

The Internet Sex Screening Test: a comparison of sexual compulsives versus non-sexual compulsives

DAVID L. DELMONICO & JEFFREY A. MILLER

Duquesne University, Pittsburgh, Pennsylvania, USA

ABSTRACT *This study compared individuals who are sexually compulsive with their non-compulsive counterpart on selected demographic characteristics and online sexual activities through the use of the Internet Sex Screening Test (ISST). Selected demographic variables were compared, as well as seven empirically derived subscales on the ISST. Male (n = 5005) and female (n = 1083) data were analysed separately with a one-way between-subjects multivariate analysis of variance (MANOVA). Results indicated that there were no meaningful differences between the age of offline sexual compulsives and non-sexually compulsive individuals, or the total amount of time they spent online. However, the ratio of total online time to time spent online in pursuit of sexual behaviours was found to be meaningful, since sexual compulsives spent significantly more time engaged in online sexual behaviour than non-sexual compulsives. In addition, scores on all seven subscales of the ISST (online sexual compulsivity, online sexual behaviour-social, online sexual behaviour-isolated, online sexual spending, interest in online sexual material, nonhome computer use for online sexual behaviour, and accessing illegal sexual material) were found to be significantly higher for sexual compulsives than the non-sexually compulsive sample. The limitations of this study are discussed along with implications of the findings.*

Introduction

Harmless electrons pass through cables to create an infrastructure of connections known as the Internet. Developed by the US Department of Defense as a failsafe communication method in case of nuclear disaster, the Internet has evolved into one of the most important technological advances of our century. As harmless as the electrons seem, for some, the information they carry is their 'drug of choice.' As the computer modem interprets screeching and squealing noises, text and images appear on the computer's monitor. The result of this interpretation may be a photograph, email correspondence, or the results of a research project. It may also be a cybersex chat room, hard core pornographic images, or illicit sexual photographs of children. The Internet is a microcosm of the world in which we live. As in the real world, some places are safer to visit than others. Some websites provide useful knowledge and life saving information, while others are deceptive and deviant. Regardless of whether the

Correspondence to: David L. Delmonico, Duquesne University, Pittsburgh, Pennsylvania, USA;
E-mail: delmonico@duq.edu

Internet is perceived as a positive or negative force, it has completely changed the nature of interpersonal relationships. Research on sex and the Internet have grown dramatically over the past five years. This article focuses on the use of the Internet Sex Screening Test (ISST; Delmonico, 1997) to assess individuals on their level of sexual compulsivity and various behaviours on the Internet.

The purpose of this article is to compare individuals who are sexually compulsive with their non-compulsive counterpart on selected demographic characteristics and online sexual activities through the use of the Internet Sex Screening Test (ISST). The specific sex-related variables measured by the ISST are (1) online sexual compulsivity, (2) online sexual behaviour-social, (3) online sexual behaviour-isolated, and (4) online sexual spending. Each of these, along with other demographic variables, is compared for those who were identified as sexual compulsives vs. those who were not.

Literature review

Survey research of online sexual behaviour

Cooper *et al.* (1999) conducted one of the largest scale studies on Internet sexuality by using an online survey to collect data from a cross-section of individuals on the MSNBC website. Analyses of these responses generated the first quantitative, self-report data from people who engaged in Internet sex, what they did, and the impact it had on their lives. Most individuals (80%) experienced little or no impact as a result of their Internet sexual activity. Based on this research, Cooper *et al.* (1999) also speculated about the number of hours spent online and at what point 'frequency' may become a concern. It was reported that respondents who engaged in 11 or more hours per week of online sexual behaviour, reported significantly more life consequences including jeopardizing significant life areas (e.g., social, occupational, educational, etc.). For the first time a profile of an Internet sex user emerged—typically heterosexual males, average age of about 35 years, college-educated or in college, and often married or in a committed relationship.

Cooper's research represented the first step in understanding online sex users; however, there was limited use of any psychometric measure to determine more objectively if an individual would be considered cybersex compulsive. The use of the Kalichman Scale (Kalichman & Rompa, 1995) was used to determine if subjects were sexually compulsive, but there was no specific measure of cybersex compulsivity. This study takes the current research one step further by measuring both general sexual compulsivity and cybersex compulsivity concurrently with the use of two empirically derived instruments.

Internet Sex Screening Test

The Internet Sex Screening Test (ISST; Delmonico, 1997) has been used as a self-administered, screening instrument to help individuals determine if their Internet sexual behaviour has become clinically problematic. Cooper & Griffin-Shelley (2002) identified two groups of individuals who may experience problems with their Internet sexual behaviour. The first are those with 'Online Sexual Problems (OSP)', and the

second are the 'Online Sexually Compulsives (OSC).' Although nearly 80% of individuals who engage in online sexual behaviour reported no significant life consequences, 20% were identified as either at-risk for developing problems, or reported feeling out of control with their online sexuality (Cooper *et al.*, 2000). Determining the line between problematic sexual behaviour and compulsive behaviour is as difficult as differentiating a diagnosis between substance abuse and substance dependence. Schneider (1994) offered a solution to this problem by synthesizing the literature into three basic assumptions of compulsive/addictive behaviour. These three areas are: (a) loss of freedom to choose whether to stop or engage in a behaviour, (b) significant life consequences as a result of the behaviour, and (c) obsession with the activity. The Internet Sex Screening Test utilized these three basic criteria to develop questions that could help assess an individual who has crossed into compulsive online sexual behaviour. Additional items were adapted from the Sexual Addiction Screening Test (SAST; Carnes, 1989) to create a measure of offline general sexual compulsivity (GSC). For purposes of this research, this adapted version of the SAST was called the Sexual Addiction Screening Test—Abbreviated (SAST-A). The nine items used for the abbreviated scale have been shown to differentiate sexual compulsives from non-compulsives in clinical samples (Carnes, personal communication, May 20, 2003).

To date, online sex research has utilized self-report surveys to determine who engages in Internet sexual activity, what they do while online, and the impact of their online behaviour. Based on this survey research and anecdotal case examples, various screening instruments have been developed to help detect online sexual problems (Weiss, 2003; Young, 2003). These instruments may be clinically useful; however, they have not yet been psychometrically analysed nor empirically validated. Although the focus of this article is not on the psychometric properties of the ISST, reliability analyses were performed and a factor analysis was used to empirically establish the subscales that are analysed in this study.

Sexual compulsivity and online sexual behaviour

The relationship between online sexual behaviour and offline sexual behaviour has yet to be clearly understood. Cooper *et al.* (1999) incorporated the Kalichman Sexual Compulsivity Survey (Kalichman & Rompa, 1995) into their research to allow for the categorization of offline sexual compulsives and to compare online sexual activities. Cooper *et al.* (1999) reported that individuals who were found to be sexually compulsive offline engaged in a higher frequency of online sexual activity, reported more secrecy about their behaviour, and admitted to higher incidence of consequences in their life as a result of their online sexual behaviour. Clearly, offline sexual compulsives were affected differently than their non-sexually compulsive counterparts.

This study takes that concept one step further, by administering both a psychometric measure of online sexual compulsivity and a measure of offline general sexual compulsivity (GSC). The administration of these two-measures, allowed for a two-dimensional comparison that was not previously available. In addition, at the time of the survey by Cooper *et al.*, a sound theoretical model of user categories had not yet been firmly established. Since that time, multiple theories have emerged about individuals

who use Internet sex. This study examined one segment of the model proposed by Carnes *et al.* (2001)—the lifelong, sexually compulsive cybersex user.

Cybersex user categories. Carnes *et al.* (2001) proposed a model for understanding categories of various cybersex users. The model suggested that there are three basic types of problematic users: discovery, predisposed, and lifelong sexually compulsive. Although other models have been proposed there are striking similarities in all the various characterizations of the user categories.

Carnes *et al.* (2001) suggested that the 'Discovery' group represented individuals who were psychologically healthy and had no identifiable symptoms of sexual or mental health disorders. Scores on psychological measures appear normal, and an extensive history may reveal no significant events or concerns. However, when they discover cybersex they almost immediately become compulsive with their online sexual behaviour. It may be seen as the equivalent of an alcoholic's report of their 'first drink', after which they report losing all control over their drinking behaviour.

The 'Predisposed' group often has a significant history of identifiable sexual or mental health disorders, but for the most part, they have been able to control their sexual feelings, fantasies, and urges. This group has learned to establish internal and external controls that help prevent inappropriate sexual behaviour. The discovery of online sexual behaviour seems to remove some of these pre-established controls, and allows the person to experience their sexual behaviour to the point that it becomes problematic or compulsive.

The final group, which is the focus of this article, is the 'Lifelong Sexually Compulsive'. Individuals in this group have struggled with their sexual behaviour their entire lives and Internet sex becomes an extension of an already existing pattern of compulsive sexual behaviour. These individuals would score high on measures of offline general sexual compulsivity (GSC), and have a history of problematic sexual behaviour in many areas of their lives. They may have been in therapy for sexual problems, or have had legal, educational, or relational consequences as a result of their GSC. For most in this group, their offline sexual patterns continue, even after their online sexual behaviour begins. This study measured GSC through the use of the Sexual Addiction Screening Test-Abbreviated (SAST-A), and compared selected demographic and behavioural variables for those who were found to have GSC vs. those who were not.

Sexual Addiction Screening Test. Relatively few instruments are available for the assessment of offline general sexual compulsivity (GSC). Out of those that are available, even less were empirically derived or have supporting reliability and validity data. One instrument that widely used and accepted is the Sexual Addiction Screening Test (SAST; Carnes, 1989). The SAST has limited reliability and validity research available; however, the 25 items on the SAST were empirically created based on a factor analysis, lending some content and construct validity. In addition, the SAST was found to differentiate between white, male, sexual compulsives, and their non-sexually compulsive counterparts. Reliability data reported Cronbach alpha coefficients of 0.85 (non-sexual addicts), 0.92 (sexual addicts), and 0.95 (total sample). The entire 25-item instrument was found to be a single factor that accounted for approximately 50% of the variance of sexual addiction.

Although this study does not use the SAST, researchers created a modified version of the instrument called the Sexual Addiction Screening Test-Abbreviated based on personal communications with the SAST author (Carnes, personal communication, May 1997). The SAST-A was based on an empirically derived instrument and was analysed for its own psychometric properties within this study.

Social vs. isolating cybersex

This study examined two main categories of cybersex behaviour: social and isolating. Early research reported that males and females engaged in different forms of online sexual behaviours (Cooper *et al.*, 2000). The females were reported to engage in more 'social' forms of cybersex behaviour (i.e., text chat rooms, email text messaging), while males were reported to engage in more visual, isolating activities (i.e., viewing/exchanging pornography online). Although there is a theoretical shift in the thinking about gender differences online that suggests an increase in the use of pornography among female cybersex users, there is little research to back this position at this time (Griffin, personal communication May 15 2003).

Regardless of the user's gender, it is clear that cybersex behaviours can be categorized as either social or isolating. Some cybersex users prefer to have as little social interaction as necessary to obtain pornographic stories, images, and other files. Typically, these users download the information to their computer and view it offline, often incorporating it into their own sexual fantasies. Other cybersex users enjoy the social interaction associated with the online sex (e.g., flirting, seducing, being seduced, etc.). These isolating and social forms of cybersex are analysed in the study through the use of two subscales on the Internet Sex Screening Test: Online Sexual Behaviour-Isolating, and Online Sexual Behaviour-Social.

Other online behaviours

Two other variables explored in this study were the use of cybersex in the workplace and the viewing of illegal material online. These variables are important factors that illustrate the societal relevance of studying cybersex behaviour.

Non-home use of the Internet. This study also compared sexual compulsives and non-sexual compulsives on their use of the Internet in a workplace setting. A number of authors have explored the implications of cybersex in the workplace (Cooper *et al.*, 1999, 2000, 2002; Greenfield, 1999). Greenfield (1999) reported nearly 20% of employees engage in sexual misuse of the Internet while at work. Sixty percent of companies surveyed reported disciplining employees for Internet misuse, while 30% reported having fired employees. Employees' use of the Internet for sexual purposes is a growing problem for both small companies and large corporations. Cooper *et al.* (1999) found that 20% of males and 12% of females admitted to using their work computer for sexual purposes. Aside from lost productivity companies may face certain legal liabilities for the behaviours in which their employees engage while on company time. Given that approximately 63% of companies forbid the use of the Internet for sexual purposes,

cybersex users who engage in sexual pursuits at work increase their risk of significant consequences (Cooper *et al.*, 1999). The use of computers in the workplace speaks to one of the many societal issues that cybersex compulsivity can influence. This study compares individuals with general sexual compulsivity (GSC) to non-sexual compulsives on their reported use of the computer at work for cybersex behaviours.

Illegal online behaviour. The use of computers for *illegal* sexual behaviour is splashed on the headlines of newspapers across the country on a daily basis. However sensationalized these stories are, there is a reality to sexual stalkers, rapists, and paedophiles that use the Internet to find their next victim. Deirmenjian (1999) explored cyber-stalking behaviour, while Freeman-Longo (2002) studied the effects of Internet sexuality on children and adolescents. Whatever the angle, it is difficult to deny that the Internet is one avenue where illegal sexual behaviour takes place. This study examined whether those with general sexual compulsivity (GSC) differed from non-sexual compulsives on their reporting of illegal behaviour on the Internet.

Method

Measures

A questionnaire about demographic and internet usage information and two rating scales were administered to participants via a web form delivered on the Internet.

Questionnaire. Demographic questions were age, gender, and state and/or country of residence. Internet usage questions included the number of years using the Internet, hours spent online per week, and hours spent online for Internet sex per week.

Internet Sex Screening Test (ISST; Delmonico, 1997). The first rating scale administered was a 25-item, true-false measure of online sexual behaviour (OSB). Factor analysis of the ISST (Delmonico & Miller, 2003) identified five factors. Table I provides a listing of the seven subscales and the corresponding items that factored onto that subscale. The first factor—Online Sexual Compulsivity, a measure of online sexual problems, had six items and Cronbach's $\alpha = 0.86$ for the current sample. Second, Online Sexual Behaviour-Social (OSB-S), a measure of the tendency to engage in interpersonal interactions with others during online sexual behaviour (e.g., sex-related chat rooms), had five items and $\alpha = 0.78$ for the current sample. Third, Online Sexual Behaviour-Isolated (OSB-I), a measure of the tendency to engage in solitary online sexual behaviour (e.g., viewing pornography), had four items and $\alpha = 0.73$ for the current sample. Fourth, Online Sexual Spending (OSS), a measure of the tendency to purchase sexual material and/or join sex-related groups or websites via the Internet, had three items and $\alpha = 0.61$ for the current sample. The fifth factor was Interest in Online Sexual Behaviour, a measure of the tendency to use the computer for sexual pursuits (e.g., bookmarking sexual sites), had two items and $\alpha = 0.51$ for the current sample. Cronbach alphas for scales four and five are modest, but reasonable for three and two items scales. Two items that did not load on the main five factors were interpreted as single item

TABLE I. Items on the Internet Sex Screening Test

Online Sexual Compulsivity

Internet sex has sometimes interfered with certain aspects of my life.
 I have made promises to myself to stop using the Internet for sexual purposes.
 I sometimes use cybersex as a reward for accomplishing something (e.g., finish a project, stressful day, etc.)
 When I am unable to access sexual information online, I feel anxious, angry, or disappointed.
 I have punished myself when I use the Internet for sexual purposes (e.g., time-out from computer, cancel Internet subscription, etc.)
 I believe I am an Internet sex addict.

Online Sexual Behaviour - Social

I have participated in sexually related chats.
 I have a sexualized username or nickname that I use on the Internet.
 I have increased the risks I take online (give out name and phone number, meet people offline, etc.)
 I have met face to face with someone I met online for romantic purposes.
 I use sexual humour and innuendo with others while online.

Online Sexual Behaviour - Isolated

I have searched for sexual material through an Internet search tool.
 I have masturbated while on the Internet.
 I have tried to hide what is on my computer or monitor so others cannot see it.
 I have stayed up after midnight to access sexual material online.

Online Sexual Spending

I have joined sexual sites to gain access to online sexual material.
 I have purchased sexual products online.
 I have spent more money for online sexual material than I planned.

Interest in Online Sexual Behaviour

I have some sexual sites bookmarked.
 I spend more than 5 hours per week using my computer for sexual pursuits.

scales because they measured important aspects related to the theory of OSB. The first item measured the tendency to access sexual sites from computers other than the home computer and was entitled Non-home Computer Use for OSB. The second single item scale measured the tendency to view illegal sexual material on the Internet and was entitled Accessing Illegal Sexual Material. The remaining items administered as part of the ISST were not considered for analysis.

Sex Addictions Screening Test - Abbreviated (SAST-A). A 9-item, true-false rating scale of offline general sexual compulsivity (GSC), that is, sexual compulsivity aside from the use of the Internet, was adapted from the full 25-item Sexual Addiction Screening Test (SAST; Carnes, 1989). The nine items used for the abbreviated scale were shown to differentiate general sexual compulsives from non-compulsives in clinical samples (Carnes, personal communication, May 1997). Principal axis factor analysis using the eigenvalue greater than one criteria for extraction was conducted on the SAST-A with the current sample. This analysis resulted in all nine items loading on a single factor and

accounting for 51% of the common variance. Cronbach's α reliability was 0.98 for the current sample.

Procedure and data reduction

Participants visiting the SexHelp web site (<http://www.sexhelp.com>) voluntarily completed the online form entitled *The Internet Sex Screening Test* that delivered the demographic questionnaire, ISST, and SAST-A. After completing the measures the responses were submitted with no Internet or personal identifiers provided to the authors.

Data collection over the period of about two years, resulted in a total of 16 348 participants. Thirty-nine participants were eliminated due to missing data. In cases of duplicate records the first instance was retained. Ninety-six duplicate cases were deleted. Participants reporting their age as less than 18 or greater than 89 were also eliminated. The final working sample was 14 656 participants. From the working sample it was necessary to identify those experiencing offline general sexual compulsivity (GSC) and those that were not. Total score for the SAST-A was computed for each participant. Box-and-whisker plots were created from the total scores for males and females separately to identify Tukey's hinges (25th and 75th percentiles). For each gender group, those with scores above the 75th percentile were considered sexual compulsives and those with scores below the 25th percentile were considered non-sexual compulsives controls. Data were then analysed to identify multivariate outliers using Mahalanobis Distance. Ten cases were identified as multivariate outliers at the $p < 0.01$ criterion and were deleted from the data set. These procedures resulted in a sample of 5,005 males (2,013 nonsexual compulsives & 2,992 sexual compulsives) and 1,083 females (553 non-sexual compulsives & 530 sexual compulsives).

Results

Means and standard deviations for demographic, Internet usage, and ISST variables by group for each gender are presented in Table II. Scores for the Internet Sex Screening Test (ISST) scales are presented as sums of the items on the scale. Higher scores indicate more problematic behaviour.

One-way between-subjects multivariate analysis of variance (MANOVA) was performed on ten dependent variables (age, hours online, hours of viewing sexual material online, online sexual compulsivity, online sexual behaviour-social, online sexual behaviour-isolated, online sexual spending, interest in online sexual material, nonhome computer use for online sexual behaviour, and accessing illegal sexual material) separately for the male and the female groups. The independent variables were two levels of general sex compulsivity: general sexual compulsivity (GSC) and non-sexually compulsive (NSC) as determined through the use of the Internet Sex Screening Test-Abbreviated (SAST-A). Univariate results are reported in the following groups of dependent variables: age, Internet usage (hours online and hours viewing sexual material online), and online sexual behaviour (online sexual compulsivity, online sexual behaviour-social, online sexual behaviour-isolated, online sexual spending, interest in

TABLE II. Mean scores and standard deviations for age, Internet usage variables, and Online Sexual Behaviour variables by level of general sexual compulsivity and gender

Dependent variable	Male		Female	
	Non-sexual compulsive <i>n</i> = 2013	Sexual compulsive <i>n</i> = 2992	Non-sexual compulsive <i>n</i> = 553	Sexual compulsive <i>n</i> = 530
Age	31 (11)	34 (10)	31 (11)	30 (10)
Hours online	21 (21)	20 (18)	20 (20)	22 (23)
Hours sexual material	4 (8)	10 (11)	3 (9)	9 (17)
Sexual compulsivity	0.59 (1.05)	4.06 (1.62)	0.24 (0.59)	2.46 (2.08)
OSB-Social	0.95 (1.21)	1.95 (1.76)	1.25 (1.39)	2.72 (1.79)
OSB-Isolated	2.40 (1.31)	3.59 (0.79)	1.56 (1.30)	2.87 (1.39)
Online sexual spending	0.52 (0.74)	1.13 (1.05)	0.37 (0.66)	0.86 (0.98)
Interest in OSB	0.79 (0.79)	1.26 (0.77)	0.36 (0.59)	0.94 (0.84)
Non-home computer use OSB	0.35 (0.48)	0.62 (0.49)	0.15 (0.36)	0.35 (0.48)
Illegal sexual material	0.26 (0.44)	0.52 (0.50)	0.14 (0.34)	0.37 (0.48)

Note. OSB = Online Sexual Behaviour. Standard deviations are in parentheses.

online sexual behaviour, non-home computer use for online sexual behaviour, and accessing illegal sexual material).

Although MANOVA is robust to unequal sample sizes, for the present study the sample sizes are so different for males (5005) and females (1083) it was determined that separate MANOVAs would be conducted for each gender group. As indicated above, Mahalanobis Distances were analysed and multivariate outliers were removed from the sample. Evaluation of the assumptions of normality, linearity, homogeneity of variance-covariance matrices, and multi-collinearity were met satisfactorily. Effect sizes are reported in partial eta squared terms. When multiplied by 100, these partial eta squared coefficients may be interpreted as the percentage of variance of the effect accounted for by the dependent variable(s).

For the males, the combination of dependent variables resulted in a statistically significant effect for sexual compulsivity group (Wilks $\lambda = 0.40$, $F(10, 4994) = 753.57$, $p < 0.001$) and accounted for a large association between the sexual compulsivity group and the dependent variables ($\eta_p^2 = 0.60$). For the females the combination of dependent variables resulted in a statistically significant effect for sexual compulsivity group (Wilks $\lambda = 0.621$, $F(10, 1072) = 65.56$, $p < 0.001$) and accounted for a large association between the sexual compulsivity group and the dependent variables ($\eta_p^2 = 0.38$).

Age

For males, SCs were statistically significantly older than the NSCs ($F(1, 5003) = 57.03$, $p < 0.001$, $\eta_p^2 = 0.01$). For the females, there was no difference in age between SCs and NCs.

Internet usage

Male SCs spent about as much time online as NCs. Female SCs spent slightly more time online than NCs ($F(1, 1081) = 4.20, p < 0.05, \eta_p^2 = 0.00$). General time reported online included both time spent for sexual and non-sexual purposes.

Both male ($F(1, 5003) = 374.36, p < 0.001, \eta_p^2 = 0.07$) and female ($F(1, 1081) = 68.89, p < 0.001, \eta_p^2 = 0.06$) SCs spent more time accessing sexual material online than NCs.

Online compulsive behaviour

For both males and females all seven dependent variables measured using the ISST were statistically significantly higher for SCs than for NCs. Univariate Fs and effect sizes (η_p^2) are reported in Table III.

Discussion

The purpose of this study was to examine differences between general sexual compulsives and non-sexual compulsives on variables of age, Internet use, and problematic online sexual behaviour. The data for the present study included quite large sample sizes. In this situation it is important to examine not only statistical significance, but also size of effects to determine the meaningfulness of findings. The following discussion of findings emphasizes the interpretation of size of effect.

Age

Male SCs were found to be significantly older than male NCs, but very little variance was accounted for by that relationship and thus it is not a very meaningful variable. For females there was no difference. This is consistent with previous findings (Cooper *et al.*, 2000) that male and female SCs and NCs that evidence some interest in Online Sexual Behaviour (OSB) tend to be in their early 30s with an age range of between early 20s to early 40s.

Internet usage

Both male and female SCs and NCs use the Internet in general from between 20 and 22 hours per week. Although for the females there is a significant difference in hours online, the size of the effect is very small. However, when it comes to hours spent online for sexual behaviour, male and female SCs spend about half of their total time online accessing sexually-related material as opposed to male and female NCs who spend less than one-fourth the time in online sexual behaviour. Thus, the ratio of time engaging in OSB compared to general Internet behaviour is higher for both male and female SCs. Although past research reported slightly different numbers, (Cooper *et al.*, 1999, 2000), the ratio of time spent online to total time spent online corroborated past results. It is clear that the individual with general sexual compulsivity spends more time online

TABLE III. Multivariate and univariate analyses of variance and effect sizes for age, Internet usage variables, and Online Sexual Behaviour variables for males and females

Source	Multivariate	Univariate									
		1	2	3	4	5	6	7	8	9	10
<i>Males^a</i>											
Sexual compulsivity (<i>F</i>)	753**	57**	1	374**	7192**	488**	1605**	519**	428**	376**	376**
Size of effect (η_p^2)	0.60	0.01	0.00	0.07	0.59	0.09	0.24	0.09	0.08	0.07	0.07
<i>Females^b</i>											
Sexual compulsivity (<i>F</i>)	66**	0	4*	69**	580**	229**	253**	91**	174**	65**	84**
Size of effect (η_p^2)	0.38	0.00	0.00	0.06	0.35	0.18	0.19	0.08	0.14	0.06	0.07

Note. 1 = Age, 2 = Hours online, 3 = Hours of viewing sexual material online, 4 = Online sexual compulsivity, 5 = Online Sexual Behaviour-Social, 6 = Online Sexual Behaviour-Isolated, 7 = Online sexual spending, 8 = Interest in online sexual behaviour, 9 = Non-home computer use for online sexual behaviour, 10 = Accessing illegal sexual material.

^aMultivariate F(10, 4994), Univariate F(1, 5005). ^bMultivariate F(10, 1072), Univariate F(1, 1081).

**p* < 0.05. ** *p* < 0.001.

engaged in sexual behaviour than their non-sexually compulsive counterparts. Therefore, researchers and clinicians may need to investigate not just how much time is spent online, but the ratio of online sex time to total online time.

Online compulsive behaviour

The ISST was used to assess seven variables of OSB: online sexual compulsivity, online sexual behaviour-social, online sexual behaviour-isolated, online sexual spending, interest in online sexual behaviour, non-home computer use for online sexual behaviour, and accessing illegal sexual material. All of the OSB variables were significantly higher for SCs for both males and females. Comparisons between the OSB variables for males and females are graphically represented in Figs. 1 and 2 respectively. Online Sexual Compulsivity accounted for the largest amount of variance for males ($\eta_p^2 = 0.59$) and females ($\eta_p^2 = 0.38$). That is, offline general sexual compulsives who use the Internet tend to be sexually compulsive online as well. Online sexual behaviour appears to be a useful proxy for real sexual stimuli, strong enough to elicit problem sexual behaviour. Anecdotally, clinicians report that they often have clients doing well offline who discover the Internet and find themselves immersed in the compulsive behaviour again. This data demonstrated that offline general sexual compulsives are more likely to use the Internet for sex compulsively than their non-sexually compulsive counterparts. The clinical implications of this may be to carefully monitor clients with general sexual compulsivity problems who begin using, or are regularly using the Internet.

Two types of cybersex

The next most important variables were OSB-Social and OSB-Isolated. These variables manifest differently for male and female sexual compulsives so *t*-tests were conducted to compare male and female SCs. All SCs reported higher levels of OSB-Social and OSB-Isolated than NCs. Within that group, females reported more symptoms of OSB-Social than males ($t = -9.28, p < 0.001$). The opposite was true for OSB-Isolated in which males reported more symptoms than females ($t = 16.99, p < 0.001$). A variety of other researchers reported similar findings (Cooper *et al.*, 1999, 2000; Carnes, 1991) and offered a variety of explanations as to why this may be the case.

Online sexual interest

All subjects had some interest in sexual material as evidenced by the fact that they completed an online sexually-related survey. However, participants classified as SCs reported more interest in online sexual behaviour than NCs as measured by the Interest in Online Sexual Behaviour subscale on the ISST. This seems a logical conclusion; however, with further development, this subscale may be used to help differentiate those who are interested in online sexual behaviour vs. those who may have problematic use of online sex.

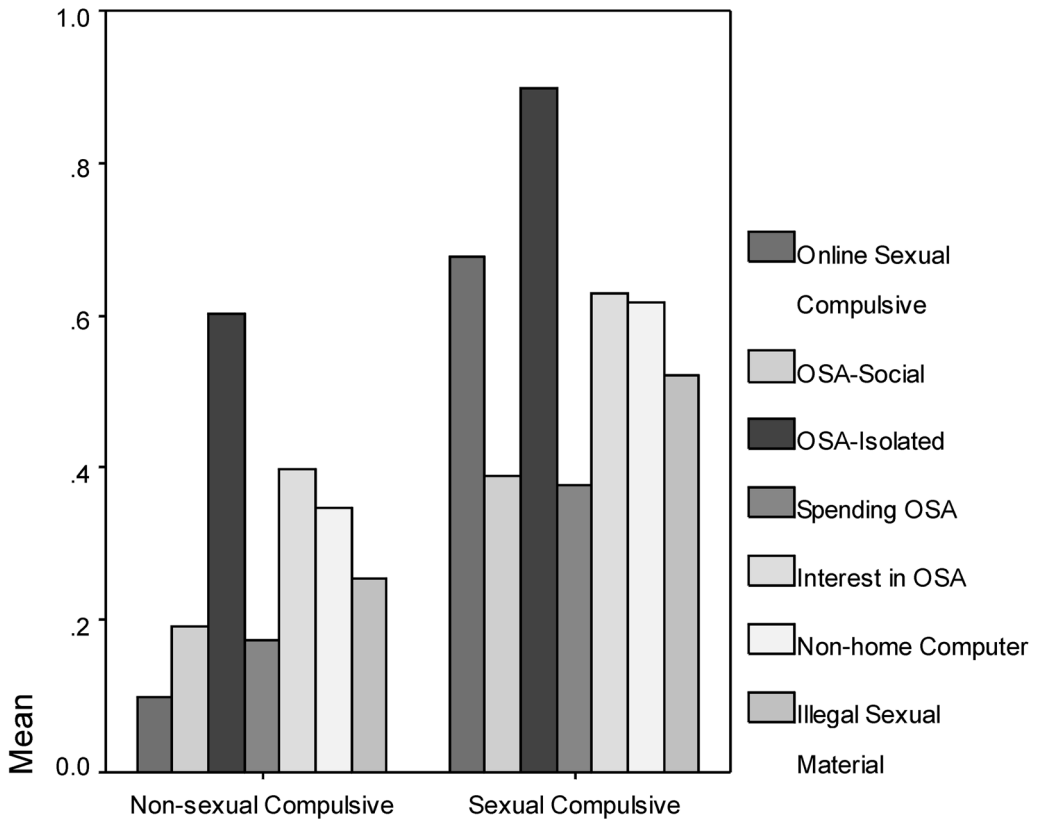


FIG. 1. Comparison of male non-sexual compulsives with sexual compulsives on measures for the Internet Sex Screening Inventory. All measures were transformed to the same scale to allow for comparisons.

Single item factors

Because the final two scales (Non-home Computer Use for OSB and Illegal Sexual Material) were single item scales, it was possible to examine percentage of sexual compulsives engaging in each behaviour across gender. Both male and female sexual compulsives tended to access sexual material from computers other than their home computers such as employee-owned or public computers. Sixty-two percent of male SCs reported accessing sexual material from non-home computers and only 36% of females SCs reported doing so. These figures are slightly higher than those reported by Greenfield (1999), which may be due to an actual increase since 1999, or the operational definition of non-home computer use. In either case, it appears that as the Internet becomes more pervasive in our society, both males and females are using terminals outside their home for sexual purposes. Clinicians whose clients struggle with online sexual problems, should guide them to develop clear boundaries around the use of work computers for accessing sexual materials. Just as more individuals are using their work computer for Internet sexual behaviour, more companies are monitoring and disciplining employees for such use.

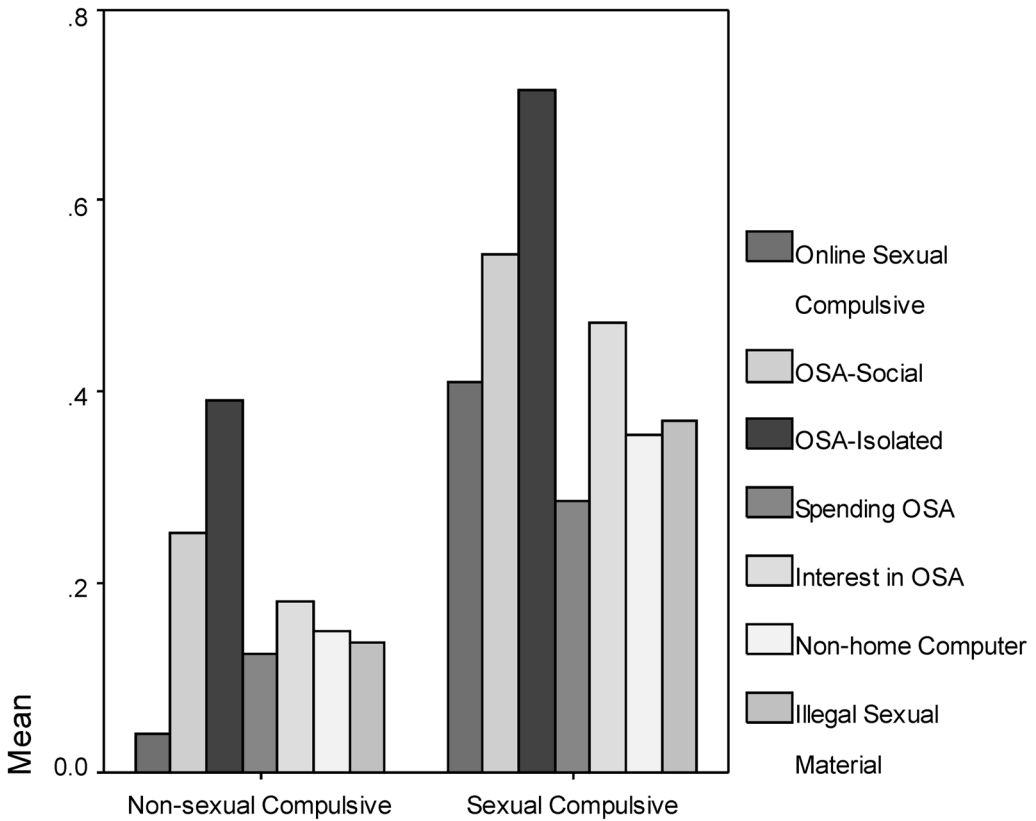


FIG. 2. Comparison of female non-sexual compulsives with sexual compulsives on measures for the Internet Sex Screening Inventory. All measures were transformed to the same scale to allow for comparisons.

Both male and female sexual compulsives tended to access illegal sexual material more than NCs. A similar gender pattern was seen for illegal sexual material in which 52% of male SCs reported accessing illegal sexual material and 37% of females reported doing so. The Internet is a microcosm of the world, where there is both legal and illegal behaviour. It is important to monitor a client’s use of the Internet for possible illegal behaviour and draw clear boundaries around the viewing of child pornography online, or other illicit online behaviour. This result was also surprising, in that 37% of females reported accessing illegal information online, which may be contrary to the general belief that women do not view child pornography; however, more research would be necessary before making any conclusions about these results.

Limitations

The instruments administered relied on self-report by subjects, which is probably the largest limitation of this study. We have no way of knowing whether the data collected is an accurate representation of the online community and therefore cannot make sweeping generalizations about sexuality and the Internet.

In addition, while online methodologies for research continue to improve, it is impossible to know who has filled out the survey, whether they were being honest, and whether they filled out the survey on multiple occasions. Data cleaning was performed to minimize the effects of this limitation, however, it still existed.

With no ability to see the subjects or follow-up their responses, it may be difficult to recognize if other contaminating variables may have influenced the way the instrument was completed. For example, an individual may have been in crisis when completing the survey, or was significantly depressed or anxious.

Conclusions

Even with the aforementioned limitations, the data provide from this study represented the first empirically driven assessment of online sexual behaviour. Many of the findings from past research were corroborated. This verification of findings worked in two directions. First, the empirically derived instrument helped to confirm findings from past survey research. Second, the past survey research helped to confirm that the scales developed within the Internet Sex Screening Test were measuring true constructs of online sexual behaviour.

Further research with the ISST is necessary. Delmonico & Miller (2003) are currently drafting data that will further evaluate the reliability and validity of the instrument. Once the instrument's psychometric properties are analysed, the instrument may serve to help researchers and clinicians to investigate other research questions related to online sexual behaviour.

On its first mission, the Internet Sex Screening helped to describe the differences between general offline sexual compulsives and their non-sexually compulsive counterparts. The purpose of this study was fulfilled, and the research contained within this article has implications for both research and clinical assessment and interventions of online sexual compulsives.

References

- CARNES, P.J. (1991). *Don't call it love: Recovery from sexual addiction*. New York, NY: Bantam Books.
- CARNES, P.J. (1989). *Contrary to love: Helping the sexual addict*. Minneapolis, MN: CompCare Publishing.
- CARNES, P.J., DELMONICO, D.L. & GRIFFIN, E.J. (2001). *In the shadows of the Net: Breaking free of compulsive online behavior*. Center City, MN: Hazelden Educational Materials.
- COOPER, A. & GRIFFIN-SHELLEY, E. (2002). The Internet: The next sexual revolution. In A. COOPER (Ed.), *Sex & the Internet* (pp. 1–15). New York, NY: Brunner-Routledge.
- COOPER, A., DELMONICO, D. & BURG, R. (2000). Cybersex users, abusers, and compulsives: New findings and implications. *Sexual Addiction and Compulsivity: Journal of Treatment and Prevention*, 7, 5–30.
- COOPER, A., GOLDEN, G. & KENT-FERRARO, J. (2002). Online sexual behaviors in the workplace: How can human resource departments and employee assistance programs respond effectively? *Sexual Addiction and Compulsivity: Journal of Treatment and Prevention*, 9, 149–165.
- COOPER, A., SCHERER, C., BOIES, S.C. & GORDON, B. (1999). Sexuality on the Internet: From sexual exploration to pathological expression. *Professional Psychology: Research and Practice*, 30(2), 154–164.
- DEIRMENJIAN, J.M. (1999). Stalking in cyberspace. *Journal American Academic Psychiatry Law*, 27, 407–413.
- DELMONICO, D.L., & MILLER, J.A. (2003). *Psychometric properties of the Internet Sex Screening Test*. Manuscript in preparation.
- DELMONICO, D.L. (1997). *Internet Sex Screening Test*. Retrieved May 15, 2003, from <http://www.sexhelp.com>

- FREEMAN-LONGO, R.E., BROWN, S.M. & PRICE ORCUTT, D. (2002). Effects of Internet sexuality on children and adolescents. In A. COOPER (Ed.), *Sex & the Internet* (pp. 87–105). New York, NY: Brunner-Routledge.
- GREENFIELD, D.N. (1999). Psychological characteristics of compulsive Internet use: A preliminary analysis. *CyberPsychology and Behavior*, 2(5), 403–412.
- KALICHMAN, S.C. & ROMPA, D. (1995). Sexual sensation seeking and sexual compulsivity scales: Reliability, validity, and predicting HIV risk behavior. *Journal of Personality Assessment*, 65, 586–601.
- SCHNEIDER, J.P. (1994). Sex addiction: Controversy within mainstream addiction medicine, diagnosis based on the DSM-III-R and physician case histories. *Sexual Addiction and Compulsivity: Journal of Treatment and Prevention*, 1, 19–44.
- WEISS, R. (2003). *Cybersex addiction screening test*. Retrieved May 22, 2003 from <http://www.sexualrecovery.com>
- YOUNG, K. (2003). *Cybersexual addiction quiz*. Retrieved on May 22, 2003 from <http://www.netaddiction.com>

Contributors

DAVID L. DELMONICO, *Assistant Professor, Department of Counseling, Psychology and Special Education, Duquesne University, Pittsburgh*

JEFFREY A. MILLER, PhD, ABPP, *Diplomate in School Psychology, licensed psychologist and certified school psychologist. Currently Assistant Professor at Duquesne University, Pittsburgh*