

**PSYCHOLOGICAL CHARACTERISTICS OF INDIVIDUALS WHO
ENGAGE IN ONLINE SEXUAL ACTIVITY (OSA)**

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ABSTRACT

Engaging in online sexual activity (OSA) is a growing phenomenon in much of the Western world. It is frequently argued that excessive involvement in such activity can result in a number of negative consequences including increased psychopathology and psychosocial difficulties, however to date there is little empirical research supporting this claim (Daneback, Cooper, & Mansson, 2005). The overall aim of this thesis was to investigate the expression of sexuality on the Internet using an online questionnaire that surveyed the psychological characteristics and online behaviours of individuals who engage in online sexual activity (OSA). The anonymous questionnaire was posted on sexually oriented newsgroups yielding a sample of 1325 men and women. Participants were aged 18 to 80 years of age, ($M = 42$ years), and approximately 60% of participants identified as non-heterosexual. Ninety-two percent were male and most engaged in OSA for at least 12 hours per week. Participants in the current study were older, more likely to be male, identify as non-heterosexual (gay, lesbian, bisexual), and be heavier users of OSA than participants from earlier online studies (e.g., Cooper, Morahan-Martin, Mathy, & Meheu, 2002; Cooper, Sheerer, Bois, & Gordon, 1999). Results from the Internet Sex Screening Test (ISST, Delmonico, 1997) indicated that most participants were classified within the At-Risk or High-Risk groups, suggesting that their OSA was likely to be interfering with important aspects of their lives. Participants' sex and their sexual orientation were related to their pattern of OSA and their offline meeting behaviour. Participants' Risk-level on the ISST and their sexual orientation were related to scores on depression, anxiety, stress, loneliness and impulsivity, however this pattern was not the same for males and females. Adult attachment style was also related to participants' OSA. Securely attached participants were more likely to be classified within the Low-Risk group on the ISST and spend less time engaged in OSA. Overall, spending more time engaged in OSA and scoring higher on the ISST was associated with higher levels of depression, anxiety, stress, impulsivity, social loneliness and emotional loneliness. Findings were discussed in terms of methodological implications, suggestions for future research and also implications for clinical psychologists.

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DECLARATION

This thesis contains no material that has been accepted for the award of any other degree or diploma except where due reference is made in the text of the thesis. To the best of my knowledge, this thesis contains no material previously published or written by another person, except where due reference is made in the text of the project.

The work undertaken for this project was duly authorized by the Standing Committee in Ethics in Research Involving Humans of Swinburne University on 14/9/07 (Project number 0708-070)

Signed Date

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CHAPTER 1

INTRODUCTION: THE WORLDWIDE GROWTH OF THE INTERNET AND ONLINE SEXUAL ACTIVITY

Study Rationale

Engaging in online sexual activity (OSA) is a growing phenomenon in much of the Western world. It is frequently argued in the scientific literature that excessive involvement in such activity can result in a number of negative consequences including increased psychopathology, and a range of psychosocial difficulties, however to date there is little empirical research support this claim (Daneback, Cooper, & Mansson, 2005). Literature regarding the use of the Internet for sexual purposes has primarily focused on clinical cases (Cooper, Delmonico, & Burg, 2000), and only in recent years have researchers started to examine questions and concerns related to OSA (Cooper, Morahan-Martin, Mathy, & Meheu, 2002). While obtaining a representative sample is difficult, it has been estimated that 31% of Internet users visit sites with sexual content. Of those individuals, 6% may exhibit compulsive sexual behaviours and a further 17% may be “at risk” of becoming sexually addicted (Cooper et al., 2002). Young (2008) advised that Internet sex addiction is currently the most common form of problem online behaviour among users.

The study of Internet sexuality remains a controversial topic in the scientific literature due to the opposing positions taken by researchers. Some focus on the potential hazards associated with online sexuality (Griffin-Kelly, 2003; Morahan-Martin, 2005), whilst others focus on the adaptive and beneficial aspects of Internet sexuality such as exploring aspects of one’s sexuality and reducing isolation for socially stigmatised groups (Bowen, 2005; Braun-Harvey, 2003; Cooper, 1998; McKenna, Green & Smith, 2001; Ross 2005). Early research by Durkin and Bryant (1995) examining online sexual behaviour focused on how the Internet can be used to engage in criminal and/or sexually deviant behaviours (Cooper et al., 1999). These researchers argued that sexually motivated online behaviour enables users to operationalise sexual fantasies that are likely to have self-extinguished if it were not

for the reinforcement of immediate feedback provided by the Internet. Other researchers have emphasised the addictive nature of OSA, and focused on the obsessive and compulsive aspects of the activity (Cooper et al., 2000; Delmonico & Miller, 2003a). Ybarra and Mitchell (2005) note that determining the effects of exposing children and adolescents to online pornography is a controversial issue. Debate regarding the contribution of pornography to deviant sexual behaviour, sexual assault, and negative attitudes towards women has been studied for decades with mixed results.

Greenfield and Orzack (2002) reported that clinical experience suggests that the majority of problems related to OSA concern its negative impact on marriages and significant relationships. Prior research has examined the impact that OSA has on the user's family and raised concerns such as OSA replacing sexual intimacy with real-life partners, and the breakdown of relationships following the discovery of a cyber-affair (Schneider, 2000; Young, Griffin-Shelly, Cooper, O'Mara, & Buchanan, 2000). Conversely, Young (2008) advises that for some couples, adult chat rooms can offer a new way to spice up their sex lives and provide an opportunity to explore new forms of intimacy and sexuality in their relationship. She also suggests that even among individual users, adult chat rooms can offer a healthy outlet to explore their sexuality in a safe private environment. Young et al. (2000) however warned that individuals who engage in high levels of OSA manifest changes in sleep patterns, disregard their responsibilities, demonstrate changes in personality, lose interest in relationship sex and frequently stop investing in their relationship, which can all negatively impact on the individual's partner and family. In fact, the use of the Internet for any purposes has been linked to reductions in family communication and social interaction and increases in depression and loneliness among family members (Kraut, Lundmark, Keisler, Mukhopadhyay, & Scherlis, 1998).

This thesis had two aims. First, to investigate a selection of demographic and psychological characteristics of individuals who engage in OSA. The variables chosen to investigate in the current study were selected based on their theoretical relevance to OSA, and also whether they had received adequate prior empirical investigation. The second aim was to apply the findings of the current study to the clinical work of psychologists who treat individuals presenting with problems associated with their OSA. The sample obtained for the current research was not a

random sample. It should also be noted that this thesis predominantly focused on the problematic aspects of Internet sexuality so as to be of greater interest and relevance to clinical and counseling psychologists. Despite this focus of the current study, it is important to acknowledge that for the majority of individuals who engage in online sexual behaviour, their behaviour does not become problematic and may in some cases be beneficial.

The data collected in the current study were provided by individuals who were recruited from sexually explicit Internet Newsgroups, and that participants were more likely to identify as non-heterosexual than have participants in earlier online studies. Participants who took part in the study completed an anonymous questionnaire and were not contacted directly at any stage of the study. Given that participants were recruited from sexually explicit websites, they are not considered to be a community sample and it is probable that they engaged more frequently in OSA than community members in general. Prior studies have generally recruited participants from non-sexually oriented websites (e.g., Cooper, Scherer et al., 1999; Daneback et al., 2005).

Overview of Chapter One

Chapter one is the first of three introductory chapters that discuss theoretical issues and previous research findings relating to the worldwide expansion of the Internet, and how its users express their sexuality online. The chapter also examines the controversy surrounding the diagnosis of sexual addiction, and how sexually compulsive behaviour can be manifested online. Specifically, chapter one discusses the following issues: the worldwide growth of the Internet, focusing on Internet usage in Australia, technological and behavioural addictions including Internet addiction, the controversy over pathologising Internet behavior, psychometric testing for Internet addiction and treatment for Internet addiction. The notion of “sexual addiction” is also examined and issues such as the prevalence of sexual addiction, the cycle of sexual addiction and the controversy surrounding the term “sexual addiction” are discussed. Sexuality and its relevance in an online environment is then discussed in terms of both the positive and pathological aspects of online sexuality. Classification systems for categorising consumers of OSA and the demographic characteristics of the online population are included in the discussion,

and the notion of “online sexual addiction” is introduced and various psychological models that account for the increase in OSA are presented. Lastly, aetiological factors associated with compulsive OSA, reasons and motivation for engaging in OSA, the impact of OSA on family members including children’s access to Internet pornography, psychological treatments for compulsive OSA and psychometric testing of OSA are discussed.

The Worldwide Growth of the Internet

The Internet was originally developed in the United States by the Department of Defense as a protection against a nuclear disaster. In more recent decades however the Internet has evolved into one of the most important technological advances of the twentieth century (Delmonico & Miller, 2003). The advent of the Internet in the 1960s and its accessibility to the general public in the late 1980s created a communication medium that is unsurpassed in its capacity to provide efficient exchange of information and instant communication. In fact, computer and Internet growth surprised analysts as its use spread to more households than initially predicted and today there is no medium that is more globally accessible than the Internet (Cooper et al., 2004). Evans (1996) described the Internet as a living, expanding, theoretically borderless, potentially infinite space for the production and circulation of information. Internet activities including business transactions and finding a marriage partner are now conducted as a matter of course, and it has been suggested that the rise of the Internet is having a dramatic impact on our social lives, as did the event of the telephone and television. Delmonico and Miller (2003a) suggested that the Internet is like a microcosm of the world in which we live and similar to the real world, there are some places that are safer to visit than others. They warn that some websites provide useful knowledge and potentially life saving information, whilst other websites are misleading and deviant.

Worldwide growth of the Internet has been such that it has become an essential component of the social and economic lives of its users. The Internet offers unparalleled opportunity for people to interact socially and professionally, and it has been proposed that the Internet could provide an alternative pastime that could rival face-to-face social interaction (Donn & Sherman, 2002; Kraut et al. 1998). This

dramatic growth of the Internet has resulted in an estimated 1.74 billion users worldwide in September 2009 (Internet World Stats, 2009).

Following the dramatic growth of the Internet worldwide, a number of researchers have warned about the possible dangers associated with its use and highlighted potential risks such as Internet addiction (Mitchell, 2000; Young, 1997, 1998a). Although the Internet has the ability to make our lives easier, it can become problematic if used inappropriately (Odaci & Kalkan, 2010). Webster and Jackson (1997) argued that new technology such as the Internet offers its users considerable freedom and opportunities, however they warned that for some individuals their use can become unregulated and can take on an obsessive and compulsive pattern. Technology such as the Internet can also have alienating effects, which can occur when people become frustrated and depersonalised the more they interact with machines (Braun-Harvey, 2003). Greenfield (1999a) warned that research also indicates that the Internet appears capable of altering an individual's mood, motivation and concentration, and may result in dissociating and disinhibiting experience for some of its users. In addition, for a small minority their Internet use can progress to abuse and take on a compulsive quality.

Internet Usage in Australia

In 2009, 72% of all Australian households had access to the Internet and 78% of households had access to a home computer (Australian Bureau of Statistics, 2009). Between 1998 and 2009, Australian household access to the Internet has more than quadrupled from 16% to 72%, and access to computers has increased from 44% to 78%. Using the 2001 Australian Census data, Lloyd and Bill (2004) examined the socio-economic and regional characteristics of users of home computers and the Internet in Australia. The researchers found significant variation in rates of Internet use related to the socio-economic characteristics of its users. The findings suggest that people with higher incomes and better education had a higher likelihood of using the Internet (Australian Bureau of Statistics, 2006).

The Human Cost of the Internet

The rapid growth of Internet use has led to research on both the benefits and dangers of online activities (Hardie & Tee, 2007). In conjunction with ABCnews.com, Greenfield (1999a) surveyed nearly 18,000 Internet users about their online habits. He found 6% of users to be compulsive in that their personal lives and professional lives were negatively affected, for example, resulting in job loss and matrimonial conflict. Later studies and surveys have continued to highlight this growing trend, particularly in the sexual content areas of pornography, cybersex and chat-rooms (Greenfield & David, 2002). In a two-year longitudinal study of families who were provided with a computer and Internet access, Kraut et al. (1998) found that increased use of the Internet was associated with decreased family communication, a decrease in the size of their offline social circle and increases in loneliness and depression.

Technological and Behavioural Addiction

Excessive use of the Internet has been referred to as a ‘technological addiction’ (Griffiths, 2001) or a ‘behavioural addiction’ (Griffiths, 2003). Griffiths (2001) advises that these are non-chemical addictions and involve excessive human-machine interactions. These addictions can be passive (e.g., watching television) or interactive (e.g., playing computer games), and typically contain inducing and reinforcing features that are argued to contribute to the promotion of addictive tendencies (Griffiths, 1995). Behavioural addictions also feature the key components of addiction, which include salience, mood altering abilities, tolerance, withdrawal symptoms, conflict and frequent relapse. Griffiths (1996) argued that any behavioural patterns that meet these criteria could be operationally defined as an addiction.

Internet Addiction

Dr Kimberly Young first introduced the term “Internet addiction” in a pioneer study in 1996. Young (1997) characterised Internet addiction as excessive

over-use of the Internet that can interrupt an individual's sleep pattern, work productivity, daily routines and social life. Mitchell (2000) advised that researchers have also identified a number of withdrawal symptoms that are believed to be associated with Internet addiction including nervousness, agitation, and aggression, as well as an "addiction syndrome" that includes withdrawal symptoms, increasing tolerance, and loss of control. Internet addicts often withdraw from interpersonal and social interactions other than those carried out on the Internet. This change in the addict's behaviour can therefore negatively impact on social relationships, and academic and occupational functioning (Bai, Lin, & Chen, 2001).

Odaci and Kalkan (2010) expanded on the definition of Internet addiction by suggesting that one significant measure of dependency involves the frequency of daily or weekly use of the Internet. The authors indicate that "as a point of agreement among studies, Internet use of 5 hours a day is regarded as problematic" (pp.1091-92). On the other hand, "healthy internet use" has been defined by Davis (2001) as using the Internet to achieve a specific aim, within an appropriate timeframe, with no conceptual or behavioural difficulties. The number of "problematic Internet users" using the Internet in a manner outside this definition of "healthy" is considered to be of concern (Odaci & Kalkan).

Young (1999a) argued that Internet addiction is a broad term, which covers a wide variety of behaviours and problems with impulse control. Her research led to her categorising Internet addiction into five subtypes: (a) *cybersexual addiction*, which involves frequently using the Internet to search for pornography; (b) *cyber-relationship addiction*, defined as excessive involvement in online relationships; (c) *net compulsions*, which includes compulsively using the Internet for activities such as online gambling, shopping and trading; (d) *information overload*, involving excessive search the Internet and databases for information; and (e) *computer addiction*, involving obsessively playing games such as Solitaire.

Criteria for Diagnosing Internet Addiction

Based on the Diagnostic and Statistical Manual of Mental Disorders, 4th Edition (DSM-IV, American Psychiatric Association), Young (1998a) developed eight criteria to diagnose Internet addiction. Criterion examples included preoccupation with the Internet, making unsuccessful attempts to control Internet use, negative mood states when trying to reduce Internet use, spending more time online than intended, concealing the extent of Internet use and using the Internet to escape problems or a dysphoric mood. In line with the DSM-IV diagnosis of Pathological Gambling, to be diagnosed with an Internet Addiction Disorder, Young (1998a) proposed that an individual's behaviour on the Internet must have persisted over a minimum of a six-month period and is not better accounted for by a manic episode.

The Internet Addiction Test (IAT).

In 1998, Young developed the Internet Addiction Test (IAT; Young, 1998a). The IAT is a 20-item self-administered test that aims to measure problematic Internet use. The IAT has been shown to be a reliable and valid instrument for classifying Internet users into three groups: Average users who have complete control over their Internet activities, Over-Users who experience frequent problems because of their Internet activities and Internet Addicts who experience significant problems due to their dependence on Internet activities (Young, 1998a).

Research conducted by Young (1998a) to validate the IAT found that people classified as Dependents or Internet Addicts spent an average of 38.5 hours per week on the Internet compared to people classified as Non-Dependents who spent an average of 4.9 hours per week. The Internet applications most utilised by Dependents were chat-rooms and multi-user dungeons (MUDs), or computer role-playing games in a fantasy world. Both applications allow multiple online users to simultaneously communicate in real time. Newsgroups, or virtual bulletin board messages, were the third most utilised application amongst Dependents.

Young (1998a) also examined the extent of problems caused by excessive Internet use. Individuals classified as Non-Dependent reported no adverse affects

from their use of Internet, other than poor time management because they often lost track of time whilst using the Internet. However, Dependent individuals reported that their use of the Internet resulted in significant personal, family, and occupational problems. Dependent individuals also claimed that they preferred their “online” friends more than their real life relationships due to the ease of anonymous communication and the extent of control over revealing personal information among other online users.

Controversy over Pathologising Internet Behaviour

The notion of problematic Internet behaviour being characterised as an addiction started a debate by both clinicians and academicians. Part of this controversy relates to the belief of some researchers that only physical substances ingested into the body can be termed "addictive" and that the term *addiction* should be used to describe cases involving the ingestion of a psychoactive substance (e.g., Rachlin, 1990; Walker, 1989). Other researchers argue that the term addiction has moved beyond this limited definition to include a number of behaviours which do not involve psychoactive substances such as compulsive gambling (Griffiths, 1990), video game playing (Keepers, 1990), overeating (Leisure & Bloome, 1993), exercise (Morgan, 1979), love relationships (Peele & Brody, 1975), and television-viewing (Winn, 1983). Alexander and Scheweighofer (1998) supported Young's conceptualisation of addiction and argued that applying the term "addiction" exclusively to drugs creates an artificial distinction that discredits the usage of the term for a similar condition when drugs are not involved.

As the Internet increasingly becomes part of every day life, the notion of a clinical disorder being used to describe an addiction to the Internet remains controversial. Health professionals are divided about whether or not ‘Internet addiction’ is a unique disorder, or merely the online manifestation of other compulsive behaviour (Levy & Strombeck, 2002). Young (1998a) argued that Internet addiction is a separate condition in that the disorder is computer-mediated and is not merely a direct translation of offline behaviour.

Treatment of Internet Addiction

Over the years, the concept of Internet addiction has grown in terms of its acceptance as a legitimate clinical disorder that often requires treatment (Young, 2004). Researchers have suggested using cognitive behaviour therapy (CBT) as the treatment of choice for Internet addiction, and addiction recovery in general has utilised CBT as part of treatment planning (Young, 2007). In a study reported by Young (2007), 114 clients who suffered from Internet addiction received CBT at the Center for Online Addiction. All clients were screened using the Internet Addiction Test (Young, 1998b) and those who met the criteria for Internet addiction were included in the study. Clients with other high-risk behaviours, a history of psychological trauma, sexual abuse and Axis II pathology were excluded. Treatment included 12 individual CBT sessions and a 6-month follow-up. The outcome variables included client motivation, online time management, improved social relationships, improved sexual functioning, engagement in offline activities, and the ability to abstain from problematic evaluations. Young's findings suggested that Caucasian, middle-class university-educated males were the most group likely to suffer from some form of Internet addiction. However despite Young's findings, it is also possible that this group of participants were more likely to seek treatment. Preliminary analyses indicated that most clients were able to manage their presenting complaints by the eighth session, and most were able to fully manage their symptoms by the twelfth session. Overall, most participants reported that CBT intervention effectively addressed the common symptoms of online addiction, which included motivation to quit, online time management, social isolation, sexual dysfunction, and abstinence from problematic online applications. The findings also indicate that at six-month follow up most clients were able to continue to manage their symptoms and continue in their recovery.

Following increased awareness about the potential dangers of Internet addiction in American society, a number of treatment centres have opened across the country (Levy & Strombeck, 2002). In addition, there are now online Internet

Addiction Support Groups available for individuals addicted to the Internet to share their thoughts, feelings and problems with others with similar concerns.

Sexual Addiction

A Historical Account of Psychiatry's Conceptualisation of Pathological Hypersexual Behaviour

The concept of suffering from a 'sexual addiction' was in existence centuries prior to the advent of the Internet. Despite the popular belief that compulsive sexual behaviour is a recent phenomenon, sexual excess and debauchery have been described and catalogued from antiquity. 'Nymphomania', a term derived from the Greek, has been used in the past to describe perceived female sexual excess, and 'Don Juanism' and 'Satyriasis' was used to denote male hypersexuality (Finlayson, Sealy, & Martin, 2001). Kafka (2010) reported "in Western medicine, excessive sexual behaviours were documented by diverse clinicians such as Benjamin Rush (1745-1813), a physician and Founding Forefather of the United States (Rush, 1979), as well as the 19th century Western European pioneer sexologist Richard von Krafft-Ebbing" (p.378). Krafft-Ebbing (1886, as cited in Finlayson) described sexual addiction as:

an abnormally increased sexual appetite which to such an extent permeates all his thoughts, and feelings, allowing no other aims in life, tumultuously, and in a rut-like fashion demanding sexual gratification and resolving itself into an impulsive, insatiable succession of sexual enjoyments. This pathological sexuality is a dreadful scourge for its victim, for he is in constant danger of violating the laws of the state and of morality, and losing his honor, his freedom, and even his life. (p. 242).

More than a century ago new and more effective birth control methods unleashed considerable public fear, not only because of fears concerning the future of the family, but also the future of sexuality (Guilding, 2002). These fears appeared based on the fact that birth control meant sex and reproduction could be separated.

In Western society it would appear that sexuality has become increasingly detached from marriage, as reflected in more liberal attitudes towards de-facto relationships, ex-nuptial births, and growing acceptance and legal recognition of homosexuality (Giddens, 1999).

Modern interest in the concept of sexual addiction was activated around 1983 in part following the publication of Carnes' book "*Out of the Shadows: Understanding Sexual Addiction*" (Gold & Heffner, 1998). Over the last 20 years considerable research has been undertaken in an attempt to understand the psychological characteristics that influence individuals' sexual behaviour (Snell, Fisher, & Walters, 2007). Kafka (2001) argued that although disorders of socially deviant sexual behaviour are described in diagnostic nosology (e.g., sexual perversions, paraphilias), there has been minimal interest in non-paraphilic sexual disorders that are characterised by repetitive volitional impairment and adverse psychosocial consequences, such as compulsive sexual behaviour.

Sexual Addiction Defined

A number of definitions of what constitutes a sexual addiction can be found in the literature, and the different definitions highlight the various components of the condition. In his earlier description of what constitutes a sex addiction, Carnes (1983) highlighted the potentially pathological way in which sex can be used to alter one's mood. Sex addiction has also been defined as the inability to inhibit sexual behaviour despite negative consequences and an obsession with sexual activity (Schneider, 1991). Carnes (2007) later expanded this definition and proposed that a sex addiction is any sexually related compulsive behaviour that interferes with normal living and causes severe stress to family, friends, loved ones, and possibly to one's work environment. The National Council on Sexual Addiction and Compulsivity describes sexual addiction as a persistent and escalating pattern of sexual behaviour, which is acted out despite increasing negative consequences to self and others.

Goodman (1998) defined sexual addiction as a condition in which some form of sexual behaviour is employed in a pattern that is characterised by two key

features: (i) recurrent failure to control the sexual behaviour and (ii) continuation of the sexual behaviour despite the significant harmful consequences. Goodman argued that no form of sexual behaviour in itself constitutes sexual addiction. Whether a pattern of sexual behaviour can be defined as a sexual addiction is not determined by the type of behaviour, its frequency or its social acceptability, but by the impact that the behavioural pattern has on an individual's life. Under this definition, the individual is not reliably able to control the sexual behaviour and the sexual behaviour has harmful consequences, but continues despite these consequences. The conceptualisation of sex addiction offered by Goodman is perhaps one of the most comprehensive definitions found in the scientific literature, however most definitions fail to consider the biological aspects of the condition such as tolerance and physical withdrawal.

Symptoms of sexual addiction include loss of control, negative consequences experienced as a result of sexual behaviour, increasing amounts of sexual activity needed to maintain sexual satisfaction, mood changes experienced around sexual activity, denial and impaired daily functioning (Cooper et al., 2000). An individual who is sexually addicted may spend as much as 15-25 hours online in a given week engaging in or seeking sexual activity (Cooper et al.). Coleman (2001) reported that like most behaviours, sexual behaviour can be taken to obsessive and compulsive extremes. Similar to what is observed in obsessive compulsive disorder, Coleman notes that sexual obsessions and compulsions are recurrent, distressing and interfere with daily functioning.

Sexual Addiction: Many Conceptions and Minimal Diagnostic Agreement

Increasing attention is being paid to the concept of sexual behaviour that is out of control. More recent literature has employed two currently fashionable terms: compulsive sexual behaviour and sexual addiction (Bancroft & Vauandinovic, 2004). Currently there is no consensus in the medical community that "sexual addiction" exists in terms of a disorder, and it is not included in the current edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV-TR, 2000) or the

current version of the International Classification of Diseases (ICD-10-CM, 2011). In fact the DSM-IV currently does not use the term “addiction” when describing any diagnostic criteria, however a diagnosis of Hypersexual Disorder is proposed for DSM-V. Despite not being included in the current DSM edition as a sexual disorder with diagnosable characteristics, there has been growing clinical interest in mainstream sexual behaviour that is excessive (Grant & Steinberg, 2005). In general, it would appear that the assessment and treatment of all types of sexual disorders have been neglected in psychiatry. Currently there is general agreement that such a pattern of behaviour exists, but considerable controversy surrounds how it should be designated (Findlayson, Sealy, & Marin, 2001).

*Diagnostic and Statistical Manual of Mental Disorders, 4th Edition (DSM-IV)
Classification of Sexual Disorders.*

At the present time, sexual disorders are classified in the Diagnostic and Statistical Manual of Mental Disorders, 4th Edition (DSM-IV, American Psychiatric Association, 1994), into three categories: Sexual Dysfunctions, Paraphilias, and Gender Identity Disorders. The sexual dysfunctions are non-deviant or non-paraphilic. Bradford (2001) argued that the Sexual Dysfunction category should also include “Hyperactive Sexual Desire disorder” under Sexual Desire Disorders. In the current version of the DSM, the subtypes under this category include Hypoactive Sexual Desire Disorder (302.71) and Sexual Aversion Disorder (302.79).

Hypersexual Disorder is currently proposed as a new psychiatric disorder for consideration in the Sexual Disorders section of the DSM-V. Kafka (2010) reported that based on an extensive review of the literature, Hypersexual Disorder is conceptualised as a nonparaphilic sexual desire disorder with an impulsivity component. Kafka advised that the operational criterion based definition for Hypersexual Disorder includes components of two well-established DSM-IV-TR (2000) sexual disorders: Hypoactive Sexual Desire Disorder and the Paraphilias. The proposed diagnosis also lists examples of the hypersexual behaviour and includes: masturbation, pornography, sexual behaviour with consenting adults, cybersex, telephone sex and strip clubs. The International Classification of Diseases

(ICD), published by the World Health Organisation (2007) also has a provision for “excessive sexual drive” (Diagnostic Code F52.7), which is further subdivided into nymphomania (for females) and satyriasis (for males), however no further description is included (Kafka, 2010).

Perspectives Regarding the Appropriateness of the Term Sexual Addiction.

The term ‘addiction’, in particular as it relates to sex, has long been the subject of intense debate and controversy among mental health professionals, politicians, and religious groups (Goldberg, 2004). Pathological hypersexuality is most commonly conceptualised by health professionals and the general public as an addiction. Although there is no universally accepted definition of “compulsive sexual behaviour,” the term is generally used to indicate excessive uncontrolled behaviour or sexual cognitions that lead to subjective distress, social or occupational impairment, or legal or financial consequences (Black et al., 1997).

Pertinent literature relating to unregulated sexual behaviour appears under headings such as sexual “addiction” (Carnes, 1983), “compulsivity” (Fisher, 1995), “impulse control” (Grant & Potenza, 2003), “dependence”, “desire disorders” (Kafka, 1997), “hypersexuality” (Bradford, 2001; Finlayson, Sealy, & Martin, 2001), a variant of obsessive-compulsive disorder (Stein, Black, & Peinaar, 2005; Bradford, 2001), and Post-traumatic Stress Disorder (Schwartz, 1992). Gold and Heffner (1998) argued that each of these terms represents a disparate conceptualisation of the nature of the disorder characterised by inadequately controlled sexual behaviour.

Medical Perspective.

The extension of the model of addiction from substances to problems with behaviour remains a controversial issue within the medical community (Morahan-Martin, 2005). Academics and clinicians, particularly those working in the addictions field, do not always support the term ‘sexual addiction’ being used to describe sexual behaviour that an individual cannot readily control. Even those who treat sexual addictions do not agree on the aetiology or the treatment of the

condition. Schneider and Irons (2001) advised that professionals limit the concept of ‘addictive disorders’ to substance-induced disorders. According to this view, an addictive disorder is one that is caused directly by the effect on the brain of an ingested, injected or inhaled mood-altering chemical. This medical perspective views addiction as a physiological condition, and therefore assumes that the condition must be defined physiologically, emphasising dependence and withdrawal.

Sociological Perspective.

Goodman (1992) criticised the term ‘sexual addiction’ on sociological grounds because the word “addiction” may be no more than a label for behaviour that deviates from social norms (Coleman, 1986). Sexuality researchers have noted substantial variability in human sexual behaviour. Some people have many sexual partners; others may have only one or perhaps no sexual partners over their entire lifespan. Similarly, some people participate frequently in a variety of sexual behaviours, whereas others may participate in only one type of sexual activity (e.g., vaginal sex) and perhaps only on an infrequent basis (Bogaert & Sadva, 2002). The possibility of overpathologising this behaviour is the main criticism given by those who do not believe in the idea of compulsive sexual behaviour as a disorder. Coleman (2001) argued that the pathologising of sexual behaviour might be driven by anti-sexual attitudes and a failure to recognise the wide range of normal human sexual expression.

Schmitz (2005) argued that the term ‘addiction’ has been overused and misused to the point that its scientific value is limited. The term ‘sexual addiction’ is “often attributed to anyone with a high sex drive or a media celebrity whose lack of discretion or impulse control has lead them to be caught with their pants down” (Hall, 2006, p. 30). More broadly, according to Shaffer (2005), a universally accepted and precise definition of the term addiction does not exist, and this negatively affects the research, diagnosis and treatment of the behaviours. The debate regarding what to call the syndrome will inevitably persist and remain unresolved until substantial empirical evidence accumulates to help settle the question (Gold & Heffner, 1998).

Prevalence of Sexual Addiction

Research into sexual addiction by Carnes (1991) suggested that approximately 3% of adult women and 8% of adult men in the United States have problems with sexually compulsive behaviour, and 3-6% of the population may be diagnosed as “sexual addicts”. Similar findings were reported by Black (1998) who estimated that as much as 5% of the United States population suffers from compulsive sexual behaviour, with an estimated 17 to 37 million Americans struggling with sexual addiction (Carnes, 1994; Cooper et al., 2000; Morris, 1999). Tenore (2001) warned that these figures are greater than the combined number of Americans who are addicted to gambling or have an eating disorder. However given psychiatry’s limited recognition of the term ‘sexual addiction’ and the diagnostic criteria proposed for the disorder, the actual prevalence rate of the disorder remains unknown. It is likely that estimated of the disorder’s prevalence will vary according to the definition and criteria used by researchers. It is however expected that the prevalence of the disorder is rising, due in part to the affordability, accessibility, and anonymity of sexually explicit material on the Internet (Cooper et al., 2000).

Proposed Cycle and Progression of Sexual Addiction

Sexual addiction has been alleged to follow a cyclical pattern (Carnes, 1983; Coleman, 1992), and a number of models are documented in the literature to describe this pattern. Wolf (1988) proposed that a sexual addiction starts with poor self-image because of depression and dissatisfaction with life. These factors result in individuals isolating themselves and in the development of compensatory fantasies and sexual escapism, which when acted upon, contributes to temporary feelings of guilt, which is then denied. Guilty feelings are lessened by the resolution that the behaviour will not happen again. The individual’s self-image is further weakened by self-condemnation for having indulged in sexually addictive behaviour, augmenting anxiety, and in turn, increasing the likelihood for further engagement in sexually acting out behaviour.

Gold and Heffner (1998) also proposed a cyclical model of sexual addiction. They argued that the cycle of sexual addiction tends to follow a similar path whereby: (1) Anxiety or other emotional distress is relieved temporarily through engaging in sexually addictive behaviour; (2) The addictive behaviour causes more anxiety, shame, and guilt, as the individual creates new difficulties or exacerbates old ones because of his or her behaviours; (3) New and compounded difficulties augment the need to reduce anxiety; (4) The need to reduce the increased anxiety fosters further engagement in sexually addictive behaviours. Young (2008) warned that as the addiction cycle grows, the Internet becomes a way that the addict can self-medicate to temporarily escape from life's problems, however this ineffective coping mechanism is ultimately ineffective and potentially harmful.

Sexuality and the Internet

As the printing press and video cameras demonstrated in the past, technological innovations tend to be rapidly adopted for sexual purposes, and this phenomenon has also been observed in the case of the Internet (Goodson, McCormick, & Evans, 2000). Griffiths (2001) reported that the pornography industry has always been the first to capitalise on new publishing technologies such as photography, videotape, and more recently the Internet etc. In fact, pornography was one of the early financial catalysts, which helped transform the Internet from a relatively unknown U.S. military research project into a powerful information, communications, and commercial network of global proportion (Cooper et al., 2001).

Since its earliest use, the Internet has been synergistically linked to human sexuality (Cooper et al., 2001), and sexual interests and behaviour have become a common reason for 'surfing the net'. The sex industry has profited from the unprecedented proximity to the home environment (Manning, 2006). Some in fact assert that sexuality is the biggest problem with the Internet, as well as its biggest product (Carnes, 2002). According to the *Economic Times*, pornography is the most profitable revenue generator on the Internet (Jaychandran, 2006, as cited in Young, 2008). According to Internet Pornography Statistics, every second \$3,075.64 is

being spent on pornography and every second 28,258 Internet users are viewing pornography. In that same second 372 Internet users are typing adult search terms into search engines (Ropelato, 1996). Ropelato also advised that the pornography industry has larger revenues than Microsoft, Amazon, eBay, Yahoo, Apple and Netflix combined.

Ten years later, in the early 1990s, there was speculation about whether the Internet was good or bad, a blessing or a curse, harmless or malevolent. Psychological literature regarding Internet sexuality however did not begin to emerge in earnest until the mid-1990s. In cyberspace it is possible to discuss sex, see live sex acts and arrange sexual activities in the complete privacy of one's home or office (Burke, Sowerbutts, Blundell, & Sherry, 2002). Individuals can choose to participate in sex related discussions on chat lines, as well as to exchange pornographic images with other users who have similar sexual interests. The cyberspace culture provides a safe environment to be honest about one's sexual thoughts, which can help users to explore deeper aspects of their sexuality (Young, 2008).

The pathological aspects of Internet sexuality were the initial focus by early researchers (Cooper et al., 1999), however a more balanced perspective of online behaviour has developed in more recent years. This perspective now considers some of the adaptive and healthy ways that the Internet can be used to enhance sexuality and self-expression. Early research by Durkin and Bryant (1995) investigated use of the Internet for criminal and deviant behaviour. Their research was also consistent with the medical model, in that the focus was on addiction and the compulsive nature of the behaviour. The researchers argued that cybersex allows a person to operationalise sexual fantasies that would self-extinguish if it were not for the reinforcement of immediate feedback provided by an online environment.

Statistics Relating to Sexually Explicit Sites on the Internet

According to the Internet Filter Review (IFR, 2008), in 2006, 4.2 million or 12% of all websites contained pornography, and there are 72 million worldwide visitors to sexually explicit websites each month. The IFR estimates that the largest consumers of these sites are in the 35-49 year age groups. In 2006, the IFR reported that sexually explicit search engine requests are in excess of 68 million per day, or 25% of all search engine requests. It is estimated that Australia has been responsible for producing over 5.5 million sexually explicit web-pages, or 1% of the world's total sexually explicit web-pages, whilst the United States has produced in excess of 244 million web-pages, or 89% of this total (IFR, 2006). The IFR claimed that the average age of people in the United States who are first exposed to sexually explicit material is 11 years, and 90% of 8-16 year olds have viewed this material, mostly whilst doing homework (IFR, 2006). At the present time, there is no quantifiable data to distinguish how many children mistakenly stumble across these images as opposed to the number of those who are actually searching out sexually explicit material (Yoder, Virden, & Amin, 2005).

Definitions of Online Sexual Activity (OSA) and Cybersex and its Applications

The terms "cybersex" and "online sexual activity" are often used interchangeably in the literature when referring to broad range of sexually oriented behaviour involving the Internet. For reasons of consistency, and to encompass the broad range of Internet based sexual activities, the term online sexual activity (OSA) has been adopted in the current study, and also includes the interactive activity of cybersex. OSA in the current study refers to "the use of the Internet for any activity (text, audio, or graphics) that involves sexuality" (Cooper, Morahan-Martin et al., 2002, p. 106). OSA in the context of this study includes using the Internet for sexual recreational pursuits, entertainment, exploration, purchasing sexual materials, the search for sexual partners, sexual arousal, downloading or sharing erotica, and sexually explicit discussions.

Cooper and Griffin-Shelley (2002) defined “cybersex” as a subcategory of OSA, where the Internet is used for sexually gratifying purposes. Such activities typically include downloading erotic images and engaging in sexualised chat. Often these activities are accompanied by masturbation. Other researchers (e.g., Daneback et al., 2005) define cybersex as referring exclusively to an online sexual interaction with another person. Cybersex in this context refers to two or more people engaging in simulated sex talk while online for the purposes of sexual pleasure and may involve masturbation by one or more of the participants. Most often individuals who engage in cybersex find each other on the Internet and have not met offline. Cybersex also enables individuals to experiment with different roles and even pretend to be the other sex and of a different age (Daneback et al., 2005). Young (2008) reported that fantasy theme role-play chat rooms are available and “can cater to any sexual desire or need imaginable, from straight to gay, from bondage to bestiality, and from fetishes to incest” (p. 22). Through typed dialogue, individuals engaging in cybersex can privately message others in the chat room and share their inner most sexual fantasies, and personalise the encounter as though they were a character in their own erotic novel.

Cybersex Using Web-Cameras

Despite text-based cybersex being in practice for decades, the increased popularity of webcams has led to an increase in the number of online partners using two-way video connections to expose themselves, giving the act of cybersex a more visual aspect. There are also many commercial webcam websites that allow participants to openly masturbate on camera while others watch them (Ruburg, 2007). Using similar sites, couples can also engage in sexual activity on camera for the enjoyment of others. Some people may exchange pictures or short videos of themselves to accompany their text based communication (Cooper & Griffin-Shelley, 2002). For couples, chat rooms can offer a way to enhance their sex life and explore new forms of intimacy and sexuality in their relationship (Young, 2008). Cybersex can be either a goal in itself or serve as a first step towards meeting someone offline (Barak & Fisher, 2002).

Online Relationships

Griffiths (1999) described three types of online relationships. They can be summarised as: 'Virtual online relationships', which involve people who never actually meet. They usually engage in sexually explicit text-based conversation in chat-rooms. Although they have off-line partners, they usually do not believe that they are being unfaithful and the relationship is frequently short-lived. 'Developmental online relationships' involve people who initially meet online and eventually want the relationship to move offline after becoming emotionally intimate with each other. This type of relationship is often long lasting. 'Maintaining online relationships' involve people first meeting offline but then maintaining their relationship online for the majority of the time. The relationship may or may not be long lasting dependent on the level of emotional intimacy and commitment. Griffiths (2000) argued that virtual online relationships tend to be the most addictive in nature. In the case of developmental relationships and maintaining online relationships, individuals are more likely to be addicted to the person that they are chatting to online as opposed to the act of chatting, because their Internet usage almost ceases after meeting their online partner offline.

Online Activities and Behaviours Most Likely to Become Problematic

The activities and behaviours most likely to become excessive and unmanageable include the use of online pornography for masturbatory purposes, engaging in virtual online relationships, and sexually related Internet crime (Griffiths, 2004). Young (2001) found that more than 60% of individuals who became addicted to OSA developed their addiction to sex exclusively on the Internet. According to Young (2008), most people underestimate the risk associated with experimenting in online sexual pursuits, perhaps because the behaviour occurs in the familiar and comfortable environment of their home or office. Griffiths (2001) reported that probably one of the most unexpected uses of the Internet relates to the development of online relationships and their potentially addictive nature. Young, Shelly-Griffin et al., (2000) define an online relationship (a cyber-affair) as a

romantic and/or sexual relationship that is initiated via online contact and maintained predominantly through email communication and in virtual communities such as chat-rooms, interactive games or newsgroups.

Perspectives on Internet Sexuality

The Pathological Perspective on Internet Sexuality

Early studies of Internet sexuality emphasised the pathological aspects of sexual behaviour conducted on the Internet. Cyberspace sexuality seems to be regarded by mental health professionals and the general public with a measure of trepidation, or a belief that too much of a good thing may be harmful (Cooper, Scherer, Boies, & Gordon, 1999). In this debate, issues such as masturbation, sexual harassment, misrepresenting one's sexual identity, and the vulnerability of children are investigated (Griffin-Shelley, 2003). Research has confirmed that for some Internet users their use of the Internet has characteristics akin to those found in substance abusers and gambling addicts (Morahan-Martin, 2005). These individuals are likely to use the Internet to modulate their moods (i.e., when down or when anxious or as an escape), are preoccupied with using the Internet, have symptoms of tolerance and withdrawal, have tried unsuccessfully to cut back on use, and have serious disturbances in their lives because of their Internet use (Morahan-Martin, 2001). Concern is also raised that the accessibility to online pornography may lead to a rise in pornography seeking amongst children and adolescents, with potentially serious ramifications for child and adolescent sexual development (Ybarra & Mitchell, 20005). However these authors warn that adolescents who use the Internet to look at sexual material may also be manifesting age-appropriate sexual curiosity.

For decades, questions regarding the contribution of pornography to deviant sexual behaviour, such as sexual assault, negative attitudes towards women, and the acceptance of deviant or aggressive sexual behaviour among peers has been investigated (Ybarra & Mitchell, 2005). This debate will inevitably continue with the rising popularity of mobile devices such as iPod and Sony PSP devices that allow

people to download adult material a manner that they perceive to be safe and secure because no one else will access it (Young, 2008).

Positive and Adaptive Perspectives relating to OSA

Despite the more frequently reported pathological consequences of OSA, many positive psychological and social benefits are also documented in the scientific literature (e.g., Bowen, 2005; Braun-Harvey, 2003; Cooper, 1998; McKenna, Green & Smith, 2001; Ross 2005). Early research by Cooper highlighted a number of positive benefits of OSA. Benefits included promoting social contacts which have less emphasis on distance and physical attractiveness, increased self-disclosure, improving communication (written words, reciprocal interactions), reducing an individual's sense of isolation, connecting disenfranchised minorities, promoting virtual communities, and providing easy access to sexual information. Such researchers (e.g., Cooper, 1998; Griffiths, 2001) concluded that online sexuality is adaptive and have instead focused on the opportunities for human relatedness and sexual exploration, or have highlighted the educational benefits and advantages for individuals who are isolated and disenfranchised (Braun-Harvey, 2003).

It has also been argued that for anyone, the expression of sexuality is difficult, even within the framework of an intimate relationship. On the Internet however, many of the normal barriers (e.g., fears of embarrassment, rejection) to such expression are absent. As a result, individuals unable to express their sexual needs in their offline relationships appear more likely to turn to the Internet to meet those needs (McKenna, 1998; McKenna, Green & Smith, 2001). Research has found that the Internet may serve as an important medium for those who lack opportunity or are constrained in their sexual self-expression. These findings have important theoretical implications for understanding the process of identity formation and for helping those who feel marginalized (McKeena et al.). In addition, Bowen (2005) reported that the Internet's accessibility, affordability, and anonymity (Cooper, 1998), and acceptability (King, 1999) make it especially appealing for hidden and stigmatised groups such as gay, lesbian and bisexual participants.

Research confirms that online communities can provide a strong sense of community, companionship, acceptance, and social support, with many online friendships transferred to real life (Parks & Floyd, 1996). Such social support can be particularly valuable for specific groups within the community such as non-heterosexual individuals and individuals with physical disabilities. The Internet may serve as an important medium for sexual self-expression, particularly for those who are constrained in the expression of their real-world sexual relationships (McKenna et al., 2001). Braun-Harvey (2003) argued that the Internet is a valuable resource for ‘virtual communities’ to discuss and share information about common sexual interests, sexual information, sexual research, or political sexual issues. Research by Newman (1997) noted the educational potential of the Internet, citing the greater availability of information about sexuality and the potential for more candid discussion of sexuality online.

The Continuum Model for Categorising Cybersex Users

A number of researchers have suggested typologies of the different kinds of Internet users in relation to online sexual and relationship activity (i.e., Cooper, 1998; Cooper, Putman et al., 1999; Young, 1998a). Cooper, Putman et al. (1999) proposed a theoretical model based on a “Continuum Model” which describes three categories of people who use the Internet for sexual pursuits. These included recreational, sexually compulsive, and at-risk users. The researchers proposed that *recreational users* engage in OSA for a variety of reasons from entertainment to education to experimentation. These users engage in OSA in a more casual entertainment way (similar to looking at a lingerie catalogue) and their behaviour tends not to have a negative impact on their life. Some participate in cybersex, however they tend to maintain reasonable levels of involvement and over time often become bored and decrease or discontinue the activities. The *sexually compulsive* group is composed of individuals who have past or current difficulties with sexual issues in their lives. This group often discovers that the Internet is an effective avenue to pursue their sexual interests and frequently their online sexual activity cause significant difficulties in their lives. The final category is the *at-risk users*, and

two subtypes have been described: the stress-reactive and the depressive. Cooper, Putman et al. argued that this group may never have had difficulties with sexuality if it were not for their engagement with the Internet. The stress-reactive subtype is characterised by the tendency to engage in OSA during times of high stress, which provides a temporary escape and distraction from uncomfortable feelings that arise from stressful situations. The depressive subtype seeks relief from depression and dysthymia.

Prior Empirical Research Investigating the Users of OSA

Demographic Characteristics of the Online Population

A review of the scientific literature identified relatively few large-scale studies investigating the demographic characteristics of individuals who engage in OSA. Cooper, Scherer et al. (1999) conducted one of the first and largest online studies ($N = 9,177$) of the demographic and activity preferences of individuals 18 years and older. Announcements of the survey were made on the front page of the Microsoft News website (MSNBC) and advertised in newspapers and on various North American television networks. Analyses of these responses generated the first quantitative self-report data from people who engage in OSA, what they did, and the impact it had on their lives (Delmonico & Miller, 2003a).

The initial findings suggested that most participants (80%) experienced little or no impact as the result of their OSA. Based on this research, Cooper, Scherer et al. also speculated about the number of hours spent online and at what point 'frequency' becomes a concern. They concluded that participants who spent 11 hours per week or more engaging in OSA experienced considerably more negative life consequences (e.g., social, occupational, educational) than participants who engaged for less than 11 hours per week. For the first time a profile of OSA consumers emerged. Typically users were heterosexual males, $M = 35$ years of age, tertiary educated or in a tertiary institution, and often married or in a committed relationship.

The Cooper et al. (1999) study found that male respondents (86%) outnumbered female respondents (14%) by a ratio of 6:1. The male participants were also on average 3 years older ($M = 35$ years) than the female participants ($M = 32$ years), and the majority (87%) identified themselves as heterosexual, with 7% identifying as gay or lesbian, and 7% identifying as bisexual. Approximately two-thirds (64%) were either married (47%) or in a committed relationship (17%), and of those identifying as single, (36%), half of these were dating (18%) and half were not dating (18%). Respondents from the study were also asked to report the total number of hours they spend online per week. The most frequent response was 1-10 hours a week. The researchers found that the great majority (92%) of respondents spent less than 11 hours per week engaged in OSA and of those, almost half (47%) reported spending less than 1 hour a week online for sexually related pursuits. The researchers concluded that the majority of users who pursued sexual interests on the Internet were capable of limiting the time spent in these activities to reasonable levels. However despite this conclusion, a significant minority of users (8%) were considered to be experiencing considerable problems associated with their OSA.

Sexual Addiction in Relation to Online Sexual Activity

As discussed, the notion of addiction has been extended by some researchers to individuals who compulsively engage in OSA and is most frequently referred to as a “cybersex addiction”. To further understand sexually compulsive online behaviour Cooper et al. (2000) conducted a second large-scale online study of cybersex participants ($N = 9,265$). They found that for the vast majority of participants, surfing the Internet for sexual pursuits did not lead to significant difficulties in their lives. This was supported by the findings that for most of the participants their OSA never interfered (68%), nor jeopardized (79%), any aspect of their lives. The authors noted that for approximately 1% of the sample, OSA was clearly problematic and appeared to have major deleterious consequences in their lives.

Although the majority of individuals who access the Internet for sexual purposes do not report negative consequences, research by Schneider (2000a) found

that 6 - 10% of Internet users reported concerns about their online sexual activities. Schneider (2003) reported that most users of online sexual material are 'recreational users,' analogous to recreational drinkers or gamblers. She however warns that a significant proportion of users have pre-existing sexual compulsions and addictions, and that using the Internet for sexual purposes may compound their problems. "For others, with no such history, cybersex is the first expression of an addictive sexual disorder, one that lends itself to rapid progression, similar to crack cocaine on the previously occasional cocaine user" (Schneider, p. 331).

Indicators of Problematic OSA

Young (1997) warned that Internet sex addiction can have devastating effects as people are now able to readily explore sexual fantasies, which once unlocked online can be difficult to contain. Cooper et al. (2000) also reported that time spent online is one factor, but obsessionality, compulsiveness and consequences are other characteristics that help to determine whether a behaviour is problematic. The authors suggested that the following 10 signs can be used to determine if an individual has a problem with their online sexual behaviour: (1) preoccupation with sex on the Internet; (2) frequently engaging in sex on the Internet over increasing amounts of time; (3) repeated unsuccessful efforts to control, reduce, or stop online sexual behaviour; (4) restless or irritable mood when attempting to cut down or stop online sex; (5) using the Internet to escape from feelings or life problems; (6) returning to sex on the Internet to find a more intense or higher risk experience; (7) lying to family members, therapists, or others to conceal involvement; (8) committing illegal sexual acts online; (9) jeopardizing or losing a relationship, job or educational opportunity; (10) incurring significant financial consequences as a result of online sexual behavior.

Young (2001) notes that as users become increasingly more comfortable with virtual sexual encounters, they may experience changes in their behaviour or have warning signs of an addiction emerge. In addition to the warning signs advised of by Cooper et al. (2000), Young also notes the following warning signs: users frequently

move from cybersex to phone sex and face-to-face encounters; they feel shame or guilt about their online use; they masturbate while online while engaged in looking at porn or having erotic chat; and they are less invested with their real-life sexual partners and prefer online pornography or cybersex as a primary form of sexual gratification.

What makes Cybersex Addictive? Psychological Models and Theories to Account for the Growth of Online Sexual Activity

Researchers in the field of online sexual addiction and compulsivity have developed a number of models to account for the development of problematic online sexual behaviour. The most well known models reported in the literature include: The Triple-A-Engine Model (Cooper, 1998b), The ACE Model (Young, 1999b), and the Cyber-Hex Model (Delmonico, Griffin & Moriarty, 2001).

The Triple-A-Engine Model

To account for Internet sexuality's dramatic growth, Cooper (1998b) hypothesised that there are three primary factors that "turbocharge" online sexuality and make it an extremely attractive venue for sexual pursuits. He called these factors the "Triple-A-Engine" and the factors included "accessibility" (i.e., millions of adult content sites are continuously available), "affordability" (i.e., there are many low cost or free sites available) and "anonymity" (i.e., users perceive their communication to be anonymous). The "Triple-A Engine" effect is widely accepted as the primary reason why many pre-existing problems with other forms of pornography (e.g., videos, magazines) have been exacerbated in the last decade. The model also helps explain why many individuals are drawn to problematic pornography consumption who would not have been involved in pornography before the advent of the Internet (Cooper, Putman, et al., 1999).

The ACE Model

The “ACE Model of Cybersexual Addiction” was developed by Young in 1999 to promote understanding of the increased incidence of Internet infidelity and sexually compulsive behaviour. The model aims to explain how the Internet creates a cultural climate of permissiveness that encourages adulterous and promiscuous online behaviour and an environment that validates sexually compulsive online behaviour (Young, 1999b). The ACE Model describes three variables: anonymity, convenience, and escape that lead to problematic online sexual activity. First, the anonymity of electronic communication allows users to engage in conversations without the fear of being caught by a partner. Anonymity may also offer the user an increased sense of control over the content, tone, and nature of their online interaction. Second, interactive applications such as MSN, chat-rooms, newsgroups, or role-playing games provide a convenient way to meet other like-minded individuals and their proliferation makes such applications easy to access for a curious person’s initial exploration. Third, online interaction provides escapism (Young, 2000). Young advised that many people falsely assume that the primary reason to engage in adultery is the sexual gratification received from the online act. Studies have shown the experience itself is reinforced through a psychological “high” that offers an emotional or mental escape and serves to reinforce the behaviour leading to compulsivity (Young, 1998a; 1998b).

The Cyberhex Model

Delmonico, Griffin and Moriarty (2001) proposed a “Cyberhex” model to account for the popularity of the Internet and the development of compulsive behaviours. They argued that there are six basic components of the Internet that make it a powerful tool and attractive force for online sexual behaviour. These six factors are: Intoxicating, Isolating, Integral, Inexpensive, Imposing, and Interactive. These authors advised that it is rare for any form of media to have all six of these factors present simultaneously. They argued that any one of these characteristics would be attractive and powerful, however, it is the combination of these

characteristics which make the Internet a fertile ground for a variety of compulsive behaviours. These terms all describe aspects of the Internet, that when combined, strengthen online sexual activity in such a way as to facilitate the user's compulsive and problematic behaviours (Cooper et al., 2004).

Technology and Deindividuation

Interacting with technology such as the Internet may also contribute to the development of problematic online sexual behavior, including Internet sexual addiction. Braun-Harvey (2003) argued that technology can have alienating effects when people become frustrated and depersonalised the more they interact with machines. This can produce what Zimbardo (1969) called "deindividuation". This state occurs when people's concerns about being evaluated by others are decreased because of an anonymous situation. A lessening of self-consciousness leads to an increase in behaviours that they would not usually perform, including sexual behaviours (Braun-Harvey). Leiblum and Döring (1998) state "Personal inhibition levels, social controls and the lack of willing partners and sexual scenes that may limit sexual activity in everyday contexts, are obsolete in cyberspace. It is easier for latent desires to be realised in cyberspace. Internet sexuality may thus serve as a catalyst" (p.29).

Despite the range of different models proposed in the scientific literature that attempt to account for Internet sexual addiction and psychological theories such as "deindividuation," an individual's psychological and psychosocial characteristics are also theoretically relevant in understanding their online sexual behaviour. As a result, no one model or theory can fully explain the development and maintenance of compulsive OSA. An individual's vulnerabilities such as a history of trauma and abuse, psychopathology (e.g., depression, anxiety) and the influence of biological factors such as hormones and neurochemicals may also be relevant in understanding compulsive OSA.

Aetiological Factors and Reasons for Engaging in Online Sexual Activity

Aetiological Factors

A multitude of factors can be identified in the scientific literature that are believed to be aetiologically relevant to the development and maintenance of compulsive online sexual behaviour. These factors can be thought of as vulnerabilities that explain why particular individuals are especially susceptible to developing problems with sexual compulsivity (Putman & Maheu, 2000). Carnes (1993) argued that sexual addiction and compulsivity might develop in response to past physical, sexual, family, and social trauma. Kafka and Prentky (1992) hypothesised that hypersexuality is aetiologically related to biological factors such as testosterone and serotonin levels. Alternatively, the obsessive-compulsive spectrum model of sexual compulsivity proposes that compulsive sexual behaviours are manifestations of obsessive-compulsive disorder (OCD) (Coleman, 1990). In this model it is theorised that these behaviours are motivated by dysphoric anxiety and markedly irrational sexual obsession.

Research also suggests that individual vulnerabilities such as anxiety, depression, stress, and interpersonal difficulties may increase a person's susceptibility to behavioural conditioning because the online behaviour temporarily removes the dysphoric state (Cooper, Scherer et al.). The compulsive behaviour serves to reduce the underlying emotional tension, and an Internet sex addict's use of the computer is less about using it as an information tool and more about finding an escape from psychological distress (Young, 2008). Morahan-Martin (1999) warned that lonely individuals might be drawn to interactive online social activities such as adult chat-rooms because of the opportunity to belong to a community and for the companionship that online communities provide. She proposed that for some individuals, this might lead to increased Internet use, and the development of Internet-related problems in their lives.

The process of becoming conditioned to have sexual arousal when using a computer may occur through positive reinforcement due to the physical sexual stimulation and release that occurs with orgasm (Cooper, Putman et al., 1999).

Negative reinforcement also occurs if the sexual arousal and masturbation relieves a negative emotional state such as anxiety.

Reasons for Engaging in OSA

Despite the prevalence of OSA, there has been little systematic investigation of the reasons that motivate people to engage in these behaviours (Cooper, Morahan-Martin et al., 2002). Literature regarding the use of the Internet for sexual purposes has primarily focused on anecdotal accounts of clinical cases (Cooper et al., 2000) and only recently researchers have begun to examine questions and concerns related to OSA (Cooper, Morahan-Martin et al.). The reasons participants provide for why they engage in OSA are important because this will affect how the behaviour is manifested online as well as whether their behaviour results in a positive or negative impact on their lives (Cooper, Morahan-Martin et al.). For example, a lonely divorced middle-aged man may be drawn to an adult chat room in the hope of finding a new partner, whilst a teenager exploring his sexual orientation may chat to others identifying as gay to explore aspects of his sexuality and to seek social support.

The Internet is used for a diverse range of activities surrounding sexually motivated behaviour (Griffiths, 2000). Activities may include searching for sexually related material for educational purposes, buying and selling sexually-related products, searching for material for entertainment/masturbatory purposes, seeking out sex therapists, seeking a sexual partner for an ongoing relationship or a transitory relationship (i.e., escorts, prostitutes, swingers) through online personal advertisements, newsgroups and adult chat rooms; seeking individuals who become victims of sexually related Internet crime (i.e., cyberstalking, pedophilic “grooming” of children), developing and maintaining online relationships through e-mail communication and/or chat rooms, and exploring gender and identity roles by swapping gender, “gender bending” or creating imaginary personas. Griffiths argued that few of these activities are likely to become excessive, addictive, obsessive and/or compulsive. Some online sexual activities are more visually oriented such as viewing erotic pictures and movies, while others are more interactive and involve

communication with others (e.g., online dating, chatting, discussion forums) (Daneback et al., 2005).

Research Examining Individuals' Motivation to Engage in OSA

Empirical research suggests that there are a diverse number of motivational factors influencing an individual's decision to engage in OSA. Cooper, Morahan-Martin et al. (2002) conducted a large online study ($N = 7,037$) that investigated the reasons participants provided for engaging in OSA. The research suggested that distraction was the most common reason why people engaged in OSA. Over three-quarters of respondents indicated that they had gone online for sexual activity "to distract myself/take a break" (78%). Almost one-third of respondents reported, "to cope with stress" (29%), however only a small proportion (6%) reported that stress relief was their main reason. Approximately a fifth of participants (21%) had gone online for fantasy purposes such as role-playing, or to engage in sexual activities that they would not act out in their offline lives. Social reasons were also cited as being a reason to go online. These included: socialising with people who share my interests (18%), to meet people to date (10%), to have offline sexual activities with others (10%), and to obtain support for sexual concerns (7%).

The Impact of OSA on Partners and Family Members

Researchers investigating the impact of OSA have also identified a number of adverse effects on the users' real-life partner and family members (Schneider, 2000a; Young, Griffin-Shelly et al., 2000). In several studies, Internet addicts used online sex chat-rooms or online pornography to replace sexual intimacy with their offline partners and over time completely withdrew to the computer to meet all of their sexual needs (Cooper, Putman et al. (1999); Schneider, 2000). Young (1998a) found that serious relationship problems were reported by 53% of the 396 cases of Internet addicts interviewed, with marriage and intimate dating relationships most affected due to cyber-affairs and online sexual compulsivity. According to the President of

the American Academy of Matrimonial Lawyers, online infidelity is involved in a growing number of divorce cases (Quittner, 1997).

Research by Schneider (2000b) with 91 women and 3 men who had experienced serious adverse consequences of their partner's cybersex involvement found that learning about their partner's online sexual activities led to feelings of hurt, betrayal, rejection, abandonment, devastation, loneliness, shame, isolation, humiliation, jealousy and anger, as well as loss of self-esteem. Cybersex addiction was a major contributing factor to separation and divorce. Among 68% of the couples, one or both parties had lost interest in sex with their partner, 52% of addicts had decreased interest in sex with their partner, as did 34% of the partners. Partners frequently reported that cyber-affairs were as emotionally painful to them as live or offline affairs, and many believed that virtual affairs were as much adultery or 'cheating' as offline affairs. Schneider's study also highlighted a number of concerns relating to the children within the families studied and included: children being exposed to pornography, involvement in parental conflicts, children not receiving adequate attention because of one parent's involvement with OSA and the other parent's preoccupation with the cybersex addict, and break up of the marriage.

Goldberg (2004) argued that the use of cybersex for recreational purposes might mask existing relational problems and affect the partners and their children in profound ways. Sex for many is a subject that has deep emotional significance that is not compatible with recreational activities outside the relationship. Goldberg suggested that a cyber-chat of a sexual nature might be entertaining for one person but a deep betrayal for another. Cybersex addictions eventually affect the entire family system: causing changes in sleeping patterns, demands for privacy and isolation to engage in online activities, disregard for responsibilities, lying, changes in personality, loss of interest in partner sex, and an overall decline in relationship investment (Young, Griffin-Shelley et al., 2000). Cybersex may subtly change the definitions of love and intimacy in the couple, and affects the parent-child relationship through isolation of the parent accessing the Internet instead of spending time parenting (Schneider & Weiss, 2001).

Children's Access to Internet Pornography

The other unprecedented characteristic of Internet pornography is the ease with which children and adolescents have access to the online material. "Click here if you are 18 years of age or older" is the familiar message one is greeted with when an individual is about to enter an adult oriented site. However, there is no way to verify the actual age of the user and thus simply lying about one's age permits access to adult-oriented websites on the Internet (Freeman-Longo, 2000). In the past, the adult bookstore or restricted movie theatre was a tangible gatekeeper that generally prevented minors from being exposed to this material. "Instead of sex being hidden in adult bookstores located on the outskirts of town, cyberspace provides an opportunity to enhance our own self-understanding with message of virtual acceptance" (Young, 2008, p.35). Currently, anyone can be a consumer, or target of sexually explicit material. An indicator of this indiscriminate accessibility is to consider that Nielsen NetRatings (2005), a reputable source for online audience measurement, now includes children beginning at two years of age in their demographic statistics for so-called 'adult traffic'. Freeman-Longo suggested that there is currently a lack of scientific research and information regarding the impact of Internet pornography on children and teenagers, including its potential for the development of sexually compulsive behaviour.

Estimates suggest that up to 90% or more of young people between 12 and 18 years have access to the Internet (UCLA Centre for Community Policy, 2003, cited in Ybarra & Mitchele, 2005). Concern has been raised that the increased accessibility may lead to a greater number of children and adolescents seeking pornography, with potentially serious ramifications for child and adolescent sexual development (Ybarra & Mitchele). Ybarra and Mitchele however argue that the vast majority of minors searching for online pornography are 14 years of age or older, and concerns about a large percentage of young children seeking online pornography may be overstated.

Clinical Debate Regarding the Existence of Online Sexual Addiction

Similar to the controversy surrounding the use of the term ‘sexual addiction,’ Osborne (2004) argued that terms such as “cybersex addiction” or “online sexual addiction” erroneously imply that there is empirical evidence that an addiction framework applies most accurately to all individuals exhibiting problematic online sexual behaviour. In addition to a lack of diagnostic consensus, Osborne advised that there have been no reports of controlled studies documenting the short or long term effectiveness of any psychotherapeutic model for treating problematic Internet sexual behaviours. Griffiths (2004) was also of the opinion that there is no conclusive research to date proves that Internet addiction exists, or that Internet sex addiction is problematic to more than a small minority. However despite these conclusions, a number of researchers continue to use the term ‘Internet Addiction’ (e.g., Cooper, Putman et al., 1999; Schneider, 2000; Young, 1998a) when describing the unregulated behaviour of some individuals who use the Internet.

Treatment of Problematic OSA

Clinicians are reporting a rapid increase in the numbers of patients presenting with issues relating to OSA (Cooper & Griffin-Shelley, 2002). Young (2008) warns that our society makes it difficult to simply “go cold turkey” and stop Internet sex because many people need to use the computer every day for work, making sobriety from Internet sex more complex. In fact, Young suggests that abstinence from the Internet may be impossible, forcing the Internet sex addict to rely on self-control to achieve corrective action and abstinence from cyberporn and cybersex while at a computer.

Cooper et al. (2000) advised that although clinicians are able to identify the manifestations of general sexual compulsivity, a lack of awareness and information about sexual compulsive behaviour on the Internet continues. An understanding of OSA and its participants is important for professionals working with sexual and relationship issues, as OSA can be either part of a problematic behaviour or a strategy to enhance an individual’s sexuality. Daneback et al. (2005) however

advised that it is within the responsibility for clinicians to guide clients' behaviours away from the former and towards the later.

Cooper et al. (2000) warned that as technology continues to advance, clinicians are required to increase their skills in assessing clients for cybersex compulsion and their awareness of the constantly evolving ways in which individuals engage in sexual behaviours whilst online. Griffiths (2004) noted that unlike recovering alcoholics who must maintain life-long sobriety from alcohol, sexual addicts are directed towards a normal, healthy sex life in a similar manner to those suffering from eating disorders who must relearn healthy eating patterns. He also advised that total abstinence from both sexual activity and computer use is probably not an effective treatment approach in the long term because of the widespread use of computers and Internet and our society's reliance on such technology.

The components of treatment and the therapy modalities offered for sufferers of Internet sex addiction vary according to client needs and therapists' training and experience. Southern (2008) advised that comprehensive treatment for sufferers of compulsive cybersex behaviour should include the following components: relapse prevention, intimacy enhancement, "lovemap reconstruction", dissociative states therapy, arousal reconditioning and coping skills training. Noted experts in the area of sexual addiction, such as Patrick Carnes focus on identifying arousal templates and understanding the nature of underlying motives driving the sexual behaviour (Delmonico, Griffin, & Carnes, 2002). Carnes' focus is more on identifying the thoughts and feelings associated with the individual's sexuality and trying to identify those facets which lead to increased insight and new behaviours. His initial focus is on "first-order" change or crisis intervention to reduce access to Internet sex by moving the computer into a public space within the house and installing filtering software such as Net Nanny, and disclosing to one trusted person the nature of the problem. For long-term recovery, Carnes recommends that second order change must also follow, which involves more self-reflection and a greater awareness of the underlying issues driving the online sexual addiction such as mood disorders and other addictions (Young, 2008).

Putnan and Maheu (2000) advised that with the advent of the Internet, individuals are now looking for help for their psychological distress on mental health oriented website, bulletin boards, email groups and in chat-rooms. The authors note that the Internet is an important resource to consider when treating individuals with a sexual behaviour and recovery-oriented websites can be used to provide education, support, and diversion from sexual acting out and may be a powerful adjunct to treatment and to assist with relapse prevention.

The majority of individuals addicted to OSA presenting at outpatient and inpatient clinics usually have pervasive sexual addictions or other behavioural and chemical addictions (Orzack & Ross, 2000). Young (2007) reported that hospitals and clinics have emerged in the United States with outpatient treatment services for Internet addiction recovery, and in some instances, people have been admitted as inpatients. Some treatment programs also provide family counselling, support groups, and educational workshops for addicts and their families to assist family members understand the multiple and complex facets of the addiction (Griffiths, 2004).

Currently there is little empirical evidence regarding the efficacy of psychological treatments for Internet addiction. Perhaps not surprising, there is even less evidence regarding treatment efficacy for sufferers of compulsive online sexual behaviour. Wolfe (2000) reported that because of the lack of qualified counsellors, sex addicts often turn to self-help groups, all of which are administered by nonprofessionals without formal education and training in sexual addiction. In fact, numerous sexual addiction support groups appear to be little more than any other 12-step group addressing an addictive disorder (Hagedorn & Juhnke, 2005). Cooper, Scherer et al. (1999) argued that treatment should be focused on addressing the denial and isolation often associated with the behaviour. They argued that group environments offer addicts exposure to an array of different sexual values and norms, providing opportunities to challenge group members' unhelpful beliefs and mechanisms of denial. Such environments also offer the necessary social support required to make lasting changes to often well-entrenched behavioural patterns. In addition, couples therapy can be an important adjunct to assess reasons why the client's current relationship may be failing.

Psychometric Tests to Measure Online Sexual Addiction

A number of tests are currently available online to assist individuals and therapists assess the type and severity of OSA problem, however there is currently limited research regarding their reliability and validity as clinical measures. Clinical questions such as does the concern relate to a one time virtual liaison, an ongoing cyber-affair, sexual addiction and/or online sexual addiction, codependency, and relationship dependency are important considerations when assessing clients? (Young, Griffin-Shelly et al., 2000). Griffiths (2001) argued that most of the tests available online are self-exploration tools which need further research to confirm their psychometric properties. He reported that embedded within many of the tests are questions that relate to a range of psychosocial dimensions (e.g., life interference, emotional distress, obsessive-compulsive behaviour, tolerance and withdrawal). Griffiths was of the opinion that the questions in the tests are often not specific enough and pertain to a range of online sexual activities that one may engage in, such as chat-rooms, emails, newsgroups, pictures, audio and video. As a result, it is possible that these tests do not adequately measure the severity of the online problem because the tests do not differentiate between individuals who compulsively view online pornography versus those who exclusively engage in online adult-chat.

Tests measuring compulsive online sexual behaviour can however also be used in conjunction with more general sexual addiction screening instruments such as the Kalichman Sexual Compulsivity Scale (SCS; Kalichman, 1994) to gather information on additional areas of problematic offline sexual functioning. Some of the more popular tests identified online during the literature review include the DSM-Based Cybersexual Addiction Test (C.S.A.T, Young), Cybersex Addiction Screening Test (C-SAST, Weiss), the Internet Sex Screening Test (ISST; Delmonico, 1999), and the Online Sexual Addictions Questionnaire (OSA-Q, Putnam).

Kafka (2010) advised that in a non-random sample derived from the Internet site www.Sexhelp.com (males = 5005; females = 1083), participants categorised as being sexually compulsive were successfully distinguished from their non-sexually

compulsive counterparts using the Sex Addiction Screening Test (SAST; Carnes, 1989). Kafka also reported that the Internet Sex Screening Test (ISST), which was used in the current study, shows promise to specifically discriminate excessive and problematic use of the Internet for men and women who use the Internet for sexual purposes. A study using the ISST where sexually compulsive men ($n = 2013$) and women ($n = 553$) were compared to a group of non-compulsive users ($n = 2566$) showed that individuals rated as sexually compulsive in terms of their Internet use reported increased time spent viewing or reading sexual material, spent more money for sexual purposes, and were more likely to use computers outside the home to access illegal materials.

More generally, Young (2008) advised that to thoroughly assess Internet sex addiction, it is important for the clinician to assess whether the Internet is being used as a means to achieve stimulation (arousal) and/or as a method of achieving gratification (orgasm), and how their OSA affects the client's life. Greenfield and Orzack (2002) warn that for some individuals, their engagement in OSA eliminates the need for sexual intimacy with their spouse entirely, whilst for others, their virtual sex may be to achieve arousal before sex with a partner.

Conclusion

In conclusion, Chapter One integrated empirical research on the worldwide growth of the Internet with current perspectives on sexually compulsive behaviour, which occur both offline and online. In the context of sexually compulsive behaviour occurring online, treating professionals and researchers most frequently use the terms "online sexual addiction" or "cybersex addiction". Currently there is little consensus that the term "addiction" should be applied when describing any psychiatric diagnostic criteria, including pathological hypersexual behaviour. There is no universally agreed upon criteria or definition of what constitutes maladaptive or pathological involvement in OSA, however greater support for the condition is likely if Hypersexual Disorder is included in the DSM-V. The proposed diagnosis includes a number of examples of hypersexual behaviour such as cybersex, pornography and

telephone sex (Kafka, 2010). However despite this diagnostic issue, compulsive online sexual behaviour can adversely affect the users' real-life partner and family members (Schneider, 2000; Young, Griffin-Shelly et al., 2000), replace sexual intimacy with real-life partners, and negatively impact upon a range of meaningful activities (Cooper, Putman et al., 1999; Schneider, 2000).

Despite the more frequently reported pathological consequences of OSA, many positive psychological and social benefits are also document in the literature such as providing a strong sense of community, companionship, acceptance and social support (Parks & Floyd, 1996), and provide a medium for sexual expression, particularly for those constrained in the expression of their offline sexual relationship(s) (Bowen 2005; Braun-Harvey, 2003; Cooper, 1998; McKenna et al.). Young (2008) also advises that for some couples, adult chat rooms can offer a new way to “spice up” their relationship, and provide an avenue to explore new forms of intimacy and sexuality in their relationship. Currently there is little empirical evidence regarding the long-term efficacy of psychological treatments for sufferers of compulsive online sexual behaviour (Wolfe, 2000), and practitioners offer a range of treatments, which are typically provided on an outpatient basis. The following chapter will discuss the demographic characteristics and online preferences of individuals who engage in OSA.

CHAPTER 2

DEMOGRAPHIC CHARACTERISTICS AND ONLINE PREFERENCES OF INDIVIDUALS WHO ENGAGE IN ONLINE SEXUAL ACTIVITY

Introduction

Chapter one discussed the concept of developing a sexual addiction as the result of engaging in online sexual activity (OSA). Chapter two reports on the demographic characteristics of individuals who engage in OSA and their online preferences based on the findings of earlier online studies. The demographic variables discussed in this chapter include: participants' sex, age, sexual orientation and relationship status. These variables were also investigated in the current online study. Prior research has identified a number of similarities and differences in the OSA of individuals based on demographic differences such as sex, sexual orientation, relationship status and age. Understanding the differences in online behaviour and the possible motivations behind the behaviour is considered to be especially relevant to clinical psychologists working with individuals, partners and families affected by OSA.

Unfortunately most of the scientific literature concerning the demographic characteristics of individuals who engage in OSA is approximately 10 years old. Given the fast paced and ever changing nature of technological applications (e.g., social networking services via applications on iPhones such as Grindr), and the dramatic growth in the number of Internet users, it is however likely that some of the users' demographic characteristics and online behaviours have changed. Hence there is an argument to conduct further research into this area given the vast array of new online technologies.

Participants' Sex and OSA

Researchers have identified a number of characteristics that distinguish the preferences and behaviours of men and women who engage in OSA. In a study of over 7,000 participants conducted through the MSNBC website during June 2000, Cooper, Morahan-Martin et al. (2002) reported that men far outnumbered women

OSA users (84% versus 16%). This male-to-female ratio corroborates earlier research that found 86% of OSA participants were men (Cooper, Scherer et al., 1999). Byrne and Osland (2000) suggest that the predominance of men engaging in OSA is not surprising, given that men are the primary consumers of pornography. Research by Cooper, Morahan-Martin et al. (2002) also found that men spent twice as much time engaging in OSA as women (2.83 versus 1.39 hours per week), and that men were significantly more likely than women to masturbate while online (79% and 54% respectively).

In a similar online survey of more than 9,000 Internet users, Cooper et al. (2000) found that despite women composing only 14% of the sample, they accounted for 21% of those assessed as being “cybersex addicts” based on their scores on various measures. The researchers advised that although women were online significantly less than men (14% women as opposed to 86% men), women were overrepresented among those who progress beyond recreational use to the realms of addiction. Nevertheless studies also support the notion that differences based on participant’s sex may be narrowing in the digital era in regards to participation in OSA, and this may relate to more liberal attitudes towards sex and sexuality within the western world. Cooper et al. (2000) found that while 86% of the male sample accessing online pornography, 59% of the female sample had also accessed this material.

Participants’ Sex and their Preferred Online Activities

Results from the Cooper, Sheerer et al. (1999) study suggested strong sex differences in preferred on-line media, with men preferring websites featuring visual erotica (50% men to 23% women), and women preferring chat-rooms (49% women to 23% men). The researchers argued that women tend to prefer more online interaction and developing relationships and appear to be less intrigued by purely visual stimuli.

Similar findings were also identified by Schneider (2000) in her online survey that investigated the adverse consequences to participants involved in online sexual activity. The study also found that significantly more men than women reported downloading pornography as their preferred activity. Most of the women were more interested than were men in romantic relationships with sex partners, but

some, like most male cybersex addicts, tended to objectify their sexual partners, wanted sex rather than love, and were interested in pornography. Cooper et al. (2003) proposed that interaction with others and 'education' around sexual matters is women's primary reasons for engaging in OSA therefore making cybersex (adult-chat) an interesting activity for women of all ages. According to Ferree (2002), women are more likely to want romance and relationship as part of their sexual activities, and the 'love' or 'relationship addict' is the most typical presentation for females. This pattern translates to the Internet, where women strongly prefer chat-rooms where they can 'relate', instead of solitary activity like accessing pornography. In a comparative study of male and female sex addicts, male sex addicts were far more likely than female addicts to objectify the sex partner, such as viewing pornography, voyeurism and anonymous sex (Carnes, Nonemaker, & Skilling, 1991).

Based on an extensive review of the literature that examined published studies of hypersexual behaviour, Kafka (2010) concludes that hypersexual behaviour in its various forms (e.g., cybersex, protracted promiscuity) has been inadequately studied in the case of women. He advises that in both clinically derived as well as population-based studies, males substantially outnumber females with this disorder. Kafka concludes that the lack of empirical research and systematic clinical data on females with hypersexual disorder is a major limitation in the current state of scientific knowledge of how these conditions afflict women.

Ferree (2003) argued that standards for feminine behaviour limit women's expression of sexuality more than men's practices, and women's participation in OSA is far outside stereotypical boundaries. Sexually compulsive behaviour is predominantly considered to be a male phenomenon, much as it was first thought that alcoholism primarily affected men (Ferree, 2002). In addition, women themselves may be reluctant to expose their struggle with problematic sexual behaviour due to shame and fear of criticism. Few women speak openly about their problems with online pornography or sexual chat rooms, which adds to the likelihood that women will be omitted from academic discussion and research (Ferree, 2003). However findings by Cooper, Morahan-Martin et al. (2002) suggest that distraction is the primary reason both men and women to engage in OSA.

Age and OSA

The age of the individual is also an important demographic variable to consider when investigating online preferences and reasons for engaging in various online sexual behaviours. The Cooper, Morahan-Martin et al. (2002) study of over 7,000 OSA participants found that males were on average 33 years old and females were 30 years. In addition, younger people, especially males, have been found to engage in OSA more frequently than older participants (Foley, 2000 cited in Cooper, Morahan-Martin et al., 2002).

Daneback et al. (2005) investigated a Swedish sample ($N = 1835$) of people who engaged in cybersex. In this study, cybersex was defined as “when two or more people engaged in simulated sex talk while online for the purpose of sexual pleasure” (p. 325). The findings suggest that younger men and women were more likely to engage in cybersex than men and women in the oldest age group (50-65). The authors suggested that this is likely to be related to unfamiliarity with computers and the Internet, particularly for the use of sexual purposes. Overall, both men and women participated in adult chat-rooms to a similar extent, however women between 35 and 49 years had significantly more experience interacting in chat-rooms compared with men in the same age group. Lever, Grov, Royce, and Gillespie (2008) suggested that older women constitute a social category that might particularly benefit from using personal columns on the Internet. Relative to men, women age 40 and older are disadvantaged in the offline courting market, and have greater difficulty than men in finding mates through their social networks. Jagger (2005) advised that older women are overrepresented in online personals, which may be due to a lack of better alternatives for finding dates and a possible partner.

Sexual Orientation and OSA

A review of the literature would suggest that an individual's sexual orientation is an important demographic characteristic to consider when conducting research into OSA. The literature review revealed that compared to heterosexual and gay males, there is little empirical data on the OSA of lesbians and bisexual

individuals. Further, little research has systematically examined sexual orientation differences in Internet use, especially comparing heterosexuals' and homosexuals' use of online venues to find partners for long-term relationships, as well for casual sex (Lever et al.). Lever et al. reported that currently there is little research investigating gay and bisexual men's use of the Internet as a tool to navigate their sexuality and find intimacy. Despite a growing body of literature investigating gay and bisexual men's use of the Internet, much of the research has focused specifically on sexual risk behaviours, including the use of the Internet to locate casual or anonymous sex partners (Lever, 2008). In addition, there has also been minimal research investigating the positive aspects of OSA for gay, lesbian and bisexual individuals who may benefit in terms of overcoming loneliness and social isolation, shyness and having an avenue to explore their sexuality.

Cooper, Morahan-Martin et al. (2002) reported that many gay and bisexual men are technologically skilful and frequently use the Internet for a variety of purposes as compared to their heterosexual counterparts. Research suggests that gay men proportionally access the Internet more frequently and at a higher proportion than almost any other demographic group (Parsons, Severino, Grov, Bimbi, & Morgenstern, 2007; Braun-Harvey, 2003). A meta-analysis conducted by Liao, Millett, and Marks (2006) of Internet use among men who have sex with men (MSM) indicated that as many as 40% of MSM have met sex partners online. Earlier research also suggests that Internet use in general, especially social networking sites like MySpace, appears to be more prevalent among gay, lesbian and bisexual populations than amongst heterosexuals (Cooper, Sherer et al. 1999; Cooper et al. 2000).

Research findings also suggest that gay men tend to have levels of sexual activity that are significantly higher than in the dominant heterosexual culture (Ross & Kauth, 2002). Cooper et al. (2000) reported that bisexual and gay/lesbian individuals reported being more cybersex- compulsive than their heterosexual counterparts. These authors suggested that bisexual and homosexual individuals tend to use the Internet more often than their heterosexual counterparts for experimentation and the expression of a variety of sexual behaviours. This supports the argument that homosexuals and bisexuals (as well as other socially disenfranchised groups) may be at greater risk of online sexual compulsivity (Cooper

et al. 2000). Some researchers have also suggested that gay and bisexual men frequently utilise the Internet as a tool to explore their sexual identity, particularly during the early stages of the “coming out” process (Ross & Kauth).

The online study of cybersex participants in Sweden conducted by Daneback et al. (2005) found that gay men were four times more likely to have engaged in cybersex compared to heterosexual men. For bisexual men, the odds ratio showed that they were almost twice as likely to have engaged in cybersex compared to heterosexual men. Sexual orientation was not found to have any significant effect for females. The authors concluded that this finding was not a surprise as gay men pioneered social uses of the Internet and were among the first to use the Internet for the purpose of finding sexual partners (Daneback et al.).

Similar findings were also identified in a recent study by Lever et al. (2008) of over 15,000 individuals who responded to an online survey that investigated their use of Internet personal advertisements and adult websites. Gay men, lesbians, and bisexual men and women were more likely to have exchanged correspondence, met offline, and had sex with someone they met through personal ads than were heterosexual men. The findings suggest that gay men and lesbians of all ages were more likely to have established a long-term relationship through their use of personals advertisements compared to their heterosexual counterparts. Heterosexual men and women 40 years and older were more likely to have established a long-term relationship than younger heterosexual men and women, and a larger proportion of bisexual men reported that they were seeking serious relationships and new friends. Among women, a larger proportion of bisexual women endorsed that they were seeking to “test their sex appeal” or were seeking flirtatious and/or sexual chat, and only a small proportion indicated they were seeking someone for a serious relationship. Compared to other heterosexual women, a larger proportion of lesbians indicated they were seeking new friends, but lesbians were no more likely than heterosexual women to say they were seeking a relationship. Compared to heterosexual men, a larger proportion of both gay and bisexual men indicated that online personal advertisements resulted in more sexual encounters, and a similar pattern was also found for lesbians and bisexual women compared to their heterosexual counterparts.

Cooper et al. (2000) suggested that the Internet has a number of potentially

advantageous characteristics for individuals who identify as non-heterosexual. For example, the Internet provides a venue for groups who would otherwise be concerned about a range of negative consequences associated with expressing their sexuality more freely. Ross and Kauth (2002) advised that for some individuals, openly seeking a face-to-face homosexual experience may have major adverse consequences, and perhaps the Internet is considered to be a safe environment for some individuals to express their sexuality. Due to the anonymity of the online environment, sexual information can be exchanged and individuals can meet others offline in a manner that is unobserved by others in their everyday world (Levy & Strombeck, 2002). Research also suggests that individuals whose sexuality has been repressed are especially vulnerable to becoming compulsive users of Internet sex because of its anonymity and infinite supply (Cooper, 1998).

Researchers and Public health officials have expressed increasing concerns that using the Internet for the purpose of finding sex amongst MSM may lead to an increase in sexual risk taking behaviour and HIV transmission (Bolding, Davis, Hart, Sherr, & Elford, 2005). Parsons et al. (2007) advises that “this concern is justified given data that indicate that MSM who meet sexual partners online are more likely to have sex with a higher number of partners and to be at increased risk for developing sexually transmitted diseases including HIV” (p.240). However Parsons et al.’s review of the literature on sexual risk taking for this group also identified contradictory findings amongst researchers in terms of risk-taking behaviour. For example, some studies failed to show differences in the number of partners or episodes of unprotected sex among Internet and non-Internet sex seeking gay and bisexual men. However, the freedom associated with the Internet’s anonymity has the potential to both enhance and damage the lives of MSM. Such risks were documented by Nieves (1999), who reported an alarming increase in the number of syphilis cases in San Francisco over a two-month period. The investigation found that in this outbreak, all of the cases originated in the same San Francisco gay male chat-room. Seven men from the chat-line had 99 sexual contacts in the prior 2 months, and 5 of the 7 were HIV- positive.

Relationship Status and OSA

A review of the psychological literature identified relatively few studies that examined the association between an individual's relationship status and their engagement in OSA. Research by Daneback et al. (2005) argued that cybersex (sexually oriented adult-chat) is not primarily an activity for single people, and their results showed no significant relationship between cybersex and participants' relationship status. These researchers suggested that their participants may have a "more liberal view of cybersex" and may not consider cybersex to be a form of infidelity. However despite this more liberal perspective, research by Schneider (2000; 2003) suggested that the partner in a committed relationship does not always share this perspective. Schneider (2003) reported that partners overwhelmingly felt that cyber-affairs were as emotionally painful to them as live or offline affairs, and that compulsive online chat was a major contributing factor to separation and divorce of couples she surveyed. More than 22% of the respondents had separated or divorced, and many others were contemplating leaving the relationship. Among 68% of the couples, one or both had lost interest in sex with their partner, 52% of high users had less interest in sex with their spouse, as did 34 % of partners. The research also indicated that the partners often compared themselves unfavourably with the online women (or men), and felt hopeless in terms of their ability to compete with them.

Research findings are mixed in regards to the impact that OSA has on the quality of the primary relationship, and there is little data on the willingness of users to openly disclose their OSA to their partners. Early research by Cooper, Scherer et al. (1999) of more than 7,000 OSA participants found approximately two-thirds of the sample reported that their involvement with OSA had not affected their relationship with their partner, with males being significantly more likely than females to indicate that their relationship with their partner not been significantly affected by their OSA. Nonetheless, approximately two-thirds of the sample also reported that their OSA had not had a positive effect on their relationships. Young (2008) suggested that for some couples, chat rooms offer a new way to 'spice up their relationship' and a healthy outlet to explore their intimacy and sexuality.

In a recent online study by Lever et al. (2008) of more than 15,000 participants investigating the use of Internet personals advertisements and adult

websites, married respondents were found to be five times more likely to be seeking a serious relationship via an online personal advertisement compared with single respondents, and were more likely to go on a date. Lever et al. suggested that the Internet provides immediate access to a large number of new potential partners, many of whom are unhappily married or in committed relationships. It is possible that these individuals are “testing the waters” in the hope of finding a new partner to allow them to leave their current relationship. Research by Cooper et al. (2000) indicates that the majority of people struggling with sexual addictions and compulsivity involving the Internet are married, heterosexual males.

Conclusion

In conclusion, chapter two examined the literature published over the last 10 years examining the demographic characteristics and individual's engagement in OSA. The most prominent findings suggest that males were significantly more likely to engage in OSA than females, and preferred visual erotica, whilst females preferred sexually interactive mediums such as chat-rooms. OSA participants were typically in their early to mid-thirties and often married or in a committed relationship. Older females are frequently overrepresented in online personal advertisements. In addition, gay, lesbian and bisexual individuals also more frequently engage in OSA than their heterosexual counterparts, and are more likely to meet offline for sexual reasons. There appears to be minimal published literature examining the potential benefits of OSA, particularly for older people seeking new relationships and for individuals identifying as gay, lesbian and bisexual who may be exploring their sexuality as part of their ‘coming out’ process.

The following chapter introduces a selection of psychological variables that were considered to be theoretically and clinically relevant to the study of online sexual behaviour. While of potential clinical relevance, in most cases the variables chosen have received little prior research interest in the context of OSA. It is hoped that by increasing psychologists' understanding of the relationship between psychological variables and OSA, psychologists will feel better equipped to assess and treat their patients presenting with concerns relating to their OSA. Given that the

focus of this thesis is to assist psychologists working with individuals presenting with problematic online sexual behaviour, there is a focus on problematic psychological traits relevant to treatment. It should however be remembered that problematic users only represent a fraction of those who engage in OSA, and psychologists may also wish to educate their clients about some of the healthier aspects of online sexuality.

CHAPTER 3

PSYCHOLOGICAL VARIABLES RELEVANT TO INDIVIDUALS WHO ENGAGE IN ONLINE SEXUAL ACTIVITY

Introduction

A review of the literature examining the psychological characteristics of individuals who engage in online sexual activity (OSA) was conducted for the purpose of the current study. The psychological variables discussed in this chapter include: attachment style, depression, anxiety and stress, social and emotional loneliness, impulsivity, and measures of psychosexual adjustment (e.g., sexual-anxiety, sexual-motivation, sexual-esteem). The variables were chosen based on their theoretical relevance to OSA and clinical relevance to psychologists working with individuals presenting with problematic online sexual behaviour. For example, if increased depression and anxiety was associated with increased time engaged in OSA, a psychologist may choose to incorporate behavioural strategies to reduce the amount of time an individual spends online. Alternatively, if social loneliness was positively correlated with compulsive online sexual behaviour, treatment interventions may focus on increasing a client's social network and communication skills. This chapter concludes with the specific research questions, aims and hypotheses that have been developed in response to the literature review.

Attachment Style and OSA

Adult attachment processes have been related to numerous relationship-oriented behaviours (Bogaert & Sadava, 2002; Feeney & Noller, 1996; Scott & Horell, 2007). It is therefore possible that an individual's attachment style is related to their motivation to engage in OSA, the amount of time they engage in the activity and the preferred online activities they engage in (e.g., adult-chat versus viewing pornographic images). However a review of the literature revealed no empirical data on the relationship between attachment style and OSA.

A Brief History of Attachment Theory

Grounded in psychoanalytic theories influential at the time, attachment theory was developed by John Bowlby in an attempt to understand the intense distress that infants experienced when separated from their parents. Bowlby observed that infants separated from their parents would go to extraordinary lengths to either prevent separation or to reestablish proximity to a missing parent (Fraley, 2004). Bowlby described the attachment behaviour as a motivational control system that has the goal of promoting safety and security during infancy and childhood via the child's relationship with their attachment figure or caregiver (Crowell & Treboux, 1995). Bowlby (1998) argued that disturbances in early childhood attachment and bonding experiences could significantly impact upon individuals' capacity to function effectively in adult relationships. The core argument of attachment theory is that children instinctually want to be close to their caregivers during times of stress, and they want their caregivers to be responsive to their security needs. Unresponsive, inconsistent care giving is a deleterious environment for children, and attachment insecurity is the result (Ouellette, 2004).

Research on adult attachment is based on the assumption that the same motivational system that leads to close emotional bonds between parents and their children is the basis of the bond that develops between adults in emotionally close relationships. Despite Bowlby being primarily focused on understanding the nature of the infant-caregiver relationship, he was of the belief that attachment patterns are a relevant human experience from "the cradle to the grave". This central developmental hypothesis in attachment theory is that early parent-child relationships are prototypes of adult intimate relationships (Crowell & Treboux, 1995). Fraley (2004) however advised that it was not until the mid-1980s that researchers began to seriously consider the possibility that attachment processes may continue to be important in adulthood.

Attachment Theory and the Formation of Adult Sexual Relationships

It has been argued that because the attachment system appears very early in the course of an infant's development, these systems are likely to influence the expression of care giving and sexuality in adulthood, and these factors influence the

establishment and maintenance of adult romantic relationships (Feeney & Noller, 1996). Sexual behaviour is a defining feature of most intimate relationships; therefore one might anticipate that adult attachment should be relevant to this behaviour.

Research to date has focused on attachment style and factors such as beliefs and attitudes towards romantic love, relationship satisfaction and commitment, infidelity, couple violence, relationship trust, and patterns of disclosure (Bogaert & Sadava). One central aspect of romantic relationships that has not been extensively investigated within the context of adult attachment is sexual behaviour (Bogaert & Sadava).

Early research by Mooney (1986) argued that disrupted bonding and attachment experiences early in life have a negative impact on one's normal sexual functioning or 'love map development', and this disrupted sexual development prejudices the individual's capacity for normal and healthy sexual functioning. Mooney proposed that these disrupted love maps are manifested as compulsive/addictive patterns that mask attachment disorders. Adams (1999) warned that individuals who have disrupted attachment experiences are left feeling neglected, abandoned, angry, and insecure, and may compulsively and desperately seek emotional security from inappropriate relationships. Adams argued that acting out sexually may become the path that these individuals use throughout adulthood in an attempt to secure a connection with another and dispel their anger. There may be little insight that their sexuality is inappropriate or personally harmful and that their behaviour is a recreation of unconscious childhood attachment patterns.

Adult attachment style is related to a range of attitudes and behaviours within intimate relationships. Early research by Hazen and Shaver (1987) suggested that secure adults are more likely than insecure adults to have longer relationships and are less likely to have been divorced. There is also evidence that insecure attachment styles predict particular attitudes towards sex and that these attitudes increase the probability of infidelity in one's primary relationship. In particular, the avoidant attachment style has been consistently associated with the proneness to engage in casual, impulsive and uncommitted sexual activity (Feeney, Noller, & Patty, 1993; Feldman & Cauffman, 1999). Brennan and Shaver (1995) found that insecure adults (those higher in avoidance) are also more interested in, and have

more, casual (short-term) sexual experiences. Research also indicates that, relative to those with stronger parental bonds, individuals with weak bonds to their parents tend to engage in a variety of “externalising behaviours”, one of which is promiscuity (Bogaert & Sadava, 2002).

Recent research by Scott and Horell (2007) suggested that individuals with an avoidant attachment style, characterised by a detachment from emotions and interpersonal isolation, might protect themselves through addictive and compulsive behaviours such as excessive television watching, compulsive masturbation, cybersex addiction and other additions such as gambling. Birnbaum’s (2007) study of 96 women from a community sample which investigated the women’s attachment style, relationship satisfaction, self-related affect and cognitions and relationship satisfaction found that women scoring higher on avoidance reported lower levels of relationship intimacy, arousal and excitement. Birnbaum’s findings also suggested that women high in relational anxiety may inappropriately use sex as a predominant route for seeking proximity, and to serve their otherwise unmet needs for intimacy and closeness, reassurance and care-giving.

Recent studies using a sample of college students, have found that attachment anxiety and avoidance are positively associated with self-concealment and personal problems, ineffective coping, maladaptive perfectionism and depression, but negatively associated with social self-efficacy, and emotional self-awareness (Wei, Russell, Mallinckrodt, & Vogel, 2007). Overall, individuals with a secure attachment orientation are more likely to have successful intimate relationships compared to those with insecure attachment orientations (Bogaert & Sadava, 2002).

Attachment Style and Sexual Orientation

At the present time there is minimal published research examining the relationship between individuals’ attachment style and their sexual orientation. Past research has predominantly investigated the characteristics of heterosexual participants. However research by Ridge and Feeney (1998) investigated this relationship using a sample of 177 Australian students who identified as homosexual (77 gay men and 100 lesbians). The authors found that gay and lesbian participants generally reported similar frequencies of attachment styles as their heterosexual counterparts. They concluded that insecure attachment style is not over-represented

in the gay and lesbian community, however an insecure attachment style is associated with less relationship satisfaction and problems related to disclosure of one's sexual orientation.

Psychometric Tests of Attachment Style

Different aspects of attachment theory and of adult relationships have led to the development of a variety of assessment methods (Crowell & Treboux, 1995). The earliest research on adult attachment involved studying the association between individual differences in attachment and their experience of close relationships. The original attachment measure developed by Hazan and Shaver (1987) consisted of three paragraphs.

To assess the proportion of individuals classified within each attachment style, Hazan and Shaver asked research participants to read the three paragraphs listed below, and indicate which paragraph best characterised the way they think, feel, and behave in close relationships:

- A. I am somewhat uncomfortable being close to others. I find it difficult to trust others completely, difficult to allow myself to depend on them. I am nervous when anyone gets too close, and often, others want me to be intimate than I feel comfortable of being.
- B. I find it relatively easy to get close to others and am comfortable depending on them and having them depend on me. I don't worry about being abandoned or about someone getting too close to me.
- C. I find others are reluctant to get as close as I would like. I often worry that my partner doesn't really love me or won't want to stay with me. I want to get very close to my partner, and this really scares people away.

Based on this three-category measure of attachment, Hazan and Shaver found that the distribution of categories was similar to those observed in infancy. In other words, about 60% of adults classified themselves as secure (paragraph B), about 20% described themselves as avoidant (paragraph A), and about 20% described themselves as anxious-avoidant (paragraph C) (Fraley, 2004).

Subsequent work by Brennan, Clark, and Shaver (1998) suggested that there are two fundamental dimensions with respect to adult attachment. The first variable

was labeled “attachment-related anxiety”. Individuals scoring high on this variable tend to worry as to whether their partner is available, responsive and attentive. Individuals scoring on the low end of this variable are more secure regarding the perceived responsiveness of their partners. The other critical variable described by Brennan et al. is called “attachment-related avoidance”. Individuals on the high end of this dimension prefer not to rely on or open up to others. Individuals on the low end of this dimension are more comfortable being intimate with others and are more secure depending upon and having others depend upon them. A prototypical secure adult is low on both attachment-related anxiety and avoidance. Individuals scoring high on either attachment related anxiety or avoidance are assumed to have an insecure adult attachment orientation. By contrast, people with low levels of attachment anxiety and avoidance can be viewed as having a secure adult attachment orientation (Brennan et al.). Mikulincer, Shaver, and Pereg (2003) advise that there now appears to be consensus that adult attachment consists of these two dimensions: Anxiety and Avoidance

Adult Attachment Style: A Two-Dimensional-Four Category Model

In 1991, Bartholomew and Horowitz first described a two-dimensional- four-category model of adult attachment styles. The attachment styles included: (i) Secure, (ii) Anxious-Preoccupied, (iii) Dismissive-Avoidant, and (iv) Fearful-Avoidant (see Figure 1), and are based on research using the Relationship Questionnaire (RQ; Bartholomew & Horowitz, 1991).

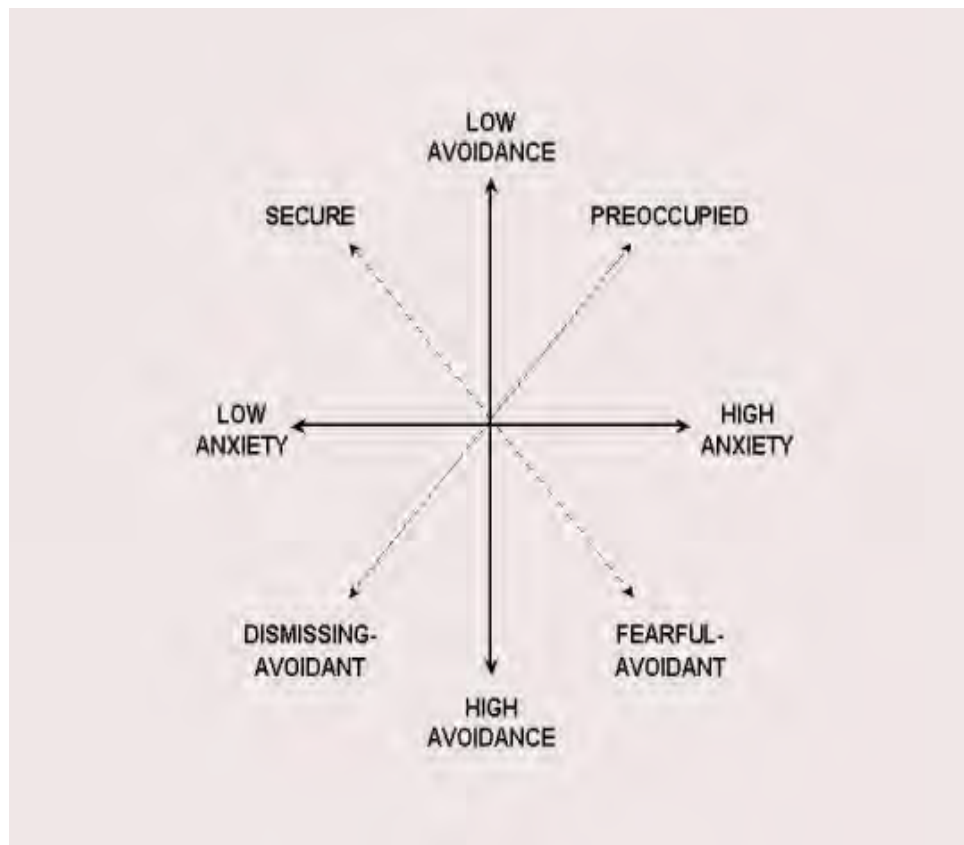


Figure 1. The Two-Dimensional Model of Individual Differences in Adult Attachment.

The following description of the two-dimensional model of attachment is taken from Pietromonaco and Barrett (1997):

Secure Attachment: Securely attached adults score low on both attachment related avoidance and anxiety and tend to agree with the following statements: “It is relatively easy for me to be emotionally close to others”. “I am comfortable depending on others and having others depend on me”. Securely attached people tend to have a positive opinion of themselves, their partners, and their relationships. Securely attached individuals tend to feel comfortable both with intimacy and with independence.

Anxious-Preoccupied Attachment: These individuals are high on attachment related anxiety and low on attachment related avoidance, and tend to agree with the following statement: “I want to be completely emotionally intimate with others, but often find that others are reluctant to get as close as I would like”. Individuals with

this type of attachment tend to search for high levels of intimacy, approval, and responsiveness from their partners and have a tendency to become dependent on their partners. They frequently doubt their self-worth as a partner and blame themselves if a partner is unresponsive. Individuals who are anxious or preoccupied in regards to attachment may exhibit high levels of emotional expressiveness, and tend to worry, and are often impulsive in their relationships.

Dismissive-Avoidant Attachment: These individuals are low on attachment related anxiety and high on attachment related avoidance. They tend to agree with the following statement: “I am comfortable without close relationships”. “It is very important for me to feel independent and self-sufficient”. Individuals with this attachment style desire a high level of independence, which may appear as an attempt to avoid being closely attached to others. They frequently seek less intimacy with relationship partners, whom they often perceive as less positively than they view themselves. They also often tend to suppress and hide their true feelings and cope with rejection by moving away from the sources of rejection (i.e., their partner).

Fearful-Avoidant Attachment: These individuals are high on attachment related anxiety and high on attachment related avoidance. They tend to agree with the following statement: “I am somewhat uncomfortable getting close to others”. “I want emotionally close relationships, but I find it difficult to trust others completely, or depend on them”. These mixed feelings often occur with negative opinions about themselves and their partners. They often view themselves as being unworthy of responsiveness from their partners, and tend not to trust the intentions of their partners.

Currently, the most widely used measures of attachment styles are Brennan et al. (1998) Experiences in Close Relationships (ECR) and Fraley, Waller, and Brennan’s (2000) Experiences in Close Relationships- Revised (ECR-R). Fraley (2005) advised that both the ECR and the ECR-R are designed to measure individual differences with respect to attachment-related anxiety (i.e., the extent to which people are insecure versus secure about their partner’s availability and responsiveness) and attachment-related avoidance (i.e., the extent to which people are uncomfortable being close to others versus secure depending on others). Wei et

al. (2007) reported that although the ECR is a highly reliable and valid measure of adult attachment, however the length of the ECR (36 items) can be problematic in some research applications. For this reason, Wei et al. developed a short version of the ECR using 12 of the original items called the Experiences in Close Relationships-Short (ECR-S) version. The researchers concluded that they had been successful in reducing the number of items from 36 (18 for Anxiety and 18 for Avoidance) to 12 (6 for Anxiety and 6 for Avoidance) without losing the sound psychometric properties contained in the original version of the ECR. Also for reasons of brevity, attachment style in the current thesis was measured using 16 items from the ECR (8-items from the Anxiety subscale and 8-items from the Avoidance subscale).

Prior Research Investigating Sex Addiction and Adult Attachment Style

A study by Leedes (1999) that examined the attachment styles of sex addicts found that sex addicts have a significantly higher rate (95%) of insecure attachment styles in their intimate relationships than the 44% found by Hazan and Shaver (1987). Research by Marchland (2004) also found that individuals with insecure attachment styles are more likely to have problematic relationships. It is therefore possible that individuals suffering from a sexual addiction experience more problems in their romantic relationships because of their insecure attachment style.

Leedes (1999) developed a theory regarding sexual addiction based on attachment styles. His theory argued that sex addictions occur based on two emotional dispositions related to an individual's attachment style: one toward fantasy and the other towards interpersonal relationships. Leedes found that as a person's comfort in interpersonal relationships increased, there was a diminishing effect on the negative influence of his objectified fantasies. In other words, individuals who are securely attached are believed to be more comfortable with interpersonal relationships and those who are insecurely attached are believed to use fantasy as a surrogate means to establish a sense of security. A review of the scientific literature however identified no published research on the relationship between an individual's attachment style and their engagement in OSA.

In addition to adult attachment styles, both acute symptoms and syndromes of depression, anxiety and stress play an important role in an individual's OSA. In this

context, depression, anxiety and stress are considered to be negative emotional states and/or traits experienced by individuals (Lovibond & Lovibond, 2004). The following section examines the relationship between depression, anxiety and stress and engagement in OSA.

Depression, Anxiety, Stress and OSA

Definitions of Depression

The World Health Organization (WHO; 2009) defines depression as a common mental disorder that presents with depressed mood, feelings of guilt or low self-worth, disturbed sleep or appetite, low energy, and poor concentration. Depression is differentiated from normal mood fluctuations by the extent of its severity, the symptoms and the duration of the disorder. Depression also appears to be a state characterised principally by a loss of self-esteem and incentive, and is associated with a very low perceived probability of attaining personal goals of significance to the individual (Lovibond & Lovibond, 2004). The WHO further advised that these problems might become chronic or recurrent and lead to substantial impairments in an individual's ability to take care of his or her everyday responsibilities.

Definitions of Anxiety

Anxiety is defined as a psychological and physiological state characterised by cognitive, somatic, emotional, and behavioural components (Seligman, Walker, & Rosenhan, 2001). Anxiety is also an unpleasant emotional state for which the cause is either not readily identified or perceived to be unavoidable or uncontrollable. These components combine to produce an unpleasant feeling that is typically associated with uneasiness, fear or worry. Anxiety is often the result of threats that are perceived to be uncontrollable or unavoidable (Ohman, 2000). The National Institute of Mental Health (2009) suggests that anxiety is a normal reaction to stress that may help an individual manage a difficult situation, for example at school or work, by prompting the person to respond to the situation with coping mechanisms. Schwarzer (1997) reported that anxiety can be either a short term "state" or a long

term “trait”, with anxiety reflecting a stable tendency to respond with state anxiety in anticipation of threatening situations. However, when anxiety becomes excessive, it may be classified as an anxiety disorder (Schwarzer).

Definitions of Stress

Although the use of the word stress has become common in both lay and professional circles, theorists and researchers have been unable to agree on a common definition of the term (Romano, 1992). An early definition offered by Selye (1956) suggested that stress is a biological term which refers to the consequences of the failure of a human or animal body to respond appropriately to emotional or physical threats of the organism, and these threats may be real or imagined. Stress therefore can also be thought of as the autonomic response to an environmental stimulus and includes a state of alarm and adrenaline production, short-term resistance as a coping mechanism, and eventual exhaustion if the state of stress persists for long enough. A more comprehensive understanding of stress was formulated by Lazarus and Folkman (1984) who defined stress as an interaction between the individual and their environment. According to this theory, the impact of a stressor is influenced by the individual’s appraisal of the stressor in terms of the risk to that individual and their perceived capacity to cope with the situation (Romano).

Differentiating States of Depression, Anxiety and Stress

The relationship between the negative affective conditions of depression and anxiety is of considerable interest both theoretically and clinically (Lovibond & Lovibond, 2004). In addition, considerable overlap exists when trying to differentiate symptoms of anxiety and stress: Lovibond and Lovibond suggested that stress is an affective reaction pattern or state, which has clear affinities with anxiety, and currently the two concepts are typically not clearly differentiated.

Clark and Watson (1991) have summarised the research evidence relating to the assessment of anxiety and depression. The key findings include: (1) self-report anxiety and depression scales typically correlate between 0.40 and 0.70 across a wide range of patient and non-patient samples; (2) anxiety scales frequently correlate as highly with depression scales as with other anxiety scales, and depression scales

show equal lack of specificity; (3) only about half of patients diagnosed as having a depressive disorder exhibit relatively pure syndromes of one type or another.

Negative Affective States and Engagement in OSA

Prior research suggests that engagement in OSA may be positively correlated with increased levels of depression, anxiety and stress (Black et al., 1997; Cooper, Putman et al., 1999; Young, 2004). Despite this positive correlation, it is currently unknown as to whether depressed, anxious stressed individuals engage in OSA more frequently or whether increased engagement in OSA leads to increased levels of depression, anxiety and stress. Young (1999) found that Internet sex addicts frequently state that they feel a difference between online and offline emotions. She reports that they often feel frustrated, angry, anxious and depressed when offline, whilst online, they feel excited, uninhibited, attractive, supported and more desirable, and these strong positive emotions reinforce the compulsive behaviour.

Early research by Cooper et al. (1999) found that heavy users of the Internet including compulsive cybersex users are typically depressed or stressed (Black et al., 1997). Bradshaw (1988) argued that the issue of sexual compulsion is not about being 'horny' but about 'mood alteration'. He believed that acting out sexually may alter a person's feelings so that he or she does not have to feel loneliness or the emptiness of abandonment. However it is assumed that anxiety reduction or mood improvement is a key factor in many cases of compulsive sexual behaviour, this needs to be reconciled with research that suggests that most depressed people experience a decline in sexual interest and/or responsiveness in negative mood states (Kennedy, Dickens, Eisfeld, & Bagby, 1999).

Cooper et al. (2004) advised that "Stress-Reactive" individuals, or those who engage in OSA at times of high stress, are at increased risk of developing patterns of compulsive sexually behaviour. They argued that that for some individuals, engaging in OSA may represent a way to escape or manage uncomfortable feelings or stressful situations. Their research also indicated that men were twice as likely to use OSA as a way to cope with stress than women. A second sub-type of users who are at risk of exhibiting compulsive online sexual behaviour is a "Depressive Type" (Cooper, Scherer et al., 1999). These individuals are generally depressed, dysthymic, or anxious and "use Internet sex to penetrate their malaise and for brief

moments feel relief from their dysphoria” (p. 139. Cooper et al., 2004).

It has been suggested that Internet addicts turn to the computer to find relief from moments of painful states of mental tension and agitation present in their lives (Young, 2004). Viewing sexually explicit images engenders a strong emotional response in many adults, and this might be one of the few ways depressed individuals can penetrate their dysphoric mood and/or malaise (Cooper, Delmonico et al.). Greenfield (1999) argued that the Internet is not as benign as one may assume and has powerful mood-altering abilities. Over 29% of the Internet addicts Greenfield studied reported using the Internet to alter their mood or to escape on a regular basis. In such instances, Greenfield suggests that their use of the Internet was less about using it as a tool and more about finding a psychological escape to cope with life’s difficulties.

Studies of 919 heterosexual males (Bancroft et al., 2003) and 662 gay men (Bancroft, Janssen, Strong, Carnes, & Vukadinovic, 2003) investigated the relationship between mood, sexual interest and sexual responsiveness using the Mood Sexuality Questionnaire (MSQ; Bancroft, Janssen, Strong & Vukadinovic, 2003). The researchers found that the majority of the men reported a decrease in sexual interest when depressed or anxious. A significant minority however (15-25%) reported an increase in sexual interest when they were feeling depressed or anxious.

Recent research by Kafka (2010) confirms that Axis 1 psychiatric diagnoses, especially mood and anxiety disorders, and psychoactive substance abuse disorders have all been reported to be prevalent among males with Hypersexual Disorder. Kafka warns that on the other hand, clearly not every person afflicted by hypersexual behaviours and the aforementioned Axis 1 co-morbidities develop hypersexual behaviour or Hypersexual Disorder. More recently researchers have focused on the benefits of using psychopharmacology to manage hypersexual behaviour and have discovered that compulsive sexual behaviour can be reduced with mood elevating drugs such as Selective Serotonin Reuptake Inhibitors (SSRIs) (Kafka, 2000). Currently it is unknown as to the extent to which pharmacological benefits result from improvement in mood or specific inhibition of sexual response or both (Bancroft & Vukadinovic, 2004).

Overall, the literature on sexual compulsivity and sexual addiction has tended to focus on issues of definition, and less attention has been paid to the causal

explanations for why sexual behaviour becomes problematic. Researchers often make statements about likely mechanisms (e.g., anxiety reduction or mood regulation), but these are more often based on clinical impression than on empirical research (Bancroft & Vukadinovic, 2004).

In addition to the relationship between mood variables and an individual's engagement in OSA, it was also anticipated in this study that an individual's level of impulsivity would influence their engagement in OSA. It was assumed that compared to low impulsive individuals, highly impulsive individuals would engage in OSA more frequently, experience more negative psychosocial consequences associated with their OSA, and be more inclined to meet others offline that they first met online.

Impulsivity and OSA

The relationship between an individual's level of impulsivity and their engagement in OSA was investigated in the current research. Despite impulsivity receiving minimal prior research interest in the context of individual's online sexual behaviour, it was assumed that highly impulsive individuals would spend a greater amount of time engaged in OSA, and experience more negative consequences associated with their online behaviour than less impulsive individuals.

Definitions of Impulsivity

In everyday language, the term "impulsivity" refers to behaviour that includes a component of rashness, lack of foresight or planning, or to behaviour that occurs without reflection or careful deliberation (Dawe & Loxton, 2004). The International Society for Research on Impulsivity (2006) suggested that impulsivity is human behaviour that occurs without adequate thought and includes the tendency to act with less forethought than do most individuals of equal ability and knowledge, or a predisposition toward rapid, unplanned reactions to internal or external stimuli without regard to the negative consequences of those reactions. Additionally, there is often an increased sense of tension before committing the act, gratification or relief at the time of the act, and regret, self reproach, or guilt following the act (Gold & Heffner, 1998). Lansbergen, Schutter, and Kenemans (2007) also suggested that impulsivity may understood as a personality trait found in the non-psychiatric

population, but it is also a feature of many psychiatric disorders that are associated with poor inhibitory control. Dawe and Loxton (2004) argued that everybody engages in impulsive acts from time to time, some of us more so than others, and therefore the term is understood to reflect a continuum of a personality feature or trait.

Psychiatric Conceptualisation of Impulsivity

The extent to which personality traits may contribute to the development and maintenance of problematic OSA has been a vexed issue for many years in the addictions field. Psychiatry and psychology have recently made liberal use of the term impulsivity and related concepts by implicating them in a broad range of conditions (e.g., substance use disorders, paraphilias, antisocial personality disorder), as well as grouping some of them as specific disorders of impulse control in the DSM-IV (American Psychiatric Association, 1994). Impulsivity and compulsivity can be conceptualised as dimensional constructs, with both impulsivity-spectrum and compulsivity-spectrum disorders overlapping and including sexual impulses, compulsions and addictions (Hollander & Rosen, 2000; McElroy, Phillips, & Keck, 1994, as cited in Kafka, 2010). In the Diagnostic and Statistical Manuals (American Psychiatric Association, 1980, 1987, 1994, 2000) impulse control disorders have been characterised by:

the failure to resist an impulse, drive or temptation to perform an act that is harmful to the person or others. A person may feel an increased sense of tension or arousal before committing the act and then experiences pleasure, gratification, or relief at the time the act is committed. Following the act, there may be regret, self-reproach or guilt (American Psychiatric Association, 2000, p. 663).

In the current DSM there is an entire chapter devoted to impulse control disorders such as pathological gambling, pyromania and kleptomania which are classified under the heading of ‘impulse disorders not elsewhere classified’ (DSM-IV; American Psychiatric Association, 1994). There are also a number of personality scales that measure a range of behaviours that are generally termed “impulsive” such as novelty seeking, behavioural under-control, and disinhibition (Dawe et al., 2004).

Kafka (2001) argued that there has been little empirical research conducted examining nonparaphilic sexual disorders that are characterised by repetitive volitional impairment and adverse psychosocial consequences. He suggested that the common paraphilia-related disorders include compulsive masturbation, protracted promiscuity, pornography dependence, cybersex dependence and telephone sex. Preliminary evidence indicates that impulsivity and similar traits such as novelty, sensation, and risk seeking appear to account for some of the unique variance in sexual risk behaviour (Hayaki, Anderson, & Stein, 2006). In the research investigating men who have sex with men, traits such as sexual impulsivity and sexual sensation seeking have also been shown to predict high-risk sexual behaviour such as unprotected anal intercourse (Dudley, Rostosky, Korfhage, & Zimmerman, 2004).

Theoretical Models That have Influenced the Measurement of Impulsivity

Since the early 1900s, a number of theoretical models have been proposed by researchers and clinicians in attempts to conceptualise and measure impulsivity (Dawe, Gullo, & Loxton, 2004). Hans Eysenck, Marvin Zuckerman, Jeffrey Gray and Robert Cloninger have each contributed a distinct theoretical framework which has enhanced our current understanding of impulsivity. In each of these theoretical models discussed below, one system is associated with avoidance behaviour (or behavioural inhibition), while the other is broadly associated with appetitive motivation and approach behaviour (Carver, Sutton, & Scheider, 2000 cited in Dawe, Gullo, & Loxton, 2004).

Eysenck's model of impulsiveness (1985) measured two broad dimensions of impulsivity referred to as *Impulsiveness* and *Venturesomeness*. Impulsiveness was conceptualised as behaving without thinking and without realising the risk involved in the behaviour. Whereas venturesomeness was conceptualised as risk taking behaviour undertaken by an individual who is conscious of the risks associated with the behaviour but acts anyway (i.e., extraverted impulsivity/thrill-seeking) (Dawe & Loxton, 2004; Webster & Jackson, 2004).

Cloninger's personality taxonomy proposed that impulsivity is a personality trait. The impulsivity trait was labeled Novelty Seeking, and is defined as a tendency to frequently engage in exploratory activity and to experience intense exhilaration in

response to novel stimuli. The taxonomy also proposed a second dimension, Harm Avoidance, which reflects individual differences in inhibited behaviour (Dawe & Loxton, 2004).

Zuckerman's theory of impulsive behaviour, that the impulsivity is the tendency to seek out intense, novel forms of sensation and experience, and a willingness to seek such experiences regardless of the risks involved (Dawe & Loxton, 2004). Zuckerman also introduced the trait of sensation seeking based on a comparative approach. He observed that in both humans and nonhumans, sensation seeking appeared to be genetically determined and have biological correlates (e.g., gonadal hormones, neurotransmitters) (Acton, 2003).

Finally, according to Gray's reinforcement sensitivity theory of personality, there are individual variations in the sensitivity of basic brain and behavioural systems that respond to punishing and reinforcing stimuli. Originally, Gray employed the term "impulsivity" for the personality trait that reflects sensitivity to reward. However, there is growing doubt as to whether sensitivity to reward and impulsivity refer to one and the same trait (Franken & Muris, 2006). Gray theorised that there are two interacting biologically based systems, "behavioural inhibition" and "behavioural approach" which correspond to the dimensions of anxiety and impulsivity. Anxiety is believed to underlie activity in the conceptual brain system, referred to as the Behavioural Inhibition System (BIS) and corresponds to individual differences in reactions to conditioned aversive stimuli. Gray argued that individuals with higher BIS are more likely to inhibit approach behaviour that is accompanied by feelings of anxiety and frustration. The other system, proposed to underlie the personality trait of impulsivity, was referred to as the Behavioural Approach System (BAS). Gray proposed that individuals with high BAS sensitivity are more prone to engage in approach behaviour and experience positive affect in situations with possible rewards (Carver & White, 1994).

The Eysenck model of Impulsivity and the Eysenck Impulsivity Scale (EIS; Eysenck, 1985) was used in the current thesis because of the simplicity of the model, the test's relative brevity (19-items), and robust reliability and validity. In line with the Eysenck model of impulsivity, it was also anticipated that impulsivity in the context of OSA could be best described as the tendency to act rashly and without consideration of the consequences.

In addition to impulsivity, it was also expected in this study that an individual's experience of social and emotional loneliness would be related to their engagement in OSA. Hence it was assumed that people who experience increased social and emotional loneliness would more frequently engage in OSA and experience more psychosocial problems associated with their online behaviour than people who experienced less loneliness.

Loneliness and OSA

A Historical account of the Study of Loneliness

Historically, psychologists appear to have considered loneliness as a mundane phenomenon, with obvious aetiology and an equally obvious solution, and therefore it was not necessary to investigate (Ouellette, 2001). In 1973 there were only 3 studies, all unpublished dissertations, which empirically and systematically investigated the nature of loneliness, and a further 20 purely theoretical or anecdotal publications (Loucks, 1980). Early literature suggested that loneliness was considered a part of life that must be endured and most researchers assumed that loneliness was the reaction to not having enough friends or not having adequately close relationships with them.

However, in 1973, Robert S. Weiss published a seminal book titled "Loneliness: The Experience of Emotional and Social Isolation", which encouraged considerable research into better understanding the fundamental structure of loneliness. Weiss argued for a dimensional model of loneliness: emotional loneliness and social loneliness. Social loneliness was believed to reflect a lack of integration into social networks, whilst emotional loneliness stems from an absence of close intimate relationships. Loneliness was believed to be a response to the absence of a particular social provision, with emotional loneliness reflecting a qualitative absence of attachment, whereas social loneliness was believed to stem from more quantifiable social deficits. Weiss proposed that it is not sufficient to love and to be loved- the cure to emotional loneliness- but individuals also need to be included in part of a meaningful social group. Weiss's abstract conception of loneliness is "being without some definite needed relationship or set of relationships" (p.17). The unique characteristic of such a deficit theory is that, because the problem

is the lack of something specific, only restoration of that specific something will alleviate the problem (Ouellette, 2001).

Perlman and Peplau (1981) defined loneliness as “the unpleasant experience that occurs when a person’s network of social relationships is deficient in some important way, either quantitatively or qualitatively” (p. 31). De Jong Gierveld (1987) suggested that loneliness is a state of being that results from a lack of quality relationships. This includes “situations in which the number of existing relationships is smaller than is considered desirable or admissible, as well as situations where the one wished for has not been realised” (p. 120). More recently, loneliness is considered to be one of the main indicators of social wellbeing and reflects an individual’s subjective evaluation of his or her social participation or isolation (De Jong Gieveld & Van Tilburg, 2006).

Psychometric Tests Measuring Loneliness

A number of psychological tests have been developed to measure the experience of human loneliness across the lifespan (e.g., Bradley Loneliness Scale, BLS; 1969; University of California, Los Angeles, Loneliness Scale, UCLA LS; Russell, 1996; Belcher Extended Loneliness Scale, BEL, Belcher, 1973; De Jong Gierveld Loneliness Scale, LS; 1999). In 1969 Bradley developed the first scale for measuring the feeling of loneliness (Loucks, 1980).

The De Jong Gierveld Loneliness Scale (1999) is based on a cognitive approach to loneliness. In this model, the emphasis is on the discrepancy between what one wants in terms of interpersonal affection and intimacy, and what one has, therefore the greater the discrepancy, the greater the loneliness (De Jong Gierveld, 1999). In this approach, loneliness is conceptualised as a subjective experience and is therefore not directly related to situational factors. Loneliness, or subjective isolation, is defined as a situation experienced by the person as one where there is an unpleasant or inadmissible lack of quality of certain relationships. The importance of social perceptions and evaluations of one’s personal relationships is emphasised. Loneliness includes situations where the number of existing relationships is smaller than desirable or acceptable, as well as situations where the intimacy wished for has not been realised (De Jong Gierveld, 1989). Given the possibility that engaging in OSA is related to an individual’s experience of both social and emotional loneliness,

the Loneliness Scale (LS) was used in current research study.

Loneliness and Internet Use

Two opposing hypotheses have been proposed to investigate the relationship between loneliness and Internet use: excessive Internet use causes loneliness versus lonely individuals are more likely to use the Internet excessively (Morahan-Martin & Schumacher, 2003). Supporters of the first hypothesis believe that the Internet causes loneliness and argue that time online interrupts face-to-face relationships. They also argue that using the Internet isolates people from the real world, which deprives them of a sense of real-world belonging and connection. Those who advocate for the second hypothesis, argue that lonely individuals are more likely to be drawn to the Internet and use the Internet excessively because of the expanded social and friendship networks provided online. This hypothesis proposes that lonely people are likely to be drawn to interactive social activities online because of the possibilities of belonging, companionship, and communities that these online environments provide. For some lonely individuals, this may result in increased Internet use, and even the development of Internet-related problems in their lives (Morahan-Martin, 1999).

Although the Internet affords greater opportunities for communication, studies have shown that Internet usage may actually be related to increased depression depicted as loneliness and difficulties with interpersonal relationships (Walther, Anders, & Park, 1994). Morahan-Martin and Schumacher (2003) suggested that lonely individuals might be drawn online because of the increased potential for companionship and as a way to modulate negative moods associated with loneliness. Research also suggests that a decline in communication with family members, friends, and partners, and an increase in depression, isolation, and loneliness have also been linked with greater use of the Internet (Kraut, Patterson, & Lundmark, 1998).

Loneliness and OSA

A review of the literature revealed minimal empirical research on the relationship between loneliness and sexual behaviour or online sexual activity. In addition, the research that was identified did not differentiate between the experience

of social and emotional loneliness and its relationship to OSA. Prior to 2005, there were no empirically based studies that examined the relationship between OSA and loneliness (Yoder, Virden, & Amin, 2005). Yoder et al. conducted an online study to investigate this relationship using the University of Los Angeles Loneliness Scale (UCLALS; Russell, 1996). The results found a positive association between the ratio of Internet pornographic usage and loneliness. Results from other studies have suggested an association between general Internet usage, depression, social isolation and loneliness. Correspondingly, studies investigating exposure to pornographic images have also shown links with loneliness, and socially isolative behaviours.

One of the possible consequences of increasing loneliness may be that certain Internet users become vulnerable to sexually addictive use of the Internet (Douglas, 1994). In his book titled “The Centerfold Syndrome” Brooks (1995) argued that a “pervasive disorder” exists which develops from a combination of loneliness and pornography. Brooks states that one of the main reasons people delve into pornography is because they are lonely. He further argues that the more one uses pornography, the lonelier one becomes, and the pattern becomes cyclical in nature. A recent study by Odaci and Kalkan (2010) examining the online dating behaviour of university students showed that students’ levels of loneliness and dating anxiety rose as problematic Internet use increased. In addition, daily length of Internet use (more than 5 hours a day) was found to be a significant variable in problematic Internet use.

In addition to loneliness, psychosexual adjustment characteristics such as sexual-motivation and sexual-anxiety were assumed to influence an individual’s engagement in OSA. For example, in this study it was expected that an individual who was highly anxious about the sexual aspects of his or her life would engage in OSA such as sexually oriented chat more frequently than an individual who was low in sexual-anxiety.

Psychosexual Adjustment Characteristics and OSA

In recent decades considerable attention has been directed towards the study of psychosexual characteristics and how they influence individuals’ sexual relations

and sexual behaviour (Snell, Fisher, & Walters, 2001). The term *psychosexual adjustment* refers to the psychological tendencies or personality variables associated with an individual's sexual feelings, thoughts, and behaviours (Snell et al.).

Prior Research into Psychosexual Characteristics

Research has indicated that individual characteristics such as self-esteem, assertiveness, and internal versus external control in combination with affective response tendencies (e.g., fear, guilt) mediate an individual's reactions to a variety of sexual attitudes, behaviours and feelings (Snell et al.). Earlier researchers investigated a range of psychosexual characteristics including sexual anxiety (Janda & O'Grady, 1980), sex-guilt (Mosher, 1965), sexual-esteem (Snell & Papni, 1989) and sexual self-disclosure (Snell, 1989).

Janda and O'Grady (1980) investigated sexual-anxiety and found that people with greater sexual anxiety reported fewer sexual experiences. Their research showed that people who reported having a more extensive history of sexual experiences tend to have higher levels of sexual-esteem, sexual-motivation, and sexual-satisfaction. By contrast, both men and women who were anxious and depressed in regards to their sexuality, as well as those with an external orientation to the sexual parts of their life, were less likely to have previously engaged in a variety of sexual experiences. Individuals with aversive affective reactions to sex, including individuals with greater sexual-anxiety and sexual depression were found to be less inclined to engage in a range of sexual activities. In addition, individuals who were of the belief that the sexual aspects of their life were influenced and determined by external forces tended to be less likely to initiate sexual relations with another person.

Mosher's research into sex-guilt is possibly one of the most well known investigations examining the impact of a specific psychological tendency on human sexuality (Snell, Fisher, & Walters, 2001). Mosher (1979) defined *sex-guilt* as a personality trait characterised by a general expectancy of self-meditated punishment for violating or anticipating one will violate an internalised standard of sexual conduct. Gerrard (1980) suggested that this cognitive predisposition is manifested by resisting sexual temptation, inhibited sexual behaviour, or experiencing feelings of guilt and regret if internalised standards are violated.

Researchers have also investigated the impact of several personality related tendencies on sexual feelings, thoughts, and behaviours. For example, Fisher, Byrne, White and Kelley (1998) investigated the impact of erotophobic-erotophilic tendencies on sexual relations. Erotophobic individuals tend to experience negative feelings towards sex, while erotophilic individuals report more positive feelings about sex. Research findings suggest that these affective responses to sexuality sometimes mediate individuals' responses to a wide range of sexual topics (Snell et al., 1993). For example, erotophilic as opposed to erotophobic women tend to report greater sexual interest and increased sexual activity (Fisher & Gray, 1998).

Psychometric Instruments Measuring Psychosexual Traits

A number of psychometric instruments measuring a variety of psychosexual traits were identified in the literature. Examples of such instruments include: the Sexual Anxiety Inventory (SAI; Janda & O'Grady, 1980); the Sexuality Scale, (SS, Snell & Papini, 1989); Sex Attitudes Scale, (SAS; Bailey, Hendrick, & Hendrick, 1987); Sexual Awareness Questionnaire, (SAQ, Snell, Fisher & Miller 1991); and the Multidimensional Sexuality Questionnaire (MSQ; Snell, Fisher & Walters, 1993). The current thesis used five subscales from the MSQ that were considered to be theoretically and clinically relevant to individuals who may experience problems associated with their OSA. These included Sexual-esteem, Sexual-motivation, Sexual-anxiety, Sexual-depression and Sexual-satisfaction. For example, in the case of Sexual-satisfaction (the tendency to be highly satisfied with the sexual aspects of one's life), it was expected that individuals low on this trait would spend more time engaged in OSA than individuals high on this trait. A review of the literature however identified no published research on how characteristics influence a person's involvement in OSA. It is therefore unknown if individuals experiencing greater sexual-anxiety and sexual-depression are at greater risk of problematic engagement in OSA.

Summary

In summary, this chapter has examined a range of psychological characteristics that it is argued to be theoretically and clinically relevant to the treatment of individuals who engage in OSA. Prior research investigating OSA has

tended to focus on describing the demographic characteristics of individuals and their online preferences rather than their psychological characteristics (e.g., Cooper et al., 2004; Cooper, Morahan-Martin et al., 2002; Cooper et al., 2000; Cooper, Scherer et al., 1999; Daneback et al. 2005). Such empirical data is important because it informs psychologists about who is doing what online. The psychological variables investigated in this chapter included: adult attachment style, depression, anxiety and stress, social loneliness, emotional loneliness, impulsivity, and measures of psychosexual adjustment (e.g., sexual-anxiety, sexual-motivation, sexual-esteem). This chapter concludes with a discussion regarding the relevance of the research to clinical psychologists and introduces the aims and research questions for the current study.

The Current Study

Relevance to Clinical Psychologists

The aim of this thesis was to provide empirical data that would be useful to clinical psychologists who work with individuals that are adversely affected by their involvement in online sexual activity (OSA). The psychological variables included in the current study were chosen based on their proposed theoretical relevance to the treatment of individuals presenting with problematic OSA. Research findings suggest that affected individuals, and sometimes their partners, seek psychological treatment when OSA interferes with important aspects of their life (i.e., relationships, family, education and employment) (Schneider, 2003). Affected individuals may also present with other psychopathologies such as depression and anxiety and may be unaware of the relationship between their OSA and their psychological symptoms and interpersonal difficulties. Young (2010) advises that a new generation of Internet users, those growing up with mobile and wireless technology, can readily access sexually explicit material via their cell phones and iPods. She warns that “a whole new generation can easily be exposed to inappropriate sexual material, and parents will have a harder time monitoring their children’s online use”... and

“society in general will need to brace itself for the potential explosion of online sex coming through wireless devices” (p.36).

Thus the current study aimed to assist clinical psychologists to think more broadly about the complex psychological characteristics of their clients and help to address difficult therapeutic questions. For example, the research aimed to provide insight into questions such as: What is the relationship between the client’s depressive symptoms and their use of OSA? Is the client suffering from a co-morbid mood disorder and does their OSA represent an attempt to ameliorate their dysphoria? Is the client experiencing problems associated with poor impulse control? Is a client’s OSA related to their emotional and/or social loneliness and does their online behaviour represent an attempt to meet those needs? Is a client’s OSA related to psychosexual difficulties (e.g., sexual-anxiety, sexual-depression), or an enduring anxious and/or avoidant attachment style? Despite this study’s predominant focus on the pathological and problematic aspects of the OSA, psychologists should be reminded that a pattern of compulsive online sexual behaviour is exhibited in only a small proportion of individuals who engage in OSA. In addition, there are individuals who may in fact benefit from using the Internet for sexual purposes to overcome barriers such as social isolation, loneliness, shyness and as a vehicle to explore their sexuality.

Study Aims and Research Questions

The next section presents the aims and research questions developed for the current study.

Research Aims for Male and Female Participants

Aim 1 (A1): To compare male and female participants on the study’s demographic and psychological variables. The results of this study are then compared with the findings of previous surveys that have investigated the characteristics of individuals who engage in OSA (i.e., Cooper et al., 2000; Cooper et al., 2002; Cooper et al., 1999; Daneback et al., 2005).

Aim 2 (A2): To investigate how participants’ sexual orientation and Risk-level on

the Internet Sex Screening Test (ISST; Delmonico, 1997) were related to the study variables.

Research Questions for Male and Female Participants

Research Question 1 (RQ1): How do male and female participants differ on the study's demographic and psychological variables?

RQ2: What proportion of participants was classified within each ISST risk level?

RQ3: Is there a relationship between the number of hours participants engaged in OSA and their ISST Risk-level?

RQ4: Is participants' sexual orientation related to their ISST Risk-level?

RQ 5: Is there a relationship between participants' sexual orientation and their likelihood of meeting someone offline that they first met online?"

RQ6: How is participants' sexual orientation related to their adult attachment style as measured by a short version of the Experiences in Close Relationships (ECR; Brennan et al., 1998)?

RQ7: Is participant's adult attachment style related to their ISST Risk-level?

Research Questions for Male Participants

RQM8: Is there a relationship between male participants' ISST risk level and sexual orientation and their levels of depression, anxiety and stress as measured by the Depression Anxiety Stress Scale -21 (DASS-21; Lovibond & Lovibond, 1995)?

RQM9: Is there a relationship between male participants' ISST Risk-level and sexual orientation and their levels of Impulsivity, Emotional Loneliness and Social Loneliness as measured by the Loneliness Scale (EIS; Eysenck, 1985 and De Jong Gierveld, Loneliness, LS; 1999)?

RQM10: Is there a relationship between male participants' ISST Risk-level and sexual orientation and their scores on a measure of psychosexual adjustment? The five subscales used in the analysis were from the Multidimensional Sexuality Questionnaire (MSQ; Snell et al., 1993). The subscales were Sexual-Depression, Sexual-Anxiety, Sexual-Esteem, Sexual-Motivation and Sexual-Satisfaction.

Research Questions for Female Participants

RQF8. Is there a relationship between female participants' ISST Risk level and their scores on measures of Depression, Anxiety and Stress, Impulsivity, Social Loneliness and Emotional Loneliness?

RQF9. Is there a relationship between ISST Risk-level and female participants' scores on a measure of psychosocial adjustment?

RQF10. Is the sexual orientation of female participants related to their level of depression, anxiety, stress, impulsivity, social loneliness, and emotional loneliness?

RQF11. Is the sexual orientation of female participants related to their scores on a measure of psychosexual adjustment?"

Conclusion

In conclusion, chapter three examined the literature examining a number of psychological variables that were considered to be theoretically relevant to individuals' engagement in OSA. The chapter concludes with the study aims and research questions developed for the current study. Chapter four discusses the research design and methodology of the current study.

CHAPTER 4

THE RESEARCH DESIGN AND METHODOLOGY

Introduction

This chapter outlines the general methodology used in the current study including: (i) the demographic characteristics of the participants, (ii) the procedure for gathering the data, (iii) the rationale for collecting data online and from sexually oriented newsgroups, and (iii) the psychological tests used in the study and their psychometric properties.

Demographic Characteristics of the Participants

The final sample was comprised of 1325 participants after 381 cases were removed because of missing data. Participants were excluded for reasons such as not indicating their sex ($n = 62$), reporting that they were less than 18 years of age ($n = 23$), or not adequately completing at least 80% of one or more of the psychometric tests ($n = 319$).

Sex

The final sample was composed of 1211 males (91.4%) and 114 females (8.6%). Given the substantial difference in number of male and female participants, a decision was made to analyse and present the results separately for males and females. The decision to analyse the data separately for males and females was made for two reasons. Firstly, so as to not dilute group differences for women by analysing men and women's data together. Secondly, there is currently a lack of empirical research and published data regarding women's use of the Internet for sexual purposes, and it was therefore hoped that the current research would contribute to this body of scientific literature.

Sexual Orientation

More than 60% of the sample identified as non-heterosexual. Heterosexual participants composed only 39.4% of the total sample, whilst 34.9 % identified as Homosexual (Gay/Lesbian) and the remaining 24.2 % identified as Bisexual. Table 1 shows the breakdown of participants' sexual orientation based on their sex.

Table 1

Sexual Orientation and Sex

Sexual Identity	Males	Females
	%	%
Heterosexual	39.7	43.4
Gay/Lesbian	37.2	16.8
Bisexual	23.1	39.8

n = 1192 (males); *n* = 113 (females)

Differences in Sexual Orientation Based on Participants' Sex

A Chi-square test for independence indicated a significant association between participants' sex and their sexual identity $\chi^2(2, N = 1305) = 24.31, p < .001$, $\phi = .14$. The sample was composed of a similar percentage of heterosexual men and women, however males in the sample were more than twice as likely to be homosexual (gay) than females (lesbian). Female respondents were more almost twice as likely to identify as bisexual compared to men.

Age

Participants ranged in age from 18 years to 80 years ($M = 41.31$ years, $SD = 13.32$). The average age of male and female respondents was significantly different, ($t(135.04) = 8.09, p = .001$), with males ($M = 42.14$ years, $SD = 13.13$) being on average 10 years older than females ($M = 32.36$ years, $SD = 12.09$).

Relationship Status

Approximately one-third (32%) of all participants reported that they were married. A further 23% reported that they were in a committed relationship, 18% were single and dating and a further 27% were single and not dating. Overall,

approximately half of all participants were in a relationship (i.e., married or in a committed relationship). Table 2 shows the breakdown of participants' relationship status based on their sex.

Table 2

Sex and Relationship Status

Relationship Status	Males	Females
	%	%
Married	33.1	21.1
Committed relationship	22.8	24.8
Single dating	17.0	28.3
Single/not dating	27.1	24.8

n = 1211 (males); *n* = 113 (females)

A Chi-square test for independence was performed indicating a significant association between gender and relationship status $\chi^2(3, N = 1318) = 11.59, p < .01$, $\phi = .09$. Men were more likely to be married than women. Women were more likely than men to be single and dating. A similar percentage of men and women were in committed relationships and were single and not dating.

Education Level

The sample was highly educated with three-quarters of the participants (77.1%) having completed or currently completing tertiary study, (18.6%) had completed High School only, and (4.3%) completed less than High School.

Continent/Country of Residence

Approximately half of all participants were from North America (49.9 %), 16.7 % were from Asia, 14.0 % were from Europe, 11.1% were from Australia, 2.1 % were from Africa, 1.4 % was from South America, and 4.6% were from another country not defined in the study. Given that the questionnaire was written only in English, there were a surprising number of participants from countries where English is not the first language.

Procedure

Prior to collecting data, approval to conduct the research was granted by the Swinburne University of Technology Ethics Committee. As a result of the ethical and legal complications when involving minors in a survey related to sexuality, it was decided to restrict participation to adults aged 18 years or older.

Participants completed an online self-report survey titled “*Cybersexual Behaviour*” that was administered in Opinio ®. Opinio software is a commercial web based survey system that enables researchers to produce, analyse and publish online surveys. The questionnaire consisted of an introductory letter that introduced the researcher to the participants and outlined the general aims of the study. The letter described the requirements of the participants, methods to ensure data confidentiality and participants’ right to discontinue at any time. The letter also warned that some of the survey questions were related to activities that are illegal in some countries such as downloading sexually explicit material and that there was a question relating to the participants’ sexual identity. Finally, the letter advised of website support services such as *International Lifeline* should they become distressed during or after completing the questionnaire (see Appendix 4: Introductory Letter). The Cybersexual Behaviour Questionnaire (Appendix 5) was comprised of a number of demographic questions and a selection of psychometric tests theoretically and clinically relevant to OSA.

The electronic survey was regularly posted on more than 100 sexually oriented newsgroups hosted by Google and Yahoo. Internet newsgroups are specialised bulletin message-board systems that provide forums for the discussion of a wide variety of topics. An Internet search revealed thousands of newsgroups covering a broad range of sexually oriented topics, including 12-step programs for cybersex addicts. Individuals can subscribe to and post messages to any group, and also receive electronic messages. To locate relevant cybersex newsgroups, sexually oriented search terms were used including: “Online Romance”, “Swingers”, “BDSM” and “Free sex”. The invitation to participate in the study including the hotlink to the survey is included in the appendices (see Appendix 3).

Completed questionnaires were returned electronically to the University “Opinio” server. Data were then downloaded into the researcher’s database where it

could be accessed only by the researcher. The questionnaire was posted in newsgroups from October 2007 to January 2008. Data from the Opinio server was then exported to Excel where the dataset was screened and errors deleted. The data set was then exported to SPSS for statistical analysis.

Rationale for Collecting Data Online

The decision to collect data via an online questionnaire as opposed to a hardcopy format was made for a number of reasons. Collecting quantitative psychological data via the Internet has become increasingly popular in recent years and there are a number of benefits from using the Internet to collect data on topics such as OSA. Advantages include rapid access to numerous potential respondents and previously hidden populations, participant anonymity, respondent openness and full participation, and reduced research costs (Rhodes, Bowie, & Hergenrather, 2003). Watt (1997) advised that the speed with which a questionnaire can be created, distributed to respondents and then returned is a significant benefit of Internet based research. In addition, data are obtained in electronic form, so statistical analysis programs can be programmed to process standardised questionnaires and return statistical summaries and charts automatically.

The Internet's accessibility, affordability and anonymity (Cooper, 1998), and acceptability (King, 1999) makes it especially attractive for research with hidden or stigmatised groups (Bowen, 2005). Anyone with access to a computer and modem is a potential participant, and respondents may access the research at a time and place convenient to them (Binik, 2001). A large number of participants can be recruited from diverse locations (Cooper, Scherer, & Mathy, 2001). Binik however warned that although it is now possible to easily and economically collect sexual survey data from a very large and geographically dispersed sample, this does not ensure the representativeness of the data. Evidence available to date so far suggests that the data collected in these virtual laboratories seems to parallel data collected in the traditional way (McGraw, Tew, & Williams, 2000).

Recent research by Denscombe (2009) provides reassurance for social science researchers in relation to the use of online surveys in the sense that they do not identify any troubling disparity in item non-completion rates between online and paper and pencil methods of administration. He suggests that online surveys might possibly produce lower item non-response rates than their paper counterparts. Rhodes et al. (2003) advises that computer mediated communications, including electronic mail, the Internet and interactive programs will inevitably play an increasing role in the future of behavioural science research.

Rationale for Collecting Data from Sexually Oriented Newsgroups

Participants in the current study were recruited from sexually oriented online newsgroups as opposed to non-sexually oriented websites. The rationale for obtaining participants from these websites relates to the study's objective of investigating the psychological characteristics and behaviours of individuals who regularly engage in online sexual activity (OSA). It was expected that the study's participants would more heavily engage in OSA than participants in similar online studies due to the fact that they were recruited from sexually oriented websites, and that this methodology would yield a larger sample of participants who were affected by their involvement in the activity. Given the global nature of the Internet, an attempt was made to obtain a large cross-cultural sample of participants who use sexually oriented newsgroups. In addition, due to the sensitive nature of this study, an online study was deemed appropriate because it ensured participant's anonymity.

Materials

The questionnaire consisted of a series of demographic questions and a number of psychometric tests, which measured variables that were argued to be theoretically and clinically relevant to individuals' engagement in OSA.

Demographics Questions

Participants were asked their sex, sexual orientation, age, relationship status, level of education and country of residence. To better understand participants'

involvement in OSA, they were also asked to estimate the average number of hours per week they engaged in OSA, as well as the number of years that they had engaged in OSA. Participants were also asked to rank in order of frequency the type of OSA in which they engaged. The six activities participants were asked to rank included: Downloading erotic images (pictures/videos), Adult chat-rooms, Cybersex web-camera, viewing and sending sexually oriented emails, Cybersex Newsgroups and Multi-User Dungeons (MUDS). For example, if a participant viewed pornographic images most frequently, this item would be ranked first, followed by their second, third and fourth preferences. Finally participants were asked whether they had ever met anyone offline (face to face) who they had first met online. A number of the demographic variables included in this study were chosen to enable comparisons between the findings of this study and those of an earlier online cybersex study by Cooper et al. (2000).

Psychometric Tests Used in the Questionnaire

A selection of psychometric tests was included in the questionnaire which were believed to be theoretically and clinically relevant to individuals' engagement in OSA. The tests were selected on the basis of their psychometric properties, including their reliability and validity for use in an online study, their relevance to clinical work with affected individuals, and whether a psychological variable (e.g., attachment style) had received adequate research interest in the past. The psychological variables investigated included: (1) attachment style, (2) loneliness, (3) Negative Emotional States: depression, anxiety and stress, (4) impulsivity (5) and a range of psychosexual adjustment measures such as sexual-anxiety, sexual-depression, sexual-confidence, sexual-esteem and sexual-motivation.

The tests included in the study included: Internet Sex Screening Test (ISST; Delmonico, 1999); a 16-item version of the Experiences in Close Relationships scale (ECR; Brennan, Clark, & Shaver, 1998); the Depression Anxiety Stress Scale-21 (DASS-21; Lovibond. & Lovibond, 1995); the Loneliness Scale (LS; De Jong Gierveld, 1999); a 19-item version of the Impulsiveness Scale (IS; Eysenck et al.,

1985), and 5 subscales from the Multidimensional Sexuality Questionnaire (MSQ; Snell et al., 1993). The following section describes each of the tests in terms of their clinical application and psychometric properties.

Internet Sex Screening Test (ISST, Delmonico, 1997)

The ISST is a self-administered screening instrument to help individuals determine if their Internet sexual behaviour has become clinically problematic (Delmonico & Miller, 2003). The ISST is a screening test available in the public domain, which makes it a suitable choice for an online study. The ISST utilised three basic criteria developed by Schneider (1994) to assess whether an individual is engaging in compulsive online sexual behaviour. These criteria are: (a) loss of freedom to choose whether to stop or engage in behaviour, (b) significant life consequences as the result of the behaviour, and (c) obsession with the activity. In the current study, the ISST was considered to be main dependent variable.

Individuals taking the ISST are presented with a 25-item test in a true/false format where True = 1 and False = 0. The test assesses individuals' online and offline sexual behaviour as related to their engagement in cybersex, with higher scores indicating more problematic online sexual behaviour. Delmonico (1999) states that scores of 1 to 8 indicate that an individual is in the "Low-Risk" group, and the individual may or may not have a problem with their sexual behaviour on the Internet. Scores of 9 to 18 indicate an individual is "At-risk" of their sexual behaviour interfering with significant areas of their life. Scores of 19 to 25 indicate an individual is at "High-Risk" of their behaviour interfering and jeopardising the social, occupational and educational aspects of their life.

Psychometric Properties of the ISST

In a large online study ($N = 6088$) conducted by Delmonico and Miller (2003b), the psychometric properties of the ISST were investigated. A factor analysis revealed a five-factor solution. The first factor *Online Sexual Compulsivity (OSC)* contained seven items and was considered to be a measure of online sexual problems (e.g., "Internet sex has sometimes interfered with certain aspects of my life"). The second factor containing five items *Online Sexual Behaviour-Social (OSB-S)*, is a measure of the tendency to engage in interpersonal interactions with

others, such as engaging in cybersex in chat rooms had (e.g., “I have participated in sexually related chats”). The third factor containing four items *Online Sexual Behaviour-Isolated (OSB-I)* is a measure of the tendency to engage in solitary online sexual behaviour such as viewing pornography (e.g., “I have masturbated while on the Internet”). The fourth factor containing three items (range 0-3) *Online Sexual Spending (OSS)* is a measure of the tendency to purchase sexual material and/or join sex-related groups or websites (e.g., “I have spent more money for online sexual material than I planned”). The fifth factor containing two items (range 0-2) *Interest in Online Sexual Behaviour (IOSB)*, is a measure of the tendency to use a computer for sexual pursuits such as book-marking sexual sites, (e.g., “I have some sexual sites bookmarked”). Delmonico and Miller (2003b) found that two of the items did not load on any of five factors but they were retained as single item scales because they measured important aspects related to the theory of OSA. The first item measured the tendency to access sexual sites from computers other than the home computer, (“I have accessed sexual sites from other computers besides my home”) and the second single item scale measured the tendency to view illegal material on the Internet (“I have run across illegal sexual material while on the Internet”). In the same online study, Delmonico and Miller (2003a) reported the reliability for the subscales ranged from Cronbach’s alpha 0.86 to 0.51 for scale 5 which had two items.

Experiences in Close Relationship Scale (ECR; Brennan et al., 1998)

The ECR scale is a two-dimensional measure designed to measure the underlying factors of Anxiety and Avoidance. Test-takers are required to rate their characteristic style in close relationships using a 7-point scale ranging from 1 = “Disagree strongly”, 4 = “Neutral/Mixed” to 7 = “Strongly agree”. The ECR scale consists of 36 items, however to reduce test-taking time without significantly affecting the psychometric properties of the scale, the current study used 16 items from the ECR scale (8-items from the Anxiety subscale and 8-items from the Avoidance subscale).

Psychometric Properties of the ECR

During the development of the ECR scale, a factor analysis was conducted by Brennan et al. (1998), which identified two relatively orthogonal dimensions that were labeled *Anxiety* and *Avoidance*. *Attachment anxiety* is defined as involving a fear of interpersonal rejection or abandonment, an excessive need for approval from others, and distress when one's partner is unavailable or unresponsive. *Attachment avoidance* is defined as involving fear of dependence and interpersonal intimacy, an excessive need for self-reliance, and reluctance to self-disclose (Brennan et al.; Wei, et al., 2007). Brennan et al. further conducted two cluster analyses and the initial pattern of clusters revealed four distinct groups. Participants in the "Secure group" scored low on both Avoidance and Anxiety. Those in the "Fearful group" scored high on both Avoidance and Anxiety. Participants in the "Preoccupied group" scored low on Avoidance and high on Anxiety, whilst those in the "Dismissing group" scored high on Avoidance and low on Anxiety. The ECR was reported by Brennan et al. to have a high level of internal consistency in a sample of 1,100 undergraduate students, with coefficient alphas of .91 and .94 for Anxiety and Avoidance subscales, respectively.

Although the ECR appears to be a highly reliable and valid measure that has been widely used to assess adult attachment, the length of the ECR (36 items) can be problematic in some research applications. Wei et al. (2007) raised the concern that if the ECR is used in an Internet survey, the large number of items in the measure may decrease the research compliance rate and participants' motivation in responding to the questionnaire. For this reason, only 16 items from the original ECR were selected from the scale for use in the current study. Research by Wei et al. using 12 items from the original ECR found that the ECR-Short version (ECR-S) also had sound psychometric properties (i.e., internal consistency, test-retest reliability, factor structure, and validity) comparable or equivalent to the original version of the scale. In the current study, a cluster analysis was performed using 16 of the original ECR items. Four distinct clusters emerged from the analysis, which were interpreted to represent each of the four attachment styles described by Brennan et al. The first cluster (Securely attached individuals) contained participants scoring low on both Avoidance and Anxiety. The second cluster (Fearfully attached individuals) contained individuals who scored high on both Avoidance and Anxiety.

The third cluster (Preoccupied individuals) contained individuals that scored low on Avoidance and high on Anxiety. The fourth cluster (Dismissive individuals) contained individuals that scored high on Avoidance and low on Anxiety. Example items from the ECR Anxiety Subscale that were included in this study were: “My desire to be very close sometimes scares people away” and “I worry about being rejected or abandoned”. Example items from the ECR Avoidance Subscale included in this study were: “I prefer not to show people how I feel deep down,” “I try to avoid getting too close to others”.

Depression Anxiety Stress Scale -21 (DASS-21; Lovibond & Lovibond, 1995)

The DASS-21 is a scale designed to measure the negative emotional states of depression, anxiety and stress in an individual’s life over the preceding week. Theoretically, the DASS corresponds with the tripartite model of anxiety and depression (Clark & Watson, 1991). This model suggests that anxiety and depression have shared and unique features. Depression is uniquely characterised by low positive affect and anhedonia, while anxiety has physiological hyperarousal as a unique feature. Depression and anxiety have a non-specific factor of general distress in common. This tripartite view has been supported in a variety of studies, including factor analytic studies, which revealed three separate variables (general distress, anhedonia vs. positive affect, and somatic anxiety (Watson et al., 1995).

Lovibond and Lovibond (1995) report that the Depression Subscale measures aspects of depression including dysphoria, hopelessness, and devaluation of life, self-deprecation, and lack of interest/involvement, anhedonia, and inertia (e.g., I felt that life was meaningless”). The Anxiety Subscale measures aspects of anxiety including autonomic arousal, skeletal muscle effects, situational anxiety, and subjective experience of anxious affect (e.g., “I felt I was close to panic”). The Stress Subscale measures aspects of stress including difficulty relaxing, nervous arousal, easily upset/agitated, irritable/over-reactive, and impatience (e.g., I found it hard to wind down”) (Lovibond & Lovibond, 2004). Each subscale contains seven self-report items. Respondents rate each item on a four-point Likert scale ranging from 0 = “Did not apply to me at all” to 3 = “Applied to me very much, or most of the time”. All items are summed to determine total scores for each of the subscales. Higher

scores correspond to an increased level of depression, anxiety and stress, with subscales having a theoretical range between 0 and 21.

Psychometric Properties of the DASS-21

In a large non-clinical sample ($N = 1,794$), the reliabilities of the DASS-21 were estimated using Cronbach's alpha. The total DASS-21 scale was found to have a Cronbach's Alpha of .88, the Depression Subscale was .82, the Anxiety Subscale was .90, and the Stress Subscale was .93 (Henry & Crawford, 2005).

Multidimensional Sexuality Questionnaire (MSQ; Snell et al., 1993)

Arguably the most comprehensive instrument measuring the broadest range of psychosexual characteristics is the MSQ. The MSQ is a 60-item self-report instrument designed to measure 12 aspects of human sexuality and is comprised of 12 subscales, each with 5 items. Participants rate each item on a 5-point scale ranging from 1 for "not at all like me" to 5 for "very much like me". All items are summed to determine total scores for each of the subscales, with a subscale range of 5-25. Higher scores corresponded to greater amounts of the particular psychosexual tendency such as increased sexual-anxiety.

For the current study, 5 of the 12 MSQ subscales were selected for inclusion based on their theoretical relevance to OSA. The subscales chosen were "Sexual-Esteem," a propensity to assess one's ability to relate sexually with another person in a positive light (e.g., "I am confident of myself as a sexual partner"); "Sexual-Anxiety," the propensity to feel tension, discomfort and anxiety in relation to the sexual aspects of one's life (e.g., "I feel anxious when I think about the sexual aspect of one's life"); "Sexual-Depression," the propensity to feel depressed about the sexual aspects of one's life (e.g., "I feel unhappy about my sexual relationships"); "Sexual-motivation," the desire to be involved in a sexual relationship (e.g., "I am very motivated to be sexually active"); and "Sexual-Satisfaction," the tendency to be satisfied with the sexual aspects of one's life (e.g., "I am very satisfied with my sexual relationships") (Snell et al., 2007). Snell et al. (1993) reported high internal consistency reliability for the 60 item MSQ, with an average Cronbach's alpha coefficient of .85 for their student sample. Cronbach alpha coefficients for the five

selected subscales were: Sexual Esteem = .87, Sexual Anxiety = .83, Sexual Depression = .92, Sexual Motivation = .91, Sexual Satisfaction = .90 (Snell et al., 1993).

The Loneliness Scale (LS; De Jong Gierveld & Van Tilburg, 1999)

The LS is a 6 item self-report scale representing two theoretical components of loneliness, and is based on a cognitive approach to loneliness. The first subscale “Emotional Loneliness” is composed of 3 items which refer to an absence of close intimate relationships, (e.g., “I experience a great sense of loneliness” and “I often feel rejected”). The second subscale “Social Loneliness” is composed of 3 items and refers an individual’s lack of integration into a wider social network, (e.g., “There are people I feel close to.” “There are many people that I can completely trust”) (De Jong Gieveld & Van Tilburg, 2006). Participants were asked to rate their characteristic style in close relationships using a 5 point scale ranging from 1 = “Strongly Agree” to 5 = “Strongly Disagree”. All items are summed to determine total scores for each of the subscales, each with a theoretical range of 3-15. Higher subscale scores corresponded to a high level of perceived social loneliness and emotional loneliness.

Psychometric Properties of the LS

De Jong Gieveld and Van Tilburg (2006) argue that the LS is a reliable and valid measuring instrument for emotional and social loneliness and is suitable for large surveys. In their research, the alpha coefficients for the 6-item loneliness scale varied between .70 and .76 for an adult population, suggesting that the scale is suitably reliable. The reliability co-efficients for the 3-item emotional loneliness subscale varied between 0.67 and 0.74 and the 3-item social loneliness subscale the reliability co-efficient varied between 0.70 and 0.73.

Eysenck Impulsiveness Scale (EIS; Eysenck et al., 1985)

The EIS is a 19 item measure that utilises a “true/false” format where 1 = “True” and 0 = “False”, that measures the cognitive and behavioural domains of impulsivity. Scores range from 0 to 19, with higher scores indicating higher levels of impulsivity. The EIS forms one domain of impulsivity that can be best described as

the tendency to act rashly and without consideration of the consequences (Dawe, et al., 2004). Representative items include “Do you often buy things on impulse?” “Do you usually work quickly, without bothering to check?” The EIS has good internal consistency with an alpha coefficient of 0.84 (Eysenck et al., 1985).

Conclusion

This chapter has outlined the general methodology used in the study. The chapter has reported the demographic characteristics of the participants, a rationale outlining the reasons why an online questionnaire format was used to collect data and why participants were recruited from sexually oriented newsgroups, and lastly the materials used in the study including the psychometric properties of the tests. The next chapter is the first of three chapters discussing the study’s results, which outlines the preliminary data analysis procedures, followed by an initial examination of the data according to participants’ sex. The results for male and female participants are compared across a range of demographic and psychological variables. Where possible, the same study aims and research questions were adopted for both male and female participants. However due to the significantly smaller sample of female participants, it was not statistically appropriate to conduct some of the analyses for the female participants. For example, it was not possible to conduct two-way multivariate analysis of variance (MANOVA) tests using the female sample, and therefore analysis of variance tests (ANOVA) were conducted. Research Aims 1 and 2 and Research Questions 1 to 7 are the same for male and female participants. However the remaining research questions required different statistical analyses for male and female participants to avoid violating the test assumptions.

CHAPTER 5

RESULTS: PRELIMINARY DATA ANALYSES AND COMPARISONS BETWEEN THE FINDINGS FOR MALE AND FEMALE PARTICIPANTS

Introduction

Chapter Five is the first of three chapters discussing the results of this study. This chapter firstly discusses the preliminary data analyses, which includes the data screening procedures, confirmatory factor analyses conducted on relevant psychological scales, and information regarding the internal reliability of the scales. These preliminary analyses are then followed by an examination of the data that compares male and female participants on a number of the study's variables. This chapter addresses the first aim of the study (A1), and the first research question (RQ1). A1 was to compare male and female participants on the study's demographic and psychological variables. These findings are later compared to the findings of similar published studies in the discussion chapter. This chapter addresses RQ1, which asks: How do male and female participants differ on the study's demographic and psychological variables? Chapter 7 then discusses the findings for the male participants according to the study's research aims and research questions, and chapter 8 follow a similar format for the study's female participants.

An initial decision was made to split the data based on participants' sex because there were significantly more males than females in the data (9 to 1 ratio). Given this large discrepancy, differences between males and females may have been concealed if the groups were not separated. Based on prior research (e.g., Cooper et al., 2000; Daneback et al., 2005; Ross & Kauth, 2002), it was also anticipated that the OSA, demographic and psychological characteristics of gay, lesbian and bisexual participants would differ on a number of important variables. To provide a more detailed examination of the data, participants were then grouped according to their sexual orientation.

Preliminary Analyses

Results were analysed using SPSS, Version 17 for Windows statistical package. Scale and subscale scores were calculated for each measure based on the relevant scoring system for that measure.

Data Screening

The mean substitution method was employed for missing data. The imputation method was only relevant for scales where a mean could be calculated for an individual item. If more than 75% of data were present for any one case, missing data were replaced with means, as suggested by Tabachnick and Fidell (1996). The authors advise that means provide a conservative estimate of replacement, because the mean for the distribution does not change, and the researcher is not required to guess the value of the missing data. There were approximately five cases for each of the psychometric scales where this imputation method was applied. No out of range entries were recorded.

Confirmatory Factor Analyses

Confirmatory factor analyses (CFA) were conducted for three of the scales used in the study. The analyses were conducted either because the scale had not been previously used with a sample of individuals who engage in OSA, or to compare the scale's factor structure with prior research using a similar sample of participants. This procedure was only used for scales where the test developer reported an underlying factor structure. The scale's factor structure was then compared with the published findings. CFAs were conducted on the following scales: the Internet Sex Screening Test (ISST; Delmonico, 1997), the Loneliness Scale (LS; De Jong & Van Tilburg, 1999) and the Depression Anxiety Stress-21 (DASS-21; Lovibond & Lovibond, 1995). Prior to performing the analyses, the suitability of the data for factor analysis was assessed. In all cases the Kaiser-Meyer-Olkin value was above .6 and Bartlett's test of Sphericity reached statistical significance, therefore supporting the factorability of the correlation matrix. The factor structure for each of the scales can be found in Appendix C.

Factor Structure of the Internet Sex Screening Test (ISST; Delmonico; 1997)

To investigate the factor structure of the ISST in the present study, the 25 items were subject to a principal components analysis (PCA). The PCA revealed the presence of five components with eigenvalues exceeding 1, explaining a total of 43.12 % of the variance. Previous factor analysis of the ISST (Delmonico & Miller, 2003b) also identified a five-factor solution.

Factor Structure of the Loneliness Scale (LS; De Jong Gierveld, 1995).

The LS was subject to a principal components analysis (PCA). The PCA revealed the presence of two components with eigenvalues exceeding 1. The first component extracted, Social Loneliness explained 50.18 % of the variance and the second component Emotional loneliness explained a further 23.49 % of the variance. The same factor structure was found by the test developers, who advised that “the results of confirmatory factor analysis for each of the test data sets showed model fit, indicating that the emotional and social subscales were two dimensions of the overarching loneliness concept” (De Jong Gierveld & Van Tilburg, 2006, p. 589).

Internal Reliability of Psychometric Tests

Reliability analyses were performed in order to assess the internal reliability of the psychometric tests used in the study. Cronbach’s alpha coefficients were calculated for each scale and subscale and are shown in Table 5.1. Table 5.1 shows the reliability coefficients for all scales and subscales. In each case, the Cronbach’s alpha coefficient was found to be satisfactory, or above .70 as recommended by DeVellis (2003).

Table 5.1

Internal Reliabilities (Cronbach's Alpha) for Study Variables

Scale	Cronbach's Alpha
Internet Sex Screening Test (ISST)	.78
Depression Anxiety Stress Scale-21 (DASS-21)	.96
Depression (subscale)	.93
Anxiety (subscale)	.87
Stress (subscale)	.90
MSQ (sexual-motivation)	.88
MSQ (sexual-anxiety)	.89
MSQ (sexual-depression)	.90
MSQ (sexual-satisfaction)	.91
MSQ (sexual-esteem)	.90
Experiences in Close Relationships (ECR)	.88
ECR (avoidance)	.88
ECR (anxiety)	.88
Eysenck Impulsiveness Scale (19-items EIS)	.90
Loneliness Scale (LS)	.79
LS (emotional loneliness)	.75
LS (Social Loneliness)	.87

N = 1325

Comparisons on the Study Variables for Male and Female Participants

The next section addresses research question 1 (RQ1), which asks, “*How do male and female participants differ on the study's demographic and psychological variables?*” Male and female participants were compared according to: (i) the number of hours per week they engaged in online sexual activity (OSA), (ii) their preferred type of OSA, (iii) the number of years they had engaged in OSA, (iv) their offline meeting behaviour, (v) their scores on the Experiences in Close Relationships scale (ERC), (vi) their scores on the DASS-21, (vii) their scores on

the Loneliness Scale (LS), (ix) their scores on the Impulsivity Scale (IS) and (x) their subscale scores from the Multidimensional Sexuality Questionnaire (MSQ).

(i) Sex Differences in Hours per Week Engaged in OSA

Together male and female participants spent an average of 12.26 ($SD = 13.08$) hours per week engaged in OSA. Time spent engaged in OSA ranged between 0 to 102 hours per week for male participants and 0 to 70 hours per week for female participants. There were however no significant differences between the number of hours men engaged in OSA per week ($M = 12.37$ hours $SD = 12.93$) compared to women ($M = 11.07$ hours, $SD = 14.60$), $t(1304) = 1.00$, $p = .32$.

(ii) Sex Differences in Preferred OSA type

Participants were asked to rank in order of frequency the OSA they engaged in most frequently. Participants were given six sexually oriented online activities to choose from. The activities suggested were intended to encompass the main ways in which people interact sexually online. The activities included: downloading erotic images (photos and video), sending and receiving sexually oriented email, viewing the content of cybersex newsgroups, participating in adult chat-room discussions, engaging in sexually oriented interactive gaming using Multi-User Dungeons (MUDS), and interacting sexually with another person using a web-camera. Results are shown in Table 5.2.

The findings indicated that the majority of male and female participants engaged in multiple types of OSA, and 9 % of males and 13% of females ranked more than one type of OSA equally. A Chi-square test for independence (with Yates Continuity Correction) found a significant difference between participants' sex and their preferred OSA, $\chi^2(6) = 29.66$, $\phi = .17$. The results indicate that men were approximately twice as likely to access erotic images and women were approximately twice as likely to access interactive activities such as adult chat-rooms and sexually oriented emailing.

Table 5.2

OSA Most Frequently Engaged in for Men and Women

OSA Type	Men (<i>n</i> =1007)	Women (<i>n</i> =114)
	%	%
Erotic Images (pictures/video)	59.7	31.1
Adult Chat-room	13.4	24.4
Sexual Emails	7.1	17.7
Web-camera	5.3	6.7
Cybersex News-Groups	4.0	5.6
MUDS	1.7	2.2

(iii) Sex Differences for Years Engaged in OSA

Participants were asked to estimate the number of years that they had engaged in OSA. Table 5.3 shows the years engaged in OSA for men and women. A Chi-square test for independence (with Yates Continuity Correction) found a significant difference between participants' sex and the number of years they had engaged in OSA, $\chi^2 (4) = 30.24$, $\phi = .17$. On average, men had engaged in OSA for longer than women. Forty per cent of women had engaged in OSA for 3 years or less, compared with 23 % of men for this same period. Approximately half of the male sample (49.6 %) had engaged in OSA for 7 years or more compared with women (26.3 %) for this same period of time.

Table 5.3

Years Engaged in OSA for Men and Women

	Men (<i>n</i> = 1207)	Women (<i>n</i> = 114)
	%	%
Less than 12 months	7.5	17.5
1 – 3 years	15.4	22.8
4 – 6 years	27.2	33.3
7 – 10 years	25.1	16.7
10 + years	24.5	9.6

(iv) Sex Differences in Offline Meeting Behaviour

Participants were asked if they had ever met anyone offline (face to face) who they had first met online. To investigate if there was significant difference in meeting offline based on participants' sex a chi-square test for independence was performed. Sixty seven per cent of men and 60 % of women reported that they had met another person offline that they first met online. This difference was not significant, $\chi^2(1) = 1.41, p = .24, \phi = .03$.

(v) Sex Differences on the Internet Sex Screening Test (ISST)

To assess whether participant's OSA had become clinically problematic, participants completed the 25-item Internet Sex Screening Test (ISST). An independent samples t-test found that while men scored higher on the ISST ($M = 13.11, SD = 4.37$) than women ($M = 12.46, SD = 5.27$), this difference was not significant $t(119.88) = 1.24, p = .22$. Delmonico and Miller (2003) advised that scores of 9 to 18 indicate that an individual is "At-Risk" of their sexual behaviour interfering with important areas of their life (i.e., social, occupational and educational). Men and women were both found to have average ISST scores within the At-Risk range.

(vi) Sex Differences in Attachment Style

To investigate the relationship between participants' attachment style and their sex, a chi-square test for independence was conducted. Table 5.4 shows the percentage of male and female participants for each attachment style.

Table 5.4

Sex Differences Based on Attachment Style

Attachment Style	% Men (<i>n</i> = 1211)	% Women (<i>n</i> = 114)
Secure	35.7	31.6
Dismissive	31.6	35.1
Anxious-Ambivalent	19.2	16.7
Fearful	13.5	16.7

N = 1325

The results indicate there was no association between participants' sex and their attachment style, $\chi^2(3) = 2.03$, $p = .56$, $\phi = .04$

(vii) Sex Differences in Negative Emotional States

To investigate the relationship between participants' sex and their negative emotional states, participants completed the Depression Anxiety Stress Scale- 21 (DASS-21; Lovidond & Lovibond, 1995). The DASS-21 provides subscale scores for Depression, Anxiety and Stress. Table 5.5 shows the mean and standard deviation subscale scores for males and females.

Table 5.5

Mean and Standard Deviation DASS-21 Subscales Scores for Men and Women

DASS subscale	Men (<i>n</i> = 1205)		Women (<i>n</i> = 113)		<i>t</i>	<i>df</i> (1316)	η^2
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>			
Depression	4.58	5.54	5.52	5.88	1.70		.002
Anxiety	3.58	4.65	4.74	5.54	2.16		.02*
Stress	5.24	5.17	6.71	5.63	2.87		.03**

N = 1318; * $p < .05$; ** $p < .01$

Three independent-sample *t*-tests were conducted to investigate differences on each of the subscales for men and women. The results indicate that female participants scored higher on all subscales than male participants. Significant differences in the mean scores were found for anxiety and stress. In both cases, the magnitude of the differences was small.

(viii) Sex Differences in Loneliness

To investigate the relationship between participants' sex and their experience of loneliness, participants completed the Loneliness Scale, which provided two measures of loneliness: Emotional loneliness and Social loneliness. Table 5.6 shows the mean and standard deviation loneliness subscale scores for men and women.

Table 5.6

Mean and Standard Deviation Loneliness Subscale Scores for Men and Women

LS subscale	Men (<i>n</i> = 1203)		Women (<i>n</i> = 114)		<i>t</i>	<i>df</i>	η^2
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>			
Emotional Loneliness	7.63	3.21	7.74	3.48	.40	1310	.0001
Social Loneliness	7.97	3.32	8.08	3.43			
<i>N</i> = 1317							

Despite women scoring slightly higher than men on both Emotional Loneliness and Social Loneliness, this difference was not significant for either type of loneliness.

(ix) Sex Differences in Impulsivity

To investigate the relationship between participants' sex and their level of impulsivity, an independent-samples *t*-test was conducted. Women scored significantly higher ($M = 8.68$, $SD = 4.35$) on the measure of impulsivity than men ($M = 7.46$, $SD = 4.09$), $t(1222) = 2.87$, $p < .01$, (two-tailed). The magnitude of the differences in the means however was very small, $\eta^2 = .007$.

(x) Sex Differences on the Measures of Psychosexual Adjustment

Finally, to investigate the relationship between participants' sex and measures of their psychosexual adjustment, participants completed the five subscales from the Multidimensional Sexuality Questionnaire (MSQ; Snell et al., 1993). Table 5.7 shows the mean and standard deviation MSQ subscale scores for men and women.

Table 5.7

Mean and Standard Deviation MSQ Subscales Scores for Men and Women

Subscale	Men (<i>n</i> = 1206)		Women (<i>n</i> = 114)		<i>t</i>	<i>df</i> (1318)	η^2
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>			
Sexual-Esteem	17.66	5.27	19.01	5.22	2.61		.006**
Sexual-Motivation	18.37	5.10	19.01	5.32	.74		.001
Sexual-Anxiety	11.26	5.53	11.56	6.00	2.40		.001
Sexual-Depression	11.14	5.76	11.41	6.03	.51		.001
Sexual-Satisfaction	15.24	5.91	16.64	6.33	1.26		.007*

N = 1320; * *p* < .05; ** *p* < .01

To investigate differences in MSQ subscale scores for men and women, five independent-samples t-test were performed. Despite female participants scoring slightly higher on all subscales than men, a significant difference was only found for sexual-esteem and sexual-satisfaction. In both cases, the magnitude of the differences was small.

Conclusion

This chapter firstly presented the preliminary data analysis procedures conducted prior to analysing the data. Secondly, to address research question 1 (RQ1), a series of analyses were conducted on a number of the study's variables according to participants' sex. Overall, men and women in the sample did not differ greatly on many of the study's variables, however given the comparatively small sample of female participants, significant differences may have emerged with a larger sample of females.

In summary, men and women did not differ significantly in terms of the number of hours they engaged in OSA, and spent an average of 12.26 hours per week engaged in OSA. Men were twice as likely to prefer erotic images (pictures/video) than women, and women were twice as likely to prefer interactive activities such as adult chat-rooms. Men on average had engaged in OSA for more years than women, whilst men and women were equally as likely to have met someone offline that they first met online. Men and women did not differ significantly based on their average ISST score. Both men and women scored within the At-Risk range on the ISST suggesting that their involvement with OSA was at risk of interfering with important areas of their life. Men and women did not differ significantly based on their adult attachment style. Women scored higher than men on anxiety and stress, however they did not differ from men in their depression scores. Men and women also did not differ significantly on both Emotional and Social Loneliness. However women scored significantly higher than men on the Impulsivity Scale. Women also scored significantly higher than males on Sexual-Esteem and Sexual-Satisfaction, but a significant difference was not found for males and females for Sexual-Depression, Sexual-Anxiety and Sexual-Motivation.

Whilst interpreting these results, it should however be noted that more than 60% of the sample identified as non-heterosexual, therefore it is possible that the participants' sexual orientation may also influence scores on these measures. The following chapter, Chapter 7, discusses the findings for the male participants, and analyses are conducted according to male participants' sexual orientation and their ISST Risk-level (Low-Risk, At-Risk, High-Risk). Similar analyses are then repeated in Chapter 8 for the female participants.

CHAPTER 6

RESULTS FOR MALE PARTICIPANTS

Introduction

As stated in the previous chapter, men comprised 91.4% ($N = 1211$) of the study's sample. The size of the male sample enabled direct comparisons to be made across the study variables based on participants' Sexual Orientation (Heterosexual 39%, Gay 37.2% and Bisexual 23.1%). Male participants' Sexual Orientation and Risk-level on the ISST are the main independent variables used in the analyses for this chapter.

Intercorrelations Between Psychological Variables

Prior to conducting the analyses for the male participants, the relationship between the study's psychological variables was investigated for each of the psychological scales. The table in Appendix A shows the intercorrelations for male participants between ISST, Impulsivity, the DASS-21 subscales – (Depression, Anxiety, Stress), Emotional Loneliness, Social Loneliness, Impulsivity, and the MSQ subscales (Sexual-Depression, Sexual-Anxiety, Sexual-Esteem, Sexual-Motivation and Sexual-Satisfaction). To determine the strength of a correlation coefficient, Cohen (1988) advised that an r -value of .01 to .29 indicates a weak strength correlation, an r - value of .30 to .49 indicates a moderate strength correlation, and an r -value of .50 to 1.0 indicates a strong correlation. These guidelines are used for the following analyses.

The intercorrelations table shows a moderate positive correlation between the ISST and Impulsivity and DASS-Stress measures. A weak positive correlation was also found between ISST, Emotional Loneliness, Social Loneliness, DASS-Depression, DASS-Anxiety, Sexual-Motivation, Sexual-Depression, and Sexual-Anxiety. Overall, these results suggested that as male participants' risk increased as measured by the ISST, so did their scores on depression anxiety, stress, impulsivity,

emotional loneliness, social loneliness, sexual-motivation, sexual-depression, and sexual-anxiety. Sexual-esteem was not significantly correlated with the ISST and a weak negative correlation was found between the ISST and sexual-satisfaction. Overall, four variables correlated above .80: DASS-21 Stress and DASS-21 Anxiety = .81, and MSQ-Depression and MSQ-Anxiety = .84. Despite possible concerns with multicollinearity, a theoretical decision was made to retain all of the study's variables. For example, in the case of the DASS-21 subscales, other researchers have also found considerable overlap exists when trying to differentiate anxiety and stress (Lovibond & Lovibond (2004). However given the widespread use of the DASS-21 in research and clinical settings, a decision was made to retain the scale in its current form. The MSQ sexual-depression and sexual-anxiety subscales were also retained as separate scales because the questionnaire has not been previously investigated in the context of OSA.

Study Aim and Research Questions

Study Aim Two (A2)

The results in this chapter address the second study aim (A2): *To investigate how male participants' sexual orientation and Risk-level on the ISST were related to the study's variables.* Research questions 2 to 10 address this study aim. The study psychological variables investigated were: depression, anxiety, stress, emotional loneliness, social loneliness and impulsivity. To investigate group differences according to participants' Sexual Orientation and ISST Risk-level, two-way multivariate analysis of variance (MANOVA) tests were performed. To reduce the likelihood of making a Type 1 Error, Bonferroni adjustments to the alpha level were made to assess statistical significance between groups. Chi-square tests were also conducted to investigate relationships between the study's non-parametric variables, (i.e., participants' Sexual Orientation, ISST Risk-level, adult attachment style and participants' offline meeting behaviour).

Research Questions Relating to the ISST

The first section of this chapter presents the results for the second research question RQ2. *What proportion of male participants was classified at each ISST*

Risk-level? The second section addresses RQ3. *Is there a relationship between the number of hours male participants engaged in OSA and their ISST Risk-level?* The third section addresses RQ4. *How is male participants' Sexual Orientation related to their ISST Risk-level?* The fourth section addresses RQ5. *Is there a relationship between male participants' Sexual Orientation and their likelihood of meeting someone offline that they first met online?*

Research Questions Relating to the Study's Psychological Variables

The fifth section addresses RQ6. *Is male participants' Sexual Orientation related to their adult attachment style?* The sixth section addresses RQ7. *Is male participants' adult attachment style related to their ISST Risk-level?* The seventh section addresses RQM8. *Are male participants' ISST Risk-level and Sexual Orientation related to their levels of depression, anxiety and stress?* The eighth section addresses RQM9. *Is there a relationship between male participants' ISST Risk-level and Sexual Orientation and their levels of impulsivity, emotional loneliness and social loneliness?* The ninth section addresses RQM10. *Is there a relationship between male participants' ISST Risk-level and Sexual Orientation and their scores on a measure of psychosexual adjustment?* Psychosexual adjustment was measured using five subscales from the Multidimensional Sexuality Questionnaire (MSQ; Snell et al., 1993). The subscales were Sexual-Depression, Sexual-Anxiety, Sexual-Esteem, Sexual-Motivation and Sexual-Satisfaction.

ISST Research Questions Results

(i) RQ2. What Proportion of Male Participants was Classified Within Each ISST Risk- level?

To determine the proportion of male participants classified at each Risk-level on the ISST, the scoring guidelines by Delmonico and Miller (2003) were followed classifying participants into one of three Risk-level groups. Participants scoring between 0 – 8 were considered to be at a “Low-Risk” level of their sexual behaviour on the Internet being problematic. Participants scoring 9 – 18 were considered to be “At-Risk” of their sexual behaviour interfering with significant aspects of their lives. Participants scoring 19 – 25 were considered to be at “High-Risk” of their behaviour interfering and jeopardising important areas of their life (social, occupational,

educational). Overall, 12.5% of all male participants were classified as being in the Low-Risk group, 76.4% were classified within the At-Risk group, and 11.1% were classified within the High-Risk group.

Responses to specific items from the ISST also indicate that this study's participants experienced considerable difficulties managing their OSA. For example, approximately 30% of men indicated that they had made promises to themselves to stop using the Internet for sexual purposes, 40% identified that cybersex had interfered with aspects of their life, 28% indicated that when they are unable to access sexual information online they feel anxious, angry or disappointed, and 39% considered themselves to be a "sex addict".

(ii) RQ3. Is there a Relationship Between the Number of Hours Male Participants Engaged in OSA and their ISST Risk-level?

To investigate the relationship between the number of hours male participants engaged in OSA and their ISST Risk-level, a one-way between groups analysis of variance (ANOVA) was conducted. Preliminary assumption testing was conducted which revealed that the homogeneity of variances assumption was violated. In such cases, Pallant (2007) recommends that the table headed Robust Tests of Equality of Means are consulted, and either the Welch or Brown-Forsythe tests are used for interpretation purposes. Mean and standard deviation results are shown in Table 6.1.

Table 6.1

Means and Standard Deviation Results of Hours per Week of OSA Engagement and ISST Risk-level for Male Participants

ISST Risk-level	<i>M</i>	<i>SD</i>	<i>df</i> (2,1135)	<i>F</i>	η^2
Low Risk (<i>n</i> = 142)	6.65	13.29		23.59	.04***
At Risk (<i>n</i> = 872)	12.75	12.15			
High Risk (<i>n</i> = 124)	17.27	16.29			

N = 1138, ****p* < .001

The results indicate that there was a statistically significant difference in the number of hours male participants engaged in OSA based on their ISST Risk-level, with a small effect size of $\eta^2 = .04$. Post-hoc comparisons using Tukey HSD test indicated that there was a statistical difference in the number of hours per week of OSA at each ISST Risk-level. Men ranked in the High-Risk group spent approximately three times as long engaged in OSA than their Low-Risk counterparts, whilst At-Risk men spent approximately twice as many hours engaged in OSA as Low-Risk men.

(iii) *RQ4. Is Male Participants' Sexual Orientation Related to their ISST Risk-level?"*

Participants classified themselves into one of three Sexual Orientation groups (Heterosexual, Gay, Bisexual), and then completed the ISST. Based on their ISST score, they were categorised into one of three ISST Risk-level groups. Table 6.2 shows the percentage of men classified at each ISST Risk-level based on their Sexual Orientation.

Table 6.2

Male ISST Risk-level Based on Sexual Orientation

Sexual Orientation	% Low-Risk	% At-Risk	% High-Risk
Heterosexual	19.2	72.0	8.7
Gay	8.1	81.9	10.0
Bisexual	7.8	75.2	17.1

N = 1136, (Heterosexual *n* = 447, Gay *n* = 431, Bisexual *n* = 258)

To investigate the relationship between male participants' Sexual Orientation and their level of ISST Risk, a chi-square analysis was conducted. The results indicate a significant association between Sexual Orientation and ISST Risk-level $\chi^2(4, N = 1136) = 41.57, p < .001, \phi = .19$. On average, bisexual men were significantly more likely than heterosexual and gay men to be at High-Risk of their

OSA interfering and jeopardising important areas of their social, occupational and educational life. Gay men had a similar likelihood of being classified within the High-Risk group on the ISST as heterosexual men.

(iv) RQ 5. Is there a Relationship Between Male Participants' Sexual Orientation and their Likelihood of Meeting Someone Offline that they First Met Online?

To investigate the relationship between male participants' Sexual Orientation and their offline meeting behaviour, participants indicated if they had met anyone offline that they first met online. The results show that 48.9% of heterosexual males, 82.7% of gay males and 72.6% of bisexual males met another person offline that they had first met online. A Chi-square test for independence found a significant association between male participants' Sexual Orientation and their meeting offline status, $\chi^2(2, N = 1178) = 121.85, p = .001, \phi = .32$. On average, gay and bisexual men were significantly more likely than heterosexual men (34% and 24% respectively) to meet someone offline that they first met online.

Psychological Variables Research Question Results

(v) RQ6. Is Male Participants' Sexual Orientation Related to their Adult Attachment Style?

Based on their response pattern to the items from the Experiences in Close Relationship scale (ERC, Brennan et al., 1998), male participants were grouped into one of four attachment styles (Secure, Dismissive, Anxious-Ambivalent and Fearful). Table 6.3 shows the percentage of participants grouped into each attachment style based on their Sexual Orientation.

Table 6.3

Percentage of Male Participants in Each Adult Attachment Style Based on Sexual Orientation

Attachment Style	% Heterosexual (<i>n</i> = 473)	% Gay (<i>n</i> = 444)	% Bisexual (<i>n</i> = 275)
Secure	35.5	37.4	32.7
Dismissive	35.3	26.4	34.9
Anxious-Ambivalent	16.7	22.5	17.5
Fearful	12.5	13.7	14.9

N = 1211

A Chi-square test for independence found a significant association between male participants' Sexual Orientation and their adult attachment style $\chi^2(6, N = 1211) = 13.17, p < .05, \phi = .11$. The results indicate that a similar proportion of heterosexual, gay and bisexual men had a Secure attachment pattern. Men with a Dismissive attachment style were more likely to be heterosexual or bisexual than gay. A similar proportion of heterosexual, gay and bisexual men were classified as having a Fearful attachment style.

(vi) RQ7. Is Male Participants' Adult Attachment Style Related to their ISST Risk-level?

To investigate the relationship between male participants adult attachment style and their ISST Risk-level a Chi-square test for independence was performed. All assumptions were met. Table 6.4 shows the percentage of men categorised within each attachment style based on their ISST Risk-level.

Table 6.4

Percentage of Male Participants with Each Attachment Style Based on ISST Risk-level

Attachment Style	Secure (<i>n</i> = 410)	Dismissive (<i>n</i> = 360)	Anx-Ambiv (<i>n</i> = 225)	Fearful (<i>n</i> = 157)
% Low-Risk	16.3	13.9	8.4	5.1
% At-Risk	78.8	73.6	82.8	68.2
% High-Risk	4.9	12.5	9.3	26.8

N = 1152

A significant difference in the percentage of males identified within each attachment style was found based on their ISST Risk-level, $\chi^2(6, n = 1152) = 68.48$, $p < .001$, $\phi = .24$. The results indicate that males in the High-Risk group were most likely to have a Fearful attachment style compared to the other attachment styles, whilst males in the Low-Risk group were more likely to have a Secure attachment style. Males classified as being At-Risk has a similar likelihood of being classified into any of the four attachment style groups.

(vii) RQM8. Is Male Participants' ISST Risk-level and Sexual Orientation Related to their Levels of Depression, Anxiety and Stress?

A two-way between groups multivariate analysis of variance (MANOVA) was performed to investigate differences in depression, anxiety and stress scores based on male participants' Sexual Orientation and ISST Risk-level. A two-way MANOVA design was chosen due to the possibility of joint effects between the two independent variables. ISST Risk-level and Sexual Orientation were the independent variables. ISST Risk-level comprised three levels (Low-Risk, At-Risk, High-Risk) and Sexual Orientation comprised three groups (Heterosexual, Gay, Bisexual). The

dependent variables were depression, anxiety and stress from DASS-21 (Lovibond & Lovibond, 1995).

Preliminary assumption testing was conducted to check for normality, linearity, univariate and multivariate outliers, homogeneity of variance-covariance matrices, and multicollinearity. The normality assumption was violated because the three subscales from the DASS-21 (Depression, Anxiety, Stress) were all positively skewed. However a decision was made not to transform these variables given the large sample of male participants. According to Tabachnick and Fidell (2007, p. 251), a sample of at least 20 in each cell should ensure ‘robustness’. The Box’s Test of Equality of Variance Covariance assumption was also violated. Tabachnick and Fidell however warn that Box’s M tends to be too strict when large samples are analysed. As a result, the violation of this assumption was not considered to affect the overall MANOVA results.

Table 6.5 shows the means and standard deviations for the dependent variables based on male participants’ Sexual Orientation and ISST Risk-level.

Table 6.5

Means and Standard Deviations for Depression, Anxiety and Stress Scores Based on Male Sexual Orientation and ISST Risk-level.

ISST Risk-level	Heterosexual (<i>n</i> = 446)		Gay (<i>n</i> = 430)		Bisexual (<i>n</i> = 256)	
<u>Depression</u>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Low-Risk	3.04	3.72	3.01	3.82	4.11	5.13
At-Risk	4.96	5.73	3.26	4.57	4.31	5.28
High-Risk	8.87	7.66	8.44	6.61	8.65	6.48
<u>Anxiety</u>						
Low-Risk	2.39	3.84	2.09	2.54	3.00	4.20
At-Risk	3.59	4.34	2.35	3.55	3.42	4.11
High-Risk	8.43	7.18	6.66	5.62	8.17	6.41
<u>Stress</u>						
Low-Risk	3.74	4.00	3.39	3.36	3.13	3.82
At-Risk	5.63	5.26	3.94	4.44	5.13	4.70

High-Risk	9.45	6.76	9.77	5.80	9.19	6.04
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$N = 1132$, (Low-Risk $n = 140$, At-Risk $n = 866$, High-Risk $n = 126$)

While the overall interaction result was significant $F(6, 1123) = 2.21, p < .01$; Wilk's Lambda = .98; Partial Eta Squared = .008, when the dependent variables (depression, anxiety, stress) were considered separately, the interaction effects for each of the dependent variables was not significant. Depression: $F(4, 1123) = .93, p = .44$; Anxiety: $F(4, 1123), p = .67$; Stress: $F(4, 1123) = 1.26, p = .28$.

When the results for the main effect variables were considered separately, significant differences for both Risk-level and Sexual Orientation were found. Risk-level: $F(6, 1123) = 23.09, p < .001$; Wilks' Lambda = .89; Partial Eta Square = .06. Sexual Orientation: $F(6, 1123) = 2.99, p < .01$; Wilks' Lambda = .98; Partial Eta Squared = .01.

Table 6.6 shows the univariate test results for each of the dependent variables based on participants' ISST Risk-level.

Table 6.6

Depression, Anxiety and Stress Univariate Tests Based on Male ISST Risk-level.

DASS-21 subscale	$df(2, 1123)$	F	$Partial \eta^2$	p
DASS-Depression		42.32	0.07	< .001
DASS-Anxiety		64.56	0.10	< .001
DASS-Stress		55.65	0.09	< .001

$N = 1123$

Univariate tests for depression, anxiety and stress based on male participants' Sexual Orientation were all significant at $p < .001$. For all three subscales, post hoc comparisons using Tukey HSD test show that gay males had significantly lower scores on depression, anxiety and stress than heterosexual or bisexual males.

Bisexual and heterosexual males did not differ significantly on the depression, anxiety and stress scores. (M Depression scores: Heterosexual = 4.93, Gay = 3.75, Bisexual = 5.04); (M Anxiety scores: Heterosexual = 3.77, Gay = 2.73, Bisexual = 4.21); (M Stress scores: Heterosexual = 5.60, Gay = 4.47, Bisexual = 5.68).

Table 6.7 shows the univariate test results for each of the dependent variables based on participants' Sexual Orientation.

Table 6.7

Depression, Anxiety and Stress Univariate Tests Based on Male Sexual Orientation

DASS-21 subscale	$df(2, 1123)$	F	$Partial \ \eta^2$	p
DASS-Depression		1.01	.002	.33
DASS-Anxiety		4.58	.008	.01
DASS-Stress		0.74	.001	.48

$N = 1123$

When the univariate tests were examined individually, only anxiety was significant at $p < .01$ based on male participants' Sexual Orientation.

Post hoc comparisons using the Tukey HSD test show that High-Risk male participants ($M=7.62$) had significantly higher scores on anxiety than Low-Risk ($M=2.39$) and At-Risk ($M=3.05$) male participants. Male participants differed significantly across all three ISST risk levels for stress, with the mean stress score for High-Risk participants ($M=9.46$) significantly higher than for At-Risk participants ($M=4.83$), and At-Risk participants scored significantly higher than Low-Risk participants ($M=3.57$). Likewise male participants differed significantly across all three ISST risk levels for depression, with the mean depression score for High-Risk participants ($M=8.65$) significantly higher than for At-Risk participants ($M=4.12$), and At-Risk participants scored significantly higher than Low-Risk participants ($M=3.17$).

Post hoc comparison tests for Sexual Orientation show that Anxiety scores for gay males were significantly lower than scores for heterosexual and bisexual males. Anxiety scores for heterosexual and bisexual males did not differ significantly (*M* Anxiety scores for heterosexual males: 3.77, gay males: 2.73 and bisexual males: 4.21).

(viii) RQM9. Is there a Relationship Between Participants' ISST Risk-level and Sexual Orientation and their Levels of Impulsivity, Emotional Loneliness and Social Loneliness?

A two-way between groups multivariate analysis of variance (MANOVA) was performed to investigate differences in impulsivity, emotional loneliness and social loneliness scores based on male participants' Sexual Orientation and ISST Risk-level. A two-way MANOVA design was chosen due to the possibility of joint effects between the two independent variables. ISST Risk-level and Sexual Orientation were the independent variables. The dependent variables were Impulsivity and Emotional loneliness and Social loneliness.

Preliminary assumption testing was conducted to check for normality, linearity, univariate and multivariate outliers, homogeneity of variance-covariance matrices, and multicollinearity, with no serious violations noted other than with the homogeneity of variance-covariance assumption. However given the large sample of male participants, it was decided that violating this assumption would not affect the overall MANOVA results.

Table 6.8 shows the means and standard deviations for the dependent variables based on male participants ISST Risk-level and Sexual Orientation.

Table 6.8

Mean and Standard Deviation Impulsivity, Emotional Loneliness and Social Loneliness Scores Based on Male Participants' Sexual Orientation and ISST Risk-level.

	Heterosexual (<i>n</i> = 412)		Gay (<i>n</i> = 410)		Bisexual (<i>n</i> = 239)	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
<u>Impulsivity</u>						
Low-Risk	6.25	3.85	5.30	3.01	6.47	3.24
At-Risk	7.33	3.94	6.47	3.53	7.80	3.57
High-Risk	11.16	5.44	10.03	4.15	10.96	4.72
<u>Emotional Loneliness</u>						
Low-Risk	6.99	2.89	6.52	3.14	6.63	3.18
At-Risk	7.82	3.37	7.19	2.92	7.59	2.98
High-Risk	9.18	3.73	9.85	3.40	9.12	3.49
<u>Social Loneliness</u>						
Low-Risk	7.63	3.24	6.51	3.00	7.53	2.81
At-Risk	8.20	3.35	7.56	3.17	8.42	3.16
High-Risk	8.30	3.65	9.45	3.63	8.67	3.75

N = 1061, (Low-Risk *n* = 136, At-Risk *n* = 806, High-Risk *n* = 119)

The interaction effect for males based on the combined dependent variables was not significant $F(12, 1052) = .78, p = .12$; Wilks' Lambda = .99; Partial Eta Squared = .001. When the results for the two main effects were considered separately, only ISST Risk-level was found to be significant, $F(6, 1052) = 19.98, p < .001$; Wilks' Lambda = .90; Partial Eta Squared = .05. Sexual Orientation was not significant: $F(6, 1052) = 1.68, p = .12$; Wilks' Lambda = .99; Partial Eta Square = .01.

Table 6.9 shows the univariate test results for each of the dependent variables based on participants' ISST Risk-level.

Table 6.9

Impulsivity, Emotional Loneliness and Social Loneliness Univariate Tests Based on Male ISST Risk-level

DASS-21 subscale	<i>df</i> (2, 1052)	<i>F</i>	<i>Partial</i> η^2	<i>p</i>
Impulsivity		51.71	.09	< .001
Emotional Loneliness		22.80	.04	< .001
Social Loneliness		6.19	.01	<.01

N = 1061

Univariate tests for Impulsivity, EL and SL based on male participants' ISST Risk-level were all significant. For all three subscales, post hoc comparisons using Tukey HSD test show that High-Risk male participants had significantly higher scores on Impulsivity, EL and SL than Low-Risk or At-Risk male participants. In each case, Low-Risk and At-Risk male participants did not differ significantly on their Impulsivity, EL and SL scores. (Impulsivity *M* scores: Low-Risk = 6.05, At-Risk = 7.07, High-Risk = 10.71); (EL *M* scores: Low-Risk = 6.83, At-Risk = 7.51, High-Risk = 9.39); (SL *M* scores: Low-Risk = 6.83, At-Risk = 7.51, High-Risk = 9.39).

RQM10. Is there a Relationship Between Male Participants' ISST Risk-level and Sexual Orientation and their Scores on Measures of Psychosocial Adjustment?

A two-way between groups multivariate analysis of variance (MANOVA) was performed to investigate differences in psychosexual adjustment scores based on male participants' ISST Risk-level and Sexual Orientation. A two-way MANOVA design was chosen due to the possibility of joint effects between the two independent variables. ISST Risk-level and Sexual Orientation were the independent variables. The dependent variables were five subscales from the Multidimensional Sexuality

Questionnaire (MSQ; Snell et al., 1993): Sexual-Depression, Sexual-Anxiety, Sexual-Esteem, Sexual-Motivation, Sexual-Satisfaction.

Preliminary assumption testing was conducted to check for normality, linearity, univariate and multivariate outliers, homogeneity of variance-covariance matrices, and multicollinearity, with no serious violations noted other than with the homogeneity of variance-covariance assumption. However given the large sample of male participants, it was decided that violating this assumption would not affect the overall MANOVA results.

Table 6.10 shows the means and standard deviations for the dependent variables based on male participants' ISST Risk-level and Sexual Orientation. Regardless of participants' sexual orientation, scores on Sexual-Depression and Sexual-Anxiety increased as ISST risk-level increased. The relationship was less clear case of Sexual-Esteem, Sexual-Motivation and Sexual-Satisfaction.

The interaction effect for males based on the combined dependent variables was not significant $F(20, 3722) = .99, p = .47$; Wilks' Lambda = .98; Partial Eta Squared = .004. When the results for the two main effects were considered separately, only ISST Risk-level was found to be significant, $F(10, 2244) = 7.91, p < .001$; Wilks' Lambda = .93; Partial Eta Squared = .03. Sexual Orientation was not significant: $F(10, 2244) = 1.23, p = .27$; Wilks' Lambda = .99; Partial Eta Square = .005.

Table 6.10
Means and Standard Deviations for MSQ Subscales Based on Male Participants' Sexual Orientation and ISST Risk-level.

	Heterosexual (<i>n</i> = 446)		Gay (<i>n</i> = 431)		Bisexual (<i>n</i> = 258)	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
<u>Sexual-Depression</u>						
Low-Risk	9.93	5.18	9.83	5.27	8.15	3.20
At-Risk	12.00	6.00	9.64	5.03	11.42	5.90
High-Risk	13.71	6.81	13.91	5.55	14.59	5.73
<u>Sexual-Anxiety</u>						
Low-Risk	10.39	4.80	9.21	4.86	8.80	4.47
At-Risk	12.04	5.50	9.65	4.88	11.45	5.68
High-Risk	14.68	6.22	14.63	5.31	17.78	5.71
<u>Sexual-Esteem</u>						
Low-Risk	17.17	5.20	16.69	4.78	18.45	3.32
At-Risk	17.85	5.29	17.87	4.89	17.71	5.23
High-Risk	16.53	6.96	16.54	5.47	17.58	5.68
<u>Sexual-Motivation</u>						
Low-Risk	17.30	5.79	16.29	5.14	18.02	5.44
At-Risk	19.15	4.72	18.05	4.96	18.94	4.67
High-Risk	17.81	6.09	18.23	5.48	19.14	5.39
<u>Sexual-Satisfaction</u>						
Low-Risk	17.15	5.58	16.40	6.33	16.54	4.24
At-Risk	18.66	4.83	15.74	5.86	15.31	5.77
High-Risk	18.42	5.62	14.04	5.46	14.41	5.92

$N = 1135$, (Low-Risk $n = 140$, At-Risk $n = 869$, High-Risk $n = 126$)

Table 6.11 shows the univariate test results for each of the dependent variables based on participants' ISST Risk-level.

Table 6.11

MSQ Subscale Scores For Univariate Tests Based on Male ISST Risk-level

DASS-21 subscale	$df(2, 1134)$	F	$Partial \eta^2$	p
Sexual-Depression		22.62	.04	< .001
Sexual-Anxiety		32.82	.06	< .001
Sexual-Esteem		1.73	.003	.18
Sexual-Motivation		4.09	.007	.02
Sexual-Satisfaction		3.03	.005	.05

$N = 1061$

When the results from the univariate tests were examined, only Sexual-Depression and Sexual-Anxiety were significant based on male participants' ISST Risk-level. For both Sexual-Depression and Sexual-Anxiety, post hoc comparisons using Tukey HSD test show that High-Risk male participants had significantly higher scores on Sexual-Depression and Sexual-Anxiety than Low-Risk or At-Risk male participants. In each case, Low-Risk and At-Risk male participants did not differ significantly on their Sexual-Depression and Sexual-Anxiety scores. (Sexual-Depression M scores: Low-Risk = 9.56, At-Risk = 10.93, High-Risk = 14.08); (Sexual-Anxiety M scores: Low-Risk = 9.87, At-Risk = 10.94, High-Risk = 14.70).

Conclusion

This chapter presented the results for the study's 1211 male participants who comprised more than 90% of the study's sample. The findings relate to the second research aim (A2) and nine research questions. Chi-square tests were conducted to investigate the relationship between the study's categorical variables, and two-way multivariate analyses of variance (MANOVA) tests were conducted to investigate the effect that male participants' Sexual Orientation and ISST Risk-level had on the study's psychological variables.

In summary, more than three-quarters of the male participants were assessed to be within the At-Risk group on the ISST. Male participants in the High-Risk group spent approximately three times longer engaged in OSA than males in the Low-Risk group. Gay and bisexual males were more likely to be classified within the At-Risk or High-Risk groups than their heterosexual counterparts. Gay and bisexual males were also significantly more likely than heterosexual males to meet someone offline that they first met online.

A significant relationship was found between male participants' sexual orientation and their attachment style. Securely attached males were approximately twice as likely to be heterosexual or gay than bisexual, whilst males in the High-Risk group were most likely to have a Fearful attachment style compared to the other attachment styles. Males in the Low-Risk group were more likely to have a secure attachment style. The results from two-way MANOVA tests indicate that gay males had significantly lower scores on depression, anxiety and stress than heterosexual or bisexual males, whilst bisexual and heterosexual males did not differ significantly on the depression, anxiety and stress scores. Male participants within the High-Risk group also had significantly higher scores on depression, anxiety, stress, impulsivity, emotional loneliness and social loneliness than Low-Risk or At-Risk male participants. In each case, Low-Risk and At-Risk male participants did not differ significantly on these psychological measures. Lastly, the sexual orientation of male participants was not significantly related to their level of impulsivity, emotional loneliness and social loneliness.

The next chapter discusses the results for the study's female participants. Where possible, the same research questions have been adopted as were used for the study's male participants.

CHAPTER 7

RESULTS FOR FEMALE PARTICIPANTS

Introduction

As previously stated, female participants composed 8.6 % ($n= 114$) of the sample in the present study. This chapter discusses the findings for female participants using many of the same research aims and research questions as discussed in the previous chapter for male participants where possible. Given the significantly smaller sample of female participants, it was not possible to conduct two-way multivariate analysis of variances (MANOVA) tests using female participants' Sexual Orientation and ISST Risk-level as the independent variables. A decision was therefore made to conduct a series of analysis of variance (ANOVAs) to separately investigate differences between scores of depression, anxiety, stress, social loneliness, emotional loneliness, impulsivity and psychosexual adjustment characteristics based on participants' Sexual Orientation and Risk-level. Where appropriate, multiple dependent variables were included in the same ANOVA, and significant levels were adjusted to reduce the risk of making a Type 1 Error. Similar to the male sample, a large proportion of the female participants identified as non-heterosexual (Lesbian 17%, Bisexual 40 %), so therefore it was possible to compare the psychological characteristics of female participants according to their sexual orientation.

Intercorrelations Between Psychological Variables

Prior to conducting the analyses for the female participants, the relationship between the study's psychological variables was investigated for each of the psychological scales. Appendix B shows the intercorrelations table between ISST, Impulsivity, DASS-21 Depression, Anxiety, Stress, Emotional Loneliness, Social

Loneliness, Impulsivity, MSQ-Sexual Depression, Sexual Anxiety, Sexual-Esteem, Sexual-Motivation and Sexual-Satisfaction.

The intercorrelations table shows a moderate positive correlation between the study's main dependent variable The Internet Sex Screening Test (ISST; Delmonico, 1997) and Impulsivity and DASS-Anxiety. A moderate positive correlation was found between the ISST and DASS-Depression, DASS-Anxiety, DASS- Stress, Sexual-Depression and MSQ Sexual-Anxiety. A weak positive correlation was found between ISST and Emotional Loneliness, Social Loneliness, and MSQ Sexual-Motivation, MSQ Sexual-Depression, and MSQ Sexual-Anxiety. Overall, these results suggested that as female participants' risk increased on the ISST, so did their scores on depression anxiety, stress, impulsivity, emotional loneliness, social loneliness, sexual-motivation, sexual-depression, and sexual-anxiety. Sexual-Esteem and Sexual-Satisfaction were not significantly correlated with the ISST.

Study Aim and Research Questions

Study Aim Two (A2)

The results in this chapter address the second study aim (A2): *To investigate how female participants' sexual orientation and Risk-level on the ISST were related to the study's variables.* Research questions 2 to 11 address this study aim. The same psychological variables investigated for the study's male participants were also for the female participants, however due to the smaller sample of female participants, multivariate analyses of variance (MANOVA) tests were not performed. Instead a series of analysis of variance (ANOVA) and Chi-square tests were conducted.

Research Questions Relating to the ISST

The first section addresses RQ2. *What proportion of female participants was classified at each ISST Risk-level?* The second section addresses RQ3. *Is there a relationship between the number of hours female participants engaged in OSA and their ISST Risk-level?* The third section addresses RQ4. *Is female participants' Sexual Orientation related to their ISST Risk-level?*

The fourth section addresses RQ 5. *Is there a relationship between female participants' Sexual Orientation and the likelihood that they will meet someone offline that they first met online?*

Research Questions relating to the Study's Psychological Variables

The fifth section addresses RQ6. *Is female participants' Sexual Orientation related to their adult attachment style?* The sixth section addresses RQ7. *Is female participant's adult attachment style related to their ISST Risk-level?* The seventh section addresses RQF8. *Is female participants' ISST Risk-level related to their level of Depression, Anxiety, Stress, Impulsivity, Social Loneliness and Emotional Loneliness?* The eighth section addresses RQF9. *Is there a relationship between female participants' ISST Risk-level and their scores on a measure of psychosocial adjustment?* The five subscales used in the analysis were from the Multidimensional Sexuality Questionnaire (MSQ; Snell et al., 1993) and included: Sexual-Depression, Sexual-Anxiety, Sexual-Esteem, Sexual-Motivation, and Sexual-Satisfaction. The ninth section addresses RQF10. *Is there a relationship between female participants' sexual orientation and their level of depression, anxiety, stress, impulsivity, social loneliness, and emotional loneliness?* The tenth section addresses RQF11. *Is there a relationship between female participants' Sexual Orientation and their scores on a measure of psychosocial adjustment?*

ISST Research Questions Results

(i) RQ2. *What Proportion of Female Participants was Classified within Each ISST Risk-level?*

To determine the proportion of female participants classified at each Risk-level, participants completed the ISST and the scoring guidelines provided by Delmonico and Miller (2003) were followed to classify participants into one of three risk-level groups. Of the female sample, 19% were found to be in the Low-Risk group, 70% were found to be in the At-Risk group and 11% were identified as being in the High-Risk group.

(ii) *RQ3. Is there a Relationship Between the Number of Hours Female Participants Engaged in OSA and their ISST Risk-level?*

To investigate the relationship between the number of hours females engage in OSA and their ISST Risk-level, a one-way between groups analysis of variance (ANOVA) was conducted. Preliminary assumption testing was conducted which revealed that the homogeneity of variances assumption was violated. In such cases, Pallant (2007) recommends that the table headed Robust Tests of Equality of Means are consulted, and either the Welch or Brown-Forsythe tests are used for interpretation purposes. Mean and standard deviation results are shown in Table 7.1.

Table 7.1

Means and Standard Deviation Results of Hours Per Week of OSA Engagement and ISST Risk-level for Female Participants

ISST Risk-level	<i>M</i>	<i>SD</i>	<i>df</i> (2,101)	<i>F</i>	η^2
Low Risk (<i>n</i> = 20)	3.89	5.10		9.90	.08*
At Risk (<i>n</i> = 74)	10.86	14.42			
High Risk (<i>n</i> = 12)	18.58	14.17			

N = 104, **p* < .05

The results indicate that there was a statistically significant difference at the *p* < .05 level in the number of hours female participants engaged in OSA based on participants' ISST Risk-level, with a medium effect size of $\eta^2 = .08$. Post-hoc comparisons using Tukey HSD test indicated that there was a statistical difference in the hours per week of OSA at each ISST Risk-level. Females ranked in the High-Risk group spent approximately five times as many hours engaged in OSA than their Low-Risk counterparts. At-Risk females also spent significantly more time engaged in OSA per week than Low-Risk females.

(iii) *RQ4. Is Female Participants' Sexual Orientation Related to their ISST Risk-level?*

To investigate the relationship between female participants' Sexual Orientation and their ISST Risk-level group, participants classified themselves into one of three Sexual Orientation groups (Heterosexual, Lesbian, Bisexual), and then completed the ISST. Based on their ISST score, participants were categorised into one of three Risk-levels. Table 7.2 shows the percentage of females classified at each Risk-level according to their sexual orientation.

Table 7.2

Female ISST Risk-level Based on Sexual Orientation

ISST Risk-level	% Low Risk	% At-Risk	% High-Risk
Heterosexual	36.4	59.1	4.5
Lesbian	0	82.4	17.6
Bisexual	6.8	77.3	15.9

$N = 105$, (Heterosexual $n = 45$, Lesbian $n = 18$, Bisexual $n = 42$)

A Chi-square test investigating this relationship indicated that there is a significant association between female participants' Sexual Orientation and their ISST-Risk-level $\chi^2(4, n = 105) = 18.89, p < .01, \phi = .24$. The results suggest that lesbian and bisexual women were considerably more likely than heterosexual women to be At-Risk or of High-Risk of their OSA interfering or jeopardising important areas of their social, occupational and educational life.

(iv) RQ 5. Is there a Relationship Between Female Participants' Sexual Orientation and the Likelihood that they will Meet Someone Offline that they First Met Online?

To investigate the relationship between female Sexual Orientation and their offline meeting behaviour, participants were asked to indicate whether they had met anyone offline that they first met online. The results indicate that 57.4 % of heterosexual females, 57.9% of lesbians and 65.9 % of bisexual females met another person offline that they had first met online. A significant association between

Sexual Orientation and meeting offline status was not found for female participants, $\chi^2(2, n=110) = .77, p = .68, \phi = .08$. This result suggests that heterosexual, lesbian and bisexual women were equally as likely to meet someone offline that they first met online.

Research Questions For Psychological Variables

(v) *RQ6. Is Female Participants' Sexual Orientation Related to their Adult Attachment Style?"*

Based on female participants' response pattern to items on the Experiences in Close Relationships scale (ECR; Brennan et al., 1998), participants were grouped into one of four attachment styles (Secure, Dismissive, Anxious-Ambivalent and Fearful). Table 7.3 shows the percentage of female participants classified into each attachment style based on their sexual orientation.

Table 7.3

Attachment Style and Sexual Orientation for Female Participants

Attachment Style	Heterosexual %	Lesbian %	Bisexual %
Secure	30.6	31.6	31.1
Dismissive	34.7	47.4	31.1
Anxious-Ambivalent	18.4	10.5	17.8
Fearful	16.3	10.5	20.0

N = 113 (Heterosexual *n* = 49, Lesbian *n* = 19, Bisexual *n* = 45)

A Chi-square test for independence did not show a significant association between Sexual Orientation and attachment style $\chi^2(6, n=113) = 2.28, p > .05, \phi = .14$.

(vi) *RQ7. Is Female Participants' Attachment Style Related to their ISST Risk-level?*

To investigate the relationship between female participants' attachment style and their ISST Risk-level, a Chi-square test for independence was performed. All assumptions were met. Table 7.4 shows the percentage of women categorised within each adult attachment style based on their ISST Risk-level.

Table 7.4

Percentage of Female Participants at Each ISST Risk-level Based on Attachment Style

Attachment Style	Secure (<i>n</i> = 32)	Dismissive (<i>n</i> = 38)	Anx-Amb (<i>n</i> = 18)	Fearful (<i>n</i> = 18)
% Low-Risk	28.1	18.4	16.7	5.6
% At-Risk	65.6	65.8	77.8	77.8
% High-Risk	6.3	15.8	5.6	16.7

N = 106

A significant difference in the percentage of women identified within each attachment style was not found based on their ISST Risk-level, $\chi^2(6, n = 106) = 6.07, p = .42, \phi = .24$.

(vii) *RQF8. Is there a Relationship Between Female Participants' ISST Risk-level and their Scores on Measures of Depression, Anxiety and Stress, Impulsivity, Social Loneliness and Emotional Loneliness?*

A one-way between groups analysis of variance (ANOVA) was conducted to investigate the relationship between female participants' ISST Risk-level and their level of depression, anxiety and stress, impulsivity, emotional loneliness and social loneliness. ISST Risk-level was the independent variable in the analysis. To increase the interpretability of the results, the results for each scale and subscale are presented in three separate tables. Table 7.5 shows the mean and standard deviation scores for the DASS-21 subscales, and the relevant ANOVA statistics at each ISST

Risk-level. Table 6 shows the mean and standard deviation scores for Emotional Loneliness and Social Loneliness and the relevant ANOVA statistics at each Risk-Level. Table 7 shows the mean and standard deviation scores for impulsivity and the relevant ANOVA statistics at each Risk-level.

Table 7.5

Means and Standard Deviations for DASS-21 Subscales at each ISST Risk-level for Female Participants.

Subscale	<i>M</i>	<i>SD</i>	<i>df</i> (2,102)	<i>F</i>	η^2
<u>Depression</u>					
Low Risk	2.30	3.68		8.78	0.15 ***
At Risk	5.51	5.80			
High Risk	10.82	6.65			
<u>Anxiety</u>					
Low Risk	2.50	3.62		20.45	0.29***
At Risk	3.80	4.83			
High Risk	12.83	6.09			
<u>Stress</u>					
Low Risk	2.80	4.36		13.43	0.21***
At Risk	6.87	5.23			
High Risk	12.58	6.07			

N = 105, **p* < .05, ***p* < .01, ****p* < .001

Results in Table 5 show that scores on depression, anxiety and stress increase as female participants' ISST Risk-level increases. According to the scoring guidelines for the DASS-21 outlined by Lovibond and Lovibond (2004), females ranked within the Low Risk group had depression, anxiety and stress scores within the normal range. Females within the At-Risk group had depression and anxiety

scores within the mild range, and stress scores within the normal range, whilst females ranked within the High Risk group had depression, anxiety and stress scores within the severe range.

There was a statistically significant difference at the $p < .001$ level for each of the DASS-21 subscales (Depression, Anxiety, Stress). For each of the subscales, a large effect size was found, calculated using η^2 . For all three subscales, post-hoc comparisons using Tukey HSD test indicated that there was no statistical difference in depression, anxiety and stress scores when females in the Low-Risk were compared with females in the At-Risk groups. Statistically significant differences were however found in depression, anxiety and stress scores when females in the Low-Risk and At-Risk individuals were compared to females in the High-Risk group.

Table 7.6 shows the mean and standard deviation scores for EL and SL and the relevant ANOVA statistics at each ISST Risk-level.

Table 7.6

Means and Standard Deviations For Loneliness Subscales at Each ISST Risk-level for Female Participants.

Subscale	<i>M</i>	<i>SD</i>	<i>df</i> (2, 103)	<i>F</i>	η^2
<u>Emotional Loneliness</u>					
Low-Risk	5.95	2.48		6.25	.11**
At-Risk	7.74	3.46			
High-Risk	10.25	3.82			
<u>Social Loneliness</u>					
Low-Risk	6.55	2.87		2.51	.05
At-Risk	8.29	3.51			
High-Risk	8.83	3.13			

$N = 1144$, * $p < .05$, ** $p < .01$, *** $p < .001$

Results in Table 6 indicate that as the female participants' ISST Risk-level increased, their EL and SL scores also increased. There was a statistically significant difference at the $p < .01$ level in the case of EL scores across the three ISST Risk-level groups, with a moderate effect size of $\eta^2 = .11$. A statistically significant difference was not found for Social Loneliness. In the case of Emotional Loneliness, post-hoc comparisons using Tukey HSD test indicated that there was a statistical difference in EL scores for Low-Risk and At-Risk female participants when compared to their High-Risk counterparts. A statistical difference was however not found in EL scores when Low-Risk and At-Risk female participants were compared.

Table 7.7 shows the mean and standard deviation scores for impulsivity and the relevant ANOVA statistics at each ISST Risk-level.

Table 7.7

Means and Standard Deviations For Impulsivity at each Risk-Level for Female Participants.

Risk-Level	<i>M</i>	<i>SD</i>	<i>df</i>	<i>F</i>	η^2
Low Risk	5.83	2.68	2, 97	25.23	.35***
At Risk	8.82	3.72			
High Risk	15.00	3.62			

$N = 95$; *** $p < .001$

The results show that as ISST Risk-level increases, scores on the impulsivity measure also increase. In fact, female participants ranked in the High-Risk group had Impulsivity scores that were almost three times higher than that of their Low-Risk counterparts. There was a statistically significant difference at the $p < .001$ level in Impulsivity scores for the 3 ISST Risk-level groups, with a large effect size of $\eta^2 = .35$. Post-hoc comparisons using Tukey HSD test indicated that there was a statistical difference in impulsivity scores when Low-Risk and At-Risk females were compared to their High-Risk counterparts. A statistical difference was however not

found in impulsivity scores when Low-Risk and At-Risk female participants were compared.

(viii) RQF9. Is there a Relationship Between Female Participants' ISST Risk-level and their Scores on Measures of Psychosexual Adjustment?

A one-way between groups analysis of variance (ANOVA) was conducted to investigate the relationship between female participants' ISST Risk-level and their scores on measures of psychosexual adjustment. Five subscales from the Multidimensional Sexuality Questionnaire (MSQ; Snell et al., 1993) were used to investigate this research question, Sexual-Depression, Sexual-Anxiety, Sexual-Esteem, Sexual-Motivation and Sexual-Satisfaction.

Table 7.8 shows the mean and standard deviation scores for each subscale and the corresponding ANOVA. The results suggest that scores on Sexual-Esteem, Sexual Motivation-and Sexual-Satisfaction did not differ significantly for females based on their ISST Risk-level. A statistically significant difference was however found in Sexual-Depression scores between groups at the $p < .01$ level, with a medium effect size of $\eta^2 = 0.09$. A statistically significant difference was also found in Sexual-Anxiety scores across the groups at the $p < .001$ level, with a large effect size of $\eta^2 = 0.14$. To reduce the likelihood of making a Type 1 Error, a Bonferroni adjustment was made, and a more stringent alpha level was set at .01 for comparisons between groups ($0.05 / 5$ subscales = .01). To assess differences in Sexual-Depression scores based on Risk-level, post-hoc comparisons using Tukey HSD were conducted. Sexual-Depression and Sexual-Anxiety scores were significantly higher for High-Risk female participants than for Low-Risk female participants. There was no difference in Sexual-Depression scores for female participants in the At-Risk groups and High-Risk groups. Females in the High-Risk group had Sexual-Anxiety scores that were significantly higher than females in the At-Risk group.

Table 7.8

Means and Standard Deviations for MSQ Subscales at each ISST Risk-Level for Female Participants.

Risk-level	<i>M</i>	<i>SD</i>	<i>df</i> (2,103)	<i>F</i>	η^2
<u>Sexual-Esteem</u>					
Low Risk	18.89	4.35		0.08	0.00
At Risk	18.94	5.60			
High Risk	19.00	5.28			
<u>Sexual-Motivation</u>					
Low Risk	17.18	5.98		1.31	0.02
At Risk	19.38	5.28			
High Risk	19.29	5.50			
<u>Sexual-Satisfaction</u>					
Low Risk	17.95	5.85		0.61	0.01
At Risk	16.12	6.79			
High Risk	16.69	5.44			
<u>Sexual-Depression</u>					
Low Risk	8.46	4.25		4.96	0.09**
At Risk	11.57	6.17			
High Risk	11.38	6.06			
<u>Sexual-Anxiety</u>					
Low Risk	8.21	3.73		8.45	0.14***
At Risk	11.43	6.00			

High Risk	16.63	5.67
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$N =$, $*p < .05$, $**p < .01$, $***p < .001$

(ix) *RQF10. Is there a Relationship Between Female Participants' Sexual Orientation and their Level of Depression, Anxiety and Stress, Impulsivity, Social Loneliness and Emotional Loneliness?*

A one-way between groups analysis of variance (ANOVA) was conducted to investigate the relationship between female participants' Sexual Orientation and their levels of depression, anxiety and stress, impulsivity, Emotional Loneliness and Social Loneliness. Sexual Orientation was the independent variable in the analysis. To increase the interpretability of the results, the results for each scale are presented in three separate tables.

Table 7.9 shows the mean and standard deviation scores for the DASS-21 subscales, and the relevant ANOVA statistics for each Sexual Orientation group. Table 10 shows the mean and standard deviation scores for EL and SL and the relevant ANOVA statistics for each Sexual Orientation group. Table 7.9 shows the mean and standard deviation scores for impulsivity and the relevant ANOVA statistics for each Sexual Orientation group.

Table 7.9

Means and Standard Deviations for DASS-21 Subscales at Each Risk-Level Based on Female Sexual Orientation

Subscale	<i>M</i>	SD	<i>df</i> (2, 109)	<i>F</i>	η^2
<u>Depression</u>					
Heterosexual	6.09	6.43		.38	.001
Lesbian	5.57	6.02			
Bisexual	5.02	5.24			
<u>Anxiety</u>					
Heterosexual	5.02	5.53		.10	.002
Lesbian	4.37	5.88			
Bisexual	4.68	5.55			
<u>Stress</u>					
Heterosexual	6.81	5.78		.16	.003
Lesbian	6.11	5.63			
Bisexual	6.97	5.58			

$N = 112$, $*p < .05$, $**p < .01$, $***p < .001$

The results suggest that there was no relationship between female participants' Sexual Orientation and their level of depression, anxiety and stress.

Table 7.10 shows the mean and standard deviation scores for Emotional Loneliness and Social Loneliness and the relevant ANOVA statistics for each Sexual Orientation group.

Table 7.10

Means and Standard Deviations for Loneliness Subscales Based on Female Participants' Sexual Orientation

Subscale	<i>M</i>	<i>SD</i>	<i>df</i> (2, 103)	<i>F</i>	η^2
<u>Emotional Loneliness</u>					
Heterosexual	7.32	3.30		.85	.01
Lesbian	7.67	2.99			
Bisexual	8.27	3.89			
<u>Social Loneliness</u>					
Heterosexual	8.05	3.62		1.27	.02
Lesbian	7.05	2.46			
Bisexual	8.55	3.57			

N = 113 (Heterosexual *n* = 49, Lesbian *n* = 19, Bisexual *n* = 45).

The results suggest that there was no relationship between female participants' Sexual Orientation and their level of Emotional Loneliness or Social Loneliness.

Table 7.11 shows the mean and standard deviation scores for impulsivity and the relevant ANOVA statistics for each Sexual Orientation group.

Table 7.11

Means and Standard Deviations for Impulsivity Based on Female Participants' Sexual Orientation

Sexual Orientation	<i>M</i>	<i>SD</i>	<i>df</i> (2, 100)	<i>F</i>	η^2
Heterosexual	7.74	4.00		1.98	.04
Lesbian	9.44	5.00			
Bisexual	9.43	4.35			

N = 102; **p* < .05, ***p* < .01, ****p* < .001

The results suggest that there was no relationship between female participants' Sexual Orientation and their level of Emotional Loneliness or Social Loneliness. In summary, Sexual Orientation was not related to female participant's scores on depression, anxiety, stress, emotional loneliness, social loneliness and impulsivity.

(x) RQF11 Is there a Relationship Between Female Participants' Sexual Orientation and their Scores on Measures of Psychosexual Adjustment?

A one-way between groups analysis of variance (ANOVA) was conducted to investigate the relationship between female participants' Sexual Orientation and their scores on the MSQ subscales. Five subscales from the Multidimensional Sexuality Questionnaire (MSQ) were used to investigate this research question, Sexual-Depression, Sexual-Anxiety, Sexual-Esteem, Sexual-Motivation and Sexual-Satisfaction.

Table 7.12 shows the mean and standard deviation scores for each subscale and the corresponding ANOVA.

Table 7.12

Means and Standard Deviations for MSQ Subscale Scores Based on Female Sexual Orientation

Sexual Orientation	<i>M</i>	<i>SD</i>	<i>df</i> (2, 110)	<i>F</i>	η^2	<i>p</i>
<u>Sexual-Depression</u>						
Heterosexual	12.37	6.47		1.06	.02	.35
Lesbian	11.20	5.44				
Bisexual	10.58	5.74				
<u>Sexual-Anxiety</u>						
Heterosexual	11.97	6.14		.42	.01	.56
Lesbian	10.47	5.78				
Bisexual	11.67	6.18				
<u>Sexual-Esteem</u>						
Heterosexual	18.18	5.47		1.73	.03	.18
Lesbian	18.53	5.45				
Bisexual	20.14	4.82				
<u>Sexual-Motivation</u>						
Heterosexual	18.08	5.27		2.16	.04	.12
Lesbian	18.47	5.83				
Bisexual	20.27	5.05				
<u>Sexual-Satisfaction</u>						
Heterosexual	15.93	6.30		1.71	.03	.19
Lesbian	15.22	6.60				
Bisexual	17.92	6.18				

N = 113 (Heterosexual *n* = 49, Lesbian *n* = 19, Bisexual *n* = 45)

The results indicate that there was not a statistically significant relationship between the Sexual Orientation of female participants and their scores on any of the measures of psychosexual adjustment (Sexual-Depression, Sexual-Anxiety, Sexual-Esteem, Sexual Motivation-and Sexual-Satisfaction).

Conclusion

This chapter has presented the results for the 114 female participants who comprise approximately 9% of the study's sample. As previously indicated, it was not statistically appropriate to conduct multivariate analyses of variance (MANOVA) tests to investigate the relationship between female participants' ISST Risk-level and Sexual Orientation due to the small sample size. As a result these relationships were investigated using a series of analysis of variance (ANOVA) tests. In summary, more than two-thirds of the female participants were assessed to be within the At-Risk ISST group, and female participants in the High-Risk group spent approximately five time longer engaged in OSA than females in the Low-Risk group. Lesbian and bisexual females were more likely to be At-Risk or of High-Risk when assessed using the ISST than their heterosexual counterparts, however female Sexual Orientation was not related to offline meeting behaviour.

Female participants' Sexual Orientation was not related to their attachment style. There was also no relationship between female participants' ISST Risk-level and their adult attachment style. As female participants' ISST Risk-level increased, so did their levels of depression, anxiety, stress, emotional loneliness, social loneliness, impulsivity, sexual- depression and sexual-anxiety. Therefore females within the High-Risk ISST group had scores on these measures that were significantly higher than their Low-Risk counterparts. Finally, female participants' Sexual Orientation was not significantly related to their scores on measures for depression, anxiety, stress, emotional loneliness, social loneliness, impulsivity or the five measures of psychosexual adjustment. The next chapter summarises the findings of the study in the context of previous literature. This is followed by the final chapter which overviews the findings, possible research directions, and the possible clinical implications for clinical psychologists working with affected individuals.

CHAPTER 8

DISCUSSION

Introduction

This chapter provides a discussion of the research questions addressed in this study. In addressing these questions, links are also made with the findings of previous research. The first section of the discussion chapter includes a brief summary review of the scientific literature that has examined the demographic and psychological characteristics of individuals who engage in online sexual activity (OSA). The second section addresses each of the study's aims and research questions. Where existing literature was identified, comparisons were made between this study's findings and those from the literature.

Overall, the intention of the current research was to not pathologise the behaviour of individuals who engage in OSA, or criticise such behaviour. As previously indicated, a number of benefits are documented in the literature in regards to the positive attributes of OSA including the capacity for couples to explore new forms of intimacy in their relationships via cybersex in chat-rooms (Young, 2008), educational benefits for isolated and disenfranchised individuals (Cooper, 1998; Griffiths, 2001), and for hidden and stigmatised groups such as the gay, lesbian and bisexual community to explore their sexuality and seek social support (Bowen, 2005). In addition, the majority of individuals who access the Internet for sexual purposes do not report negative consequences with research by Schneider (2000a) suggesting that 6 - 10% of Internet users report concerns about their online sexual activities.

This research instead aimed to provide new findings that are relevant to clinical psychologists working with affected individuals. The current study was also conducted because of widespread concern from members of the general public and

health professionals that involvement in OSA can adversely affect an individual's psychological health and sense of wellbeing and can disrupt important areas of a person's life (e.g., family, employment, education and recreational pursuits). Overall, it is hoped that the findings of this study contribute meaningful new data that may assist clinical psychologists in the assessment and treatment of their clients.

Summary Review of Prior Literature

The body of empirical research on OSA has grown steadily since 1993, and in recent years engagement in OSA has become a routine behaviour for large segments of the population in the Western world (Doring, 2009). Early research by Egan (2000) suggested that as many as one third of Internet users participate in some form of OSA. It is anticipated that this percentage has grown with the Internet's greater availability and affordability and its diverse range of sexually oriented activities, which cater to a wide range of needs and interests. Some forms of OSA tend to be visually oriented (e.g., adult pictures and movies), whilst others activities involve communication and other forms of interaction with others (e.g., online dating, adult chatting, web-camera interactions, discussion forums) (Daneback et al., 2005).

A number of researchers and academics have warned that Internet sexuality is pathological (Durkin & Bryant, 1995; Greenfield & Orzack, 2002; Young, 1997). This perspective is consistent with the medical model in that their conceptualisation of the behaviour focuses on addiction and compulsivity. Greenfield and Orzack warn that the majority of problems associated with OSA revolve around the interface and compromises that the behaviour causes in marital relationships. A more balanced view was offered by Cooper, Putman et al. (1999) who suggested that "Internet sexuality . . . is best viewed as falling along a continuum ranging from normal and life-enhancing forms of sexual expression and explorations, to problematic and pathological expressions" (p.81). Ferree (2003) further clarified our understanding of Internet sexuality by suggesting that the Internet is not a black and white road that leads directly to "Goodville" or "Badtowne". Instead the Internet provides a vehicle for traveling an age-old road of human sexual expression. So therefore our challenge as psychologists may be to assist our clients to identify ways in which OSA can

enhance their lives, and to also warn them about the ways that it can be potentially harmful (Cooper et al., 2002).

Summary of the Findings for Male and Female Participants in Accordance with the Study's Research Aims and Research Questions

The following section briefly summarises the results for each of the study's research aims and research questions. Where possible, the findings of this study are then compared to those of similar studies and relevant theories. As previously discussed, many of the research questions were identical for both male and female participants, however statistical analyses were varied to account for differing sample sizes. As a result, for the female sample the relationships between ISST Risk-level and Sexual Orientation and the study's psychological variables were analysed separately. It should be noted again that the aim of this study was not to obtain a community sample of individuals who engage in OSA. Instead, this study sought to obtain a sample of individuals who may be heavier users of OSA by recruiting participants directly from sexually oriented newsgroups.

RQ1. How do Male and Female Participants Differ on the Study's Demographic Variables?

In line with first study aim (A1) and first research question (RQ1), the demographic characteristics of men and women who engage in OSA were investigated via an online questionnaire. The findings of this study were then compared against those from similar online studies (e.g., Daneback et al., 2005; Cooper, Morahan-Martin et al., 2002; Cooper et al., 2000; Cooper, Scherer et al., 1999). The analyses conducted according to participants' demographic characteristics include: (i) participants' sex, (ii) age, (iii) sexual orientation, (iv) relationship status, (v) country of residence, (vii) level of education, (viii) the number of hours per week participants engaged in OSA, (ix) the number of years

participants had engaged in OSA, (x) participants' preferred OSA type, and (xi) participants' offline meeting behaviour.

(i) Participants' Sex

Results suggest that participants' sex constitutes a variable that distinguishes users of sexually explicit Internet sites (Cooper et al., 1999). Similar to other online studies, the majority of the participants in this study were males (91.4%), although the percentage of males was higher than in other studies (e.g., 86% males in the Cooper et al. (1999) study, and 84% males in the Cooper et al. (2002) study. The higher proportion of men in this study may be accounted for by the fact that participants were recruited from sexually oriented online newsgroups. Delmonico (1997) reported that males more frequently use cybersex newsgroups that tend to cater for specific sexual interests. However more generally, the predominance of men in the sample was not surprising, given that men are the primary consumers of explicit adult material (Byrne & Osland, 2000).

(ii) Age

Participants were on average older in the current study than in similar online studies. Participants ranged in age from 18 years to 80 years, with an average age of 41 years, and males were on average 10 years older than females. Cooper et al.'s (1999) participants were on average 33 years old, with males being 3 years older than females (30 years). Given that participants were older in the current sample, it is possible that cybersex newsgroups tend to attract older males with more specialised sexual preferences. Unlike other studies investigating the online sexual behaviours of participants (e.g., Cooper, Morahan-Martin et al., 2002; Daneback et al., 2005; Lever et al., 2008) the findings of this study were not analysed according to the participants' age. However previous research investigating this relationship suggests that online interests and activity preferences can differ depending on the age group of the participants examined. For example, Daneback et al. (2005) found that younger men and women were more likely to engage in cybersex chat than men and women in the oldest age group (50-65).

(iii) Sexual Orientation

Contrary to the findings of similar online studies, the majority of this study's participants identified as non-heterosexual. It is probable that this difference relates to the sampling methodology chosen in the current study (i.e., participants were exclusively selected from sexually oriented newsgroups). In the current study, gay, lesbian and bisexual participants together comprised approximately 60% of the sample. In similar previous studies, the proportion of heterosexual participants has been considerably greater. For example, Cooper et al. (1999) reported that 87% of their sample identified as heterosexual, 7% as homosexual and 7% as bisexual. Approximately 84% of females and 89% of males identified as heterosexual in the Cooper et al. (2002) study. A considerably smaller percentage, less than 2%, identified as gay, lesbian and bisexual (GLB) in a Swedish online study (Daneback et al., 2005). Given that participants in the current study were recruited from sexually oriented newsgroups, it is possible that GLB individuals more frequently use cybersex newsgroups than their heterosexual counterparts.

In the current study, there were a similar percentage of heterosexual men and women, however 37% of the male sample identified as gay whilst only 17% of the female sample identified as lesbian. Female participants were almost twice as likely to identify as bisexual compared to males. As previously mentioned, the Internet has a number of potentially advantageous characteristics for individuals who identify as non-heterosexual. The Internet provides a venue for groups who would otherwise be concerned about a range of negative consequences associated with expressing their sexuality more freely (Cooper et al., 2000).

It can be seen as a strength of the current study that it sampled a range of less studied GLB individuals, particularly bisexually identified men and women who composed almost one quarter of the sample. Past researchers have often investigated non-heterosexuals' use of the Internet independently from heterosexuals, whereas the data in the current study allows direct comparisons and contrast based on identical questions.

(iv) Relationship Status

In the current study over half (55%) of all participants were currently in a relationship, with one-third (32%) married and 23% in a committed relationship. Of

the single participants (45%), 18% were dating and 27% were not dating. These finding corroborated with the findings of Cooper, Putanam, et al. (1999) who also found that most individuals (64%) who engaged in OSA were either married (47%) or in a committed relationship (17%), and of the single participants (36%) half were dating and half were not.

Daneback et al. (2005) argued that “cybersex”, which they defined as real-time sexually oriented chatting in an adult chat-room, is not primarily a single person’s activity. It is possible that individuals who engage in cybersex may have more liberal views on cybersex as an activity and may not consider the activity a form of infidelity given it does not necessarily lead to offline sexual encounters. Prior research by Schneider (2000; 2003) however warns that this perspective is frequently not shared by the partner in a committed relationship, and partners overwhelmingly felt that cyber-affairs were as emotionally painful as offline affairs. Schneider’s research also found that compulsive online chat was a major factor contributing to separation and divorce.

The level of relationship satisfaction for those married or in committed relationships was not measured in the current study. However according to Lever et al. (2008), the Internet provides immediate access to many new potential partners. In line with this assumption, it is therefore likely that a portion of this study’s participants were “testing the waters” in the hope that they would find a new partner to allow them to transition out of their current relationship. Conversely, it is likely that many of the study’s participants who were in relationships engage in various forms of OSA, including cybersex chat and have no intention of meeting others offline for sexual purposes and do not disclose their online behaviour to their partner.

Relationship status was also investigated in terms of participants’ sex. Overall, males were more likely to be married than females (males: 33%, females: 22%), however there was a similar likelihood of being in a committed relationship for both sexes (males: 23%, females 25%). Similar research findings were also reported by Cooper et al. (2002) in regards to marriage status. They found that males were more likely to be married than females (45% versus 32%), but less likely to be in a committed relationship than females (21% versus 32%). These findings suggest that married men may be more likely than married women to consider their OSA an acceptable behaviour in the context of a marriage. This assumption was made

because more men than women in this study were viewing online pornography as opposed to engaging in cybersex chat, and therefore did not consider their online behaviour as problematic or a form of infidelity.

(v) Continent/Country of Residence

Similar to other online studies, participants from North America were most frequently represented in the sample, comprising half of the total sample. This finding however was not surprising given the size of their populations, and widespread Internet access in North America, with 74% of the population having home Internet access (Internet World Stats, 2009). The remaining half of the sample were from countries outside North America including 17% from Asia, 14.0 % from Europe, 11% from Australia, 2% from Africa, 1% from South America, and 5% 'other'.

At the present time the study's dataset has not been analysed based on participant's country of residence and their online and offline sexual behaviours and psychological characteristics. It is however anticipated that differences in participants' online and offline sexual behaviours (e.g., meeting others offline) would be affected by the cultural and religious aspects of one's country of residence (e.g., attitudes towards homosexuality, pornography, premarital sex etc.). To effectively study the influences of cultural and religious practices on OSA, more specific questions are required due to the complexities of defining relevant affiliations.

(vi) Attachment Style

The relationship between the study participants' sex and their attachment style was investigated and a statistical difference was not found. Overall, approximately 34% of men and women were found to be secure in their attachment style, 33% were dismissive, 18% were anxious-ambivalent, and 15% were fearful. Compared to the findings of Hazan and Shaver (1987) and similar studies, significantly fewer individuals in this study were classified as having a secure attachment style (34% versus 60%). It is therefore possible that individuals who engage OSA are more likely to have an insecure attachment style and experience more psychological distress than individuals who do not engage in the activity.

Hence, an insecure attachment style may predispose individuals to engage in OSA. For example, beliefs such as “I am somewhat uncomfortable getting close to others” held by individuals with a fearful attachment style may predispose these individuals towards seeking intimacy in adult chat-rooms or from multiple partners met offline.

The results of this study regarding attachment style were also in the same direction as those found by Leedes (1999) who investigated the attachment styles of sex addicts. Leedes advised that sex addicts have a significantly higher rate (95%) of insecure attachment styles in their intimate relationships than the 60% found by Hazan and Shaver (1987). Since those with insecure attachment styles are more likely to have problematic relationships (Marchland, 2004), sexual addicts would be expected to be at greater risk for problematic adult romantic relationships due, at least in part, to their insecure attachment styles. Findings discussed later in this chapter also suggest that individuals who were classified within the high-risk group on the Internet Sex Screening Test (ISST) were significantly more likely to have an insecure attachment style compared to individuals within the low-risk group on this measure.

(vii) Education Level

The results of the current study agree with similar online studies that suggest that participants of OSA, or at least those who responded to the questionnaire, are generally tertiary educated (e.g., Cooper, Morahan-Martin, et al., 2002; Cooper et al., 2000; Cooper, Scherer et al., 1999). The sample was well educated with more than three-quarters of the participants (77%) having completed or currently completing tertiary study, 19% had completed high school only, and 4% completed less than high school. It is likely that individuals with a tertiary education have better literacy skills and are more familiar with completing questionnaires than individuals without this level of education. Therefore, individuals without a tertiary education may be less likely to complete an online questionnaire and as a result their engagement in OSA may be underestimated in this type of study. It is also anticipated that tertiary educated individuals have greater access to computers and the Internet compared to individuals with less education.

(viii) Hours Per Week Engaged in OSA

Participants in the current study spent an average of 12.25 hours per week engaged in OSA, which was considerably more than reported in similar studies. Men and women also did not differ significantly in regards to the amount of time the engaged in OSA, which differed from the findings of the Cooper, Morahan-Martin et al. (2002) study which found that males spent twice as much time engaging in OSA as females (2.83 versus 1.39 hours per week). Most participants in the Cooper, Morahan-Martin et al. study engaged in OSA for less than 3 hours per week, and the majority (92%) engaged for less than 11 hours per week. Approximately half of the study's participants half (47%) reported spending less than 1 hour a week, and overall less than 8% engaged in OSA 11 hours or more per week. However given that the Cooper, Morahan-Martin et al. study is approximately 10 years old and the Internet has been in existence for longer and its accessibility has increased, it is likely that the average number of hours individuals engage in OSA has increased. It is however also expected that users of sexually oriented newsgroups are typically heavier consumers of OSA. In addition, given that this study's participants spent an average of 1.5 workdays per week engaged in OSA, it is expected that their offline relationships and psychosocial functioning would be more affected than individuals from similar studies.

(ix) Number of Years Engaged in OSA

On average, males had engaged in OSA for a greater number of years than females. Forty per cent of females had engaged in OSA for 3 years or less, compared with 23% of males for this same period. Half of the male sample (50%) had engaged in OSA for 7 years or more compared with females (26%) for this same period of time. It is possible that males had engaged in OSA for more years than females because the male participants were on average 10 years older than female participants. In addition, due to the nature of tolerance as conceptualised in the addiction literature, it is expected that individuals who engaged in OSA for a longer period of time would also engage in OSA more heavily. It is possible that long-term users would also have greater knowledge in regards to how to use the Internet for sexual purposes and perhaps rely more heavily on their online relationships compared to those who have engaged in OSA for fewer years. Based on a review of the literature, this variable has received minimal research attention.

(x) Preferred OSA Type

The results indicated that the majority of men and women engaged in multiple types of OSA. In line with prior research, men were twice as likely to prefer erotic images (60% males to 31% females), and women were twice as likely to prefer interactive activities such as adult chat-rooms (24% females to 13% males) and sexually oriented emailing (18% females to 7% males). Results from the Cooper et al. (1999) study also suggested strong sex differences for preferred OSA, with men preferring websites featuring visual erotica (50% men to 23% women), and women preferring chat-rooms (49% females to 23% males). They further suggested that women seemed to be less intrigued by visual stimuli and preferred more online interaction with others and focused on developing relationships. Ferree (2002) was of the opinion that women are more likely to want romance to develop from their online sexual activities, and the 'love' or 'relationship addict' is the most typical presentation for women. This pattern translates to the Internet whereby women strongly prefer chat-rooms where they can 'relate', as opposed to solitary activities like accessing pornography. A comparative study of male and female sex addicts, also found that male sex addicts were significantly more likely than female addicts to objectify sex partners by viewing pornography, and through voyeurism and anonymous sex (Carnes et al., 1991).

(xi) Offline Meeting Behaviour

The findings indicate that men were no more likely than women to have met a person offline that they first met online (67% versus 60%). Prior literature investigating this behaviour for men and women was not identified. Unfortunately in the current study, the specific purpose for meeting another person offline was not identified. It is possible that women were predominantly meeting others for the purpose of dating and relationship building, whilst men may be meeting others predominantly for sexual purposes. However, given that approximately two-thirds of all participants met another person offline that they first met online, psychologists are encouraged to routinely ask all clients about their offline meeting behavior. Currently most research investigates this variable according to participants' sexual orientation, which is discussed below under Research Question 5 (RQ5).

RQ2. What Proportion of Participants was Classified at each ISST Risk-level?

A similar proportion of men and women were classified within each ISST Risk-level group, therefore participants' sex appears to be unrelated to their level of risk on the ISST. Low-Risk group: (males 16 % versus 19 % females), At-Risk (males 76% versus 70 % females) and High-Risk (males 11 % versus 11 % females). The results indicated that the majority of participants were At-Risk of their sexual online behaviour affecting significant aspects of their lives. This pattern may however be different if there were a greater proportion of female participants in the study.

Research by Cooper et al. (2000) suggests that women tend to have more problems with online sexual compulsion than men. Cooper et al. proposed that if women are thought of as a sexually disenfranchised population, similar to homosexual and bisexual individuals, the Internet may offer women freedom from the constraints placed on their sexual expression by community standards and expectations regarding its "proper role" in their life. The authors suggested that freedom "cuts both ways", and carries with it an increased risk for the development of problematic online sexual behaviours.

RQ3. Is there a Relationship Between the Number of Hours Participants Engaged in OSA and their ISST Risk-level?

As the number of hours male and female participants engaged in OSA per week increased, so did their ISST Risk-level. Male participants categorised in the High-Risk group spent approximately 3 times longer engaged in OSA per week than Low-Risk males (6.65 hours versus 17.27 hours), whilst females in the High-Risk group engaged in OSA for approximately 5 times longer than their Low-Risk counterparts (3.89 hours versus 18.58 hours). These results suggest that spending more time engaged in OSA is a risk factor for developing a range of psychosocial problems for the user (i.e., relationship conflict, problems at work and with study). Research by Cooper, Scherer et al. also speculated about the number of hours spent engaging in OSA and at what point 'frequency' becomes a concern. They concluded that participants who spent 11 hours per week or more engaged in OSA experienced considerably more negative life consequences (e.g., social, occupational,

educational) than participants who engaged for less than 11 hours per week. A review of the literature identified no previous published findings on the relationship between ISST Risk-level and time engaged in OSA.

RQ4. How is Participants' Sexual Orientation Related to their ISST Risk-level?

A similar relationship between sexual orientation and ISST Risk-level was found for male and female participants. On average, bisexual men were significantly more likely than heterosexual and gay men to be classified in the High-Risk group. Gay and heterosexual men had a similar likelihood of being classified within the High-Risk group on the ISST. In the case of the female participants, lesbian and bisexual women were significantly more likely than heterosexual women to be classified within the High-Risk group. Overall, heterosexual men and women were significantly more likely than gay/lesbian and bisexual participants to be classified in the Low-Risk group.

Cooper et al. (2000) found that bisexual and gay and lesbian individuals also tend to exhibit more compulsive OSA than their heterosexual counterparts, and argued that bisexual and gay individuals tend to use the Internet more often than their heterosexual counterparts for experimentation and the expression of a variety of sexual behaviours. This supports the argument that homosexuals and bisexuals (as well as other socially disenfranchised groups) may be at greater risk of developing compulsive OSA (Cooper et al., 2000). It is however possible that as gay, lesbian and bisexual (GLB) individuals transition through the “coming out process” and form offline relationships, their OSA may reduce in frequency, and their behaviour may become less impulsive and impact less on their lives. It is anticipated that future analysis of the data will find that younger GLB individuals engage in OSA more frequently than older GLB individuals.

RQ5. Is there a Relationship Between Participants' Sexual Orientation and their Likelihood of Meeting Someone Offline that they First Met Online?

The results from the current study were consistent with previous research that suggests that gay and bisexual men are more likely than heterosexual men to have met someone offline that they first met online, (Gay: 83%, Bisexual: 73%, Heterosexual: 49%). A significant association between sexual orientation and offline

meeting behaviour was not found for female participants, suggesting that heterosexual, lesbian and bisexual women were equally as likely to meet someone offline that they first met online. It is however possible that a significant difference would have been found in a larger sample of female participants given that bisexual females were 7% more likely to meet offline than heterosexual and lesbian counterparts.

For males, the current study's finding is well supported by prior research showing men who have sex with men frequently find their partners online (Cooper et al., 2000; Ross, & Kauth, 2002). Prior research also suggests that gay men tend to have increased sexual activity compared to heterosexual males (Ross & Kauth). It is possible that gay and bisexual men have more liberal attitudes towards casual sex via the Internet and this translates to a greater likelihood of meeting offline than their heterosexual counterparts. Men meeting other men for sexual purposes offline may also feel safer and men may perceive there to be less risk of personal harm than women assessing this risk.

An investigation by Lever et al. (2008) of over 15,000 individuals who responded to an online survey about their use of Internet personal advertisements and adult websites, found that gay men, lesbians, and bisexual men and women were more likely to have exchanged correspondence, met offline, and had sex with someone they met online than their heterosexual counterparts. The study found that gay men and lesbians of all ages were more likely to have established a long-term relationship as a result of personals advertisements than their heterosexual counterparts. Compared to heterosexual men, a larger proportion of both gay and bisexual men indicated that online personal advertisements resulted in more sexual encounters, and a similar pattern was also found for lesbians and bisexual women compared to their heterosexual counterparts.

RQ6. Is there a Relationship Between Participants' Sexual Orientation and their Adult Attachment Style?

For male participants, a significant association between sexual orientation and attachment style was found. A similar proportion of all participants were classified as being Securely attached. Dismissive males were more likely to be heterosexual or bisexual than gay. A similar proportion of heterosexual, gay and

bisexual men were identified within the Anxious-Ambivalent and Fearful attachment groups. A significant association between sexual orientation and female participants was not found. Given these mixed findings, psychologists are encouraged not to make assumptions regarding the attachment styles of their clients based on their sexual orientation.

Research by Ridge and Feeney (1998) found that the proportion of gay and lesbian university students classified according to attachment style was similar to that of their heterosexual counterparts. Their research also found that an insecure attachment style was not over-represented in the gay and lesbian community, but instead insecure attachment was associated with gay and lesbian participants experiencing less relationship satisfaction and greater difficulty disclosing their sexual orientation.

RQ7. Is Participants' Attachment Style Related to their ISST Risk-level?

A significant association between attachment style and ISST Risk-level was found for male participants, but not for female participants. High-Risk males were most likely to have a Fearful attachment style compared to the other attachment styles, and scored high in both relationship anxiety and relationship avoidance. Males in the Low-Risk group were more likely to have a Secure attachment style than any of the other attachment styles. Low-Risk males scored low in both relationship anxiety and relationship avoidance.

Given that one's attachment style is believed to develop in early life, prior to one engaging in OSA, it is possible that having an insecure attachment style places individuals at greater risk of developing a compulsive and dysfunctional pattern of online sexual behaviour. This prediction was partially based on research by Leedes (1999) who found that 95% of sex addicts studied were insecurely attached in their intimate relationships. Leedes' theory regarding sexual addiction and attachment style argued that sex addictions occur based on two emotional dispositions related to an individual's attachment style: one toward fantasy and the other towards interpersonal relationships. Leedes found that as a person's comfort in interpersonal relationships increased, there was a diminishing effect on the negative influence of his objectified fantasies. In other words, individuals who are securely attached were believed to be more comfortable with interpersonal relationships and those who are

insecurely attached were believed to rely on fantasy as a surrogate means to establish a sense of security. In the context of OSA, it is possible that insecurely attached individuals are drawn to the Internet for sexual purposes because of their greater reliance on sexual fantasy and experience more difficulties maintaining intimate relationships offline. A review of the literature identified no published research examining the relationship between an individual's attachment style and their engagement in OSA.

RQM8. Is Male Participants' ISST Risk-Level and Sexual Orientation Related to their Levels of Depression, Anxiety and Stress?

The results from the two-way multivariate analysis of variance (MANOVA) show that there are significant differences in male participants' depression, anxiety and stress scores based on their ISST Risk-level and sexual orientation. Gay men had significantly lower scores on depression, anxiety and stress than heterosexual or bisexual men, however bisexual and heterosexual men did not differ significantly on these scores. It may be the case that gay men are more likely to be using the Internet for the purpose of sexual exploration, sexual gratification and to meet others offline for sexual purposes as opposed to using the Internet to manage their mood compared to their heterosexual and bisexual counterparts.

In addition, High-Risk men had significantly higher scores on depression, anxiety and stress than Low-Risk or At-Risk men. In each case, Low-Risk and At-Risk men did not differ significantly on their depression, anxiety and stress scores. It is unknown if men with high levels of preexisting depression, anxiety and stress are at increased risk of engaging in problematic OSA and subsequently being classified in the High-Risk group, or whether the increased psychosocial problems found in individuals within the High-Risk group leads to higher levels of depression, anxiety and stress.

RQF8. Is Female Participants' ISST Risk-level Related to their level of Depression, Anxiety and Stress, Impulsivity, Social Loneliness and Emotional Loneliness?

The findings show that females ranked within the High-Risk group on the

ISST had significantly higher scores on depression, anxiety, stress, emotional loneliness, social loneliness and impulsivity than their female counterparts in the Low-Risk group. Once more, a causal relationship between the women's levels of depression, anxiety and stress and their risk-level on the ISST cannot be established with the current research design. The results for both male and female participants agree with prior research that suggests that heavy users of the Internet including compulsive cybersex consumers are typically depressed (Cooper, Scherer et al., 1999) or stressed (Black et al., 1997). Prior research also suggests that engagement in OSA is positively correlated with increased levels of depression, anxiety and stress (Black et al.; Cooper, Putman et al., 1999; Young, 2004).

Given that impulsivity can be conceptualised as an enduring personality trait found in the non-psychiatric population (Lansbergen, Schutter & Kenemans; 2007), and the fact that we all engage in impulsive acts from time to time, the term is understood to reflect a continuum of a personality feature or trait (Dawe & Loxton; 2004). The results suggest that high levels of impulsivity increase women's risk for developing problematic online sexual behaviour, and subsequently a greater number of psychosocial problems.

A statistically significant difference however was not found between Risk-Level groups according to women's scores on social loneliness. It is therefore possible that one of the reasons women engage in OSA, particularly cybersex chat, relates to their experience of emotional loneliness. For these women their social needs may be adequately met by their offline relationships, however they may experience an absence of close intimate relationships leading to the experience of emotional loneliness. Similar to depression, anxiety and stress, it is unknown if women already experiencing high levels of emotional loneliness are more likely to engage in OSA and develop more problems associated with their behaviour. It is also possible that women engaging frequently in OSA may invest less time developing emotional intimacy in existing and new relationships, leading to an increased sense of emotional loneliness.

RQM9. Is there a Relationship Between Male Participants' ISST Risk-level and Sexual Orientation and their Levels of Impulsivity, Emotional Loneliness and Social Loneliness?

A two-way between groups multivariate analysis of variance (MANOVA) was performed to investigate differences in impulsivity, emotional loneliness and social loneliness scores based on male participants' sexual orientation and ISST Risk-level. The results showed that male participants' sexual orientation was not significantly related to their scores on impulsivity, emotional loneliness and social loneliness. This finding also suggests that the significantly higher level of offline meeting behaviour observed for gay and bisexual men may relate to more liberal attitudes towards casual sexual encounters as opposed to higher levels of impulsivity and increased loneliness.

A significant relationship was however identified based on participants' ISST Risk-level. High-Risk males had significantly higher scores on impulsivity, emotional loneliness and social loneliness than Low-Risk or At-Risk males. It is therefore possible that higher levels of impulsiveness and the experience of social and emotional loneliness increase men's risk of developing a problematic online sexual behaviour.

RQM10. Is there a Relationship Between Male Participants' ISST Risk-level and Sexual Orientation and their Scores on a Measure of Psychosocial Adjustment?

A two-way between groups multivariate analysis of variance (MANOVA) was performed to investigate differences in psychosexual adjustment scores based on male participants' sexual orientation and ISST Risk-level. The results showed that men's sexual orientation was not significantly related to their psychosexual adjustment scores. This suggests that men of all sexual orientations who engage in OSA experience a similar level of Sexual-Depression, Sexual-Anxiety, Sexual-Motivation, Sexual-Esteem, and Sexual-Satisfaction and that identifying as non-heterosexual does not predispose gay and bisexual men to psychosexual adjustment problems.

A significant relationship was however identified based on Participants' ISST Risk-level. Post hoc comparisons showed that only Sexual-Depression and Sexual-Anxiety were related to participants' ISST Risk-level. High-Risk males had Sexual-

Depression and Sexual-Anxiety scores that were significantly higher than Low-Risk or At-Risk males, whilst the scores for Low-Risk and At-Risk male participants did not differ significantly. Similar to the findings for female participants, the propensity to feel tension, discomfort and anxiety in relation to the sexual aspects of one's life (Sexual-Anxiety) and feeling depressed about the sexual aspects of one's life (Sexual-Depression) is related to a more pathological pattern of OSA engagement as found in the High-Risk group.

RQF9. Is there a Relationship Between Female Participants' ISST Risk-level and their Scores on a Measure of Psychosexual Adjustment?

The one-way between groups analysis of variance (ANOVA) showed that scores on Sexual-Esteem, Sexual Motivation-and Sexual-Satisfaction did not differ significantly for females based on their ISST Risk-level. Similar to the findings for men, the sexual orientations of women who identify as lesbian and bisexual does not predispose these women to psychosexual adjustment problems.

Sexual-Depression and Sexual-Anxiety scores were however significantly higher for female participants ranked in the High-Risk group as compared with Low-Risk female participants. Similar to the findings for men, the propensity to feel tension, discomfort and anxiety in relation to the sexual aspects of one's life (Sexual-Anxiety) and feeling depressed about the sexual aspects of one's life (Sexual-Depression) is related to a more pathological pattern of OSA engagement as found in the High-Risk group. A review of the literature however identified no published research on how psychosexual characteristics influence an individual's involvement in OSA.

RQF10. Is there a Relationship Between Female Participants' Sexual Orientation and their Level of Depression, Anxiety and Stress, Impulsivity, Social Loneliness and Emotional Loneliness?

The results from a one-way between groups analysis of variance (ANOVA) found no relationship between female participants' sexual orientation and their levels of depression, anxiety and stress, impulsivity, emotional loneliness and social loneliness. These findings differed from the male sample, which found that heterosexual and bisexual men had significantly higher scores on depression, anxiety

and stress than gay males, however similar to females, their scores on impulsivity, emotional loneliness and social loneliness did not differ significantly based on their sexual orientation. Psychologists are therefore encouraged not assume that psychopathology (i.e., depression, anxiety, stress, impulsivity) in lesbian or bisexual woman who present with problematic online sexual behaviour is the result of adjustment difficulties associated with their sexual orientation (e.g., internalised homophobia). Women's problematic engagement in activities such as cybersex may instead reflect the preference of all women to interact socially with others and form offline relationships.

RQF11. Is there a Relationship Between Female Participants' Sexual Orientation and their Scores on a Measure of Psychosocial Adjustment?

There was no relationship between female participants' sexual orientation and their scores on the Multidimensional Sexuality Questionnaire. This suggests that females did not differ on Sexual-Depression, Sexual-Anxiety, Sexual-Motivation, Sexual-Esteem, and Sexual-Satisfaction based on their sexual orientation. As found for the male participants, identifying as non-heterosexual does not predispose lesbian and bisexual women to psychosexual adjustment problems.

Conclusion

This chapter compared and contrasted the research findings for the study's male and female participants. Overall, scoring higher on the ISST was associated with spending more time engaged in OSA, higher scores on depression, anxiety stress, loneliness, impulsivity and certain measures of psychosexual adjustment. An individual's sexual orientation and adult attachment style were also related to patterns of OSA, however these relationships were not always the same for male and female participants. In addressing the study's research questions, links were made to the findings of previous research. Overall, men and women's ISST risk-level was a more important variable in understanding differences in psychopathology and

psychological traits than the participant's sexual orientation. The final chapter discusses the study's methodological concerns, and possible implications of the study including treatment issues for clinical psychologist working with affected individuals. The chapter concludes with a discussion about future research directions.

CHAPTER 9

METHODOLOGICAL CONCERNS, IMPLICATIONS OF THE CURRENT STUDY AND FUTURE RESEARCH DIRECTIONS.

Introduction

The final chapter makes concluding comments about the study's main variable, the Internet Sex Screening Test (ISST; Delmonico, 1997), the study's methodology concerns, and possible implications of the study including treatment issues for clinical psychologist working with affected individuals. The development of an online treatment program (e-therapy) for affected individuals is proposed, and recommendations are made regarding disseminating online psycho-education material about the warning signs for online sexual addiction. As previously stated, it should be remembered that this study predominantly focused on the problematic aspects of Internet sexuality, therefore the positive attributes and benefits of Internet sexuality has received little attention in both the literature review and in the focus of the research. It is therefore arguable that there are many individuals whose lives are enhanced by their involvement in the activity. The chapter concludes with a discussion about future research directions.

Concluding Comments on the ISST

Compared to the findings of similar studies, a greater proportion of participants in this study exhibited a problematic pattern of online sexual behaviour based on their scores on the ISST. Overall, approximately 13% of participants were assessed as being Low-Risk, 76% were in the At-Risk group and the remaining 11% were in the High-Risk group. According to Schneider's (1994) criteria, these At-

Risk individuals risk (a) losing the freedom to choose whether to stop or engage in OSA, (b) experience significant life consequences as the result of their behaviour, and (c) experience obsession with the activity. It was therefore expected that a significant proportion of participants in this study were experiencing negative life consequences associated with their OSA. This assumption was also based on the fact that participants in this study spent on average more than 12 hours per week engaged in OSA and High-risk users spent approximately 18 hours per week. The positive correlation between hours of OSA per week and depression, anxiety, stress, impulsivity and emotional and social loneliness further suggests a high level of distress amongst many of the study's participants (see Appendix A and B for Correlation Tables for Males and Females).

Past research consistently suggests that the majority of Internet users engage in sexual pursuits in ways that do not lead to difficulties in their lives (Cooper, Scherer, et al., 1999; Schneider, 2003). At the same time, a small but significant minority finds that OSA creates serious problems in their lives (Goodson et al., 2001) including recreational problems and Internet abuse (Greenfield, 1999; Morahan-Martin & Schumacher, 2000).

Contrary to the findings of this study, research by Cooper et al. (2000) found that approximately 80% of individuals report no significant life consequences as the result of their OSA, whilst only 20% were identified as either at-risk for developing problems, or reported feeling "out of control" with their OSA. To date, most studies have recruited participants from non-sexually oriented websites (e.g., Cooper et al., 2000; Cooper, Morahan-Martin et al., 2002; Daneback et al., 2005). Participants in the current study were however recruited from sexually oriented newsgroups. Given this fundamental difference in recruitment methods, participants in this study were found to engage more heavily in OSA, and results suggest that for a number of participants, their behaviour had become clinically problematic. This conclusion is based on the fact that more than 85% of this study's participants were assessed as being At-Risk or High-Risk on the ISST. Responses to specific items from the ISST also indicate that this study's participants experienced considerable difficulties managing their OSA. For example, 30% of men and women indicated that they had made promises to themselves to stop using the Internet for sexual purposes, 40% identified that cybersex had interfered with aspects of their life, 28% indicated that

when they are unable to access sexual information online they feel anxious, angry or disappointed, and 39% considered themselves to be a “sex addict”. Despite these findings, it is unknown if these factors increase an individual’s likelihood of voluntarily presenting for psychological treatment.

Methodological Issues

Results of the present study have theoretical and clinical implications relating to the assessment and treatment of individuals presenting with concerns associated with their OSA. However first it should be remembered that the sample investigated was not a representative community sample and this limits the generalisability of the study’s findings. Despite this important consideration, a strength of this study is that the sample contained a large proportion of non-heterosexual participants and heavier users of OSA. It is possible that the sample may provide a more accurate clinical profile of users than previous studies. For example, it also would appear that individuals who chose to participate may be heavier users of the Internet in general, better educated, or have a greater interest in the sexual aspects of the Internet. Previous research suggests that typically people with higher socioeconomic status tend to be overrepresented in Internet research. However despite this concern, recent Internet surveys tend to include respondents from a range of backgrounds and geographic locations (Gosling et al., 2004).

Second, due to the large sample size, attention was paid to the possibility that trivial differences could possibly reach statistical significance when analysed (Cooper et al., 1999). Despite the large size of the sample, many variables had small variances. To address this concern, conservative post hoc analyses using Bonferroni adjustments were used whenever possible to control for sample size effects.

Third, the cross-sectional nature of this study means that causal inferences cannot be drawn. The results demonstrate associations between variables such as high levels of depression and emotional loneliness and high levels of engagement in OSA. This does raise the possibility of a causal relationship existing between the variables, which could be confirmed by future research. It does not answer the question as to whether there is a causal relationship. For example, do highly

depressed individuals engage in OSA more frequently than less depressed individuals? Alternatively, does frequent engagement in OSA cause or worsen depression in individuals? A longitudinal study assessing an individual's mood and psychosocial functioning prior to, and after engaging in OSA could address these unanswered questions. It is also possible that the act of participating in research concerning one's engagement in OSA may affect the reporting of symptoms and behaviours.

Fourth, the self-report measures used in this study may be subject to reporting biases. A social desirability scales was not used in the questionnaire, therefore it is unknown how accurately individuals responded to items deemed legally sensitive such as "I have run across illegal sexual material while on the Internet" or potentially embarrassing items such as "I have masturbated while on the Internet". Nevertheless, the anonymity of the study may have encouraged a more honest pattern of responding.

Fifth, despite the results of this study being less confounded by demand effects or self-presentation concerns due to participant's anonymity, it is possible that participants applied less effort and control over their moods, attitudes and beliefs. The responses may therefore be less representative of their true attitudes and beliefs than responses provided by more traditional methods (McKenna & Bargh, 2000). This methodological problem is in need of further study, however there is growing evidence that the use of online questionnaires do not identify any troubling disparity in item non-completion rates between online and more traditional methods of administration (Descombe, 2009).

Sixth, a specific methodological limitation of the current study relates to the questionnaire item that asked participants if they had met somebody offline that they first met online. The question did not probe the purpose of the offline meeting. It therefore remains unknown as to whether individuals met for friendship, dating or purely sexual purposes. Future research clarifying the purpose for meeting offline is recommended. This issue is considered to be of particular importance given earlier research that documents the spread of sexually transmitted infections in the gay community via men who met in chat-lines (Nieves, 1999).

While the large sample of participants in the current study and the study's replication of prior findings are valuable, corroboration of data from sources other

than self-report (e.g., partner's observations, psychiatric records, Internet search history) could significantly increase confidence in the validity of the study's findings. Future researchers may wish to corroborate their self-report findings with those from other sources, or conduct more detailed interviews with participants in their studies.

Theoretical Limitations

Given that attachment theory was developed prior to the age of Internet communication, it is possible that current theoretical constructs and measures require further development in order to accommodate an online environment. For example, current adult attachment measures (e.g., RQ; Bartholomew & Horowitz, 1991; ECR-R; Brennan et al., 1998) do not directly investigate how individuals communicate with others in an online environment. It is anticipated that individuals' levels of personal disclosure, comfort interacting sexually with others and fears surrounding rejection are different in online relationships than in face-to-face interactions. It is possible that these factors contribute to the reasons why individuals interact with others in environments such as adult chat-rooms. Given these differences, our theoretical understanding of attachment theory and the psychometric tools designed to measure this construct may need further refinement to include contemporary means of communicating and forming relationships via the Internet.

Implications for Clinical Psychologists

This study provided evidence that high engagement in OSA is associated with clinically significant levels of depression, anxiety and stress and greater feelings of social and emotional loneliness. As previously mentioned, it is currently unknown if this is a causal relationship, that is, spending more time engaged in OSA worsens psychopathology in vulnerable individuals and increases feelings of loneliness, or whether socially and emotionally lonely individuals already suffering from a diagnosable mental illness engage in OSA more frequently. It also possible that a bidirectional relationship exists between these variables, that is, compulsive OSA

causes psychopathology and negative life consequences, and increased psychopathology and negative life consequences makes an individual more prone to engaging in OSA. The study also provided additional evidence that increased impulsivity is associated with greater risk of OSA dependence and spending more time online. Psychologists may also gain additional information about their client's psychosexual functioning and reasons for OSA by assessing their experience of sexual-anxiety and sexual-depression as measured by the MSQ.

Despite the positive correlation between this study's measures of psychopathology and the time individuals engaged in OSA, psychologists are reminded that correlation does not necessarily mean causation. As previously discussed, earlier research by Cooper, Scherer et al. (1999) found that most participants (80%) of their study reported little or no impact as the result of their engagement in OSA. The researchers however concluded that participants who spent 11 hours per week or more engaged in OSA experienced considerably more negative life consequences than participants who spent less than 11 hours per week. Participants in this study spent on average more than 12 hours per week engaged in OSA. Psychologists are also reminded that most individuals are capable of engaging in OSA without the psychological consequences identified in this study and there may be mediating or moderating variables such as attachment problems that influence individuals' maladjustment. It is therefore possible that the psychological problems identified in this study better reflect participants' insecure attachment styles than their problematic online sexual behaviour. It is also possible that the relationship between the participants' psychopathology and their attachment style is partially or fully mediated by their engagement in OSA. Psychologists are therefore encouraged to consider issues such as attachment style when assessing and treating clients presenting with problematic online sexual behaviour.

Currently there is minimal data regarding the long-term efficacy of any psychological treatment or psychotropic medication offered to clients presenting with compulsive online and offline sexual behaviour. It is hoped that if Hypersexual Disorder is included in the next edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM-V), the legitimacy of clinical disorders associated sexual behaviour on the Internet will improve and encourage further research into treatment.

Clinical Assessment Process

Given the likelihood of clients presenting with co-morbid psychiatric and medical conditions in conjunction with their compulsive OSA, psychologists are encouraged to routinely conduct thorough clinical assessments. Results of this study and others suggest that clients should be screened for a range of Axis I, II and III disorders such as depression, anxiety, posttraumatic stress disorder (PTSD), sexual dysfunction disorders, substance abuse/dependence disorders, personality disorders, and a history taken of sexually transmitted infections including Human Immunodeficiency Virus (HIV). It is also recommended that psychologists enquire about a range of psychosocial factors such as relationship history, safe sex practices, social support, and social and emotional loneliness.

Psychologists are encouraged to routinely screen at-risk clients using instruments such as the Internet Sex Screening Test (ISST; Delmonico, 1997) to assess for online sexual compulsivity, and to establish a client's level of risk and treatment requirements. Young, Griffin-Shelly et al. (2000) suggest that clinicians should take a complete history of compulsive behaviour, and symptoms of depression, anxiety and stress should be fully explored, as should a history of sexual abuse and/or neglect. While not investigated in this study, it is also suggested that psychologists may also benefit from obtaining a detailed account of how at-risk clients spend their days on an hour-by-hour basis to ascertain the total amount of Internet usage and the content of this usage, that is, chat-rooms, downloading pornography, or newsgroups. The assessment should also include an investigation of the current environmental stressors, that is, neglect of major responsibilities such as work and family life, and changes in the sexual relationship for couples.

Given the presence of depressive, anxiety and stress symptomatology, particularly amongst heavy Internet users, psychologists may wish to encourage their clients to keep a record of their mood and engagement in OSA. The record could investigate situations in which their client engages in OSA, and their client's automatic thoughts, mood states and behaviours prior to, during and after engaging in the activity. If for example, feelings of social loneliness are identified to be an important factor associated with engaging in compulsive cybersex, treatment that focuses on increasing a client's social support may be appropriate. Cognitive behavioural therapy (CBT) is a particularly suitable for treatment for depression

associated with Internet use (Hall, Parsons, & Jeffrey, 2001). Motivational interviewing and simply making behavioural changes such as moving the computer to another room, and only using the Internet when the family is around are also possible strategies for individuals exhibiting compulsive OSA (Young et al., 2000).

Recommendations for Clinical Psychologists

Considering the growing number of individuals presenting to psychologists with concerns relating to their OSA, a number of specific recommendations are proposed below to address prevention, assessment and treatment concerns of affected individuals. Clinical psychologists are in a position to disseminate information on OSA, and ensuring that the information is accurate, accessible, specifically tailored to the intended sexual community, and ethically responsible (Cooper et al., 1999). This information should serve both a preventative function (i.e., to warn individuals about possible risk factors before problems develop). The information should also assist psychologists in assessing and managing individuals already affected. The following is a list of recommendations relevant to clinical psychologists working with affected individuals:

1. Clinical information is disseminated online, and this information educates individuals about the risk factors and warning signs associated with compulsive and/or problematic OSA. This could include warning users about possible risks associated with spending long periods of time engaged in OSA, and warnings about risk-taking behaviour both online and offline (e.g., unsafe sex practices, divulging personal information online). Individuals could also be warned about the possibility of exacerbating mood symptoms with frequent engagement in OSA, and the risk of neglecting important family, employment, educational and social commitments because of time spent online. It is also recommended that the contact details of psychologists with appropriate training and experience accompanies the online psycho-educational material.
2. Similar to warnings in gaming venues, online adult entertainment sites such as adult chat-lines and pornographic websites could provide pop-up warnings

about the possible risks associated with compulsive OSA. Pop-up windows could include messages such as “*Are your relationships with those that you love being affected by your involvement in online sex?*” Pop-up windows could also contain a hyperlink to a professionally endorsed website that includes a self-assessment instrument such as the Internet Sex Screening Test (ISST; Delmonico, 1997) and a list of criteria for when to seek treatment. Alternatively, criteria developed by Carnes (2001) to diagnose a Sexual Addiction could be provided for individuals to consider.

3. There is an ongoing need to develop and evaluate evidence-based treatments which psychologists can use in their clinical work with affected individuals. A review of the literature suggests that there are a variety of treatments offered by health professionals working with affected individuals, however there are little data in regards to the long-term efficacy of those treatments (e.g., cognitive behaviour therapy, behaviour therapy, motivational interviewing, medication therapy etc.). Currently most of the resources available to psychologists are in the form of self-help books, or strategies adapted from the treatment of substance addictions. Future treatment strategies will need to reflect both the individual’s demographic characteristics (e.g., sex, sexual orientation, life-cycle stage) and their psychological concerns (e.g., problems with impulsivity, emotional loneliness, mood). For example, it is anticipated that the treatment needs of a depressed middle-aged divorced woman who compulsively engages in adult-chat will be different from the needs of a 19-year old gay male who frequently meets online partners for casual sex.
4. Treatment strategies may also need to be different for males and females given males’ strong preference for erotic and pornographic images and females’ preference for interactive mediums such as chat-lines and emailing.
5. Given the more frequent involvement in OSA by members of the gay, lesbian and bisexual (GLB) communities, it is recommended that psychologists are sensitive to the unique needs and challenges of these communities. Psycho-education material for GLB individuals may include issues such as exploring one’s sexuality online and “coming out,” developing an online and offline

support network, and health promotion material about safe-sex practices for GLB individuals who meet others offline for casual sex.

6. It is also recommended that psychology-training institutions provide basic training regarding the assessment of individuals presenting with concerns about their OSA. Such training could be incorporated into the academic curriculum on compulsive and addictive behaviour.

Internet Based Psychological Treatment

Delivering Internet based psychological treatment (e-therapy), as an alternative to face-to-face psychotherapy may also be an option for individuals seeking treatment for their problematic OSA. Counselling and psychotherapy have been delivered by indirect means since Freud treated patients by letter (Freud, 1955, cited in Skinner & Latchford, 2006), and delivery via the telephone has also been found to be effective and acceptable to clients (Skinner & Latchford, 2006). The Internet is therefore the latest medium to be considered for the delivery of psychotherapeutic communications.

Internet-based psychological interventions for health problems are commonly based on cognitive behavioural therapy (CBT) techniques (Cuijpers, van Straten, & Andersson, 2007). CBT interventions can be effectively converted into a structured format, with psycho-education, and homework assignments presented via web pages (Ritterband, Andersson, Christenswn, Carlbring, & Cuipers, 2006). Studies have shown that formal psychological treatment delivered via the Internet is effective for a number of conditions including panic disorder, posttraumatic stress disorder, and eating disorders (Skinner & Latchford). Suler (2002) also reported that there is evidence that self-disclosure, or a readiness to be open about oneself or one's feelings, is increased on the Internet, and people's communications may progress more steadily and quickly towards deeper expressions of what they are thinking and feeling when using this medium.

Internet-based interventions can offer several advantages over the more traditional forms of delivery. They may save therapist time, reduce waiting-lists, allow patients to work at their own pace, abolish the need to schedule appointments with a therapist, are cheaper for clients, save traveling time, reduce the stigma of going to a psychologist, and facilitate help for hearing impaired clients (Marks et al.,

2007). Skinner and Latchford advised that e-therapy has the potential to assist individuals who are unable or unwilling to access conventional counselling services for reasons of geography, stigma, disability or finance. In addition, given that online sexual addiction is a costly disorder, both in terms of human suffering, and from an economic perspective, efforts to disseminate evidence-based low cost interventions may represent a welcome contribution to healthcare.

Growing evidence investigating online CBT however shows that some form of guidance is required, in particular with clients diagnosed with conditions such as major depression (Andersson, 2008). Guidance may be in the form of telephone contact or via electronic mail. Spek et al. (2007) in their meta-analysis showed that programs without guidance from a therapist were significantly less effective compared programs offering guidance provided by a therapist. However even with therapist support, CBT administered over the Internet has the ability to save a considerable amount of time for the therapist. Future researchers may therefore be interested in developing and assessing the efficacy of an online treatment program for individuals who experience problems associated with their OSA.

Overall, it is hoped that results of the current research will encourage psychologists to more thoroughly consider the variety of demographic and psychological attributes of their clients that may contribute to the development and maintenance of problematic OSA. A richer understanding may assist in clinical assessment and case-formulation and help direct future treatment. For one person, compulsive OSA may represent an anonymous, convenient escape from the stress of work and family life. For another, compulsive cybersex chat may offer companionship and a sense of power after coming out of an abusive relationship. Whilst for another, OSA may represent a means for viewing illegal material, indulging in a sexual fantasy, or acting out prior sexual abuse. It is therefore of great importance that psychologists are skilled at taking a detailed psychosexual history and understand the function that OSA provides in an individual's life.

Future Research

Currently there are many important unanswered questions relating to the assessment and treatment of individuals presenting with compulsive online sexual behaviour, providing considerable scope for future research. Longitudinal research

with individuals who engage in OSA may be better able to answer questions such as – does engaging in OSA promote the development of depression, anxiety and stress disorders? Researchers may consider undertaking qualitative interviews with select groups of participants (e.g., lesbians, transgender, elderly participants) after quantitative data is collected in an effort to generate a more detailed knowledge of the impact that OSA has had on the lives of participants offline (Daneback et al., 2005). This methodological approach may also be useful in better understanding the relationship between an individual's engagement in OSA and their socioeconomic, cultural and religious background. If ethical concerns are addressed, it may be possible to obtain qualitative data from individuals conversing in an adult chat-room using a standardised interview schedule. Alternatively, future researchers could invite participants willing to be involved in a more in depth interview process to leave their email address on completed questionnaires. Interviews could be then be conducted on the telephone or face-to-face, depending on the participant's geographical location, or via an instant message service relaying service such as MSN.

It is currently unknown which psychological and psychosocial factors ameliorate an individual's risk of compulsive OSA. Future researchers could investigate the extent to which "High-Risk" individuals are able to independently manage their OSA without psychological interventions, and which psychological and psychosocial factors increase an individual's susceptibility to relapse following a period of abstinence. It is assumed that for some individuals, their OSA involvement will cease when they form an intimate offline relationship. However for others, particularly those with preexisting problems with sexual compulsivity, their compulsive OSA may persist regardless of their relationship status.

Future researchers may consider investigating the relationship between substance misuse and OSA, particularly where OSA leads to meeting others offline and unsafe sex practices. Schneider (1991) advised that sexual addiction often coexists with substance dependency, and untreated sexual addiction contributes to relapse to substance use. Schneider warned that these individuals not only endanger themselves, but also put loved ones at risk for sexually transmitted infections. The current study did not investigate individual's use of alcohol and illicit substances, and it is possible that problems with impulsivity and negative affect states such as

depression were affected by participants' consumption of alcohol and other drugs. For these individuals, abstaining from substances, or managing their use, may increase control of their online and offline sexual behaviour.

Future researchers may be interested in investigating the relationship between compulsive OSA and Sexual Arousal and Sexual Dysfunction Disorders. For example, in the case of Sexual Arousal Disorders, it is possible that individuals with an incompatible libido to that of their partner, or an orgasmic disorder engage more frequently in OSA due to sexual difficulties in their face-to-face relationships. In the case of individuals suffering from sexual dysfunction disorders such as erectile dysfunction and dyspareunia, such individuals may be at greater risk of compulsive OSA, particularly if their disorder is caused by psychological factors (e.g., sexual-anxiety). For these individuals, it may find it easier to express their sexuality online with anonymous others.

Currently there are insufficient data regarding the long-term efficacy of psychological treatments for individuals experiencing problems with compulsive online sexual behaviour. However given psychiatry's increasing recognition of the legitimacy of this condition as evidenced by the proposed diagnostic criteria for Hypersexual Disorder in the next edition of the Diagnostic and Statistical Manual of Mental Disorders (American Psychiatric Association), it is hoped that further research investigating treatment efficacy will be undertaken. Kafka (2010) however argued that before undertaking further research, "any operational definition for hypersexuality should be derived from large non-clinical community samples where a normative range of sexual behaviors can also be ascertained for comparison" (p. 379). He also advised when assessing the variability of sexual behaviour, demographic variables including age, sex, sexual orientation, marital/relationship status, education level and religious affiliation should be taken in to consideration.

Finally, despite this study's focus on the problematic aspects of OSA, ongoing research is encouraged into how the Internet may be used to enhance sexual expression and intimacy and to improve sexual knowledge for individuals and those within relationships. Currently there are little data on the influence of factors such as shyness and social anxiety, internalised homophobia, religiosity and culture and engagement in OSA. It is possible that with a more comprehensive understanding of

these areas, educational web pages could be developed and psycho-educational material could be disseminated to a wider number of users.

Conclusion

Overall, the current study indicated, consistent with past literature, that most individuals who engage in OSA are male, in a relationship, and tertiary educated. This sample was however older, contained a substantially greater proportion of gay, lesbian and bisexual individuals who spent considerably more time engaged in OSA than in previous studies. Individuals in the current study were also more likely than in other studies to be at-risk or of high-risk of their OSA interfering with important aspects of their lives and to exhibit sexually compulsive behaviour online. Using the ISST to categorise participants according to their OSA risk-level was considered to be a useful way to understand the participants of the study. In most analyses conducted the sexual orientation of the men and women studied was not related to their scores on the psychological measures investigated. Men typically preferred viewing explicit adult material such as pornographic images and women tended to prefer interactive mediums such as adult chat. Men's sexual orientation was relevant to understanding offline meeting behaviour, with gay and bisexual men being significantly more likely than heterosexual men to meet someone offline, whilst women's sexual orientation was unrelated to offline meeting. Adult attachment style was found to be an important consideration in understanding an individual's pattern of OSA. Most typically, individuals with a secure attachment pattern spent less time engaged in OSA, and experienced less social and emotional loneliness, depression, anxiety and stress. Overall, spending greater time engaged in OSA and scoring higher on the ISST was associated with higher levels of depression, anxiety, stress, impulsivity and social and emotional loneliness.

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APPENDIX A

Correlations Table of Psychological Variables for Male Participants.

	1	2	3	4	5	6	7	8	9	10	11	12
1. ISST												
2. Impulsivity	.30***											
3. Emotional Loneliness	.22***	.34***										
4. Social Loneliness	.12***	.09***	.34***									
5. DASS – Depression	.28***	.36***	.53***	.40***								
6. DASS – Anxiety	.27***	.46***	.39***	.23***	.76***							
7. DASS – Stress	.30***	.42***	.44***	.34***	.80***	.81***						
8. MSQ – Sexual-Esteem	-.02	-.03	-.25***	-.29***	-.33***	-.20***	-.22***					
9. MSQ – Motivation	.12***	.06*	-.05	-.11***	-.13***	-.01***	-.03	.64***				
10. MSQ – Satisfaction	-.01***	-.04	-.34***	-.36***	-.37***	-.16***	-.26***	.62***	.39***			
11. MSQ – Depression	.26***	.24***	.49***	.35***	.58***	.41***	.48***	-.34***	-.05	-.56***		
12. MSQ – Anxiety	.29***	.29***	.52***	.31***	.55***	.44***	.49***	-.27***	.05	-.39***	.84***	

$N = 1206$, * $p < .05$, ** $p < .01$, *** $p < .001$

APPENDIX B

Correlation Table of Psychological Variables for Female Participants

	1	2	3	4	5	6	7	8	9	10	11	12
1. ISST												
2. Impulsivity	.60***											
3. Emotional Loneliness	.29***	.29***										
4. Social Loneliness	.20*	.13	.46***									
5. DASS-Depression	.43***	.44***	.52***	.36***								
6. DASS-Anxiety	.55***	.55***	.38***	.25***	.73***							
7. DASS-Stress	.48***	.48***	.54***	.43***	.80***	.76***						
8. MSQ-Sexual-Esteem	.04	-.20	-.34***	-.24*	-.36***	-.11	-.21*					
9. MSQ-Motivation	.22*	.16	-.22***	-.06	-.24***	-.06	-.11	.71***				
10. MSQ-Satisfaction	-.02	-.06	-.51***	-.34***	-.32***	-.09	-.25***	.68***	.49***			
11. MSQ-Depression	.33***	.39***	.52***	.30***	.62***	.46***	.57***	-.35***	-.90***	-.54***		
12. MSQ-Anxiety	.44***	.53***	.53***	.27***	.60***	.56***	.58***	-.25***	-.01	-.42***	.90***	

N= 114, * $p < .05$, ** $p < .001$, *** $p < .001$

APPENDIX C

Confirmatory Factor Analyses for Psychometric Tests Used in the Study.

Table 1

Internet Sex Screening Test (ISST; Delmonico, 1997)

Item	Factors				
	1	2	3	4	5
19.	.58	-.32			
17.	.55	-.40			
25.	.52	-.39			
20.	.51		-.46		
18.	.50				
6.	.48		.37		
14	.47			.38	
15.	.46				
21.	.45	-.42			
11.	.41				
9.	.41				
10.	.39			.38	

APPENDIX C

Table 1 (continued)

Internet Sex Screening Test (ISST; Delmonico, 1997)

Item	Factors				
	1	2	3	4	5
13	.39	-.37		.38	
24					
17	.45	-.54			
22	.32	.51	-.37		
2	.36	.47	-.38		
12		-.46			
4		.46	.37		.31
1		.44	.39		.32
3	.32	.41			
8	.34	.43	-.45		
5		.33	.34	.33	
16	.35			-.54	
2	.45				.57
Eigenvalue	4.19	2.87	1.40	1.25	1.06
% Variance Explained	16.72	11.49	5.60	5.00	4.26

APPENDIX C

Confirmatory Factor Analyses for Psychometric Tests used in the Study.

Table 2

Loneliness Scale (LS; De Jong Gievel, 1999)

Item	Factors	
	1	2
3	.93	
2	.90	
4	.83	
5		.83
6		.82
1		.78
Eigenvalue	3.01	1.41
% Variance Explained	50.18	23.49

APPENDIX C

Table 3

Depression Anxiety Stress Scale-21 (DASS-21; Lovibond & Lovibond, 1995)

Item	Factors	
	1	2
11	.82	
15	.82	
17	.80	-.32
16	.80	-.32
13	.80	
18	.79	
10	.79	-.31
21	.78	-.33
20	.78	
12	.77	
9	.75	
8	.75	.31
3	.74	
14		
19	.73	

APPENDIX C

Table 3 Continued.

Depression Anxiety Stress Scale-21 (DASS-21; Lovibond & Lovibond, 1995)

Item	Factors	
	1	2
6	.71	
5	.70	
7	.70	.38
4	.65	.35
1	.57	
2	.53	.47
Eigenvalue	11.52	54.96
% Variance Explained	1.27	6.04

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1. Cybersex Questionnaire

Information for study participants

Study description

I am a doctoral psychology student from Swinburne University of Technology in Melbourne, Australia conducting an anonymous online study which looks at the psychology of using the Internet for Cybersex purposes such as using adult chat-rooms and downloading erotic images. The study is part of the requirements for my doctoral degree.

If you agree to participate, you will be asked to complete an online questionnaire, which involves clicking boxes in response to questions. The questionnaire also includes a series of questions regarding your gender, age and education. The questionnaire takes approximately 15-minutes to complete. To participate in the study, I require that you have previously used the Internet for a sexual purpose.

Confidentiality - protecting your privacy and anonymity

You are not required to record your name or email address on the questionnaire, or any information that may identify you. Therefore you cannot be identified.

Study results and ethical standards

The results of this research may be published in a scientific journal, however only group data will be presented and no individual will be identifiable.

Voluntary participation

Your participation in this study is completely voluntary. Please consider the purpose and time commitment of this study before you decide whether or not to participate. Please note, some of the questions in this survey refer to sexual activities that may be illegal in some countries, such as downloading sexually explicit material and a question about your sexual orientation. If you agree to participate and later change your mind, you are free to withdraw at any time.

Support

If completing this questionnaire causes you any distress, there are a number of support services provided at the end of this questionnaire.

The website below is for International Lifeline if you wish to speak directly to a telephone counsellor.

<http://www.lifeline-international.org/>

Alternatively, you may wish to contact any of the researchers involved in this study for advice of how to find support in your country of residence:

Student Researcher: Marcus Squirrell msquirrell@smartchat.net.au

Supervisor: Associate Professor Ann Knowles aknowles@swin.edu.au

Supervisor: Professor Mike Kyrios mkyrios@swin.edu.au

If you agree to the above conditions, please click START

[Start](#)

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Cybersexual Behaviour

Your Gender

- ☐ Male
☐ Female

Your Age

I am _____ years old

Your Highest level of Education achieved

- ☐ Less than High School
☐ Completed High School only
☐ Completed or completing Tertiary study (College, University, TAFE)

Country of Residence (Continent only)

- ☐ Australia
☐ North America
☐ South America
☐ Europe
☐ Africa
☐ Asia
☐ Other

Your Sexual Orientation

- ☐ Hetrosexual
☐ Gay/Lesbian
☐ Bisexual

Your Relationship Status:

- ☐ Married
☐ Committed Relationship
☐ Single/Dating
☐ Single/Not Dating

During an average week, how long do you spend engaged in Cybersex activities, such as looking up erotic images, and/or chatting in an adult chat-room?

During an average week I spend _____ hours

How long have you been engaging in Cybersex activities?

206

- ☐ Less than 12 months
- ☐ 1 - 3 years
- ☐ 4 - 6 years
- ☐ 7 - 10 years
- ☐ 10+ years

47%

Next

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Cybersex Behaviour

Rank the Cybersex activity that you engage in, in order of frequency

1 = The Most, 2 = The Second Most, 3= The Third Most, 4= The fourth Most

Select "0" if you do not engage in this activity.

Activity	Ranking
Downloading erotic images (pictures/video)	0 <input type="button" value="↑"/> <input type="button" value="↓"/>
Adult Chat Rooms	0 <input type="button" value="↑"/> <input type="button" value="↓"/>
Cybersex Web-Camera	0 <input type="button" value="↑"/> <input type="button" value="↓"/>
Sexually Oriented Email	0 <input type="button" value="↑"/> <input type="button" value="↓"/>
Cybersex Newsgroups	0 <input type="button" value="↑"/> <input type="button" value="↓"/>
Multi-User Dungeons (MUDS)	0 <input type="button" value="↑"/> <input type="button" value="↓"/>

Have you ever met anyone offline (face to face) that you first met online?

☐ Yes

☐ No

58%

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Welcome to the Internet Sex Screening Test (ISST). This inventory asks questions about your online and offline sexual behaviour. Please respond "True" to the items which apply to your behavior and "False" to the items which do not apply.

	True	False
1. I have some sexual sites bookmarked	<input type="radio"/>	<input type="radio"/>
2. I spend more than 5 hours per week using my computer for sexual pursuits.	<input type="radio"/>	<input type="radio"/>
3. I have joined sexual sites to gain access to online sexual material.	<input type="radio"/>	<input type="radio"/>
4. I have purchased sexual products online.	<input type="radio"/>	<input type="radio"/>
5. I have searched for sexual material through an Internet search tool.	<input type="radio"/>	<input type="radio"/>
6. I have spent more money for online sexual material than I planned.	<input type="radio"/>	<input type="radio"/>
7. Internet sex has sometimes interfered with certain aspects of my life.	<input type="radio"/>	<input type="radio"/>
8. I have participated in sexually related chats.	<input type="radio"/>	<input type="radio"/>
9. I have a sexualized username or nickname that I use on the Internet.	<input type="radio"/>	<input type="radio"/>
10. I have masturbated while on the Internet.	<input type="radio"/>	<input type="radio"/>
11. I have accessed sexual sites from other computers besides my home.	<input type="radio"/>	<input type="radio"/>
12. No one knows I use my computer for sexual purposes.	<input type="radio"/>	<input type="radio"/>
13. I have tried to hide what is on my computer or monitor so others cannot see it.	<input type="radio"/>	<input type="radio"/>
14. I have stayed up after midnight to access sexual material online.	<input type="radio"/>	<input type="radio"/>
15. I use the Internet to experiment with different aspects of sexuality (e.g., bondage, homosexuality, anal sex, etc.)	<input type="radio"/>	<input type="radio"/>
16. I have my own website which contains some sexual material.	<input type="radio"/>	<input type="radio"/>
17. I have made promises to myself to stop using the Internet for sexual purposes.	<input type="radio"/>	<input type="radio"/>
18. I sometimes use Cybersex as a reward for accomplishing something (e.g., finish a project, stressful day, etc.)	<input type="radio"/>	<input type="radio"/>
19. When I am unable to access sexual information online, I feel anxious, angry, or disappointed.	<input type="radio"/>	<input type="radio"/>
20. I have increased the risks I take online (give out name and phone number, meet people offline, etc.)	<input type="radio"/>	<input type="radio"/>
21. I have punished myself when I use the Internet for sexual purposes (e.g., time-out from computer, cancel Internet subscription, etc.)	<input type="radio"/>	<input type="radio"/>
22. I have met face to face with someone I met online for romantic purposes.	<input type="radio"/>	<input type="radio"/>
23. I use sexual humour and innuendo with others while online.	<input type="radio"/>	<input type="radio"/>
24. I have run across illegal sexual material while on the Internet.	<input type="radio"/>	<input type="radio"/>
25. I believe I am a sex addict	<input type="radio"/>	<input type="radio"/>

64%

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Cybersexual Behaviour

Multidimensional Sexuality Questionnaire (MSQ)

INSTRUCTIONS: Listed below are several statements that concern the topic of sexual relationships. Please read each item carefully and decide to what extent it is characteristic of you. Whenever possible, answer the question with your current partner in mind. If you are currently not dating anyone, answer the questions with your most recent partner in mind. If you have never had a sexual partner, answer in terms of what you think your responses would most likely be.

	Not at all characteristic of me	Slightly characteristic of me	Somewhat characteristic of me	Moderately characteristic	Very characteristic of me
1. I am confident about myself as a sexual partner.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2. I'm very motivated to be sexually active.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3. I feel anxious when I think about the sexual aspects of my life.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4. I am depressed about the sexual aspects of my life.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5. I am very satisfied with the way my sexual needs are currently being met	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
6. I am a pretty good sexual partner.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
7. I'm strongly motivated to devote time and effort to sex.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
8. I'm worried about the sexual aspects of my life.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
9. I am disappointed about the quality of my sex life.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
10. I am very satisfied with my sexual relationship.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
11. I am better at sex than most other people.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
12. I have a strong desire to be sexually active.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	Not at all characteristic of me	Slightly characteristic of me	Somewhat characteristic of me	Moderately characteristic	Very characteristic of me
13. Thinking about the sexual aspects of my life leaves me with an uneasy feeling.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
14. I feel discouraged about my sex life.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
15. My sexual relationship meets my original expectations.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
16. I would rate myself pretty favorably as a sexual partner.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
17. It's really important to me	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

that I involve myself in sexual activity.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
18. I usually worry about the sexual aspects of my life.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
19. I feel unhappy about my sexual relationships.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
20. My sexual relationship is very good compared to most.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
21. I would be very confident in a sexual encounter.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
22. I strive to keep myself sexually active.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
23. I feel nervous when I think about the sexual aspects of my life.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
24. I feel sad when I think about my sexual experiences.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
25. I am very satisfied with the sexual aspects of my life.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

70%

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Cybersexual Behaviour

DASS-21

INSTRUCTIONS: Please read each statement and select a number 0, 1, 2, or 3 which indicates how much the statement applied to you over the past week. Do not spend too long on any statement

The ratings are as follows:

0 = Did not apply to me at all

1 = Applied to me to some degree, or some of the time

2 = Applied to me to a considerable degree, or a good part of the time

3 = Applied to me very much, or most of the time

	0	1	2	3
1. I found it hard to wind down.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2. I was aware of dryness in my mouth.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3. I couldn't seem to experience any positive feelings at all.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4. I experienced breathing difficulty (eg. excessively rapid breathing, breathlessness in the absence of exertion).	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5. I found it difficult to work up the initiative to do things.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
6. I tended to over-react to situations.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
7. I experienced trembling (eg. in the hands).	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
8. I felt that I was using a lot of nervous energy.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
9. I was worried about situations in which I might panic and make a fool of myself.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
10. I found that I had nothing to look forward to.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
11. I found myself getting agitated.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
12. I found it difficult to relax.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
13. I felt down-hearted and blue.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
14. I was intolerant of anything that kept me from getting on with what I was doing.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
15. I felt I was close to panic.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
16. I was unable to become enthusiastic about anything.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
17. I felt I wasn't worth much as a person.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
18. I felt rather touchy.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
19. I was aware of the action of my heart in the absence of any physical exertion (eg. sense of heart rate increase, heart missing a beat).	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
20. I felt scared without any good reason.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
21. I felt that life was meaningless.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

76%

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Cybersexual Behaviour

Loneliness Scale

Please indicate for each statement, the extent to which they apply to your situation, the way you feel now.

	Strongly Agree	Agree	More or less	Disagree	Strongly Disagree
1. I experience a general sense of emptiness.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2. There are plenty of people I can rely on when I have problems.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3. There are many people I can trust completely.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4. There are enough people I feel close to.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5. I miss having people around.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
6. I often feel rejected.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

88%

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Cybersexual Behaviour

Experiences of Close Relationships

INSTRUCTIONS: The following statements concern how you generally feel in close relationships (e.g., with close romantic partners, close friends or family members). Respond to each statement by indicating how much you agree with it using the following rating scale:

1 = Disagree Strongly. 4 = Neutral/Mixed. 7 = Strongly Agree

	1	2	3	4	5	6	7
1. I prefer not to show others how I feel deep down.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2. I worry about being rejected or abandoned.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3. I am very comfortable being close to other people.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4. I find that my partners don't want to get as close as I would like.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5. Just when someone starts to get close to me I find myself pulling away.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
6. I worry that others won't care about me as much as I care about them.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
7. I get uncomfortable when someone wants to be very close to me.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
8. I worry a fair amount about losing my close relationship partner.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
9. I don't feel comfortable about opening up to others.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
10. I get frustrated if relationship partners are not available when I need them.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
11. I try to avoid getting too close to others.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
12. I resent it when my relationship partners spend time away from me.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
13. I am nervous when another person gets too close to me.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
14. I worry about being alone.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
15. I feel uncomfortable sharing my private thoughts and feelings with others.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
16. My desire to be very close sometimes scares people away.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

82%

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Cybersexual Behaviour

Impulsivity Scale

Please answer each question by selecting YES or NO to the following questions. There are no right answers, and no trick questions. Work quickly and do not think too long about the exact meaning of the question.

	Yes	No
1. Do you often buy things on impulse?	<input type="radio"/>	<input type="radio"/>
2. Do you generally do and say things without stopping to think?	<input type="radio"/>	<input type="radio"/>
3. Do you often get into a jam because you do things without thinking?	<input type="radio"/>	<input type="radio"/>
4. Are you an impulsive person?	<input type="radio"/>	<input type="radio"/>
5. Do you usually think carefully before doing anything?	<input type="radio"/>	<input type="radio"/>
6. Do you often do things on the spur of the moment?	<input type="radio"/>	<input type="radio"/>
7. Do you mostly speak before thinking things out?	<input type="radio"/>	<input type="radio"/>
8. Do you often get involved in things you later wish you could get out of?	<input type="radio"/>	<input type="radio"/>
9. Do you get so carried away by new and exciting ideas, that you never think of possible snags (problems)?	<input type="radio"/>	<input type="radio"/>
10. Do you need to use a lot of self-control to keep out of trouble?	<input type="radio"/>	<input type="radio"/>
11. Would you agree that almost everything enjoyable is illegal or immoral?	<input type="radio"/>	<input type="radio"/>
12. Are you often surprised at people's reactions to what you do or say?	<input type="radio"/>	<input type="radio"/>
13. Do you think an evening out is more successful if it is unplanned or arranged at the last moment?	<input type="radio"/>	<input type="radio"/>
14. Do you usually work quickly, without bothering to check?	<input type="radio"/>	<input type="radio"/>
15. Do you often change your interests?	<input type="radio"/>	<input type="radio"/>
16. Before making up your mind, do you consider all the advantages and disadvantages?	<input type="radio"/>	<input type="radio"/>
17. Do you prefer to "sleep on it" before making decisions?	<input type="radio"/>	<input type="radio"/>
18. When people shout at you, do you shout back?	<input type="radio"/>	<input type="radio"/>
19. Do you usually make up your mind quickly?	<input type="radio"/>	<input type="radio"/>

Thankyou, for taking the time to complete this questionnaire.

If you have any concerns regarding this project, you may contact any of the researchers involved in this study:

Student Researcher: Marcus Squirrell msquirrell@smartchat.net.au

Supervisor: Associate Professor Ann Knowles aknowles@swin.edu.au

Supervisor: Professor Mike Kyrios mkyrios@swin.edu.au

If you have any complaints about any aspect of the project, such as the way it is being conducted or any questions about your rights as a research participant, then you may contact:

Research Ethics Officer, Office of Research & Graduate Studies (H68), Swinburne University of Technology, PO Box 218, HAWTHORN Vic 3122.

Tel. (03) 9214 5218

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If you feel distressed after completing the questionnaire, or believe that you may have a problem with your online sexual activity, the following support services may be of assistance.

For general information and support on Cybersex addiction and sexual addiction, the following websites may be of assistance:

Centre for Internet Addiction Recovery: <http://www.netaddiction.com/>

The Society for the Advancement of Sexual Health: <http://www.sash.net/>

Sexual Recovery Institute: <http://www.sexualrecovery.com/>

Sex Addicts Anonymous (SAA) support group <http://www.sexaa.org/>

Gay Men's Counselling: <http://www.gaymenscounselling.com/cybersex2.html>

For Australian Participants:

You may firstly wish to contact your General Practitioner.

If you think you may benefit from specialised psychological counselling, you may wish to contact the Australian Psychological Society on (03) 8662 3300 or via email contactus@psychology.org.au

If you think you may benefit by becoming involved in a 12-Step Support group, you may wish to contact a local Sex Addicts Anonymous support group <http://www.sexaa.org/>

If you are experiencing a crisis and cannot contact any of the suggested services, and need help urgently, please ring Lifeline on 13 11 14.

For Overseas Participants:

You may wish to contact your medical practitioner or a psychologist/counsellor in your local area that specialises in treating addictions and compulsive behaviour.

If you think you may benefit by becoming involved in a 12-Step Support group, you may wish to contact a local Sex Addicts Anonymous support group <http://www.sexaa.org/>. SAA support groups can be found in a number of countries.

100%

Finish

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From: Keith Wilkins
To: Ann Knowles; msquirrel@smartchat.net.au
CC: Michael Kyrios
Date: 25/10/2007 6:58 PM
Subject: SUHREC Project 0708/070 Ethics Clearance

To: Assoc Prof Ann Knowles/Ms Marcus Squirrel, FLSS

Dear Ann and Marcus

SUHREC Project 0708/070 Psychological Dimensions of Cybersex

Assoc Prof Ann Knowles FLSS Mr Marcus Squirrel Prof Michael Kyrios

Approved Duration: 25/10/2007 To 15/09/2008

I refer to the ethical review of the above project protocols carried out by Swinburne's Human Research Ethics Committee (SUHREC). Your responses to the review, as emailed on 23 October 2007 with revised consent instruments sent prior to this, were put to a delegate of SUHREC for consideration.

I am pleased to advise that ethics clearance has now been given for the project to proceed in line with standard conditions here outlined.

- All human research activity undertaken under Swinburne auspices must conform to Swinburne and external regulatory standards, including the current *National Statement on Ethical Conduct in Research Involving Humans* and with respect to secure data use, retention and disposal.
- The named Swinburne Chief Investigator/Supervisor remains responsible for any personnel appointed to or associated with the project being made aware of ethics clearance conditions, including research and consent procedures or instruments approved. Any change in chief investigator/supervisor requires timely notification and SUHREC endorsement.
- The above project has been approved as submitted for ethical review by or on behalf of SUHREC. Amendments to approved procedures or instruments ordinarily require prior ethical appraisal/clearance. SUHREC must be notified immediately or as soon as possible thereafter of (a) any serious or unexpected adverse effects on participants and any redress measures; (b) proposed changes in protocols; and (c) unforeseen events which might affect continued ethical acceptability of the project.
- At a minimum, an annual report on the progress of the project is required as well as at the conclusion (or abandonment) of the project.
- A duly authorised external or internal audit of the project may be undertaken at any time.

Please contact me if you have any queries about on-going ethics clearance. The SUHREC project number should be quoted in communication.

Best wishes for the project.

Yours sincerely

Keith Wilkins
Secretary, SUHREC

Keith Wilkins
Research Ethics Officer
Swinburne Research (H68)
Swinburne University of Technology
P O Box 218
HAWTHORN VIC 3122