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Characteristics of self-identified sexual addicts in a behavioral addiction outpatient clinic

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Background and aims: Research on sexual addiction flourished during the last decade, promoted by the development of an increased number of online sexual activities. Despite the accumulation of studies, however, evidence collected in clinical samples of treatment-seeking people remains scarce. The aim of this study was to describe the characteristics (socio-demographics, sexual habits, and comorbidities) of self-identified "sexual addicts." *Methods:* The sample was composed of 72 patients who consulted an outpatient treatment center regarding their sexual behaviors. Data were collected through a combination of structured interviewing and self-report measures. *Results:* Most patients were males (94.4%) aged 20–76 years (mean 40.3 ± 10.9). Endorsement of sexual addiction diagnosis varied from 56.9% to 95.8% depending on the criteria used. The sexual behaviors reported to have the highest degree of functional impairment were having multiple sexual partners (56%), having unprotected sexual intercourse (51.9%), and using cybersex (43.6%). Ninety percent of patients endorsed a comorbid psychiatric diagnosis, and 60.6% presented at least one paraphilia. *Conclusions:* Results showed highly different profiles in terms of sexual preferences and behaviors, as well as comorbidities involved. These findings highlight the need to develop tailored psychotherapeutic interventions by taking into account the complexity and heterogeneity of the disorder.

Keywords: sexual addiction, hypersexuality, excessive sexual behavior, comorbidities

INTRODUCTION

Excessive sexual behaviors have been described and studied by clinicians and sexologists since the 19th century (e.g., von Krafft-Ebing, 1965). At that time, excessive and uncontrolled sexual behaviors were often considered as *satyriasis* or *Don Juanism* in males and *nymphomania* in females. Initial research took the form of observations and reports made by clinicians who described a wide range of persistent and socially deviant sexual behaviors as well as non-paraphilic excessive sexual disorders associated with functional impairment and psychological distress (Kafka, 2010). Since the early 2000s, both research and mass media have contributed to the popularization of the label *sexual addict*, generally used to describe someone involved in a variety of sexual behaviors that occur in excess and that significantly impact on everyday life in a negative way (Levine, 2010). Excessive sexual behaviors have been extensively studied in recent years, coinciding with the resurgence in these behaviors since the development and expansion of online sexual activities (Wéry & Billieux, 2016a). Some of the structural characteristics of sexual online activities, including the low cost, easy access, and almost infinite variety of activities and content available, have been proposed to fuel their excessive use (Beyens & Eggermont, 2014; Cooper, Scherer, Boies, & Gordon, 1999; Rosenberg & Kraus, 2014).

Despite the many studies that have explored excessive sexual behaviors, little is known about socio-demographic, psychiatric, and psychosocial background of treatment-seeking self-identified sexually addicted individuals. The fact that few studies are available on clinical samples contributes to the lack of consensus among scholars regarding the conceptualization of the disorder. This absence of

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conceptual consensus, along with the massive variation in estimated prevalence rates and the lack of data regarding the course of the disorder (Karila et al., 2014; Wéry & Billieux, 2016a), contributed to the American Psychiatric Association's decision not to include hypersexuality as a potential new psychiatric condition in the 5th edition of the *Diagnostic and Statistical Manual of Mental Disorders* (American Psychiatric Association, 2013).

Previous research referred to multiple definitions, and various terms have been used to describe the disorder, including "hypersexual disorder" (Kafka, 2010, 2013), "compulsive sexual behavior" (Coleman, 1992), and "sexual impulsivity" (Barth & Kinder, 1987) although "sexual addiction" tends to be the most commonly used term (Karila et al., 2014). Indeed, excessive sexual behaviors are increasingly described as a behavioral (i.e., non-chemical) addiction and aligned with psychiatric conditions such as gambling disorder or Internet gaming disorder (Billieux, Schimmenti, Khazaal, Maurage, & Heeren, 2015). This current trend finds its roots in the fact that symptoms constituting a hallmark of addictive behaviors have been consistently associated with excessive sexual behaviors (Carnes, 1991, 2000; Goodman, 1998; Orzack & Ross, 2000). Accordingly, sexual addiction has generally been defined as an uncontrolled and excessive involvement in sexual activities characterized by a persistent desire or unsuccessful efforts to stop, reduce, or control sexual behaviors, as well as by cognitive salience, mood regulation, withdrawal, and functional impairment (Carnes, 2000; Corley & Hook, 2012). Alternatively, sexual addiction-like symptoms have been proposed to reflect a dysfunctional emotion regulation strategy whereby sexual behaviors are displayed to regulate or relieve negative affect, to cope with another psychiatric disorder (e.g., depression and anxiety), or to face adverse life events (Carnes, 2000; Cooper, Delmonico, Griffin-Shelley, & Mathy, 2004; Ross, Månsson, & Daneback, 2012). Various criteria have been proposed to diagnose sexual addiction (see Wéry & Billieux, 2016a for a review), the most recognized in the scientific literature being those formulated by Carnes (1991), Goodman (1998), and Kafka (2010, 2013). These sets of criteria differ substantially, yet they all include the following three criteria: loss of control, excessive time dedicated to sexual behaviors, and functional impairment. Although no consensus currently exists in the literature, we decided for clarity to systematically use the term *sexual addiction* throughout this paper to describe the condition whereby sexual behaviors are excessive and uncontrolled and are associated with the above-mentioned symptoms.

Most research conducted during the last decades explored the characteristics associated with sexual addiction, with a particular emphasis on socio-demographics and comorbidities. Several features were reported to be associated with sexual addiction. First, studies highlighted a prevalence of sexual addiction that is three to five times higher in men than in women (Ballester-Arnal, Castro-Calvo, Gil-Llario, & Giménez-García, 2014; Carnes, 2000; Kafka, 2010). Second, higher education was consistently associated with sexual addiction (Cooper et al., 1999; Daneback, Cooper, & Månsson, 2005; Ross et al., 2012). However, it is worth noting that these findings were obtained in samples of self-selected undergraduate students or individuals interested in scientific research, which raises doubts regarding their generalizability. Regarding relationship status, sexual addiction equally concerns persons who are involved or not involved in a stable relationship (Cooper et al., 1999; Daneback et al., 2005), yet recent data nuanced such a finding by emphasizing that men involved in a stable relationship tend to be recreational cybersex users, whereas single men tend to be addicted users (Ballester-Arnal et al., 2014). Third, elevated rates of comorbid psychiatric disorders were systematically shown in samples of sexual addicts. These comorbidities include mood disorders, anxiety disorders, attention deficit hyperactivity disorder (ADHD; Berberovic, 2013; Garcia & Thibaut, 2010; Mick & Hollander, 2006; Philaretou, Mahfouz, & Allen, 2005; Semaille, 2009), and substance use disorders (Berberovic, 2013; Carnes, 1991; Kalichman & Cain, 2004). Sexual addiction has also been linked to sexual abuse during childhood (Carnes, 1991; Ferree, 2003; Giugliano, 2006) and has been associated with a variety of unhealthy and risky behaviors, including risky sexual practices (Carroll et al., 2008; Häggström-Nordin, Hanson, & Tyden, 2005; Kalichman & Cain, 2004). Most evidence about sexual addiction has, however, been obtained in convenience and self-selected samples, which questions the representativeness of these samples and limits the current knowledge regarding the characteristics of clinical samples. Moreover, little information is available regarding the sexual behaviors (e.g., sexual preferences and their consequences, sexual dysfunctions) displayed by treatment-seeking sexual addicts.

The aim of this report was to describe the characteristics (i.e., socio-demographic background, sexual behaviors, and comorbid psychopathology) of a cohort of patients self-identified as "sexual addicts" who enrolled in a behavioral addiction outpatient program.

METHODS

Participants and procedure

Participants were recruited at the Department of Addictology and Psychiatry of the Nantes University Hospital (France). To meet the inclusion criteria for this study, each participant had to be (a) a treatment-seeking person, (b) a native or fluent French speaker, and (c) 16 years or older (16 years is the minimum legal age to be treated at the center where the study was conducted). Moreover, to be included in the study, participants had to reach a defined threshold in the Sex Addiction Screening Test (SAST; Carnes, 1989) and/or to endorse the diagnostic criteria of a modified version of Kafka's criteria (Kafka, 2010) as described below. Between April 2011 and December 2014, 90 treatment-seeking individuals were considered for potential inclusion in this study. Of these, 14 did not meet the inclusion criteria for the study, three refused to participate, and one was not able to participate because of visual impairment. Accordingly, 72 individuals (i.e., 80% of the patients having attended the outpatient behavioral addiction clinic regarding sexual problems) were enrolled in the study. Socio-demographic characteristics of the patients are reported in Table 1. The mean age was 40.33 years (SD: 10.93; range: 20–76). Patients were predominantly males

Table 1. Age, gender, relationship status, educational level, and professional status of the sample ($N = 72$)

Variable	Mean (*SD*) or %
Age	40.33 (10.93)
Sex	
Male	94.4%
Female	5.6%
Relationship	
In a stable relationship	63.9%
Single	26.4%
Separated/divorced	6.9%
Widowed	1.4%
Other	1.4%
Education	
None	2.8%
Primary school	1.4%
College	16.7%
High school	18.1%
University	55.6%
Other	5.6%
Professional status	
Active worker	73.6%
Inactive	26.4%

(94.4%) involved in a stable relationship (63.9%), highly educated (55.6% held a university degree), and active workers (73.6%). Data were obtained through a combination of structured interviewing conducted by psychologists of the outpatient behavioral addiction clinic and self-reports completed by the patients themselves.

Main outcome measures

Diagnosis of sexual addiction. In the absence of formal consensus in the literature, we decided to rely on the three most used and recognized diagnostic tools, which were translated into French for the purpose of this study. First, the SAST (Carnes, 1989) was used, which consists of a 25-item scale with dichotomous answers (examples of items: "Have you made efforts to quit a type of sexual activity and failed?"; "Do you feel controlled by your sexual desire?"). A score of 13 or higher has been suggested to reflect sexual addiction. In this study, this cutoff was used to diagnose sexual addiction, whereas a score of >10 was used as an inclusion criterion in order to avoid rejecting individuals with subthreshold symptoms who were nonetheless susceptible to experiencing subjective distress or functional impairment. The internal reliability (Cronbach's α) of the SAST in the current sample is 0.64. Second, a modified version of Kafka's criteria (Kafka, 2010) was used. Kafka's original proposal formulated three criteria that must be endorsed, on the basis of dichotomous answers, for a diagnosis of hypersexuality. For endorsement of criterion A, three of the following five symptoms must be fulfilled: (A) sexual behaviors engender interference in daily life, (B) sexual behaviors are displayed to regulate negative affect, (C) sexual behaviors are displayed to cope with adverse life events, (D) there is a loss of control over sexual behaviors, and (E) continuous involvement occurs despite negative outcomes. For endorsement of criterion B, excessive sexual behaviors must imply subjective psychological distress or functional impairment. For endorsement of criterion C, the possibility that excessive sexual behaviors are caused by the effect of a psychoactive substance must be excluded. In this study, dichotomous scoring was replaced by dimensional scoring on a 5-point Likert scale from 0 (never) to 4 (almost always) to allow more nuanced answering and to reduce the likelihood of false-negative answers, given that most questions addressed highly stigmatized behaviors. Moreover, criterion B was divided into two questions (one for subjective psychological distress and one for functional impairment), and criterion C was removed (this criterion was addressed by a psychologist during structured interviewing). This modified version of Kafka's proposal contains seven items, and the following inclusion criteria were used: endorsement of at least four items for criterion A and at least one item for criterion B, with a score of 3 (often) or 4 (almost always). Cronbach's α of the modified Kafka's criteria in the current sample is 0.64. Finally, Goodman's criteria were also used (Goodman, 1998). The scale contains 14 items, and for a diagnosis of sexual addiction, criteria A–D must be endorsed: (A) failure to resist impulses to engage in sexual behaviors, (B) tension prior to sexual behaviors, (C) pleasure/relief during sexual behaviors, and (D) loss of control over sexual behaviors. For endorsement of criterion E, five of nine symptoms must be fulfilled: (E1) preoccupation with sexual behaviors, (E2) engaging in sexual behaviors for longer than intended, (E3) repeated efforts to reduce or stop sexual behaviors, (E4) excessive time spent on sexual behaviors, (E5) engaging in sexual behaviors when expected to fulfill other life obligations, (E6) giving up or reducing important activities, (E7) continuous involvement despite negative outcomes, (E8) tolerance, and (E9) irritability if unable to engage in sexual behaviors. Finally, for endorsement of criterion F, symptoms must be shown to have persisted for at least 1 month. The internal reliability of Goodman's criteria in the present sample is 0.98.

Sexual behaviors. Sexual behaviors were assessed by means of a semi-structured interview. The variables measured were as follows: (a) types and frequency of sexual behaviors and interests; (b) sexual disorders, including paraphilic disorders, sexual dysfunctions, and sexual identity disorders; (c) risky sexual behaviors; and (d) conjugal problems. The reasons considered by the patients to promote the identified problematic sexual behaviors were also questioned, along with the negative outcomes associated with the addictive sexual behaviors.

Psychiatric disorders. Psychiatric comorbidities were assessed with the French version of the Mini-International Neuropsychiatric Interview (M.I.N.I.; Lecrubier et al., 1997). The M.I.N.I. is a structured diagnostic interview that assesses the main psychiatric disorders according to axis 1 of the DSM-IV and the ICD-10. To assess ADHD, we used the following two scales:

1. The French version of the Wender Utah Rating Scale-Child (WURS-C; Romo et al., 2010), a 25-item test scored on a 5-point Likert scale that evaluates the presence of ADHD in childhood (examples of items: "As a child I was inattentive, daydreaming"; "As a child I was moody, I had ups and downs"). Cronbach's α of the WURS-C in the current sample is 0.92.

2. The French version of the Adult ADHD Self-Report Scale (ASRS-1.1; Kessler et al., 2005), a 6-item test scored on a 5-point Likert scale to measure Adult ADHD (examples of items: "How often do you have problems remembering appointments or obligations?"; "How often do you fidget or squirm with your hands or feet when you have to sit down for a long time?"). Cronbach's α of the ASRS-1.1 in the current sample is 0.72.

Following current recommendations on the diagnosis of ADHD (Rösler et al., 2006), its prevalence was established from positive scores on both assessments (i.e., both childhood and adulthood ADHD must be endorsed).

Ethics

All participants were informed about the study and provided written consent. No compensation was given for participation. The local Research Ethics Committee (GNEDS, Nantes) approved the study protocol.

RESULTS

Diagnosis of sexual addiction

Results showed that 95.8% of the patients were diagnosed with sexual addiction according to the SAST, 56.9% according to Goodman's criteria, and 52.8% according to the modified Kafka's criteria.

Sexual behaviors

As reported in Table 2, the most ubiquitous sexual behaviors identified were masturbation (100% of the sample was concerned, among whom 31% considered this behavior as problematic), followed by watching pornography (90.1% of the sample was concerned, among whom 29.7% considered this behavior as problematic), then using cybersex (77.5% of the sample was concerned, among whom 43.6% considered this behavior as problematic), and being involved in sexual intercourse with multiple partners (70.4% of the sample was

Table 2. Proportion of sexual behaviors, paraphilia, sexual dysfunctions, risky sexual behaviors, couple disharmony, and gender identity disorder

Variable	*N*	Percent of people having this sexual behavior	Percent of people for whom this sexual behavior is problematic
Sexual behavior	71		
Masturbating		100	31
Watching pornography		90.1	29.7
Using cybersex		77.5	43.6
Having multiple sexual partners		70.4	56
Searching sexual fantasies		49.3	40
Using sex toys		39.4	3.6
Having unprotected sexual intercourse		38	51.9
Using phone sex		38	29.6
Using sex massage		22.5	18.8
Watching striptease		18.3	0
Having unsatisfying sexual intercourse		16.9	66.7
Searching love contacts		9.9	28.6
Paraphilia	71	60.6	
Voyeurism		36.6	46.2
Exhibitionism		18.3	100
Fetishism		15.5	27.3
Pedophilia		14.1	40
Sadomasochism		12.7	55.6
Frotteurism		7	0
Transvestism		5.6	0
Predilection medium for sexual behaviors	71		
Internet		53.5	
"Real" life		46.5	
Sexual dysfunction	72		
Erectile disorder		16.7	
Premature ejaculation		12.5	
Excitation disorder		4.2	
Sexual pain disorder		2.8	
Orgasmic disorder		1.4	
Risky sexual behavior	72	31.9	
Couple disharmony	72	27.8	
Gender identity disorder	72	8.3	

Note. Data reported in the table are missing for one participant.

concerned, among whom 56% considered this behavior as problematic). An important proportion of patients (53.5%) indicated that the Internet is their favorite medium for sexual behaviors. A comprehensive description of the identified paraphilia and sexual dysfunctions is reported in Table 2. Results showed that 60.6% of patients presented at least one paraphilia. The most frequent sexual dysfunctions identified were erectile disorder (16.7%) and premature ejaculation (12.5%). Results also showed that 31.9% of the participants displayed risky sexual behaviors, 27.8% had couple disharmony, and 8.3% had a gender identity disorder.

The main reasons considered by the patients to promote addictive sexual disorders are reported in Table 3, the most prevalent being searching for pleasure or arousal. A comprehensive list of the negative outcomes resulting from sexual addiction is provided in Table 4. The most frequent negative outcomes reported were family life disruption (in particular loss of confidence between partners) and health disruption (in particular experiences of depressive or anxious symptoms).

Comorbid psychiatric and addictive disorders

Psychiatric and addictive comorbidities are reported in Table 5. Results showed that 90.3% of patients had a psychiatric or addictive comorbidity. The most frequent psychiatric comorbidities identified in the sample were major depressive disorder (63.9%), followed by social phobia (41.7%) and generalized anxiety disorder (33.3%). Moreover, suicidal risk was also found to be elevated (41.7%). Adult ADHD was present in 4.5% of the sample. The most frequent addictive comorbidities were nicotine (38.9%) and alcohol (27.8%) dependencies. The patients generally reported these psychiatric and addictive comorbidities to be present before the onset of sexual addiction (79.2%).

Table 3. Factors promoting addictive sexual behaviors ($N = 72$)

Variable	Percent of sample
Search for pleasure/arousal	45.8
Escape real life/cope	27.8
Avoid boredom	25
Loss of control	22.2
Unsatisfying sexual intercourse with the partner	6.9
Other reason	18.1

Table 4. Sexual addiction consequences ($N = 72$)

Variable	Percent of sample
Family life disruption	93.1
Loss of confidence with partner	40.6
Decrease of commitment with partner/child	25
Separation/divorce	12.5
Sexual relationship decrease	4.7
Health disruption	81.9
Feeling depressed/anxious	42.1
Irritability/bad mood	19.3
Shame/guilt/diminished self-esteem	14
Sleep disruption	14
Risky sexual behaviors	5.3
Social life disruption	69.4
Work disruption	68.1
Having sexual behaviors/thoughts at work	85.1
Having sexual preoccupations	8.5
Losing job	6.4
Financial disruption	30.6

Table 5. Psychiatric comorbidities, addictive comorbidities, and ADHD

Variable	*N*	Percent of sample having diagnosis	Percent of sample having diagnosis before sexual addiction
Having a psychiatric or addictive comorbidity	72		
Yes		90.3	79.2
No		9.7	
Psychiatric comorbidities	72		
Major depressive disorder		63.9	64.4
Suicide risk		41.7	52.4
Hypomanic disorder		0	
Dysthymia		0	
Generalized anxiety disorder		33.3	100
Social phobia		41.7	93.3
Agoraphobia		18.1	83.3
Panic disorder		16.7	75
Obsessive–compulsive disorder		16.7	66.7
Post-traumatic stress disorder		5.6	100
Psychotic syndrome		2.8	50
Anorexia		1.4	100
Bulimia		0	
Addictive comorbidities	72		
Nicotine dependence		38.9	77.8
Alcohol abuse		27.8	70
Alcohol dependence		16.7	50
Substance abuse		11.1	75
Substance dependence		15.3	63.6
Compulsive video gaming		8.3	66.7
Problem gambling		2.8	100
ADHD (WURS-C and ASRS-1.1)	67	4.5	NA

Note. ADHD = attention deficit hyperactivity disorder; WURS-C = Wender Utah Rating Scale-Child; ASRS-1.1 = Adult ADHD Self-Report Scale; NA = not assessed.

DISCUSSION

The aim of this study was to describe the characteristics, sexual habits, and psychiatric comorbidities of a cohort of

self-identified sexually addicted patients seeking treatment in a dedicated outpatient unit. On the whole, this study emphasized a strong heterogeneity within the patients, especially in terms of sexual behaviors displayed and psychiatric comorbidities. In contrast, when considering the socio-demographic characteristics, some similarities appeared with most of these patients being active male workers of about 40 years who were involved in a stable relationship. The socio-demographic profile of the patients included in this study is consistent with that reported in previous research conducted in clinical (Carnes, 2000) and non-clinical participants (Cooper et al., 1999; Daneback et al., 2005).

One striking result is the fact that in this sample of self-defined "sexual addicts," the prevalence of sexual addiction based on criteria such as those of the modified Kafka (2010) or Goodman (1998) is relatively low (about 50%). Although this finding questions the validity of these types of diagnostic criteria, it also supports the view that excessive sexual behaviors are frequently the consequence of a coping strategy displayed to face psychological suffering or adverse life events (Cooper et al., 2004; Deleuze et al., 2015; Ross et al., 2012). This latter argument is also supported by the elevated psychiatric comorbidity rate (about 90%) found in the sample. In contrast, the self-reported SAST identified a larger proportion of patients as presenting sexual addiction symptoms (95.8%). This may be due to the polythetic nature of the SAST (13 positive answers are required on a questionnaire comprising 25 items), whereas the Goodman and modified Kafka have a monothetic nature (all criteria must be endorsed to reach the diagnosis). Another explanation for the higher scores on SAST is that, in contrast to Goodman's and Kafka's criteria, the SAST criteria include three symptoms that have been shown in a recent study (Grubbs, Stauner, Exline, Pargament, & Lindberg, 2015) to be a hallmark of online pornography overuse (one of the most frequent types of sexual addiction): (a) compulsive and uncontrolled use, (b) continuous use despite negative outcomes, and (c) emotional distress.

Regarding sexual behaviors per se, this study emphasized that the patients were involved in a wide range of problematic and non-problematic sexual behaviors. The heterogeneity of these sexual behaviors is further confirmed by the fact they can either be solitary (e.g., compulsive masturbation) or interpersonal (e.g., sex chat and sex with multiple partners), online or offline, involving risky sexual practices or not, and associated with sexual dysfunctions or not. It is worth noting that in the current sample, the prevalence of sexual dysfunctions is comparable to that typically found in the general population (Laumann, Paik, & Rosen, 1999). Moreover, for the majority of these patients, the Internet was reported to be the preferred location for sexual behaviors. This latter finding is probably due to the specific structural characteristics of online sexual activities, more specifically, their convenience (i.e., free website and permanently accessible service) and the fact that an infinite variety of sexual activities and content are available online (Beyens & Eggermont, 2014; Cooper et al., 1999; Riemersma & Sytsma, 2013; Rosenberg & Kraus, 2014; Ross et al., 2012). These characteristics are especially attractive to patients with paraphilia, who can easily find sexual materials on the Internet that fit their sexual preferences (Ross et al., 2012; Wéry & Billieux, 2016b).

Indeed, an important part of the patients (60.6%) included in this study presented paraphilia. Voyeurism (i.e., the desire to spy on a non-consenting person who is naked, in the process of disrobing, or engaging in sexual activity) and exhibitionism (i.e., the need to expose one's genitals to strangers in order to gain sexual satisfaction) were the most frequent, which are consistent with the previous data obtained in the male psychiatric samples (Marsh et al., 2010). Our results also matched those reported in the previous research that identified exhibitionism, pedophilia, and voyeurism as being the three most frequent paraphilia in men seeking help for paraphilic disorders (Kafka & Hennen, 2003). A potential explanation for the coexistence of sexual addiction and paraphilia is that they may share similar functions. Some authors have indeed suggested that one of the main functions of sexual behaviors in individuals characterized by sexual addiction is to alleviate intolerable affect through the experience of pleasurable sensations associated with sexual behaviors (Carnes, 2000; Coleman, 1995; Goodman, 1993, 1998). Similarly, some authors have proposed that the function of paraphilia might be to change childhood traumatic experiences (e.g., emotional and sexual abuse, neglect, and humiliation) into pleasure and triumph-related experiences in adulthood (Money, 1986; Person, 1999; Stoller, 1975). In other words, both addictive-like sexual behaviors and paraphilia could have a similar function related to the conversion of an aversive or intolerable emotional state into a more tolerable and pleasurable one (Kahr, 2007; Krueger & Kaplan, 2001). Such a hypothesis is also supported by the fact that a large proportion of the patients included in this study presented a psychiatric disorder prior to the development of sexual addiction. Thus, our results sustain the view that for a large proportion of patients presenting a sexual addiction, the condition is better conceptualized as a dysfunctional coping strategy displayed to face psychological distress and aversive emotional states (Carnes, 2000; Cooper et al., 2004; Ross et al., 2012). A nuance to our interpretation of the comorbidity-related results is provided by the finding that "escape real life/cope" (i.e., negative reinforcement) was the second factor promoting addictive sexual behaviors after "search for pleasure/arousal" (i.e., positive reinforcement). This latter result supports the importance of sexual gratification in the sexual addiction process and highlights the value of the conjoint role of positive (i.e., sexual gratification) and negative reinforcement (i.e., reducing aversive emotions or states) in excessive sexual activities (Laier & Brand, 2014).

Some limitations of the study have to be acknowledged. First, despite its clinical relevance, the sample used is not necessarily representative in terms of generalizing our findings to other cultures or to non-treatment-seeking patients. Second, some of the measures were self-reported questionnaires that presume respondents are aware of and willing to report their behaviors honestly. Despite these limitations, this study is among the first to investigate the characteristics and psychiatric

comorbidities of a large sample of self-identified sexual addicts.

CONCLUSIONS

The aim of the study was to investigate the characteristics, habits, and psychiatric comorbidities in a sample of treatment-seeking self-identified "sexual addicts." On the whole, our results further support the position that current conceptualizations of sexual addiction lack clinical validity and probably constitute an oversimplification of a heterogeneous and multi-determined phenomenon (Drew & Firestone, 2008; Wéry & Billieux, 2016a). This study also emphasized the elevated psychiatric comorbidity rate in patients who nonetheless consulted the treatment center regarding their sexual addiction. This further calls for paying attention to the fact that these conditions can often be conceptualized as the consequences of pre-existing psychiatric disorders (Deleuze et al., 2015). Such findings have important clinical implications and support the relevance of tailored intervention by taking into account the complexity of this disorder and the multiple potential psychological and sexual factors involved in its etiology.

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Authors' contribution: GC-B, F-XP, JC, DL, and MG-B created and organized the study and also conducted the structured interviewing in the Department of Addictology and Psychiatry of the Nantes University Hospital. AW, KV, and JB realized the data analysis and the redaction of this manuscript. AW and KV contributed equally to this work and are willing to share first authorship.

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