

Online dating is associated with sex addiction and social anxiety

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Background and aims: There is an increasing use of the Internet for dating and sexual purpose. The aim of this study was to investigate the contribution of social anxiety and sensation seeking to ratings of sex addiction among those who use dating Internet sites. *Methods:* A total of 279 participants (128 males and 151 females), with overall mean age being 25 years ($SD = 2.75$) and age range of 18–38, answered questionnaires on the Internet. Questionnaires included demographic details, Leibowitz Social Anxiety Scale, Zuckerman Sensation Seeking Scale, and Sexual Addiction Screening Test (SAST). *Results:* The users of Internet-dating applications showed higher scores on the SAST than non-users. Second, participants who had low scores of sex addiction had lower social anxiety scores than the participants with high scores of sexual addiction. There was no difference in sensation-seeking scores between participants with low and high scores of sexual addiction. *Discussion and conclusions:* The results of this study indicate that social anxiety rather than sensation seeking or gender is a major factor affecting the use of Internet-dating applications for obtaining sexual partners.

Keywords: dating applications, sex addiction, sensation seeking, social anxiety

INTRODUCTION

Sex addiction or hypersexual disorder is characterized by a compulsive need for instant gratification of sexual urges (Carnes, 2001). Several diagnostic criteria have been proposed for sexual addiction but have not been validated scientifically. A lack of empirical evidence on sexual addiction is the result of the disease's complete absence from versions of the *Diagnostic and Statistical Manual of Mental Disorders* (DSM). Empirical research on hypersexual behavior has increased in recent years and this has led to considerable interest in classifying it as a behavioral addiction (Karila et al., 2014). Sexual addiction encompasses a range of activities including excessive masturbation, online pornography, use of the Internet for cybersex resulting in widespread negative health, and psychological and economic consequences (Karila et al., 2014). Although there is growing interest in sexual addiction in research and clinical practice, it is not recognized as a psychiatric disorder by the fifth edition of DSM (DSM-5; American Psychiatric Association, 2013). There are few epidemiological studies and several proposals for diagnostic criteria and it is therefore difficult to estimate the prevalence of this phenomenon. The estimated prevalence of sexual addiction varies between 3% and 16.8% in different studies, whereas in most studies it is estimated between 3% and 6% in the adult general population (Karila et al., 2014). In a study investigating 2,450 individuals from the general public of Sweden, 12% of men and 6.8% of women were classified as hypersexual (Långström & Hanson, 2006),

whereas in the USA, prevalence of sex addiction was estimated as 3%–6% (Carnes, 1992).

Over the USA, 45% of Americans use applications on the cell phone and 7% of them use them for dating purpose (Smith & Duggan, 2013). The authors specified that when they conducted their first study of online dating, the release of the iPhone was still 2 years in the future. Today more than half of all American adults are smartphone owners, and dating is conducted on the smartphone. Internet-dating applications are popular among people in their 20's until their mid-30's (Smith & Duggan, 2013). Recently, there is an increasing use of Internet-dating applications on smartphones for sexual purpose, namely as a platform for getting sexual partners. We investigated the relationships between online dating and sexual addiction. Second, there is anecdotal and clinical evidence that individuals with sexual addiction similarly to drug-dependent individuals are doing so for sensation seeking and in pursuit of thrill or excitement (Fong, 2006; Perry, Accordino, & Hewes, 2007). Therefore, the study investigated the role of sensation seeking among individuals who use online-dating applications. Finally, social anxiety has been associated with excessive use of the Internet (Shepherd & Edelman, 2005; Weinstein, Dorani, et al., 2015). We therefore investigated whether

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social anxiety contributes to sexual addiction among individuals who use online-dating applications. In view of growing evidence for sex differences in men and women who are sexually addicted (Weinstein, Zolek, Babkin, Cohen, & Lejoyeux, 2015), both men and women were included in this study in order to examine sex differences among this population. It was hypothesized that sensation seeking, social anxiety, and sex would contribute to the variance of sexual addiction scores among individuals who use dating applications on the Internet with smartphones.

METHODS

Participants

A total of 284 participants were recruited to the study, but five participants did not fulfill inclusion criteria and were excluded. Participants were excluded for psychiatric disorders including a history of attention-deficit hyperactivity disorder (ADHD) that was treated with methylphenidate, neurological damage, taking medications that affect the CNS, neurological damage, infection that might affect the CNS (HIV, syphilis, and herpes), pregnancy, or age under 18 years. Inclusion criteria were age of 18–45 males and females who regularly use the Internet. The final sample included 279 participants, of which 128 were men (45.9%) and 151 were women (54.1%). Overall mean age was 25 years ($SD = 2.75$) and age range was 19–38 years. The mean age of men was 25.75 years ($SD = 2.83$) and of women it was 24.5 years ($SD = 2.55$). Forty percent of the participants have used dating applications in the past and present and 60% have not. Among men, 50.8% have used the dating applications and 49.2% have not used them. Among women, 68.2% have used the dating applications and 31.8% have not used them. Most of the participants defined themselves as heterosexuals (89.2%), while 4.7% were gays and 5.7% were bisexuals. A major part of the current sample had academic or equivalent educational background (70.2%) and the rest of the sample had at least 12 years of study. In addition, a minor part of the participants were unemployed (30.1%), most of participants either worked in part-time positions (48.7%), or in full-time jobs (21.1%).

Measures

- (1) Demographic questionnaire included items on sex, age, sexual orientation, marital status, type of living, religion, education, employment, and use of dating application.
- (2) Liebowitz Social Anxiety Scale (Liebowitz, 1987) is a self-reporting questionnaire that measures fear and avoidance of social situations. It includes 24 items, of which 13 describe social situations (e.g., “*looking at people you don’t know very well in the eyes*”) and 11 describe performance anxiety (e.g., “*urinating in a public bathroom*”). For each item, subjects were requested to fill in two scales: (a) scale of anxiety or fear from 1 (*not at all*) to 4 (*very much*) and (b) ratings of avoidance of the situation ranged from 1 (*never*) to 4 (*often*). The questionnaire was

validated by Heimberg (1999) showing Cronbach’s α reliability of .951. In this study, Cronbach’s α was .96.

- (3) Sensation Seeking Scale (SSS; Zuckerman, Kolin, Price, & Zoob, 1964) includes 40 items where participants had to choose between two opposite items. There were four personality traits including: Disinhibition, Boredom Susceptibility, Thrill and Adventure Seeking, and Experience Seeking. The questionnaire was validated by Arnett (1994) showing Cronbach’s α reliability of .83–.86. In this study, there was Cronbach’s α of .80. Cronbach’s α reliability for each subscale was $\alpha = .35$ for boredom susceptibility, $\alpha = .80$ for thrill and adventure seeking, $\alpha = .57$ for experience seeking, and $\alpha = .66$ for disinhibition.
- (4) Sexual Addiction Screening Test (SAST; Carnes, 1991) includes 25 items containing yes–no questions. There are four categories, namely Affect Disturbance (e.g., “*Do you feel that your sexual behavior is not normal?*”), Relationship Disturbance (e.g., “*Has your sexual behavior ever created problems for you and your family?*”), Preoccupation (e.g., “*Do you often find yourself preoccupied with sexual thoughts?*”), Loss of Control (e.g., “*Have you made efforts to quit a type of sexual activity and failed?*”), and Associated Features (history of abuse, parental sexual problems, and sexual abuse of minors). The questionnaire was validated by Hook, Hook, Davis, Worthington, and Penberthy (2010) showing Cronbach’s α reliability of .85–.95. In this study, there was Cronbach’s α of .80. The SAST is not validated to present any categorical data, and it has been used as a continuous variable but not for categorization of sexually addicted individuals.

Procedure

The questionnaires were advertised online in social networks and forums that were dedicated for dating and sex. Participants answered questionnaires on the Internet. They were informed that the study investigates sex addiction and that the questionnaires will remain anonymous for research purpose.

Statistical and data analyses

The analysis of the results was performed on Statistical Package for Social Science and AMOS for windows v.21 (IBM Corp., Armonk, NY, USA).

Prior analysis of Kolmogorov–Smirnov test of normality was conducted for social anxiety, sensation seeking, and sexual addiction scores. Since sensation seeking and sex addiction scores were not normal distributed, these variables were root transformed. Data referring to sex, age, sexual orientation, marital status, type of living, religion, education, employment, and use of dating applications were analyzed using a Pearson’s χ^2 test.

The relationship between social anxiety and sex addiction was investigated using an analysis of variance with scores of social anxiety that were divided into four categories of scores, such as no sex addiction, minor sex addiction,

medium sex addiction, and major sex addiction. Following post-hoc comparison, *t*-tests were used to compare social anxiety scores and sensation-seeking scores between all groups of participants.

Ethics

The study was approved by the Institutional Review Board (IRB, Helsinki Committee) of the University of Ariel. All participants signed an informed consent form.

RESULTS

Social anxiety scores were of medium average and normal distribution (mean = 1.84, *SD* = 0.5), but scores on sensation seeking (mean = 55.52, *SD* = 6.14) and sex addiction (mean = 4.59, *SD* = 3.72) questionnaires were asymmetrical and they were root transformed to enable normal distribution.

There were no effects of gender [$t(1, 282) = 0.75, p = \text{NS}$], education levels [$t(1, 277) = 0.68, p = \text{NS}$], employment status [$t(2, 279) = 1.28, p = \text{NS}$], type of living [$t(1, 280) = 0.19, p = \text{NS}$], or age ($r = -.10, p = \text{NS}$) on sexual addiction scores. In addition, there were no significant correlations between SSS subscales of disinhibition ($M = 14.4, SD = 2.4, r = .07, p = \text{NS}$), thrill and adventure seeking ($M = 15.5, SD = 2.95, r = -.10, p = \text{NS}$), and experience seeking ($M = 15.18, SD = 2.11, r = .04, p = \text{NS}$) with SAST scores. However, positive correlation was found between boredom susceptibility ($M = 13.16, SD = 1.71$) with the overall SAST score ($r = .10, p < .05$).

Scores on the Sex Addiction Questionnaires indicated that 28 participants (10%) showed no sex addiction, 101 participants (36.2%) showed minor level of sex addiction, 52 participants (18.6%) showed medium level of sex addiction, and 98 participants (35.1%) showed a high level of sex addiction following criteria defined by Carnes (1991). In terms of sex addiction dimensions, 24 participants exhibited preoccupations, 9 participants showed loss of control and relationships disturbance, and 50 participants reported affect disturbances. Ninety percent of participants reported no sexual abuse in their past. Among females, 17.9% reported sexual abuse during childhood or adolescence, whereas among males the rate was much lower (0.8%).

A comparison of sex addiction scores between those who used dating applications (mean = 5.15, *SD* = 3.49) and those who did not use (mean = 4.21, *SD* = 3.83) showed a significant between group difference in sex addiction scores [$t(1, 277) = 2.086, p < .05$]. Second, participants who had low scores of sex addiction had lower social anxiety scores than the participants with high scores of sexual addiction [$t(1, 228) = -3.44, p < .01$]. Table 1 shows scores of social anxiety and sensation seeking in relation to sex addiction.

DISCUSSION

The results of this study indicate high ratings of sex addiction among those who used dating applications for sex purpose on the Internet. There was no interaction between ratings of sensation seeking and sexual addiction. Finally, we did not find sex differences in sex addiction among our sample, unlike our previous study on cybersex and pornography (Weinstein, Zolek, et al., 2015).

Previous studies showed other psychiatric comorbidities of sex addiction, including mood disorders, depression and anxiety (Garcia & Thibaut, 2010; Mick & Hollander, 2006; Semaille, 2009), social anxiety, dysthymia, ADHD (Bancroft, 2008), affect dysregulation (Weiss & Samenow, 2010) and post-traumatic stress disorder (Carnes, 1991). Depression and anxiety are common to other behavioral addictions, such as pathological gambling (Lorains, Cowlshaw, & Thomas, 2011), compulsive buying (Mueller et al., 2010; Weinstein, Mezig, Mizrachi, & Lejoyeux, 2015), Internet addiction (Kaess et al., 2014; Ko et al., 2014; Weinstein, Dorani, et al., 2015), and exercise addiction (Weinstein, Maayan, & Weinstein, 2015). It is unclear whether behavioral addictions are a maladaptive way of coping with depression or anxiety or that depressive and anxiety disorders occur as a consequence of behavioral addictions. A relationship between anxiety, depression, and future Internet addiction among South Korean males has been established (Cho, Sung, Shin, Lim, & Shin, 2013) and an exacerbation of depression, hostility, and social anxiety in the process of acquiring Internet addiction among adolescents has been reported (Ko et al., 2014). On the contrary, depression, hostility, and social anxiety decreased in the process of remission. We did not find sex differences in sex addiction among our sample, unlike our previous study on cybersex and pornography (Weinstein, Zolek, et al., 2015). It is plausible that among the dating population on the Internet, there is more equality between men and women. It is also plausible that the sex stereotype, which men are more assertive and sexually compulsive, is not representative of the young generation that is more equal and liberal.

The virtual dating scene is easier and more accessible than the real world and it is full of new opportunities for a variety of people who are interested in relations for sexual purpose including those with sexual addiction. For example, one of the dating applications enables the user to find users of the application within a certain distance and that can be useful if you are traveling on a train looking for a sexual partner. Sex addiction on the Internet includes watching, downloading online shopping of pornography, or using chat rooms for role play and fantasy for adults (Cooper, Delmonico, Griffin-Shelley, & Mathy, 2004; Weinstein, Zolek, et al., 2015; Young, 2008). The Internet is a safe venue for sexual explorations and sexual activity that are

Table 1. Scores of social anxiety [mean (*SD*)] and sensation seeking [mean (*SD*)] in relation to sex addiction

High (<i>n</i> = 101)	Medium (<i>n</i> = 52)	Minor (<i>n</i> = 101)	None (<i>n</i> = 28)	Sex addiction levels	<i>F</i> -test (<i>F</i>)	<i>p</i> value
Sex addiction levels	1.73 (0.47)	1.72 (0.41)	1.84 (0.49)	1.98 (0.55)	5.28	.001
Sensation seeking	56.85 (6.79)	57.89 (5.85)	59.73 (6.64)	58.35 (6.03)	1.59	.190

Note. *SD*: standard deviation.

physically safer than sexual activity in real life (Griffiths, 2012). Sex-addicted individuals have difficulties in controlling their urges and they have often history of drug, alcohol, and nicotine addiction (Karila et al., 2014), which has negative effects on their couple and family life (Schneider, 2003; Manning, 2006). Carnes (2001) argued that the Internet for sex addicts is like crack cocaine for psychostimulant abusers. Cooper et al. (2004) who were one of the pioneer groups of investigators of online sex addiction found that sex addicts could spend 11 hr online per week and experience problems in other aspects of life. Others have not found an association between daily life problems and time spent online in pornographic sites. Finally, taking sexual risks (Bancroft et al., 2003; Bancroft & Vukadinovic, 2004; Kalichman & Rompa, 1995, 2001) and seeking sexual excitement (Kalichman & Rompa, 1995; Zuckerman, 1979) are often associated with sexual impulsivity (Hoyle, Fefjar, & Miller, 2000). These constructs have been applied to behaviors associated with sexually transmitted disease, having multiple partners, unprotected sex, unplanned pregnancies, and psychoactive drug use (Hayaki, Anderson, & Stein, 2006; Justus, Finn, & Steinmetz, 2000; Lejuez, Simmons, Aclin, Daughters, & Dvir, 2004; Teese & Bradley, 2008; Seal & Agostinelli, 1994). The results of the study indicate no interaction between sensation seeking and measures of sex addiction in those using dating applications. It is possible that the major drive in our participants was to reduce social anxiety rather than increase excitement or sensation seeking. Sexual addiction on the dating scene may be an attempt to get intimacy by people who have intimacy problems rather than get excited. It seems that users of online-dating applications are more socially inhibited and less impulsive risk-takers than the typical sex addict who operates in the pornography and real-life sex scene.

Limitations

This study used an Internet-based survey that has high anonymity but has control over reliability of the questionnaires. It is plausible that due to social pressure and fear, the participants were not completely honest or open about their answers. Second, we have not assessed the frequent use of the dating application and that may be a confounding variable.

CONCLUSIONS

This study attempted to add to our existing knowledge on sexual addiction, information about a modern mean of the modern age that is dating applications on the Internet using smartphones. It was found that social anxiety rather than sensation seeking is a major factor that contributes to sexual addiction among this population. There are still issues that should be clarified such as online dating among those having many sexual partners or lovers, populations, such as homosexual, lesbians and transgender individuals, and individuals in treatment for sex addiction such as sex anonymous. Other issues arising from the study are comorbidity with other psychiatric conditions, such as personality

disorders (borderline, antisocial narcissistic, and others). Unlike drug and alcohol addiction, it seems difficult to avoid sexual activity as a model of treatment by abstinence; hence, treatment for sex addiction needs to consider the complexity and importance of the need to fulfill the sex drive in modern society.

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