women. *J. Nerv. Ment. Dis.* **2010**, *198*, 653–659. https://doi.org/10.1097/NMD.0b013e3181ef34b2.
47. Davaji, R.B.O.; Valizadeh, S.; Nikamal, M. The Relationship between Attachment Styles and Suicide Ideation: The Study of Turkmen Students, Iran. *Procedia-Soc. Behav. Sci.* **2010**, *5*, 1190–1194. https://doi.org/10.1016/j.sbspro.2010.07.259.
48. Ein-Dor, T.; Doron, G. Psychopathology and Attachment. In *Attachment Theory and Research: New Directions and Emerging Themes*; The Guilford Press: New York, NY, USA, 2015; pp. 346–373.
49. Ein-Dor, T.; Viglin, D.; Doron, G. Extending the Transdiagnostic Model of Attachment and Psychopathology. *Front. Psychol.* **2016**, *7*, 484. https://doi.org/10.3389/fpsyg.2016.00484.
50. Orilisi, G.; Mascitti, M.; Togni, L.; Monterubbianesi, R.; Tosco, V.; Vitiello, F.; Santarelli, A.; Putignano, A.; Orsini, G. Oral Manifestations of COVID-19 in Hospitalized Patients: A Systematic Review. *Int. J. Environ. Res. Public Health* **2021**, *18*, 12511. https://doi.org/10.3390/ijerph182312511.
51. Kotov, R.; Gamez, W.; Schmidt, F.; Watson, D. Linking "Big" Personality Traits to Anxiety, Depressive, and Substance Use Disorders: A Meta-Analysis. *Psychol. Bull.* **2010**, *136*, 768–821. https://doi.org/10.1037/a0020327.
52. Dash, G.F.; Slutske, W.S.; Martin, N.G.; Statham, D.J.; Agrawal, A.; Lynskey, M.T. Big Five Personality Traits and Alcohol, Nicotine, Cannabis, and Gambling Disorder Comorbidity. *Psychol. Addict. Behav.* **2019**, *33*, 420–429. https://doi.org/10.1037/adb0000468.
53. Pinto, J.; Carvalho, J.; Nobre, P.J. The Relationship between the FFM Personality Traits, State Psychopathology, and Sexual Compulsivity in a Sample of Male College Students. *J. Sex. Med.* **2013**, *10*, 1773–1782. https://doi.org/10.1111/jsm.12185.
54. Walton, M.T.; Cantor, J.M.; Lykins, A.D. An Online Assessment of Personality, Psychological, and Sexuality Trait Variables Associated with Self-Reported Hypersexual Behavior. *Arch. Sex. Behav.* **2017**, *46*, 721–733. https://doi.org/10.1007/s10508-015-0606-1.
55. Amamou, B.; Missaoui, C.; Haouala, A.B.; Mhalla, A.; Zaafrane, F.; Gaha, L. Sexual Addiction, Self-Esteem and Personality Dimensions. *J. Addict. Ther. Res.* **2020**, *4*, 006–012. https://doi.org/10.29328/journal.jatr.1001011.
56. Paz, G.; Griffiths, M.D.; Demetrovics, Z.; Szabo, A. Role of Personality Characteristics and Sexual Orientation in the Risk for Sexual Addiction Among Israeli Men: Validation of a Hebrew Sex Addiction Scale. *Int. J. Ment. Health Addict.* **2021**, *19*, 32–46. https://doi.org/10.1007/s11469-019-00109-x.
57. Soraci, P.; Melchiori, F.M.; Del Fante, E.; Melchiori, R.; Guaitoli, E.; Lagattolla, F.; Parente, G.; Bonanno, E.; Norbiato, L.; Cimaglia, R.; et al. Validation and Psychometric Evaluation of the Italian Version of the Bergen–Yale Sex Addiction Scale. *Int. J. Ment. Health Addict.* **2021**, 1–27. https://doi.org/10.1007/s11469-021-00597-w.
58. Skinner, H.A. The Drug Abuse Screening Test. *Addict. Behav.* **1982**, *7*, 363–371. https://doi.org/10.1016/0306-4603(82)90005-3.
59. Efrati, Y.; Mikulincer, M. Individual-Based Compulsive Sexual Behavior Scale: Its Development and Importance in Examining Compulsive Sexual Behavior. *J. Sex Marital Ther.* **2018**, *44*, 249–259. https://doi.org/10.1080/0092623X.2017.1405297.

60. Coleman, E.; Miner, M.; Ohlerking, F.; Raymond, N. Compulsive Sexual Behavior Inventory: A Preliminary Study of Reliability and Validity. *J. Sex Marital Ther.* **2001**, *27*, 325–332. https://doi.org/10.1080/009262301317081070.
61. Rettenberger, M.; Klein, V.; Briken, P. The Relationship Between Hypersexual Behavior, Sexual Excitation, Sexual Inhibition, and Personality Traits. *Arch. Sex. Behav.* **2016**, *45*, 219–233. https://doi.org/10.1007/s10508-014-0399-7.
62. Reid, R.C.; Garos, S.; Carpenter, B.N. Reliability, Validity, and Psychometric Development of the Hypersexual Behavior Inventory in an Outpatient Sample of Men. *Sex. Addict. Compulsivity* **2011**, *18*, 30–51. https://doi.org/10.1080/10720162.2011.555709.
63. Shimoni, L.; Dayan, M.; Cohen, K.; Weinstein, A. The Contribution of Personality Factors and Gender to Ratings of Sex Addiction among Men and Women Who Use the Internet for Sex Purpose. *J. Behav. Addict.* **2018**, *7*, 1015–1021. https://doi.org/10.1556/2006.7.2018.101.
64. Carnes, P. Sexual Addiction Screening Test. *Tenn. Nurse* **1991**, *54*, 29.
65. Andreassen, C.S.; Pallesen, S.; Griffiths, M.D.; Torsheim, T.; Sinha, R. The Development and Validation of the Bergen–Yale Sex Addiction Scale with a Large National Sample. *Front. Psychol.* **2018**, *9*, 144. https://doi.org/10.3389/fpsyg.2018.00144.
66. Bucholz, K.K.; Cadoret, R.; Cloninger, C.R.; Dinwiddie, S.H.; Hesselbrock, V.M.; Nurnberger, J.I.; Reich, T.; Schmidt, I.; Schuckit, M.A. A New, Semi-Structured Psychiatric Interview for Use in Genetic Linkage Studies: A Report on the Reliability of the SSAGA. *J. Stud. Alcohol* **1994**, *55*, 149–158. https://doi.org/10.15288/jsa.1994.55.149.
67. Heath, A.C.; Bucholz, K.K.; Madden, P.A.; Dinwiddie, S.H.; Slutske, W.S.; Bierut, L.J.; Statham, D.J.; Dunne, M.P.; Whitfield, J.B.; Martin, N.G. Genetic and Environmental Contributions to Alcohol Dependence Risk in a National Twin Sample: Consistency of Findings in Women and Men. *Psychol. Med.* **1997**, *27*, 1381–1396. https://doi.org/10.1017/s0033291797005643.
68. Spitzer, R.L.; Endicott, J.; Robins, E. Clinical Criteria for Psychiatric Diagnosis and DSM-III. *Am. J. Psychiatry* **1975**, *132*, 1187–1192. https://doi.org/10.1176/ajp.132.11.1187.
69. Sattler, S.; Schunck, R. Associations Between the Big Five Personality Traits and the Non-Medical Use of Prescription Drugs for Cognitive Enhancement. *Front. Psychol.* **2016**, *6*, 1971. https://doi.org/10.3389/fpsyg.2015.01971.
70. Terracciano, A.; Löckenhoff, C.E.; Crum, R.M.; Bienvenu, O.J.; Costa, P.T. Five-Factor Model Personality Profiles of Drug Users. *BMC Psychiatry* **2008**, *8*, 22. https://doi.org/10.1186/1471-244X-8-22.
71. Lackner, N.; Unterrainer, H.-F.; Neubauer, A.C. Differences in Big Five Personality Traits between Alcohol and Polydrug Abusers: Implications for Treatment in the Therapeutic Community. *Int. J. Ment. Health Addict.* **2013**, *11*, 682–692. https://doi.org/10.1007/s11469-013-9445-2.
72. Raketic, D.; Barisic, J.V.; Svetozarevic, S.M.; Gazibara, T.; Tepavcevic, D.K.; Milovanovic, S.D. Five-Factor Model Personality Profiles: The Differences between Alcohol and Opiate Addiction among Females. *Psychiatr. Danub.* **2017**, *29*, 74–80. https://doi.org/10.24869/psyd.2017.74.
73. Hwang, J.Y.; Choi, J.-S.; Gwak, A.R.; Jung, D.; Choi, S.-W.; Lee, J.; Lee, J.-Y.; Jung, H.Y.; Kim, D.J. Shared Psychological Characteristics That Are Linked to Aggression between Patients with Internet Addiction and Those with Alcohol Dependence. *Ann. Gen. Psychiatry* **2014**, *13*, 6. https://doi.org/10.1186/1744-859X-13-6.
74. Cheetham, A.; Allen, N.B.; Yücel, M.; Lubman, D.I. The Role of Affective Dysregulation in Drug Addiction. *Clin. Psychol. Rev.* **2010**, *30*, 621–634. https://doi.org/10.1016/j.cpr.2010.04.005.
75. Peeters, M.; Oldehinkel, T.; Vollebergh, W. Behavioral Control and Reward Sensitivity in Adolescents' Risk Taking Behavior: A Longitudinal TRAILS Study. *Front. Psychol.* **2017**, *8*, 231. https://doi.org/10.3389/fpsyg.2017.00231.
76. Novak, S.P.; Clayton, R.R. The Influence of School Environment and Self-Regulation on Transitions between Stages of Cigarette Smoking: A Multilevel Analysis. *Health Psychol. Off. J. Div. Health Psychol. Am. Psychol. Assoc.* **2001**, *20*, 196–207.
77. Patock-Peckham, J.A.; Cheong, J.; Balhorn, M.E.; Nagoshi, C.T. A Social Learning Perspective: A Model of Parenting Styles, Self-Regulation, Perceived Drinking Control, and Alcohol Use and Problems. *Alcohol. Clin. Exp. Res.* **2001**, *25*, 1284–1292.
78. Wills, T.A.; DuHamel, K.; Vaccaro, D. Activity and Mood Temperament as Predictors of Adolescent Substance Use: Test of a Self-Regulation Mediational Model. *J. Pers. Soc. Psychol.* **1995**, *68*, 901–916. https://doi.org/10.1037//0022-3514.68.5.901.
79. Lyvers, M. "Loss of Control" in Alcoholism and Drug Addiction: A Neuroscientific Interpretation. *Exp. Clin. Psychopharmacol.* **2000**, *8*, 225–249. https://doi.org/10.1037//1064-1297.8.2.225.
80. Nigg, J.T.; Glass, J.M.; Wong, M.M.; Poon, E.; Jester, J.M.; Fitzgerald, H.E.; Puttler, L.I.; Adams, K.M.; Zucker, R.A. Neuropsychological Executive Functioning in Children at Elevated Risk for Alcoholism: Findings in Early Adolescence. *J. Abnorm. Psychol.* **2004**, *113*, 302–314. https://doi.org/10.1037/0021-843X.113.2.302.
81. Wong, M.M.; Rowland, S.E. Self-Determination and Substance Use: Is Effortful Control a Mediator? *Alcohol. Clin. Exp. Res.* **2013**, *37*, 1040–1047. https://doi.org/10.1111/acer.12062.
82. Santens, E.; Claes, L.; Dierckx, E.; Luyckx, K.; Peuskens, H.; Dom, G. Personality Profiles in Substance Use Disorders: Do They Differ in Clinical Symptomatology, Personality Disorders and Coping? *Personal. Individ. Differ.* **2018**, *131*, 61–66. https://doi.org/10.1016/j.paid.2018.04.018.
83. First, M.B. *User's Guide for the Structured Clinical Interview for DSM-IV Axis I Disorders SCID-I: Clinician Version*; American Psychiatric Press: Washington, DC, USA, 1997.
84. Bozkurt, M.; Evren, C.; Can, Y.; Evren, B.; Cetingok, S.; Yilmaz, A. Relationships of Personality Dimensions with Impulsivity in Alcohol-Dependent Inpatient Men. *Nord. J. Psychiatry* **2014**, *68*, 316–322. https://doi.org/10.3109/08039488.2013.830772.
85. Tomassini, A.; Struglia, F.; Spaziani, D.; Pacifico, R.; Stratta, P.; Rossi, A. Decision Making, Impulsivity, and Personality Traits in Alcohol-Dependent Subjects. *Am. J. Addict.* **2012**, *21*, 263–267. https://doi.org/10.1111/j.1521-0391.2012.00225.x.

86. Abassi, M.; Abolghasemi, A. Temperament and Character Dimensions: Correlates of Impulsivity in Morphine Addicts. *Int. J. High Risk Behav. Addict.* **2015**, *4*, e21142. https://doi.org/10.5812/ijhrba.21142.
87. Can, S.S.; Ünlütürk, S. Personality Traits of Substance Abusers in Turkish Military Population. *J. Subst. Use* **2014**, *19*, 440–443. https://doi.org/10.3109/14659891.2013.856477.
88. Seyed Hashemi, S.G.; Merghati Khoei, E.; Hosseinnezhad, S.; Mousavi, M.; Dadashzadeh, S.; Mostafaloo, T.; Mahmoudi, S.; Yousefi, H. Personality Traits and Substance Use Disorders: Comparative Study with Drug User and Non-Drug User Population. *Personal. Individ. Differ.* **2019**, *148*, 50–56. https://doi.org/10.1016/j.paid.2019.05.015.
89. Amirabadi, B.; Nikbakht, M.; Nokani, M.; Alibeygi, N.; Safari, H. Role of Temperament, Personality Traits and Onset Age of Smoking in Predicting Opiate Dependence. *Int. J. High Risk Behav. Addict.* **2015**, *4*, e24585. https://doi.org/10.5812/ijhrba.24585.
90. Fassino, S.; Daga, G.A.; Delsedime, N.; Rogna, L.; Boggio, S. Quality of Life and Personality Disorders in Heroin Abusers. *Drug Alcohol Depend.* **2004**, *76*, 73–80. https://doi.org/10.1016/j.drugalcdep.2004.04.005.
91. Hosák, L.; Preiss, M.; Halír, M.; Cermáková, E.; Csémy, L. Temperament and Character Inventory (TCI) Personality Profile in Metamphetamine Abusers: A Controlled Study. *Eur. Psychiatry J. Assoc. Eur. Psychiatr.* **2004**, *19*, 193–195. https://doi.org/10.1016/j.eurpsy.2004.04.003.
92. World Health Organization. *AUDIT: The Alcohol Use Disorders Identification Test: Guidelines for Use in Primary Health Care; WHO/MSD/MSB/01.6a*; World Health Organization: Geneva, Switzerland, 2001.
93. Hildebrand, M. The Psychometric Properties of the Drug Use Disorders Identification Test (DUDIT): A Review of Recent Research. *J. Subst. Abuse Treat.* **2015**, *53*, 52–59. https://doi.org/10.1016/j.jsat.2015.01.008.
94. Steingrimsson, S.; Carlsen, H.K.; Lundström, E.; Lundström, S.; Nilsson, T. Problematic Alcohol and Drug Use Is Associated with Low Self-Directedness and Cooperativeness. *Eur. Addict. Res.* **2020**, *26*, 326–334. https://doi.org/10.1159/000506473.
95. Chang, H.-L.; Chen, S.-H.; Huang, C. Temperament of Juvenile Delinquents with History of Substance Abuse. *Chang Gung Med. J.* **2007**, *30*, 47–52.
96. Sarra, A.; Fontanella, L.; D'Egidio, F.; Frattone, P. The Dimensional Assessment of Personality in Drug Addicts: A Mixed-Effects Rasch Model Approach. *Qual. Quant.* **2014**, *48*, 3025–3036. https://doi.org/10.1007/s11135-013-9938-x.
97. Lukasiewicz, M.; Neveu, X.; Blecha, L.; Falissard, B.; Reynaud, M.; Gasquet, I. Pathways to Substance-Related Disorder: A Structural Model Approach Exploring the Influence of Temperament, Character, and Childhood Adversity in a National Cohort of Prisoners. *Alcohol Alcohol.* **2008**, *43*, 287–295. https://doi.org/10.1093/alcalc/agm183.
98. Watanabe, J.; Lu, X.; Liu, Q.; Uji, M.; Shono, M.; Chen, Z.; Kitamura, T. The Effects of Perceived Childhood Rearing on Substance and Behaviour Addiction among Japanese University Students: Mediation through Personality Traits. In *Family Life, Roles, Bonds and Impact*; Goossens, C.L., Ed.; Nova Science Publishers, Inc. New York, NY, USA, 2011.
99. Milivojevic, D.; Milovanovic, S.D.; Jovanovic, M.; Svrakic, D.M.; Svrakic, N.M.; Svrakic, S.M.; Cloninger, C.R. Temperament and Character Modify Risk of Drug Addiction and Influence Choice of Drugs. *Am. J. Addict.* **2012**, *21*, 462–467. https://doi.org/10.1111/j.1521-0391.2012.00251.x.
100. Conway, K.P.; Kane, R.J.; Ball, S.A.; Poling, J.C.; Rounsaville, B.J. Personality, Substance of Choice, and Polysubstance Involvement among Substance Dependent Patients. *Drug Alcohol Depend.* **2003**, *71*, 65–75. https://doi.org/10.1016/s0376-8716(03)00068-1.
101. Torrens, M.; Serrano, D.; Astals, M.; Pérez-Domínguez, G.; Martín-Santos, R. Diagnosing Comorbid Psychiatric Disorders in Substance Abusers: Validity of the Spanish Versions of the Psychiatric Research Interview for Substance and Mental Disorders and the Structured Clinical Interview for DSM-IV. *Am. J. Psychiatry* **2004**, *161*, 1231–1237. https://doi.org/10.1176/appi.ajp.161.7.1231.
102. Herrero, M.J.; Domingo-Salvany, A.; Torrens, M.; Brugal, M.T.; Gutiérrez, F.; The ITINERE investigators. Personality Profile in Young Current Regular Users of Cocaine. *Subst. Use Misuse* **2008**, *43*, 1378–1394. https://doi.org/10.1080/10826080801922652.
103. Kalichman, S.C.; Rompa, D. The Sexual Compulsivity Scale: Further Development and Use with HIV-Positive Persons. *J. Pers. Assess.* **2001**, *76*, 379–395. https://doi.org/10.1207/S15327752JPA7603_02.
104. do Amaral, M.L.S.; Abdo, C.H.N.; Tavares, H.; Scanavino, M. de T. Personality among Sexually Compulsive Men Who Practice Intentional Unsafe Sex in São Paulo, Brazil. *J. Sex. Med.* **2015**, *12*, 557–566. https://doi.org/10.1111/jsm.12761.
105. Andrews, G.; Peters, L. The Psychometric Properties of the Composite International Diagnostic Interview. *Soc. Psychiatry Psychiatr. Epidemiol.* **1998**, *33*, 80–88. https://doi.org/10.1007/s001270050026.
106. Zucker, R.A.; Fitzgerald, H.E. *Family Study of Risk for Alcoholism over the Life Course. Appendix 9.3 Assessment Protocol: Description of Instruments and Copies of Contact Schedules*; Department of Psychiatry, University of Michigan: Ann Arbor, MI, USA, 2002.
107. Efrati, Y. Adolescent Compulsive Sexual Behavior: Is It a Unique Psychological Phenomenon? *J. Sex Marital Ther.* **2018**, *44*, 687–700. https://doi.org/10.1080/0092623X.2018.1452088.
108. Berridge, K.C.; Robinson, T.E.; Aldridge, J.W. Dissecting Components of Reward: "Liking", "Wanting", and Learning. *Curr. Opin. Pharmacol.* **2009**, *9*, 65–73. https://doi.org/10.1016/j.coph.2008.12.014.
109. Mechelmans, D.J.; Irvine, M.; Banca, P.; Porter, L.; Mitchell, S.; Mole, T.B.; Lapa, T.R.; Harrison, N.A.; Potenza, M.N.; Voon, V. Enhanced Attentional Bias towards Sexually Explicit Cues in Individuals with and without Compulsive Sexual Behaviours. *PLoS ONE* **2014**, *9*, e105476. https://doi.org/10.1371/journal.pone.0105476.
110. Fairbairn, C.E.; Briley, D.A.; Kang, D.; Fraley, R.C.; Hankin, B.L.; Ariss, T. A Meta-Analysis of Longitudinal Associations between Substance Use and Interpersonal Attachment Security. *Psychol. Bull.* **2018**, *144*, 532–555. https://doi.org/10.1037/bul0000141.

111. Estévez, A.; Jáuregui, P.; Sánchez-Marcos, I.; López-González, H.; Griffiths, M.D. Attachment and Emotion Regulation in Substance Addictions and Behavioral Addictions. *J. Behav. Addict.* **2017**, *6*, 534–544. https://doi.org/10.1556/2006.6.2017.086.
112. Weinstein, A.; Katz, L.; Eberhardt, H.; Cohen, K.; Lejoyeux, M. Sexual Compulsion--Relationship with Sex, Attachment and Sexual Orientation. *J. Behav. Addict.* **2015**, *4*, 22–26. https://doi.org/10.1556/JBA.4.2015.1.6.
113. Zapf, J.; Greiner, J.; Carroll, J. Attachment Styles and Male Sex Addiction. *Sch. Psychol. Publ.* **2008**, *15*, 158–175.
114. Gilliland, R.; Blue Star, J.; Hansen, B.; Carpenter, B. Relationship Attachment Styles in a Sample of Hypersexual Patients. *J. Sex Marital Ther.* **2015**, *41*, 581–592. https://doi.org/10.1080/0092623X.2014.958787.
115. Crocker, M.M. Out-of-Control Sexual Behavior as a Symptom of Insecure Attachment in Men. *J. Soc. Work Pract. Addict.* **2015**, *15*, 373–393. https://doi.org/10.1080/1533256X.2015.1091000.
116. Giordano, A.L.; Cashwell, C.S.; Lankford, C.; King, K.; Henson, R.K. Collegiate Sexual Addiction: Exploring Religious Coping and Attachment. *J. Couns. Dev.* **2017**, *95*, 135–144. https://doi.org/10.1002/jcad.12126.
117. Ciocca, G.; Pelligrini, F.; Mollaioli, D.; Limoncin, E.; Sansone, A.; Colonnello, E.; Jannini, E.A.; Fontanesi, L. Hypersexual Behavior and Attachment Styles in a Non-Clinical Sample: The Mediation Role of Depression and Post-Traumatic Stress Symptoms. *J. Affect. Disord.* **2021**, *293*, 399–405. https://doi.org/10.1016/j.jad.2021.06.064.
118. Kircaburun, K.; Ünübol, H.; Sayar, G.H.; Çarkçı, J.; Griffiths, M.D. Sex Addiction in Turkey: A Large-Scale Survey with a National Community Sample. *Curr. Psychol.* **2021**, 1–9. https://doi.org/10.1007/s12144-021-01632-8.
119. Efrati, Y.; Amichai-Hamburger, Y. Adolescents Who Solely Engage in Online Sexual Experiences Are at Higher Risk for Compulsive Sexual Behavior. *Addict. Behav.* **2021**, *118*, 106874. https://doi.org/10.1016/j.addbeh.2021.106874.