Measuring and Contextualizing Heterosexual Men’s and Women’s Cybersex Experiences in Three Types of Relationships

by

Krystelle Shaughnessy

M. Sc., Acadia University, 2007

A Dissertation Submitted in Partial Fulfillment of the Requirements for the Degree of

Doctor of Philosophy

in the Graduate Academic Unit of Psychology

Supervisor: E. Sandra Byers, Ph. D. Psychology
Examinining Board: Ellen Rose, Ph. D., Education
Catherine Aquino-Russell, Ph. D., Nursing
Richard M. Nicki, Ph. D. Psychology

External Examiner: Michael W. Ross, Ph. D., School of Public Health, The University of Texas

This dissertation is accepted by the Dean of Graduate Studies

THE UNIVERSITY OF NEW BRUNSWICK

September, 2013

©Krystelle Shaughnessy, 2013
ABSTRACT

Cybersex is a subgroup of partnered online sexual activities that involve synchronous interactions focused on sexual relations. The goals of this dissertation were to enhance our understanding of cybersex by: (1) developing empirically-supported conceptual and operational definitions of cybersex; (2) examining the relationship context of cybersex; and, (3) examining gender differences in desired and actual cybersex experience using sexual script theory as a framework. Three manuscripts were produced. In Manuscript 1, heterosexual students (N = 292) provided written definitions of cybersex. Qualitative analysis of these definitions showed that cybersex is a range of online sexual activities (e.g., describing sexual fantasies to another person, watching someone behave sexually). These results were used to create conceptual and operational definitions of cybersex, and to develop a single-item and a multi-item measure of cybersex experience. These measures were used in Manuscripts 2 and 3. The goal of Manuscript 2 was to compare the two measures of cybersex experience. The findings, based on 376 heterosexual participants, suggest that the single-item measure was limited in its accuracy and, thus, supported the use of the multi-item measure for future research. Of the people who reported cybersex experience on the multi-item but not the single-item measure, a significantly greater proportion had engaged in cybersex only with a primary partner compared to with non-partners. The goal of Manuscript 3 was to compare heterosexual men’s (n = 105) and women’s (n = 264) actual and desired cybersex experience with three types of partners: primary partner, someone known who is not a partner (known non-partner), and stranger. The men and women were more likely to report cybersex with a primary partner, doing so more frequently, and desiring to do so more frequently than
with a known non-partner or a stranger. Compared to the women, the men reported desiring more frequent cybersex, and engaging in more frequent cybersex with a stranger. Overall, the results revealed that: (1) cybersex is a behavioural domain; (2) the relationship context of cybersex is important for measurement, experience, and desire; and (3) offline sexual scripts appear to guide people’s desired and actual cybersex experience.
DEDICATION

This dissertation is dedicated to my late father in loving memory of his unrelenting encouragement and support.
CONTRIBUTIONS OF AUTHORS

This dissertation includes three manuscripts co-authored by myself and Dr. E. Sandra Byers. The first manuscript (Chapter II) is based on results from an open-ended question that was part of a larger survey of students' definitions and experiences of a range of sexual activities. This survey was created and conducted by Dr. Byers and Lindsay Walsh. However, I conducted the data analyses and wrote the manuscript. The subsequent two manuscripts (Chapters IV and VI) are based on the results of two online survey studies that I created and conducted. The measures from these surveys that were used in this dissertation as well as other study materials can be found in Appendices A, B, C, D, and E. I also merged the two surveys to create one database used for Study 2 (Chapters IV and VI; see Appendix F), analyzed the data, and wrote the manuscripts. Dr. E. Sandra Byers served in an advisory capacity during the formulation of research questions, the development and selection of the questionnaires, and conducting of the statistical analysis. She provided editorial assistance during the writing of the final manuscripts.
ACKNOWLEDGEMENTS

This dissertation is a sliver of the pie making up the doctoral degree. The long and bumpy path to here was lined with many wonderful people who contributed assistance, support, encouragement, and applause. I will list a few, knowing many more are appreciated. To my supervisor Dr. Sandra Byers: thank you. Our work together has challenged me to become a better scientist and thoughtful mentor to others. To my committee Drs. Rose, Aquino-Russell, Nicki, Ross, and Ronis: thank you for feedback and commendation. To my academic mentors Drs. Elke Reissing, Michael Leiter, Lucia O’Sullivan, Uzma Rehman, Michele Boivin, and Martin Lalumière: your encouragement and guidance supported my success. Drs. Daniel Voyer and Scott Colwell: thank you for improving my statistical prowess. To brilliant junior scholars Dr. Karen Blair and Ms. Sarah Vannier: thank you for your exceptional survey design support and research insights. Thank you to past and present members of the Human Sexuality Research Group for feedback and collegiality throughout the years; and, to members of the Canadian Sex Research Forum for encouragement in developing as a junior scholar. Finally, the completion of this degree was possible because of the support from unbelievable friends and family.

Andrea, Sarah, Karen, Nicola, Adriana, Leslie, Ashley, Joanne, Colin, Megan: laughter, empathy, fun, sleeping quarters, computers, advice, citations, adventure – experience. To my mother, my sister, and my brothers: through the ups and downs, together and apart, you have all helped me keep the long-term goal in sight. To my grandma, grandpa, papa, uncles, aunts, and cousins: despite not always understanding the process, your steadfast support is appreciated. Finally, to my life date: thank you for food, calm, affection, and the occasional kick-in-the-ass this last year of the process.
TABLE OF CONTENTS

ABSTRACT ............................................................................................................ ii
DEDICATION ....................................................................................................... iv
CONTRIBUTIONS OF AUTHORS ...................................................................... v
ACKNOWLEDGEMENTS ................................................................................... vi
TABLE OF CONTENTS ...................................................................................... vii
LIST OF TABLES ................................................................................................ xii
CHAPTER I ........................................................................................................... 1
Introduction......................................................................................................... 1
  Defining and Measuring Cybersex ................................................................. 3
    Conceptual Definitions .............................................................................. 4
    Measuring Cybersex ................................................................................. 5
Cybersex Experience ......................................................................................... 11
  Relationship Context of Cybersex Experience ............................................. 11
Prevalence of Cybersex Experience ............................................................... 15
Frequency of Cybersex Experience ................................................................. 19
Desired Frequency of Sexual Experience ....................................................... 21
Sexual Scripts .................................................................................................... 22
  Gender and Sexual Scripts ........................................................................... 23
  The Traditional Sexual Script ..................................................................... 25
Sexual Scripts in Cybersex ................................................................................. 25
  The TSS in Cybersex .................................................................................. 26
  Gender and the Relationship Context of Desired and Actual Cybersex
    Experience ................................................................................................ 28
The Current Research ......................................................................................... 28
References ......................................................................................................... 31
CHAPTER II ......................................................................................................... 47
What is Cybersex? Heterosexual Students’ Definitions ................................... 47
  Definitions of Cybersex ............................................................................. 48
  Gender Differences in Definitions ............................................................. 50
  The Current Study ...................................................................................... 50
LIST OF TABLES

Table 2.1  *Descriptions and Examples of Nine Content Code Categories* ........................ 54
Table 2.2  *Percentage of Definitions That Included Each Content Code Overall and by Gender* ...................................................................................................................... 57
Table 4.1  *Number (and Percent) of Participants in Concordant and Discordant Groups at Time 2 sorted by Group Membership at Time 1* ................................................... 90
Table 4.2  *Summary of the Discriminant Function Analysis Predicting Concordant and Discordant Multi-Only Group Membership* ............................................................. 92
Table 6.1  *Prevalence (%) of Cybersex Experience Within Various Partner Contexts.* 121
Table 6.2  *Men and women’s average frequency of cybersex experience with each type of partner.* .................................................................................................................. 124
Table 6.3  *Spearman’s Rho Correlations Among Desired and Actual Frequency of Cybersex Experience with a Primary Partner, Known Non-Partner, and Stranger* ................................................................. 126
CHAPTER I

Introduction

The Internet is a relatively new forum for sexual expression and arousal. Arousal-oriented online sexual activities are any behaviours on the Internet that involve sexual content and are aimed at producing sexual excitement. Research suggests that online sexual activity is quite prevalent with between 34% and 78% of survey participants reporting that they have used the Internet for some form of arousal-oriented online sexual activities (Boies, 2002; Cooper, Månsson, Daneback, Tikkanen, & Ross, 2003; Cooper, Morahan-Martin, Mathy, & Maheu, 2002; Daneback, Cooper, & Månsson, 2005; Shaughnessy & Byers, 2010; Shaughnessy, Byers, & Walsh, 2011). People can engage in online sexual activities either alone or with a partner. However, researchers have focused on solitary-arousal online sexual activities – that is, activities that involve accessing sexually explicit material such as pornographic or erotic videos, photographs, and stories. In contrast, there is little research on partnered-arousal online sexual activities – that is, Internet-based interactions between at least two individuals that involve sexually explicit conversations, content, or stimuli (Shaughnessy, Byers, & Walsh, 2011). Researchers often refer to partnered-arousal online sexual activities as cybersex; thus, this term will be adopted in this dissertation.

There are a number of problems with the limited research that has been conducted on cybersex. First, researchers have focused on compulsive or addictive cybersex experience (e.g., Cooper, Delmonico, Griffin-Shelley, & Mathy, 2004; Delmonico & Griffin, 2012; Griffiths, 2001; Griffiths, 2012; Rimington & Gast, 2007; Ross, Månsson, & Daneback, 2012; Schneider, 2000; Wood, 2007), or on cybersex as a form of infidelity
(e.g., Aviram & Amichai-Hamburger, 2005; Hertlein & Piercy, 2006; 2008; Mileham, 2007; Schneider, 2003; Whitty, 2005). However, only a small percentage of people who engage in online sexual activities report such problems (Cooper et al., 2004; Cooper, Morahan-Martin, et al., 2002; Daneback et al., 2005; Ross et al., 2012). Second, researchers have relied on designing their own measures of online sexual activity experience, including cybersex, but generally have not examined the psychometric properties of these measures. This approach has resulted in a lack of psychometrically strong measures to use. It has also limited the ability to compare findings across studies. Third, researchers have focused on whether people have ever engaged in cybersex (i.e., prevalence) but neglected other important aspects including how often people engage in cybersex (i.e., actual frequency) and how often they would like to engage in cybersex (i.e., desired frequency). Fourth, most of the research on online sexual activities in general, and cybersex specifically, is atheoretical. A theoretical approach based on sexual script theory would help to clarify findings, particularly gender differences in cybersex experience. Fifth and lastly, researchers have tended to assume that cybersex occurs between two people who are strangers and anonymous prior to their online encounter (e.g., Daneback et al., 2005; Dijkstra & Barelds, 2011; Goodson, McCormick, & Evans, 2001). Yet, research on non-sexual online social interactions indicates that the vast majority of individuals use the Internet to maintain existing offline relationships, including offline committed relationships (Bargh & McKenna, 2004; Miczo, Mariani, & Donahue, 2011; Ramirez & Broneck, 2009; Stafford, Kline, & Dimmick, 1999). The patterns of participation in cybersex may differ depending on the type of relationship between the partners. In this dissertation, three types of cybersex partners were examined:
primary romantic partners (primary partners), people known to each other that were not partners (known non-partners), and strangers. The goal of this dissertation was to enhance our understanding of cybersex by filling in the gaps in the conceptual and operational definitions and relationship context of cybersex as well as providing a theoretical approach to gender differences.

In the following sections, theory and research relevant to this dissertation are reviewed. First, a critique of current conceptual and operational definitions and measurement of cybersex is provided. Second, research and theory supporting the three relationship contexts and differences between these are reviewed. Third, research on the prevalence, frequency, and desired frequency of cybersex in each relationship context is reviewed. Fourth, sexual script theory and the traditional sexual script are described and applied to cybersex activities. Fifth, research supporting the proposed gender differences is reviewed. Because cybersex is a type of sexual activity, it likely shares some common features with other sexual activities. Thus, in sections where there is limited information available on cybersex, evidence from research on offline partnered sexual activity or solitary-arousal online sexual activity is reviewed.

Defining and Measuring Cybersex

There have been a number of limitations with the conceptual and operational definitions that have guided research on cybersex. First, although most researchers differentiate cybersex from seeking sexual information online or forming romantic relationships online, they have varied in their conceptual definitions. Second, researchers’ conceptual definitions are not always reflected in their operational definitions. That is, researchers have tended to use the term cybersex in single-item measures without
providing a clear definition of this term. Finally, although researchers have considered that cybersex can occur in different types of relationships (Cooper, Scherer, & Marcus, 2002; Daneback, Månsson, & Ross, 2007; Griffiths, 2001), they have not included this contextual aspect when assessing cybersex experience. Each of these issues will be described in more detail below.

**Conceptual Definitions**

Researchers have proposed a number of conceptual definitions of cybersex that differ on their inclusion and exclusion of specific types of online sexual activities. For example, most researchers have specified that only partnered-arousal online sexual activities are cybersex (e.g., Carvalheira & Gomes, 2003; Cooper, Scherer et al., 2002; Craft, 2012; Daneback et al., 2005; Döring, 2000; Ferree, 2003; Waskul, 2002), whereas a few others have included solitary-arousal online sexual activities within their definitions of cybersex (e.g., Cooper & Griffin-Shelley, 2002). Most researchers have restricted cybersex to activities that are intended to be sexually arousing and gratifying (Carvalheira & Gomes, 2003; Cooper, Scherer et al., 2002; Leiblum & Döring, 2002). Some researchers have also restricted cybersex to only those activities during which both participants masturbate or self-stimulate (Cooper, Scherer et al., 2002; Craft, 2012; Ferree, 2003), whereas others allow the potential for sexual arousal without self-stimulation (Daneback et al., 2005; Griffiths, 2001). Finally, some researchers have suggested that cybersex occurs through specific forums of online interaction (e.g., chat rooms, email, instant messenger; Dijkstra & Bareljs, 2011; Leiblum & Döring, 2002); others have indicated that it is a synchronous activity (Carvalheira & Gomes, 2003; Cooper, Scherer et al., 2002); and, still others have completely left the forum of
communication out of their definitions (Daneback et al., 2005; Waskul, 2002). Researchers have derived these definitions from clinical experiences or academic discussion not from empirical examinations of how participants define cybersex. Nevertheless, they appear to assume that these conceptual definitions capture how the general population understands the term cybersex.

**Measuring Cybersex**

Operational definitions of cybersex. In measuring cybersex, many researchers have failed to turn their conceptual definitions into clear operational definitions. For example, Cooper, Morahan-Martin, and colleagues (2002) used a single-item measure of cybersex experience (i.e., *Have you had cybersex?*) without operationally defining cybersex for participants. Others have used single items that refer to specific types of partnered-arousal activities that themselves are not clearly defined (e.g., *Have you ever engaged in erotic chat?* Træen, Nilsen, & Stigum, 2006; *...looked on the Internet for someone to have an erotic chat with?* Dijkstra & Barelids, 2011). In doing so, most researchers have assumed that all participants interpret the term cybersex, or similar terms such as erotic chat, as referring to the same set of online activities. However, a growing body of research indicates that people vary in the specific activities that they view as constituting a range of sexual behaviour domains (Bogart, Cecil, Wagstaff, Pinkerton, & Abramson, 2000; E. Byers, Henderson, & Hobson, 2009; Pitts & Rahman, 2001; Randall & Byers, 2003; Sanders & Reinisch, 1999; Sanders, Hill, Yarber, Graham, Crosby, & Milhausen, 2010; Trotter & Alderson, 2007). Behaviour domains are broader behavioural constructs (e.g., having sex, risky sexual activities) that can manifest in many specific sexual activities. It is likely that cybersex is not a single activity but rather a
constellation of partnered, interactive, and real-time online sexual activities – that is, that
cybersex is a behavioural domain.

Approaches to assessing cybersex experience. There are two general
approaches to assessing self-reported experience with a sexual behaviour domain, such as
cybersex: single-item measures and multi-item measures. Single-item measures typically
involve asking participants to indicate their experience with a broad term that represents a
behaviour domain, such as having sex or, in this case, cybersex. In contrast, multi-item
measures use a list of specific activities in order to assess the prevalence of a behavioural
domain. Participants need only respond to one of the listed activities to constitute a
behaviour domain report.

The validity of both single-item and multi-item measures are affected to some
degree by bias. Validity refers to the extent to which a measure assesses the construct or
behaviour it is designed to assess (DeVellis, 2011). A measure can be considered
accurate when it is valid and reliable—that is, scores are predictable and change as the
construct or behaviour changes. The accuracy of a measure decreases when bias is
present. Bias refers to the tendency for a measurement process to “systematically over- or
under-estimate the associated population parameter” (Stat Trek, 2013, “Bias in Survey
Sampling”, para. 1). There are many sources of bias including, but not limited to, social
desirability bias (i.e., people’s desire or motivation to appear favourably; McCallum &
Petersen, 2012), recall bias (i.e., people’s ability to accurately remember behaviours over
time; Schroder, Carey, & Vanable, 2003), and acquiescence bias (i.e., people’s tendency
to agree or disagree with items regardless of content; Podsakoff, MacKenzie, Lee, &
Podsakoff, 2003). Misclassification bias is a particularly important consideration for the
validity of measures that are intended to identify groups of people with and without experience with a behaviour domain. Misclassification bias occurs when participants’ responses to a measure systematically lead them to be incorrectly identified as either having or not having an experience (Sanders et al., 2010).

**Single-item measures and bias.** There are a number of reasons why single-item measures are likely to result in misclassification bias. First, single-item measures are generally sensitive to bias (Epstein, 1980; Nunnally & Bernstein, 1994). One source of this sensitivity stems from the reliance on a broad term used to identify the behaviour under investigation. Single-item measures of sexual behaviour domains rest on the assumption that all participants interpret a sexual term to refer to the same set of specific behaviours. However, it is likely that people vary in their interpretation of the term cybersex. Second, response biases that stem from assumptions and expectations of labeling one’s behaviour (Peterson & Muehlenhard, 2007), demand characteristics of the study (e.g., cues in item wording; Catania, Binson, Canchola, Pollack, Hauck, & Coates, 1996), negative emotions about one’s experience (Catania, Gibson, Chitwood, & Coates, 1990), and social desirability (McCallum & Petersen, 2012; Meston, Heiman, Trapnell, & Paulhus, 1998) also affect single-item measures. These sources of bias likely decrease the validity of single-item measures, which in turn would increase the likelihood of misclassification bias. McCallum and Petersen (2012) recently suggested that, because sexual behaviours are often considered sensitive information and are affected by gender and cultural norms, measures of sexual behaviour likely are affected by bias more so than measures of less sensitive behaviours. Third, the labels used to identify sexual behaviour domains on single-item measures are often associated with strong stereotypes and stigma.
that may not arise with multi-item measures of specific sexual behaviours. Nonetheless, research has supported the temporal reliability of some single-item measures across a variety of domains such as alcohol use, frequency of sexual activity, and number of sex partners (Dollinger & Malmquist, 2009; Nyitray, Harris, Abalos, Nielson, Papentuss, & Giuliana, 2010). However, the validity of single-item measures of cybersex is unknown. Thus, the extent to which single-item measures of cybersex are affected by a misclassification bias is not known.

Multi-item measures and bias. Multi-item measures of behaviour domains are considered more psychometrically sound compared to single-item measures. These types of measures are less open to differences in interpretations because each item inquires about a specific behaviour that fits within the behaviour domain under investigation. Additionally, the aggregation of multiple items decreases the impact of bias and measurement error stemming from one item (Epstein, 1980; Nunnally & Bernstein, 1994). Essentially, bias and error is averaged across the items and therefore have less impact on both the reliability and validity of the measure. However, two key concerns arise in the accuracy of multi-item measures of sexual behaviour domains: content validity and response bias. Content validity refers to the extent to which multi-item measures assess a representative range of specific behaviours that comprise the behaviour domain (Nunnally & Bernstein, 1994). Poorly worded items and inaccurate sampling of specific behaviours can create problems for the content validity of multi-item measures. Content validity can be built into a measure by: 1) using a clear and specific conceptual definition of the domain to guide item construction; 2) creating multiple items that assess a range of behaviours within the domain; and, 3) piloting items with formal and informal
experts of the domain (Nunnally & Bernstein, 1994). However, the direct and explicit terminology typically used on multi-item measures may elicit some response biases (e.g., social desirability) that likely still would result in a misclassification bias. Nevertheless, participants' responses on multi-item measures likely are affected by fewer sources of bias compared to their responses on single-item measures.

**Single-item compared to multi-item measures.** There is some research that suggests single-item measures are less valid than are multi-item measures for assessing the prevalence of cybersex experience. Because sexual topics and activities are considered sensitive, people are more likely to under-report than to over-report on sexuality measures (Catania et al., 1990; McCallum & Peterson, 2012). Thus, higher prevalence rates often are considered more accurate and the measures that produce these higher rates considered more valid. Consistently, researchers who have used a single-time measure of cybersex have found lower prevalence rates for lifetime cybersex experience compared to researchers who have used a multi-item measure. For example, using single-item measures, researchers have found that between 8 and 40% of participants report engaging in cybersex (Cooper, Morahan-Martin, et al., 2002; Daneback et al., 2005; Dijkstra & Barelds, 2011; Goodson et al., 2001). In contrast, using a multi-item measure, Shaughnessy and Byers (2010) found that 75% of university men and women and 53% of men and women recruited online reported at least one partnered-arousal online sexual activity experience – many of which likely constituted cybersex experience. Moreover, in one of the few studies that directly compared single-item and multi-item measures, researchers found that a multi-item measure of pregnancy intentions was more sensitive –
or less likely to misclassify people with positive intentions – than the equivalent single-item measure (Kavanaugh & Schwarz, 2009).

On measures of cybersex, a misclassification bias may occur on either the single-item or multi-item measure. It is possible that individuals identify specific experiences, such as wrote and sent stories about sex to someone, more readily than they report undefined cybersex experiences (e.g., have you had cybersex?). If so, a misclassification bias would occur on the single-item measure but not the multi-item measure. It is also possible that, despite a focus on the content validity of the measure, not all of the specific arousal-oriented online sexual activity items on a multi-item measure represent cybersex. If so, a misclassification bias may be more likely to occur on a multi-item measure than on the single-item measure. Given these possibilities, two measures of cybersex experience were developed in this dissertation: a single-item and a multi-item measure.

**Measuring the relationship context of cybersex.** Researchers have conceptualized cybersex as an activity that occurs between at least two people but generally have not specified the type of relationship in which cybersex occurs. As such, studies have likely included people who have had cybersex with different types of partners. Nonetheless, researchers have often assumed that participants were reporting on cybersex with an anonymous stranger when interpreting their findings. Indeed, a few researchers have worded questions about cybersex to imply that it does not occur with a primary partner (e.g., If a person has an offline partner, engaging in cybersex is cheating on that partner; Goodson, McCormick, & Evans, 2000). Because cybersex can occur with a range of partners, the relationship context of cybersex likely affects people’s
cybersex experience. Therefore, in this dissertation, cybersex was examined within three relationship contexts: primary partners, known non-partners, and strangers.

**Cybersex Experience**

To fully understand cybersex it is important to examine multiple aspects of people’s experiences. Researchers have largely focused on the lifetime prevalence of cybersex experience – that is, whether or not people have ever engaged in cybersex. This dissertation extends previous research by also examining the frequency (i.e., how often people engage) and desired frequency (i.e., how often people would like to engage) of cybersex experience. However, the relationship context likely affects the prevalence, frequency, and desired frequency of cybersex. In the following sections, research supporting the relationship contexts examined in this dissertation is presented.

Subsequently, the limited research available on the prevalence of cybersex experience is examined. Unfortunately, there are significant methodological limitations to past research in this area (e.g., reliant on single-item measures with no definition of cybersex provided to participants); researchers also have not addressed the relationship context of cybersex. A guiding assumption in this dissertation is that cybersex, as a sexual activity, shares features with other sexual activities including offline partnered sexual activities. Thus, a review of relevant research on the partner context of the prevalence, frequency, and desired frequency of sexual activity offline is presented as indirect evidence for the impact of the relationship context of cybersex experience.

**Relationship Context of Cybersex Experience**

Most researchers have not assessed the type of relationship between cybersex partners. When researchers have examined cybersex within a context, they have focused
on participants who meet online and subsequently engage in cybersex – that is, cybersex between strangers (Daneback et al., 2007; Dijkstra & Barelds, 2011; Goodson et al., 2001). However, research on non-sexual online interactions suggests that people use many forms of computer-mediated communication to maintain relationships and social connections that already exist offline and do so more frequently than to connect with new people (Bargh & McKenna, 2004; Miczo et al., 2011; Ramirez & Broneck, 2009; Stafford et al., 1999). That is, Internet communication complements traditional forms of communication such as face-to-face and telephone communication. Indeed, maintaining relationships is likely the most common use of computer-mediated communications (Kraut, Mukhopadhyay, Szczypula, Kiesler, & Scherlis, 1999). For example, Koku, Nazer, and Wellman (2001) found that academics sent more emails to their academic colleagues who they saw more frequently than to their academic colleagues who they saw less frequently. Additionally, pairs of academics who considered themselves to be friends communicated more frequently through all channels (i.e., face-to-face, email, telephone) than did those who considered themselves only to be colleagues or acquaintances. Similarly, Cooper and colleagues (2003) found that both men and women reported using the Internet to maintain love/sex connections more often than to look for love contacts, look for a sex partner, or chat with people with similar sexual interests. However, Cooper and colleagues did not ask about the types of activities participants engaged in to maintain these offline love/sex connections. Therefore, it is not known whether cybersex was one aspect of these activities. Nevertheless, these findings suggest that individuals likely engage in cybersex with people they know as well as with strangers.
There is little known about cybersex that occurs with known partners compared to cybersex with strangers; and, cybersex within primary romantic relationships compared to cybersex that occurs external to primary romantic relationships. Indeed, a review of the literature revealed no published research that examined the relationship context of cybersex aside from cybersex with a stranger (e.g., Daneback et al., 2005; Dijkstra & Barelds, 2011; Goodson et al., 2001). Yet, people’s cybersex experiences likely differ depending on the relationship context. Three types of relationships were examined in this dissertation: a primary partner, a known non-partner, and a stranger.

**Dimensions on which the relationship contexts differ.** The relationships examined in this study differ on two dimensions: characteristics of the relationship and the level of anonymity involved in the interaction. The first dimension is focused on differences in emotional intimacy, commitment, personal familiarity, and extent to which the relationship also occurs in real life. The extent to which these characteristics differ in types of relationships likely affects cybersex experiences. For example, in offline sexual activity, researchers have found that people expect significantly more frequent sexual activity in their relationships characterized by higher compared to lower degrees of intimacy (Wentland & Reissing, 2011). Additionally, people behave significantly different in short-term compared to longer-term dating relationships (Dworkin & O’Sullivan, 2007; O’Sullivan & Byers, 1992). Cybersex with a stranger is short lived, does not extend beyond the interaction, and remains in the online world. In contrast, cybersex with a romantic partner involves a high level of intimacy and commitment that extends beyond the cybersex interaction into many aspects of real life. Cybersex with a known non-partner is characterized by an affiliation that falls somewhere between that
with primary partners and with strangers. That is, the familiarity, commitment, intimacy, and extent to which the relationship extends offline may vary widely depending on whether the two individuals are acquaintances, colleagues, classmates, friends, or ex-partners.

The second dimension, level of anonymity, refers to the extent to which people are readily identifiable during the interaction. Low anonymity involves more identifying cues whereas high anonymity allows users to hide their personal identification from others. Anonymity arises in online interactions from reduced visual cues, physical distance, and/or interacting with people with whom they were not previously, nor need to become, acquainted (Derks, Fischer, & Bos, 2008). Researchers have found that the level of anonymity is important for understanding how people behave in sexual and non-sexual computer-mediated communications (Alonzo & Aiken, 2004; Amichai-Hamburger, 2007; Christopherson, 2007; Cooper & Griffin-Shelley, 2002; McKenna & Bargh, 2000; Moore, Nakano, Enomoto, & Suda, 2012; Postmes & Spears, 2002; Ross, 2005; Smith et al., 2008). For example, participants active in erotic chat groups report that they are able to express aspects of their sexual selves that they are not comfortable expressing offline because of the anonymity in these online environments (McKenna, Green, & Smith, 2001; Mileham, 2007). Similarly, shy and socially anxious individuals self-disclose more frequently in online interactions that do not include a webcam than in those that do include a webcam, likely due to the anonymity (Brunet & Schmidt, 2008). In the three relationship contexts (i.e., primary partners, known non-partners, strangers) examined in the studies described in Chapter IV and VI, full anonymity was only present in cybersex with a stranger. Because known non-partners are less likely to be familiar with each
others’ sexual patterns offline than are primary partners, known non-partners likely are more anonymous than are primary partners. Thus, primary partners are the least anonymous relationship context examined.

**Prevalence of Cybersex Experience**

Cybersex appears to be a relatively unconventional sexual activity. Previous researchers found that between 40 and 50% of college students reported that they had engaged in some form of online sexual activity (Boies, 2002; Goodson et al., 2001). However, very few of these students reported an experience that constituted cybersex and those that did reported engaging in it infrequently. For example, Boies (2002) found that 8% of undergraduate men and women reported having had an “online sex partner”; 82% of these reported having had only one such partner. Additionally, 9% of the students reported having visited a sex chat room in the previous 12 months. In a recent study of women sampled from a popular magazine in the Netherlands, the prevalence of cybersex was also low: only 8% reported having ever “looked on the Internet for someone to have an erotic chat with” (Dijkstra & Bareld, 2011). Even among samples of individuals who report using the Internet for accessing sexually explicit material, cybersex participants are a minority. For example, Cooper, Morahan-Martin, et al. (2002) found that 39% of their sample of primarily American men and women who had engaged in online sexual activity reported having participated in cybersex. Similarly, a Swedish study found that 30% of men and 35% of women who had used the Internet for accessing sexually explicit material indicated they had “met one or more persons on the Internet with whom they had sex online” (Daneback et al., 2005). In contrast, Craft (2012) recently found that 91% of a sample of *Second Life* (an online 3D virtual world in which people create characters
and interact with others via these characters) participants reported cybersex experience. Nonetheless, the majority of the findings suggest that cybersex represents a variation in sexual activity that has not shifted into mainstream experience.

**Prevalence of sexual experience within each relationship context.** Researchers have not examined cybersex with a primary romantic partner. However, men and women express a preference for offline sexual activity within the context of a committed relationship (Schwartz, 2007). Indeed, most individuals in dating, cohabiting, and married relationships report regularly engaging in offline sexual activity with their partner (Bibby, 1995; Blumstein & Schwartz, 1983; Herbenick, Reece, Schick, Sanders, Dodge, & Fortenberry, 2010; Laumann, Gagnon, Michael, & Michaels, 1994; Reece, Herbenick, Schick, Sanders, Dodge, & Fortenberry, 2010). Additionally, researchers have found that both men and women report solitary-arousal online sexual activity experience with their primary partner (Daneback, Træen, & Månsson, 2009; Grov, Gillespie, Royce, & Lever, 2011; Maddox, Rhoades, & Markman, 2011). Thus, it is likely that men and women also engage in cybersex with their primary partner.

Individuals who are in a committed relationship can also engage in sexual activity with someone who is not their primary partner, often called extradyadic or extramarital sex. A growing body of evidence indicates that people consider a primary partner’s use of cybersex to be a form of extradyadic sex and that people engage in cybersex as an extradyadic sexual activity (Goodson et al., 2001; Groothof, Dijkstra, & Barelds, 2009; Hertlein & Piercy, 2006; Mileham, 2007; Schneider, 2003; Whitty, 2005). However, this research has been largely qualitative and exploratory. Although there are no nationally representative data on the prevalence of cybersex within any type of relationship, Luo
Cartun, and Snider (2010) found that 5% of the women and 15% of the men in their college sample reported at least one cybersex experience with “someone other than their partner while in their current relationship” (p. 159). The rates increased slightly for both men and women when asked about sharing sexual pictures with someone other than their current partner; 45% of women and 61% of men reported doing this at least once. These findings suggest some people likely participate in extradyadic cybersex.

When people engage in extradyadic cybersex they can do so with someone they know or with a stranger. Similarly, single individuals can engage in cybersex with someone they know or with a stranger. In offline sexual activity research, the term casual sex is used to capture a broad range of sexual relationships or experiences that occur outside of a romantic relationship context (Epstein, Calzo, Smiler, & Ward, 2009; Paul, McManus, & Hayes, 2000). Casual sex can occur only once with a stranger or with someone known but it can also occur repeatedly with a known non-partner (Grello, Welsh, & Harper, 2006; Wentland & Reissing, 2011). The key is that the relationship between sexual partners is non-committal (or casual) at the time of the encounter(s) (Epstein et al., 2009; Grello et al., 2006; Paul et al., 2000). Although some researchers have examined cybersex with a stranger (e.g., Daneback et al., 2005; Dijkstra & Barelds, 2011; Goodson et al., 2001), a review of the literature revealed no studies that have examined cybersex with a known non-partner. However, researchers have found that between 33% and 60% of undergraduates report having at least one ongoing (offline) sexual relationship with a friend that was not romantic (commonly referred to as “friends with benefits”; Afifi & Faulkner, 2000; Bisson & Levine, 2009; Owen & Fincham, 2010; Puentes, Knox, & Zusman, 2008). In comparison, as many as three-quarters of university
students and young adults report having had at least one lifetime sexual experience offline with a stranger or someone they had only recently met (Grello et al., 2006; Heldman & Wade, 2010; Herold & Mewhinney, 1993; Paul & Hayes, 2002). Unfortunately, there has been no parallel research with older adults. Nonetheless, findings from offline research suggest that it is common for young adults to have at least one casual sex experience with someone they know as well as with a stranger. Therefore, it is likely that people also engage in cybersex with known non-partners and strangers.

Comparing the prevalence of sexual experience between relationship contexts. The likelihood that people engage in cybersex with each type of partner may parallel the likelihood of engaging in offline sexual activity with each type of partner. A review of the research on offline sexual activity revealed only one study that directly compared the likelihood of people engaging in sexual activity in different types of relationships including with primary romantic partners and casual sex partners. Furman and Shaffer (2011) found that young adults were more likely to engage in sexual activity with a romantic partner than with a friend or casual acquaintance/someone they just met. However, participants did not differ in their likelihood of engaging in sexual activity with a friend compared to casual acquaintances/someone they just met. The latter finding may reflect the fact that casual acquaintances and someone just met are qualitatively different types of partners; namely, they differ in whether the person was known prior to the sexual encounter. This distinction is likely important for understanding whether people are more likely to engage in sexual activities with people they know (i.e., friend, casual acquaintance) or people that are unknown (i.e., someone just met). When asked about their more recent casual sex experiences, the majority of students report engaging in
casual sex encounters with someone they knew previous to the encounter (e.g., classmate, ex-girlfriend/boyfriend) (Grello et al., 2006; Manning, Giordano, & Longmore, 2006). For example, Grello et al. (2006) found that 63% of students (including both individuals who were single and in a relationship) who reported a casual sex encounter said their most recent encounter was with a friend. Consistently, Wentland and Reissing (2011) found that people expect sexual activity with someone known to occur more frequently than sexual activity with relative strangers. Overall, these findings suggest that, for students, sexual activities (including cybersex) with a primary romantic partner is likely more common than with a casual sex partner and that casual sex activities with someone known may be more common than casual sex activities with a stranger.

**Frequency of Cybersex Experience**

It is important to know how often people engage in cybersex with different types of partners in order to develop a better understanding of non-problematic or recreational use. However, few researchers have assessed the frequency of cybersex and none have compared frequency across the three types of relationships. Researchers have used the term recreational users to refer to a large subgroup of participants who engage in infrequent online sexual activities including cybersex (Cooper, Delmonico, & Berg, 2000; Cooper et al., 2004). For example, in previous research, heterosexual students who reported engaging in partnered-arousal online sexual activities, many of which were consistent with the term cybersex, did so fairly infrequently – on average once a month (Shaughnessy, Byers, & Walsh, 2011). Similarly, in two separate and more recent samples, heterosexual men and women reported fairly infrequent experience across a wider range of partnered-arousal online sexual activities (Shaughnessy, Byers, Clowater,
Goodson and colleagues (2001) reported that, of the few participants who endorsed cybersex experience with an online partner, almost none reported frequent experience.

Comparing the frequency of sexual activity across relationship contexts.

Research on offline sexual activity provides some evidence that the frequency of cybersex likely differs across relationship contexts. Similar to the prevalence of sexual activity, a review of the literature revealed only one study in which the frequency of sexual activity was directly compared across types of sexual partners (Furman & Shafer, 2011). In this study, young adults reported significantly more frequent sexual behaviours, across a range of specific activities, with a primary romantic partner compared to with friends, and with casual acquaintances. They also reported significantly more frequent sexual activities with friends compared to casual acquaintances. Researchers also have reported that individuals in cohabiting relationships (whether married or not) report more frequent sexual activity than those who are not (single, never-married, divorced, separated, or widowed) implying that sexual activity with a primary partner likely is more frequent than sexual activity with other types of partners (Bibby, 1995; Herbenick et al., 2010; Långström & Hanson, 2006; Laumann et al., 1994; Reece et al., 2010). Indeed, Laumann et al. (1994) found that most individuals in long-term relationships report having sexual intercourse at least a few times a month, and many report frequencies of three to six times a week. In contrast, they found that very few individuals in short-term relationships reported having sex as often as three to six times a month. The frequency with which people engage in casual sex with different types of partners is less clear. Bisson and Levine (2009) found that 30% of their sample of students who had engaged in
a friends-with-benefits relationship reported that they did so “frequently” whereas 52% did so “occasionally.” Afifi and Faulkner (2000) found that students who reported having a sexual experience with a friend had done so approximately four times a year. Together, the findings suggest that sexual activity with a known partner is likely more frequent than sexual activity with a stranger.

**Desired Frequency of Sexual Experience**

Sexual desire refers to people’s interest in sexual activity (Spector, Carey, & Steinberg, 2010). However, sexual desire is a multidimensional construct in that people vary in the extent to which they desire to engage in different types of sexual activities and/or sexual activity within different relationship contexts (Spector et al., 2010). For example, people tend to report a preference for sexual activity within the context of a primary romantic relationship compared to sexual activity outside of a romantic relationship (Schwartz, 2007). These findings suggest that people likely desire cybersex within a specific relationship context as opposed to cybersex in general. Nonetheless, researchers have found that people who have higher levels of sexual desire for one type of sexual activity or stimuli tend to also have higher levels of sexual desire for other types of activities and stimuli (Spector, Carey, & Steinberg, 1996; Winters, Christoff, & Gorzalka, 2010). Thus, it is likely people’s desire for cybersex in one relationship context is related to their desire for cybersex in other relationship contexts.

One reason that people engage in a specific sexual activity, such as cybersex, is because they desire engaging in the specified activity. Researchers and theorists generally consider sexual desire to be a motivating factor for engaging in sexual activity; that is, it spurs people to seek and engage in sexual activity (Baumeister, Cantanese, & Vohs,
Additionally, researchers have demonstrated close connections between the desired and actual frequency of specific offline sexual activities as well as dimensions of sexual activities (e.g., dyadic or solitary; Santtila et al., 2008; Spector et al., 2010). Therefore, the relationship context of people’s desired frequency of cybersex likely motivates engaging in cybersex within the matching relationship context. For example, people who desire frequent cybersex with their primary partner likely expend effort to encourage their primary partner to engage in cybersex, but not necessarily to find other types of cybersex partners. Similarly, people who desire frequent cybersex with a known non-partner or a stranger likely are willing to expend effort to find a known non-partner or stranger, but not necessarily to engage in cybersex with their primary partner. However, a review of the research revealed no studies in which desired frequency of cybersex in any context was examined.

**Sexual Scripts**

Script theory allows an examination of how social behaviours function within larger societal and cultural processes. Scripts are conceptual representations of stereotypical sequences of events that guide individuals’ behaviours in a variety of situations (Abelson, 1981). They include information on the roles, activities, context, motivations, and outcomes of events – essentially the who, what, where, when, and why of activities. Script theory has been successfully used to explain how offline interpersonal activities are given sexual meaning (Simon & Gagnon, 1987). These types of scripts are called sexual scripts.

According to script theory, there are three levels of sexual scripts simultaneously present in the moment of the interaction: cultural scenarios, intrapsychic scripts, and
interpersonal scripts (Dworkin & O'Sullivan, 2007; Parker, 2010; Simon & Gagnon, 1987). The cultural level is the broadest level of scripting and reflects the sexual social norms communicated in a society and culture (Simon & Gagnon, 1987). These sexual norms are transmitted to individuals through socialization by family members and peers and maintained broadly by social institutions such as the mass media (Gagnon & Simon, 2005; Wiederman, 2005). The intrapsychic-level script reflects an individual’s internal sexual desires, interests, motives, and fantasies. These are essentially the self-processes that guide what an individual finds sexually arousing and satisfying. During sexual activity, individuals monitor and negotiate these processes to create sexual meaning for their behaviours and physiological states (Simon & Gagnon, 1987). Finally, the interpersonal-level script is the immediate, recognizable, and observable organization of the sexual activity – that is, the actual interaction (Simon & Gagnon, 1987). At this level, the cultural scenario interacts with the intrapsychic script and personal experiences to bring about the enacted script. Through interpersonal scripts, individuals’ beliefs about what is expected of them and what they can expect of their partners (based on cultural norms) as well as what they personally want (based on self-processes) come together to create the practical aspects of sexual action (Simon & Gagnon, 1987).

Gender and Sexual Scripts

In keeping with gender roles, sexual scripts for men are different than those for women. Gender roles are culturally-based norms that specify the social expectations for each gender (Eagly & Wood, 1999). Cultural ideals about the types of behaviours, activities, and traits that are appropriate for men and women are transmitted to young boys and girls through gender role socialization. Traditional North American gender roles
encourage men to adopt dominant behaviours and characteristics and women to assume subordinate behaviours and characteristics (Eagly & Wood, 1999; Gagnon & Simon, 2005). Thus, men are encouraged to be instrumental and express agency in all aspects of their lives. Women are encouraged to be passive and restrict their instrumental behaviours.

Gender roles also include expectations for how men and women are supposed to behave sexually. Specifically, in North America women are encouraged towards sexual restraint whereas men are encouraged towards sexual expression (Eagley & Wood, 1999; Gagnon & Simon, 2005). Although culture-based gender roles are distinct from sexual scripts, socialization to sexual scripts occurs in the context of applying gender roles to interactions in sexual situations (Gagnon & Simon, 2005). At the cultural level, sexual norms encompass non-sexual norms including gender role expectations. At the intrapsychic level, individuals internalize cultural scenarios and gendered social expectations (Feingold, 1994). That is, personal preferences and patterns for sexual arousal and satisfaction are guided by gender role norms. Finally, gender role norms directly enter the interpersonal script insofar as they become part of the process of negotiating each partner’s needs, desires, and involvement in the sexual interaction. Due to the presence of a person of each gender, gender is particularly salient in mixed-sex intimate encounters. This salience may increase conformity to gender roles in these situations (Postmes & Spears, 2002; Sanchez, Crocker, & Boike, 2005). In fact, the incorporation of traditional gender role norms with a cultural scenario that expects heterosexuality creates the traditional sexual script (E. Byers, 1996; Schwartz, 2007).
The Traditional Sexual Script

The Traditional Sexual Script (TSS) is a heterosexual script that delineates different yet complimentary roles for men and women and represents the prevailing cultural scenario (i.e., cultural sexual script) in North America (McCormick, 2010; Wiederman, 2005). According to the TSS, different roles, activities, contexts, and outcomes are appropriate for men and women during heterosexual sexual activity. Specifically, through these heterosexual norms, men are encouraged to desire, seek, and engage in a wide range of sexual activity across a variety of contexts – effectively assuming an active role in their sexuality (E. Byers, 1996; Gagnon & Simon, 2005). In contrast, women are expected to be less interested in sex, act as sexual gatekeepers, and engage in sex primarily within primary romantic relationships (Gagnon & Simon, 2005; Wiederman, 2005). At the same time women are expected to serve as sexual stimuli for men, effectively becoming objects of male sexual desires (E. Byers, 1996). As such, women are encouraged to be sexually passive, receptive, and responsive to men’s sexual desires. Predictions about male and female behaviour in sexual situations based on the TSS are consistent with predictions based on sociobiology and evolutionary psychology. Research on offline sexuality provides support for the general tenets of the TSS (Baumeister et al., 2001; Hynie, Lydon, Côté, Wiener, 1998; Kiefer & Sanchez, 2007; Lawrance, Taylor, & Byers, 1996; Petersen & Hyde, 2010; Ronen, 2010).

Sexual Scripts in Cybersex

Cybersex is a social activity that is likely guided by sexual scripts. Abelson (1981) noted that scripts can vary along different tracks. Script tracks are analogous to subcategories of scripts and contain shared aspects as well as unique aspects of a
superordinate script. For example, a superordinate script for sexual activity includes
sexual initiation, physical touch, undressing, and erotic behaviours. However, the
particulars of the script for sexual intercourse differ from the particulars of the script for
oral sex. Cybersex may be a new track of sexual scripts. Therefore, general aspects in
cybersex scripts may parallel sexual scripts offline even though the activity involves
unique aspects. Researchers studying virtual worlds such as Second Life have found that
scripts that exist for non-sexual interactions offline are also present in parallel online
interactions (e.g., Yee, Bailenson, Urbanke, Change, & Merget, 2007). In fact, Internet
theorists suggest that people “import the familiar norms of appropriate behaviour from
similar-looking environments offline to help guide behaviour [online]” (Stromer-Galley
& Martey, 2009, p. 1045). These theorists essentially argue that the context of online
interactions leads people to engage in the social norms – including scripts – that are
present in similar offline contexts. Researchers have also found parallels between offline
and online sexual activity. For example, individuals who report accessing sexually
explicit stimuli online and having online sex partners as well as expressing specific types
of sexual experiences and interests online also report similar activities, experiences, and
interests offline (L. Byers, Menzies, & O’Grady, 2004; Craft, 2012; Daneback et al.,
2005; Goodson et al., 2001). Although these findings suggest that offline sexual scripts
may also be enacted online, a review of the literature revealed no studies that have sought
to examine sexual scripts in cybersex.

The TSS in Cybersex

The extent to which the TSS affects online behaviour is not known. The TSS may
operate online in men’s and women’s desired and actual cybersex experience. The tenets
of the TSS are more permissive toward male than toward female sexual expression in all
types of relationships. However, research findings regarding gender differences in the
prevalence and frequency of cybersex experience have been inconsistent. Some
researchers have found that significantly more women than men reported cybersex
experience (Cooper, Morahan-Martin, et al., 2002). Others have found that the percentage
of men and women who reported cybersex experience does not significantly differ
(Daneback et al., 2005; Goodson et al., 2001). Yet, Petersen and Hyde (2010) concluded
from their meta-analysis that significantly more men than women reported cybersex
experience. Recently, researchers found that although more men reported at least one
partnered-arousal online sexual activity experience, the men and women with experience
did not differ in their frequency of experience (Shaughnessy, Byers, & Walsh, 2011).
Similarly, in two separate samples, male and female university students who had engaged
in partnered-arousal online sexual activities did not differ in their frequency of experience
in the previous three months but men recruited from the community reported significantly
more frequent partnered-arousal online sexual activity than did women (Shaughnessy et
al., 2013). Although the inconsistencies across previous studies may be due to differences
in the samples (e.g., differences in age and education between university and community
samples), they also may be a function of the limited number of cybersex variables
previously examined. An examination of the relationship contexts of the prevalence,
frequency, and desired frequency of cybersex would clarify gender differences in
cybersex experience.
Gender and the Relationship Context of Desired and Actual Cybersex Experience

In research on offline sexual activity, researchers have consistently found that men report greater sexual desire, more offline sex partners, more extradyadic sex, and more casual sex experience than do women (Baumeister et al., 2001; Petersen & Hyde, 2010). However, these authors and others (Alexander & Fisher, 2003; Wiederman, 1997) have noted the logical inconsistency in heterosexual men reporting more partners than do heterosexual women offline because of the required involvement of each gender. That is, in mixed-sex scenarios offline, men and women can only engage in consensual sexual activities when willing others are available, no matter the type of relationship. Thus, even though men may desire more offline sexual activity, their greater desire is constrained by women’s interest in participating in the sexual activity. These constraints on men enacting their sexual desire imposed by the interest of the female partner also would affect cybersex with a primary partner or known non-partner. However, these constraints are not imposed in cybersex with a stranger because the Internet provides accessibility to potential sex partners around the world and at any time of day. Therefore, although men may desire more frequent cybersex experiences with more partners than do women, cybersex with a stranger provides men the only partnered alternative to satisfy their level of desire.

The Current Research

Arousal-oriented online sexual activities are relatively common (Boies, 2002; Cooper et al., 2003; Cooper, Morahan-Martin, et al., 2002; Daneback et al., 2005; Shaughnessy & Byers, 2010; Shaughnessy, Byers, & Walsh, 2011). However, there has been little research on men’s and women’s cybersex experiences. Furthermore, the
research that has been done has been focused on problematic online sexual activity users and suffers from a number of methodological limitations. The current dissertation extends the limited research on cybersex by: (1) combining qualitative and quantitative methods; (2) assessing actual and desired cybersex experiences in three relationship contexts separately; (3) using a broader range of specific cybersex activities; (4) using script theory as a theoretical framework to examine gender differences in actual and desired cybersex experiences; and, (5) excluding individuals who exhibit problematic online sexual activity characteristics to ensure that the results reflect recreational users.

Three manuscripts were generated from two studies that together had the goal of contributing to a greater understanding of cybersex. The first study is presented in Chapter II and is titled *What is Cybersex?: Heterosexual Students’ Definitions* (Shaughnessy, Byers, & Thornton, 2011). The goal of this study was to better understand the activities that people perceive to constitute cybersex. These results were also used to establish empirically-derived conceptual and operational definitions of cybersex. These definitions informed the development of the two measures of cybersex used in Study 2. Study 2 consisted of two complementary surveys that were merged for data analyses (see Appendix F). Manuscripts 2 and 3 are based on Study 2. Manuscript 2 is presented in Chapter IV entitled *Seeing the Forest with the Trees: Cybersex as a Case Study of Single-Item versus Multi-item Measures of Sexual Behaviour* (Shaughnessy & Byers, in press). The overall goal of Manuscript 2 was to empirically examine the performance of the two measures. Part of this examination involved assessing whether the relationship context of cybersex influenced participants’ responses to the measures. The results also were used to select the measure used for the inclusion/exclusion criteria in Manuscript 3. The third and
final manuscript is entitled *Contextualizing Cybersex Experience: Heterosexually Identified Men and Women's Desire for and Experiences with Cybersex with Three Types of Partners* (Shaughnessy & Byers, 2013) and is presented in Chapter VI. The goals of this manuscript were to examine the effects of the relationship context and gender on actual and desired cybersex experience. To do so, this manuscript applied the sexual script framework to men’s and women’s prevalence, frequency, and desired frequency of cybersex in the three relationship contexts: primary partners, known non-partners, and strangers.
References


*Archives of Sexual Behavior, 40,* 429-439.

*Sexuality Research and Social Policy, 7,* 323-333.


Shaughnessy, K., & Byers, E. S. (in press). Seeing the forest with the trees: Cybersex as a case study for single-item versus multi-item measures of sexual behaviour. *Canadian Journal of Behavioural Science.*
Shaughnessy, K., & Byers, E. S. (2013). Contextualizing cybersex experience: Heterosexually identified men and women’s desire for and experiences with cybersex with three types of partners. Manuscript submitted.


CHAPTER II

What is Cybersex? Heterosexual Students’ Definitions¹

Researchers examining the Internet as a medium for accessing sexual material have used a number of terms to describe the phenomena such as online sexual activity, cybersex, and cybering. The term “online sexual activity” is typically defined to include any use of the Internet that involves sexuality (Cooper & Griffin-Shelley, 2002). However, Goodson, McCormick, and Evans (2000) differentiated online sexual activities based on goals of information seeking, relationship formation, and sexual gratification. The term “cybersex” has been used to refer to a subcategory of online sexual activity that is distinct from seeking sexual information and/or a romantic relationship online in that it involves sexual gratification (Daneback, Cooper, & Månsson, 2005). Researchers, clinicians, and health educators have tended to focus on problematic and risky cybersex behaviours such as cybersex addiction or compulsion (Cooper, Delmonico, & Burg, 2000; Döring, 2009; Philaretou, Mahfouz, & Allen, 2005; Rimington & Gast, 2007). Yet, research consistently indicates that the majority of people who engage in online sexual activity are not compulsive or addictive (Cooper et al., 2000; Cooper, Morahan-Martin, Mathy, & Maheu, 2002). Nonetheless, the focus on problematic cybersex has influenced our conceptual understanding of which online sexual activities constitute cybersex. The goal of the current study was to enhance our understanding of the activities that are perceived to constitute cybersex.

¹ This manuscript was published: Shaughnessy, K., Byers, E. S., & Thornton, S. J. (2011). What is cybersex? Heterosexual students’ definitions. International Journal of Sexual Health, 23, 79-89.
Definitions of Cybersex

Researchers have differed in their conceptual definitions of cybersex. For example, Cooper and Griffin-Shelley (2002) defined cybersex as solitary and interactive activities that have the goal of sexual gratification; yet they did not define sexual gratification. Many, but not all, other researchers include a partnered aspect in their definitions of cybersex (Carvalheira & Gomes, 2003; Cooper, Scherer, & Marcus, 2002; Daneback et al., 2005; Döring, 2000; Ferree, 2003). That is, they exclude solitary online sexual activities (e.g., viewing sexually explicit material online) from their definitions of cybersex, even if these activities have the goal of sexual gratification. Researchers also differ in whether they restrict cybersex to only those activities in which individuals intend to become sexually aroused, feel sexually satisfied, engage in self-stimulation, and/or engage in real-time communication (Boies, 2002; Daneback et al., 2005; Döring, 2000; Ferree; Mileham, 2007). However, researchers have not developed their definitions based on knowledge of how individuals in the general population interpret the word cybersex. Therefore, it is impossible to know whether researchers' conceptualizations of cybersex represent colloquial understandings of the term. Nonetheless, professionals and researchers often assume that everyone interprets the term cybersex to refer to the same set of online activities. Yet, these implicit definitions may or may not correspond to the definitions used by researchers. This calls into question the validity of past research on the prevalence and frequency of cybersex experience as well as on predictors and outcomes of engaging in cybersex.

Researchers have often neglected to operationally define the behaviours included in cybersex and have relied instead on single-item measures (e.g., Have you had
cybersex? or How often do you have cybersex?). Given that cybersex is a fairly new concept, it is likely that participants have varied in their interpretations of the term cybersex. That is, consistent with the variability in researchers' conceptual definitions of cybersex, some individuals may interpret cybersex as any online sexual experience, whereas others may interpret cybersex to mean only a subset of online sexual activities – for example, only activities involving a partner or only activities involving sexual arousal. Consistent with this view, researchers have found considerable variability in individual definitions of other sexual terms such as having sex, sexual partner, and abstinence (Byers, Henderson, & Hobson, 2009; Pitts & Rahman, 2001; Randall & Byers, 2003; Sanders & Reinisch, 1999). These findings suggest that the behaviours included in definitions of cybersex may also vary across individuals. If so, participants who have experience with different kinds of online sexual activities may consider some but not all of their activities as constituting cybersex. Shaughnessy, Byers, and Walsh (2011) have shown that online sexual activities can be meaningfully separated into three categories: non-arousal activities (e.g., seeking sexual information online), solitary-arousal activities (e.g., viewing pornography online), and partnered-arousal activities (e.g., sharing sexual fantasies online). Based on conceptual definitions of cybersex proposed in past research, we expected that individuals who had experience with partnered-arousal online sexual activities would be more likely to also report that they had engaged in cybersex than individuals who had only experienced solitary arousal activities online. We expected that individuals who had only engaged in non-arousal sexual activities online would be least likely to report having engaged in cybersex.
Gender Differences in Definitions

Some evidence suggests that men and women have different interpretations, and thus different definitions, of sexual terminology. For example, researchers have found that women tend to associate relationship and intimacy words with the term “intercourse” whereas men tend to associate body and action words with this term (Robinson, Balkwell, & Ward, 1980). More recently, some researchers have found that men’s definitions of “having sex” include more diverse behaviours than women’s definitions (Pitts & Rahman, 2001; Sanders & Reinisch, 1999). Other researchers have failed to find gender differences in students’ definitions of “having sex” or “abstinence” (Bogart, Cecile, Wagstaff, Pinkerton, & Abramson, 2000; Byers et al., 2009; Horan, Phillips, & Hagan, 1998; Randall & Byers, 2003). In addition, men and women differ in their use of the Internet, both in general and for sexual purposes specifically. That is, men primarily use the Internet for entertainment purposes, whereas women primarily use the Internet for social purposes (Nosko, Wood, & Desmarais, 2007). For online sexual activities, more men than women report that they have engaged in solitary-arousal activities online, and more women than men report that they have participated in “cybersex” or “sexual chat” (Albright, 2008; Boies, 2002; Cooper et al., 2000). These findings suggest that men and women focus their Internet usage on different types of activities. Definitions of cybersex may reflect this differing focus.

The Current Study

We took two approaches to examining participants’ definitions of cybersex. First, participants provided [written] definitions of the term “cybersex” to identify, with few research prompts, the content dimensions in participant generated definitions. Second, it
is not known how responses to single-item measures of cybersex correspond to reports of having engaged in specific types of online sexual activities. Therefore, we also examined the correspondence between participants’ self-reports of having engaged in a range of specific online sexual activities and their self-reports of having engaged in cybersex. Consistent with researchers’ definitions, we expected that individuals who had only experienced non-arousal online sexual activities would be the least likely to endorse having engaged in cybersex, followed by individuals who had experienced solitary-arousal online sexual activities but not partnered-arousal online sexual activities, and finally by those whose online sexual activity experience included partnered-arousal online sexual activities. Based on previous research that has found gender differences in sexual terminology and Internet use, we examined gender differences in cybersex definitions and in the correspondence between online sexual experiences and reported cybersex experience.

Method

Participants and Procedure

Participants were recruited in 2005 to participate in a study about sexual definitions and experiences through announcements in introductory courses and throughout campus at a midsized Canadian university. A total of 292 heterosexual participants (125 men and 167 women) completed the survey. Because few non-heterosexual students participated, sexual minority participants were dropped. Participants ranged in age from 18 to 46 years (M = 19.4, SD = 2.0), with the majority (49%) being 18 years old. The vast majority of the sample was Caucasian (88%). Most participants (59.8%) were in a relationship with one person; 40.6% indicated they were
not seeing anyone romantically. The mean number of reported lifetime sex partners was 2.8 (SD = 3.7) and ranged from 0 to 30.

Prior to participating in the study, all participants signed an informed consent form that stressed confidentiality and freedom to withdraw. Participants first completed the Open-Ended Sexual Definitions Questionnaire. They then completed a questionnaire package in which the Background Questionnaire was always presented first. The Online Sexual Experience Questionnaire was counterbalanced with a number of other measures not relevant to the current study (Shaughnessy et al., 2011). After completing the questionnaire package, participants were provided with a debriefing sheet informing them about the study and providing contact information for the researchers. Introductory course participants received bonus points; all other participants were entered into a raffle. The project was approved by the university Research Ethics Board.

Measures

**Background questionnaire.** A background questionnaire was used to assess participants' demographic characteristics, including gender, age, and relationship status.

**Open-ended sexual definitions questionnaire.** Participants were asked “How would you define . . .” three sexual terms: sex, sexual abstinence, and cybersex/computer sex; only the cybersex definitions were used in this study. Written definitions were transcribed and analyzed in two ways: using a qualitative content analysis of the text and an examination of how the patterns of content combined into broader conceptualizations of cybersex (Morgan, 1993). For the content analysis, a coding scheme was developed using a four-step emergent process of identifying variables. First, content codes were derived by having seven sex researchers read a sample of 50 definitions each and create
clusters based on content units within the definitions. The unit of analysis for content codes was manifest content (i.e., obvious components in words; Neuendorf, 2002). Meanings and examples of the clusters were discussed to derive labels for codes that summarized content within perceived clusters. Second, the principal investigator re-examined and refined content codes while reading the first 150 definitions (see Table 2.1 for the final content codes). The code Solitary-Arousal was added to examine whether, consistent with definitions used by some researchers, participants included solitary activities in their definitions of cybersex. Next, the principal investigator and a trained independent rater separately assigned one or more content codes to each written definition. At this stage, content codes were further refined as the remaining definitions were added to the data. In a final round of coding, all definitions were recoded by each rater using the final, refined operational definitions of the content codes. The final round of coding resulted in high inter-rater agreement, with agreement on 88% of content codes. Disagreements were resolved through discussion and consensus.

Because the content coding process overlooked the conceptual meaning of the definitions as a whole, a second qualitative analysis was conducted that focused on the conceptual content. Two of the authors re-read the written definitions while considering the implicit messages (or latent content; Neuendorf, 2002) as well as how the explicit messages and content codes came together to create an overall conceptualization of cybersex. They separately derived summary statements to capture these overall conceptualizations of the cybersex definitions. The final broad conceptualizations were arrived at through discussion and consensus.
Table 2.1

*Descriptions and Examples of Nine Content Code Categories*

<table>
<thead>
<tr>
<th>Category</th>
<th>Description</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interaction</td>
<td>States directly or implies that the activity involves more than one person.</td>
<td><em>People talking to one another.</em></td>
</tr>
<tr>
<td>Real Time</td>
<td>Specific mention of chat rooms, instant messaging, and/or Webcams, or indications that the activity is in real time.</td>
<td><em>At the same time as someone else.</em></td>
</tr>
<tr>
<td>Describing Activities</td>
<td>Indicates that the activity involves describing sexual activities, having sex, sexual acts.</td>
<td><em>Describing how you would have sex; explicit details regarding sexual activities.</em></td>
</tr>
<tr>
<td>Self-stimulation</td>
<td>Indicates that the activity involves masturbation, self-stimulation, and/or touching oneself sexually.</td>
<td><em>Stimulating yourself while images are described.</em></td>
</tr>
<tr>
<td>Arousal</td>
<td>Indicates the activity involves or has the goal of sexual arousal and/or orgasm.</td>
<td><em>Trying to get each other off; used to arouse oneself or another.</em></td>
</tr>
<tr>
<td>Visual</td>
<td>Indicates the activity involves visual stimuli.</td>
<td><em>Acting it out on a Webcam by exposing body parts.</em></td>
</tr>
<tr>
<td>Use of Imagination</td>
<td>Indicates that the activity involves using the imagination, pretending, fantasizing.</td>
<td><em>Imagining it is the other person; describing sexual fantasies.</em></td>
</tr>
<tr>
<td>Negative Evaluation</td>
<td>Providing a definition that implies a negative evaluation of online sexual activity, indicates need to keep the activity hidden, and/or expresses safety concerns accompanying the activity.</td>
<td>*Unrelated, impersonal, strange attempt to replace personal relationship with another human being; “stupid”.</td>
</tr>
<tr>
<td>Solitary</td>
<td>Indicates activity includes solitary activities.</td>
<td></td>
</tr>
</tbody>
</table>
Online sexual experience questionnaire. We designed a nine-item measure to assess experience with online sexual activity (Shaughnessy et al., 2011). Two items assessed non-arousal activities (e.g., seeking sexual information online); four items assessed solitary-arousal activities (e.g., viewing sexually explicit videos/photos online); and three items assessed partnered-arousal activities (e.g., maintaining a sexual relationship online). Participants rated the frequency with which they had engaged in each activity during the past month on a 6-point Likert scale, ranging from never (0) to once a day or more (5). Responses were used to create four groups based on the types of online sexual activities that participants reported having experienced: No Experience Group, Non-arousal Experience Group, Solitary Experience Group, and Partnered Experience Group. The No Experience Group encompassed individuals who had no online sexual activity experience in the past month. The Non-arousal Experience Group included participants who reported experience with at least one non-arousal online sexual activity and no solitary-arousal or partnered-arousal online sexual activity experience. The Solitary Experience Group included participants who reported at least one solitary arousal online sexual activity experience but no experiences with partnered-arousal online sexual activities whether or not they had any non-arousal online sexual activity experience. Finally, participants in the Partnered Experience Group reported experience with at least one partnered-arousal online sexual activity and any combination of experiences with non-arousal and/or solitary-arousal online sexual activity. A single additional dichotomous (yes/no) item assessed participants’ self-reported cybersex experiences (Based on your experience with computer use, would you say you have engaged in cybersex?).
Results

Defining Cybersex

Content coding. To examine the extent to which participants’ definitions reflected the same dimensions found in researchers’ definitions of cybersex, we performed a qualitative content analysis. Eight categories of content codes emerged from the data: Interaction, Real Time, Describing Activity, Self-Stimulation, Sexual Arousal, Visual, Use of Imagination, and Negative Evaluation (see Table 2.1). Additionally, the code Solitary was added by the researcher to capture responses that included a solitary activity component. However, only 11 participants indicated that cybersex included solitary-arousal activities, and the majority of these definitions also included interactive content. Twenty definitions (6.8%) were considered not codable, either because they were unclear or because the participant had only written that they did not know the meaning of the word cybersex. Table 2.2 presents the frequencies for each content code in the overall sample and by gender. We conducted chi-square analyses to examine whether the men and women differed in their likelihood of including each content category in their definitions of cybersex. Using an alpha of .01 to control for Type I error, there were no significant gender differences for any of the eight content codes.

Only Interaction and Real Time were included by the majority of participants; this suggests that for most people, cybersex involves two or more people interacting in real time. However, only a few participants specified the interface (e.g., chat rooms) such as Donald’s\(^2\) definition that cybersex was “pretending to have sex with another person online via chat rooms or instant messenger programs”. Rather, participants used general

---

\(^2\) All names presented in the results of this study are pseudonym.
### Table 2.2

**Percentage of Definitions That Included Each Content Code Overall and by Gender**

<table>
<thead>
<tr>
<th>Category</th>
<th>Overall</th>
<th>Men</th>
<th>Women</th>
<th>$\chi^2$</th>
<th>$p$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interaction</td>
<td>80.1</td>
<td>73.6</td>
<td>85.0</td>
<td>5.87</td>
<td>.02</td>
</tr>
<tr>
<td>Real Time</td>
<td>57.2</td>
<td>57.6</td>
<td>56.9</td>
<td>0.02</td>
<td>.90</td>
</tr>
<tr>
<td>Describing Activity</td>
<td>35.6</td>
<td>29.6</td>
<td>40.1</td>
<td>3.45</td>
<td>.06</td>
</tr>
<tr>
<td>Self-stimulation</td>
<td>24.7</td>
<td>25.6</td>
<td>24.0</td>
<td>0.11</td>
<td>.75</td>
</tr>
<tr>
<td>Arousal</td>
<td>20.9</td>
<td>24.0</td>
<td>18.6</td>
<td>1.30</td>
<td>.26</td>
</tr>
<tr>
<td>Visual</td>
<td>13.4</td>
<td>17.6</td>
<td>10.2</td>
<td>3.40</td>
<td>.07</td>
</tr>
<tr>
<td>Use of Imagination</td>
<td>12.7</td>
<td>11.4</td>
<td>14.4</td>
<td>0.59</td>
<td>.44</td>
</tr>
<tr>
<td>Negative Evaluation</td>
<td>9.9</td>
<td>6.0</td>
<td>10.4</td>
<td>0.05</td>
<td>.82</td>
</tr>
<tr>
<td>Solitary a</td>
<td>3.8</td>
<td>5.6</td>
<td>2.4</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Note. N = 125 men and 167 women.*

*Chi-square analysis was not performed because the expected count contained fewer than 5.*
terms, such as "during" or "talking" to indicate that the activity occurs in real time. For example, Christina wrote that cybersex is "talking dirty and saying stuff that you want to do with one another"; Chris wrote it was "talking to someone saying how you would have sex with them"; and Monica wrote "going online and chatting about sex and masturbating (apparently) during the conversation (with or without Webcam)". Monica was one of only a few participants who specifically indicated that Webcams or other visual stimuli (Visual) may be used during cybersex. The generic reference to real time and lack of visual cues suggests that for most participants, cybersex is primarily text-based interactions that may occur through a variety of online interfaces rather than being restricted to a specific interface or online forum.

Approximately one quarter of participants included a reference to self-stimulation in their definition. Self-stimulation was included in two different ways: self-initiated or as a response to suggestions or directions from another person. As an example of the latter, Amanda wrote:

You type what you are doing to the other person, and they touch themselves and do what the other person says they are doing while imagining it is the other person touching and pleasuring them.

In contrast, Laura wrote that cybersex was a "conversation verbally describing sexual acts accompanied by masturbation", and Mike suggested that it was "describing a scene of sex over the Internet while personally masturbating". About one third of participants indicated that cybersex involves describing sexual activity (Describing Activity) a finding that reflects the distinction between partner-directed and self-directed
self-stimulation. However, only one fifth of participants specifically indicated that cybersex is for the purpose of sexual arousal or satisfaction (Sexual Arousal).

Together, the emergence of these content categories in the written definitions implies that some participants have clear criteria for the kinds of online sexual interactions that they understand to constitute cybersex. Additionally, these content categories indicate that these participants perceive the goal of these activities as an attempt at sexual satisfaction with a computer-mediated sex partner. For example, Amy specified that cybersex was:

Either typing out a ‘written’ sexual situation (particularly intercourse) in great detail (described in present tense) or acting it out on a Webcam by exposing body parts in a sexual manner or even through masturbation or sexual interaction with someone else on a Webcam.

In contrast, few participants indicated that cybersex involves using the imagination or fantasy (Use of Imagination), a category that does not involve specific behaviours.

Approximately 10% of participants included a negative value label within their definitions (Negative Evaluation). These negative evaluations occurred in one of two ways. First, they appeared in addition to providing a definition, as in Shannon’s response: “Cybersex is a desperate attempt to find pleasure in talking and thinking about sex online”. Second, some participants provided only the negative evaluation without attempting to provide a definition, as in this example “gross, disgusting, weird” (Megan).

We examined the frequency distributions of the demographic characteristics of these participants to determine whether they were similar to each other in some way. An examination of the frequency distributions of all demographic characteristics (e.g., age,
religion, sex education, number of sexual partners, relationship status, etc.) did not reveal a pattern that differentiated students who included a negative evaluation in their definition from those who did not. Furthermore, five of the respondents who included a negative evaluation indicated that they had engaged in cybersex. Because only 28 participants (13 men and 15 women) made negative comments, resulting in small cell sizes within each demographic variable, we did not conduct any statistical analyses on the variables examined.

Conceptual analysis. The qualitative content analysis did not capture some conceptual aspects of participants’ definitions of cybersex found in the implicit messages or patterns of implicit, explicit, and content codes in the written definitions. Therefore, we conducted a qualitative analysis that focused on the broad conceptualizations of cybersex found in these patterns. The results suggested that the definitions reflected two broad conceptualizations. A consistent aspect of both conceptualizations was that cybersex is a partnered-arousal activity; no definitions emerged that described cybersex only in terms of solitary-arousal activities. The first conceptualization suggested that cybersex was a reciprocal, dyadic, sexual interaction mediated by the Internet that may involve simulation. That is, these responses emphasized the reciprocal and process nature of the interaction and that masturbation in response to the direction of another is often involved. For example, William wrote that “cybersex would be when two people are talking on computers... and they describe sexual situations to each other creating a fantasy. Both participants masturbate and feel themselves to get them off”. Similarly, Denise defined cybersex as “when you are either masturbating or touching yourself while chatting to another person on the computer who is doing the same thing”, and Nicole
wrote that “cybersex/computer sex is when people attempt to have sex online usually doing to themselves what the other says they would like to”.

The second conceptualization reflected a similar yet qualitatively different view of cybersex as a sexual conversation that is arousing for at least one person involved. That is, these responses emphasized the individual outcome of the interaction including, in some cases, self-directed masturbation. For example, “[cybersex is] when a person uses a computer to talk sexually to other people and uses this for self-pleasure such as touching themselves or masturbating” (David), and “talking on [the] net, describe sexual acts, maybe touching yourself while doing so. Someone on the net helps you get off” (Emily).

**What Online Sexual Activity Experiences Constitute Cybersex?**

Overall, 22.5% of participants reported that they “would say [they] had engaged in cybersex”. We conducted a chi-square frequency analysis to determine whether individuals with different types of online sexual activity experiences differed in whether they reported cybersex experience. Because only four participants in the Non-arousal Experience Group indicated that they had engaged in cybersex, we combined the Non-arousal Experience and the Solitary Experience Groups to create a No Partnered Experience Group. The 2 (cybersex yes/no) x 3 (type of experience: No Experience Group, No Partnered Experience Group, Partnered Experience Group) analysis was significant, with the type of experience accounting for 35% of the variance in cybersex reporting, $\chi^2(2) = 35.42, p < .001$. Few participants in the No Experience Group ($n = 97$) and the No Partnered Experience Group ($n = 145$) reported cybersex experience (12.4% and 19.3%, respectively). In contrast, most but not all participants in the Partnered
Experience Group \((n = 42, 57.1\%)\) reported cybersex experience. To determine whether this pattern of results was the same for men and women, we conducted the analysis for the men and the women separately. The analyses were significant for both the men \((\chi^2(2) = 24.45, p < .001)\) and the women \((\chi^2(2) = 10.79, p < .01)\) and revealed the same pattern of responses.

**Discussion**

Although a number of researchers, clinicians, and educators have investigated and commented on cybersex, they have not been consistent in their conceptual or operational definitions of the sets of behaviours that cybersex encompasses. The results of this study demonstrated that partnered activity is a key aspect of individuals' conceptualizations of cybersex. Nonetheless, as with other sexual terms (Byers et al., 2009; Randall & Byers, 2003; Trotter & Alderson, 2007), we found considerable variability in students' understanding of the behaviours that constitute cybersex. Therefore, we propose a broad conceptualization that cybersex is a sexual communication between at least two people that is focused on sexual relations and occurs via synchronous Internet modes.

**What Is Cybersex?**

The results support the notion that people perceive cybersex as an interactive, online sexual activity that involves a partner and that is distinct from non-interactive online sexual activities. That is, interaction was a key aspect in most students' responses to the open-ended question asking them to define cybersex. In fact, only 11 participants included solitary activities in their definitions. In addition, most students who reported that they had cybersex experience also reported that they had experienced partnered-arousal online sexual activities. In contrast, few reported online sexual activity
experience that was limited to solitary-arousal or non-arousal activities. These findings support conceptual distinctions between partnered-arousal online sexual activities and non-arousal and solitary-arousal activities (Shaughnessy et al., 2011).

Nonetheless, cybersex does not appear to be defined exclusively in terms of engaging in partnered-arousal online sexual activity in that 43% of students who had engaged in partnered arousal online sexual activities indicated that they had not engaged in cybersex and 20% of participants did not include any reference to interaction with another individual in their definition of cybersex. Indeed, cybersex appears to be yet another sexual term along with having sex, sexual partner, and abstinence (Byers et al., 2009; Pitts & Rahman, 2001; Randall & Byers, 2003; Sanders & Reinisch, 1999; Trotter & Alderson, 2007), for which there is significant individual variability in meaning. Inconsistencies between online sexual activity histories and reports of cybersex experience suggest that most people do not have a clear and consistent definition of cybersex. Indeed, Peterson and Muehlenhard (2007) suggested that offline sexual activity histories that were inconsistent with participants saying they had sex indicated that people change their definition of having sex depending on situations and consequences. Cybersex participants may do a similar adjustment to their definitions when deciding whether their partnered online behaviours constitute cybersex. If so, this shifting definition may have implications for how participants report on the outcomes of their online sexual experiences.

Alternatively, these findings may be a result of the measure used to assess online sexual experience, which only included three partnered-arousal activities. Thus, it is possible that some participants were thinking of partnered experiences that were not
included in our measure when responding that they had engaged in cybersex. Indeed, although the written definitions of cybersex focused primarily on generic, text-based, online interactions, it was clear that participants understood that cybersex could occur through a variety of forums, not all of which were assessed. Additionally, some participants provided specific behavioural definitions that almost supplied a list of required criteria for an activity to constitute as cybersex. It may be that for these participants, the online sexual activities listed did not fulfill their criteria for a cybersex experience. If so, they may not have reported experience with the online sexual activity listed but still reported cybersex experience.

The results point to a number of problems with the conceptual and operational definitions of cybersex used in past research. Researchers have tended to focus on sexual gratification in their conceptual definitions (Cooper & Griffin-Shelley, 2002; Goodson et al., 2000). Yet, sexual gratification was central to only one of two conceptualizations that emerged from the data. That is, some participants’ definitions of cybersex did focus on outcome goals, including sexual gratification. However, approximately half of the participants included neither sexual arousal nor self-stimulation in their definitions of cybersex. It is possible that sexual gratification may be so fundamentally linked to concepts of cybersex that participants did not bother to write this component down. However, it is more likely that few participants included this component in their definitions because they do not view sexual gratification as a key component of these activities. For example, some people may engage in cybersex for pure entertainment, satisfaction of curiosity, or relationship enhancement (Goodson et al., 2000). In fact, the second conceptualization that emerged from the data supports the notion that cybersex
has goals beyond sexual gratification. That is, many participants defined cybersex to be a mutual process-focused activity, implying that the goal of cybersex is the interpersonal interaction. This conceptualization is reflected in two of the dimensions: Interaction and Real Time. The importance of these content codes as key aspects of cybersex is demonstrated by the fact that they were included by the majority of participants. Additionally, researchers have rarely included describing activities and/or use of imagination in their conceptual or operational definitions of cybersex. Yet, the dimensions of Describing Activities and Use of Imagination were included by a number of participants. The presence of these dimensions suggests that previous researchers may have overlooked components of cybersex that are important to some individuals’ conceptualizations.

Some individuals had strong negative reactions to the term cybersex. In fact, some individuals’ negative reactions to the term cybersex appeared to overwhelm their ability to provide a definition; that is, they only provided a negative evaluation. The demographic characteristics of individuals with this type of strong negative reaction to the term did not appear to differ from individuals who did not include a negative evaluation. Further, some participants who provided a negative evaluation also indicated that they had an experience they would call cybersex. It may be that the focus on problematic uses of online sexual stimuli and risk in online relationships has created negative stereotypes of cybersex and cybersex participants. These negative stereotypes may further influence participants’ expected and actual outcomes, whether they experience cybersex or not. In contrast, there has been little discussion of possible positive outcomes of online sexual activity. Future research should examine how
stereotypes influence online sexual activity participants’ perceived outcomes of their activities.

Given the results of this study, we propose that operational definitions of cybersex clearly specify the types of activities that constitute cybersex. To do so, operational definitions should include multiple activities that capture a combination of dimensions (e.g., interactive items with and without self-stimulation) and online possibilities. Specifically, we propose that researchers use multi-item measures to assess cybersex experience. When such measures are inappropriate or too cumbersome for the purposes of the project, we propose that researchers provide a clear and specific definition of their meaning of cybersex prior to asking about experience. For example:

Cybersex is a real-time communication with another person that occurs through a device connected with the Internet (e.g., computer, cell phone, smart phone) in which one or both of you describe or share in other ways sexual activities, sexual behaviours, sexual fantasies, or sexual desires that may lead to feelings of sexual pleasure or physical intimacy. You and/or your partner may or may not be stimulating yourself/himself/herself sexually during this conversation. Have you ever experienced cybersex?

Limitations and Conclusions

The results of this study are limited by the homogeneity of the sample (i.e., young, Caucasian, heterosexuals). Therefore, the results may not generalize to more diverse samples. This is particularly relevant for members of sexual minority groups who may use the Internet for sexual purposes differently than heterosexual individuals (Albright, 2008; Heinz, Gu, Inuzuka, Zender, 2002; Lever, Grov, Royce, & Gillespie,
2008). Additionally, we asked participants to define “cybersex/computer sex”. Thus, definitions of cybersex may have been influenced by the addition of the term computer sex by focusing participants on computer-mediated activities. In fact, cybersex is not restricted to the computer but rather incorporates any electronic device that allows communication between individuals. Indeed, most students’ definitions did not specify a forum through which cybersex occurs, indicating that the activity can take place a number of ways. Finally, data were collected using an unprompted written response format. Thus, it is impossible to determine the percentage of individuals who would have endorsed some or all of the content codes that they did not include in their own definition if they had been prompted. Future research should examine the extent of endorsement of both the conceptualizations and the content codes as constituting cybersex through the use of interviews or questionnaire formats. Nonetheless, this study contributes to research on online sexual activity by clarifying conceptualizations of cybersex. The findings suggest that some of the conceptualizations used in past research on cybersex may not be entirely correct. Rather, the term cybersex captures a range of interactive, partnered-arousal online sexual activities that differ from individual to individual. As such, it is unlikely that when researchers, clinicians, and educators use the term cybersex it is interpreted in the way they intended. That is, some people may interpret it more broadly and others more narrowly than intended. Therefore, to improve communication with research participants, clients, and the public, it is important to provide specific conceptual and operational definitions of cybersex. Even so, the speed with which technological capacity is evolving prohibits the adoption of a static definition of cybersex. Already, the popularity of social networking sites, avatars in virtual worlds, Webcam applications, and
improved hardware (e.g., iPhone) add possible dimensions to cybersex definitions that were uncommon when this study was conducted. In fact, terminology itself may have changed, making the term cybersex out-dated in favor of words such as sexting, cybering, etc. Researchers, clinicians, and educators will be challenged to stay abreast of the implications of technological capabilities and the nuances and idiosyncrasies in terminology. However, they will need to do so in order to develop accurate and general knowledge as well as effective educational programming around online sexual activities.
References


CHAPTER III

Transition Text I

The results of Study 1 (Chapter II) suggest that cybersex is not a single behaviour but rather is a behavioural domain; that is, it is a term that captures a variety of specific interactive, real-time, online sexual activities. Specifically, the participants in Study 1 expressed variability in their conceptualizations of the term cybersex. Additionally, the participants who endorsed having had cybersex also varied in the specific Online sexual activities in which they had participated. The results of Study 1 contribute to the literature by informing the development of empirically-derived conceptual and operational definitions of cybersex. However, the results also raise questions regarding the equivalency of measuring cybersex experience using a single-item or multi-item measure. Additionally, the results did not reveal information regarding the relationship context of people's definitions of cybersex. Therefore, two measures of cybersex were created for Study 2 using the operational definitions proposed in Study 1: a single-item measure and a multi-item measure (see Appendix C). The goals of the second manuscript (Chapter IV) were two-fold: 1) to examine the extent to which participants' reported cybersex experience was consistent across each of these measures; and, 2) to explore whether the relationship context of cybersex experience and/or participant characteristics and experiences were associated with participants' responses to the measures.
CHAPTER IV

Seeing the Forest with the Trees: Cybersex as a Case Study of Single-Item Versus Multi-Item Measures of Sexual Behaviour¹

Researchers are interested in assessing the prevalence and frequency of a range of sexual behaviours and behaviour domains as a way to increase knowledge as well as to inform health and education programs, policies, interventions, and clinical practice. Behaviour domains are broader behavioural constructs (e.g., having sex, risky sexual activities) that can manifest in many specific sexual activities. There are two approaches to assessing self-reported experience within a behaviour domain: single-item measures and multi-item measures. Single-item measures are particularly prevalent in sex research likely because they are short, easy to create, and low in participant burden. Although there are a number of concerns regarding the reliability and validity (i.e., accuracy) of self-report measures in general and single-item measures in particular (Catania, Binson, Canchola, Pollack, Hauck, & Coates, 1996; Catania, Gibson, Chitwood, & Coates, 1990; Epstein, 1980; Fenton, Johnson, McManus, & Erens, 2001; McCallum & Petersen, 2012; Nunnally & Bernstein, 1994; Schroder, Carey, & Vanable, 2003), the use of self-report is a necessary evil for much of sex research. One specific question about single-item measures pertains to the extent to which they capture the sexual behaviour domain they are intended to assess. One way of shedding light on this problem is to examine whether participants’ reports on single-item and multi-item measures of the same sexual behaviour domain are concordant (i.e., participants report experience on both measures)

¹ An earlier version of this manuscript is published in: Shaughnessy, K., & Byers, E. S. (2013). Seeing the forest with the trees: Cybersex as a case study of single-item versus multi-item measures of sexual behaviours. Canadian Journal of Behaviour Science, 45, 220-229.
or discordant (i.e., participants report experience on one measure but not the other). Therefore, we examined the rates of concordant and discordant responses for one particular sexual behaviour domain—cybersex. Additionally, in order to determine whether the single-item measure is more or less accurate for particular groups of people, we examined whether the context and/or participant characteristics and experiences differentiated concordant and discordant responders. Given that researchers have found that sexual minority and heterosexual individuals have significantly different experiences with online sexual activities (Albright, 2008; Bond, Hefner, & Drogos, 2009; Daneback, Ross, & Månsson, 2008), we limited our investigation to heterosexual participants as a means of reducing potential confounds.

Assessing the Prevalence of Sexual Experience

When determining the prevalence of sexual experiences using single-item measures, researchers typically ask participants about their sexual experiences by using a term to refer to the behaviour domain under investigation, for example, *have you ever had sex?* Thus, whether or not a conceptual definition of the activity is included, these measures rely on participants' shared understanding of a sexual term. As such, single-item measures are open to interpretation. They are also sensitive to context, bias, and random measurement error—all of which limit their reliability, validity, and generalizability (Epstein, 1980; Nunnally & Bernstein, 1994). For example, a growing body of evidence suggests that people are not consistent in the specific activities they include in a range of sexual behaviour domains (Byers, Henderson, & Hobson, 2009; Pitts & Rahmen, 2001; Randall & Byers, 2003; Sanders & Reinisch, 1999; Trotter & Alderson, 2007). Further, a number of contextual factors of both the experience and the
research setting influence whether people apply sexual terms to their own experience and endorse this experience on surveys (Mitchell, Wellings, Elam, Erens, Fenton, & Johnson, 2007; Peterson & Muehlenhard, 2007). Nonetheless, some research has supported the temporal reliability of single-item measures across a variety of domains such as alcohol use, frequency of sexual activity, and number of sex partners (Dollinger & Malmquist, 2009; Nyitray, Harris, Abalos, Nielson, Papentuss, & Giuliana, 2010).

People can make two types of errors when responding to single-item measures of a sexual behaviour: errors of commission and errors of omission. In the former, people endorse experience with a sexual behaviour domain even though their experiences do not actually fit within the researchers’ conceptual definition of the domain. For example, a researcher who conceptualizes sexual activity as oral, anal, or vaginal sex with or without orgasm may ask participants “Have you ever had sex?” Participants who think that having sex also includes experiences with manual-genital stimulation may endorse the question even if they have not engaged in oral, anal, or vaginal sex. In this case, the single-item measure has prompted the participant to make an error of commission (i.e., saying they had an experience when in fact they have not) and the researcher to over-estimate the prevalence of sexual experience. In errors of omission, participants who have had an experience that fits within the researchers’ conceptual definition fail to endorse the single-item measure. Using the same example, a person who believes that only penetrative vaginal intercourse is sex may not endorse the question “have you had sex” even though they have engaged in oral sex. In this instance, responses on the single-item measure result in an under-estimation of the prevalence of sexual activity. Response biases that stem from assumptions and expectations of labeling one’s behaviour (Peterson
& Muehlenhard, 2007), demand characteristics of the study (e.g., cues in item wording; Catania et al., 1996), negative emotions about one’s experience (Catania et al., 1990), and social desirability (Meston, Heiman, Trapnell, & Paulhus, 1998) may result in errors of omission and commission.

Some researchers have argued that multi-item measures that list the specific sexual activities of the behaviour domain provide a more accurate approach to measurement than do single-item measures (Epstein, 1980; Nunnally & Bernstein, 1994). Using the example of determining the prevalence of sexual activity, the researcher might ask about oral, anal, and vaginal sexual activities, with and without orgasm, in separate questions. This approach results in fewer errors of omission and fewer errors of commission from idiosyncratic interpretations of the question. In one of the few studies that directly compared single-item and multi-item measures, researchers found that a multi-item measure of pregnancy intentions was more sensitive than the equivalent single-item measure (Kavanaugh & Schwarz, 2009). However, multi-item measures also have limitations. Poorly written items might still result in errors of commission; however, these types of errors are likely infrequent given the behavioural specificity of the items. In contrast, errors of omission can result from an inaccurate or incomplete selection of behaviours for the behaviour domain of interest (Nunnally & Bernstein, 1994). However, building content validity into the development of a multi-item measure likely would minimize these errors. Content validity can be built into a measure by using a clear and specific conceptual definition of the domain to guide item construction, creating multiple items that assess a range of behaviours within the domain, and piloting items with formal and informal experts of the domain (Nunnally & Bernstein, 1994). Additionally, the more
direct and explicit terminology typically used on multi-item measures may elicit some 
response biases (e.g., social desirability) that would also result in errors of omission. This 
may be particularly relevant for uncommon, stigmatized, or stereotyped behaviours 
(McCallum & Petersen, 2012). Nonetheless, people are more likely to make errors on 
single-item measures than on multi-item measures.

**Why Use Cybersex as a Case Study?**

Cybersex is a relatively new sexual activity that involves synchronous, online, 
sexual interactions that are focused on sexual relations and occur between at least two 
people (Shaughnessy, Byers, & Thornton, 2011). There are a number of reasons why this 
behaviour domain provides a good case example from which to examine the accuracy of 
single-item measures of sexual behaviour domains — at least for heterosexual individuals. 
First, Shaughnessy, Byers, and Thornton (2011; see Chapter II) found considerable 
variability in heterosexual students’ definitions of cybersex, suggesting that cybersex is a 
behaviour domain consisting of a constellation of behaviours not one specific activity. 
Therefore, a measure listing multiple activities that constitute cybersex is appropriate for 
measuring the prevalence of the experience among this group. Second, method biases are 
easier to detect when stereotypes, assumptions, perceived norms, and limited social 
acceptance that lead to self-report biases are more obvious (McCallum & Petersen, 2012). 
There is evidence that some heterosexual people possess negative assumptions and 
stereotypes about cybersex. For example, Shaughnessy, Byers, and Thornton found the 
definitions of cybersex provided by some participants in their heterosexual sample 
reflected stereotypes that “desperate people” participate in cybersex. Some researchers 
have focused on cybersex in the context of infidelity, which has contributed to an
assumption that cybersex only occurs outside of relationships (Mileham, 2007; Schneider, 2000). Further, research suggests that less than 10% of primarily heterosexual samples drawn from the general population engage in cybersex (Dijkstra & Barelds, 2011; Goodson, McCormick & Evans, 2001), making it a relatively uncommon sexual activity compared to offline sexual activities. This likely contributes to a perception that it is not socially acceptable (McCallum & Petersen, 2012). The negative perceptions, stereotypes, and assumptions that heterosexual people hold regarding cybersex likely lead some people to make errors of omission on measures that rely on the term cybersex—namely a single-item measure. It is important to note that there is no evidence to suggest that sexual minority individuals hold these same types of perceptions, stereotypes, and assumptions. In fact, given that researchers have highlighted the positive aspects of online sexual activity for sexual minority individuals (e.g., Bond et al., 2009), sexual minority men and women likely have very different cognitions regarding cybersex.

Concordant and Discordant Responses

Participants can respond concordantly or discordantly to a single-item and a multi-item measure of cybersex. Those who provide concordant responses answer both measures in the same way—either by endorsing both or not endorsing either measure. The latter option does not provide any information on the functioning of the single-item measure; the former suggests the measures function similarly in detecting the prevalence of cybersex. Therefore, only concordant individuals who reported cybersex experience on both measures (Concordant Group) were included in this study. Discordant responding can occur from either errors of commission or omission on the single-item measure. In the first instance, participants would report engaging in cybersex on the single-item
measure but not on the multi-item measure of cybersex (Discordant Single-Only Group). In the second instance, participants would endorse at least one item on the multi-item measure but not the single-item measure of cybersex (Discordant Multi-Only Group). Given the evidence for the reliability and validity of both single-item and multi-item measures, we expected that most people would be in the Concordant Group (H1a). However, it was anticipated that there would be some variability between responses to the two measures. Considering the strengths of multi-item measures, we expected that, among discordant responders, more people would be in the Discordant Multi-Only Group than in the Discordant Single-Only Group (H1b). Additionally, we examined Concordant and Discordant Group membership at a second point in time in order to determine whether being primed about specific activities that constitute cybersex by completing the multi-item measure at Time 1 would result in more concordant responses at Time 2. It was expected that people who were in the Concordant Group at Time 1 would remain concordant but that most people who were in either Discordant Group at Time 1 would become Concordant at Time 2 (H2).

Factors Affecting Concordant and Discordant Group Membership

To better understand the strengths and weaknesses of the single-item measure, it is important to identify factors associated with concordant and discordant responding. Therefore, we examined the extent to which context and participant characteristics and experiences differentiated the Concordant Group from the two Discordant Groups.

Context. As with other sexual behaviours, the context in which people engage in cybersex may affect how they define sexual terms as well as how they label their own behaviours (Peterson & Muehlenhard, 2007; Trotter & Alderson, 2007). People can
engage in cybersex with their primary partner or with someone who is not their partner. However, there is evidence that some people hold a stereotype that cybersex occurs between strangers and outside of primary romantic relationships (Shaughnessy, Byers, & Thornton, 2011). This stereotype likely affects how people respond to the single-item measure of cybersex—that is, people who have only engaged in activities that constitute cybersex with a primary partner would be less likely to indicate that they have engaged in cybersex on a single-item measure. However, people’s responses to a multi-item cybersex measure would be less affected by the stereotypes because this type of measure describes the specific behaviours without using the term cybersex. Thus, although we expected most people would be in the Concordant Group, we also expected that the proportion of people in the Discordant Multi-Only Group would be greater for people with cybersex experience only with a primary partner than for people with cybersex experience with a non-partner (H3).

**Participant characteristics.** A review of the literature did not reveal any research examining predictors of concordant and discordant responding to measures of cybersex. Therefore, we used research on single-item measures of cybersex experience to identify variables that may separate the groups. Specifically, two sets of variables that were expected to differentiate the Concordant and two Discordant Groups as well as social desirability bias were examined: participant characteristics and sexual and Internet experience.

Two participant characteristics were examined: age and gender. Daneback, Ross, and Månsson (2005) found that people with cybersex experience were younger than were people without such experience. Research on gender differences in cybersex experience
has been mixed (Cooper, Morahan-Martin, Mathy, & Maheu, 2002; Daneback et al., 2005; Goodson et al., 2001; Mileham, 2007). However, when researchers ask about cybersex with someone met online (experience that fits the stereotype of what constitute cybersex), more men than women report experience (Daneback et al., 2005; Mileham, 2007). Therefore, we expected that younger people and men would be more likely than would older people and women to be in the Concordant Group.

We chose average hours spent online in a week, number of recent sex partners, frequency of solitary-arousal online sexual activity (e.g., viewing pornography online), and frequency of cybersex experience as indicators of sexual and Internet experience. It is likely that people with more Internet experience and more online and offline sexual experience would be more likely to admit to engaging in these types of behaviours—that is, endorse both the single-item and multi-item measures. Consistent with this view, Daneback and colleagues (2005) found that, compared to people who did not report cybersex experience on a single-item measure, people who reported cybersex experience spent more time on the Internet in general, had more offline sex partners, and spent more time in other online sexual activities (e.g., pornography, erotica).

Social desirability bias is a concern for many self-report measures of sexual behaviours (Catania et al., 1990; Fenton et al., 2001; McCallum & Petersen, 2012; Meston et al., 1998; Schroder et al., 2003). The negative stereotypes associated with the term cybersex and the explicitness of the multi-item measure were expected to raise the impact of social desirability on participants’ endorsements. Thus, it was expected that people with a lower socially desirable response style would be more likely to be in the Concordant Group. In summary, we predicted that people who were younger, male, spent
more time online, had a greater number of recent offline sex partners, engaged in more frequent solitary-arousal online sexual activity and cybersex, and expressed lower socially desirable responding would be more likely to be in the Concordant Group than in either of the two Discordant Groups (H4).

Method

Participants

The sample consisted of 108 cisgendered heterosexual men and 268 cisgendered heterosexual women who endorsed cybersex experience on either the single-item or the multi-item measure. Thirteen participants were deleted from the sample: three because they endorsed items indicating that they engaged in problematic Internet use (e.g., I believe I am an Internet sex addict); and, 10 because they were missing more than 25% of their data. Participants ranged in age from 18 to 72 years old ($M = 28.2$, $SD = 9.0$). Most participants (64%) possessed a degree from a college or university. Seventy percent currently lived in Canada, 24% in the USA, and 6% were from other nations (e.g., UK, Sweden). Most participants (74%) were in a committed relationship.

Measures

Background questionnaire. A background questionnaire was used to assess demographic (e.g., gender, age), and background characteristics (e.g., number of recent sex partners, hours online during a weekday). Participants’ average amount of active Internet use was measured by computing the mean number of hours of reported active Internet use during a weekday and weekend (Daily Hours Online per Week). Active Internet use was defined as you are using the program on the Internet or looking at/reading the webpage/website. The number of recent offline sexual partners was
assessed using an item from the Sociosexual Orientation Inventory (Simpson & Gangestad, 1991) adapted to a 6-month time frame (i.e., *How many different partners have you had sex (vaginal penetration and/or anal penetration) with in the past six months?*).

**Global measure of cybersex (Single-Cyber).** This single-item measure of cybersex experience asked whether participants had ever had cybersex (yes/no). The question included Shaughnessy, Byers, and Thornton’s (2011) definition of cybersex in the instructions (see Appendix C). The item asked about cybersex experience in general; that is, without specifying the relationship context. This measure is used as the single-item measure of cybersex.

**Lifetime cybersex experience questionnaire (Multi-Cyber).** This 8-item behavioural measure was developed for this study as a multi-item measure of cybersex experience. Each item describes an activity that is consistent with the conceptual definition of cybersex used in the Single-Cyber (e.g., *Have you ever described specific sexual acts you would do to another person as if it was happening*). The first author developed six initial items. In order to ensure the content validity of the scale, the items were distributed to two women and two men who had experience with online sexual activities, including cybersex, as well as to nine human sexuality researchers. These individuals provided feedback on the wording of the items, whether each of the items fit with the conceptual definition of cybersex, and whether there were any missing items. Based on the feedback received, all six items were retained, the wording of three items was changed slightly, and two new items were added. Using a checklist response format, participants were asked to indicate whether they had ever engaged in each of the
activities listed with: a) a primary partner; b) a known non-partner; and/or c) a stranger (called an unknown other in the measure). The instructions to the scale included a definition of each type of partner (see Appendix C). Responses on the checklist were used to create a dichotomous measure of lifetime cybersex experience (endorsed no items with any type of partner versus endorsed one or more items; Multi-Cyber). Responses were also used to create separate dichotomous measures of lifetime cybersex experience only with a primary partner (Multi-PP Only) and lifetime cybersex experience that included experience with a non-partner (Multi-NP). These measures had high internal consistencies (Multi-PP $\alpha = .87$, Multi-NP $\alpha = .90$).

**Frequency of cybersex experience questionnaire.** Participants rated their average frequency of cybersex experience in the previous six months in each of three relationship contexts (i.e., with a primary partner, known non-partner, and a stranger) on a 7-point frequency scale ranging from *never* (0) to *daily/more than once a day* (6). We collapsed across response options to account for the positive skew in the data. Thus, responses were recoded into *never* (0), *less than once a month* (1), and *once a month or more* (2). The item score for primary partner was used as an index of frequency of cybersex experience with a primary partner (Frequency-PP). Frequency of cybersex with a non-partner (Frequency-NP) was operationally defined as the higher score between the responses for cybersex with known non-partner and with a stranger.

**Global measure of solitary-arousal online sexual activity.** This measure was developed for the study to assess participants’ experience with solitary-arousal online sexual activity. As with the Single-Cyber, participants were first provided a definition of solitary-arousal activities (Shaughnessy, Byers, & Walsh, 2011) and then indicated their
lifetime experience with this type of online activity (yes/no). Participants also indicated how often they had experienced solitary-arousal online sexual activities in the previous six months using a 7-point frequency from never (0) to daily/more than once a day (6). Only the frequency scores were used in this study (Frequency-Sol).

**Socially desirable response set – 5 (SDRS-5).** This 5-item measure assesses participants’ tendency to respond in a socially desirable way (Hays, Hayashi, & Stewart, 1989). This very brief measure was developed from other short versions of the Marlowe-Crowne Social Desirability Scale (Crowne & Marlowe, 1960). Participants rated statements on a 5-point Likert scale. Responses ranged from 5 to 25 with higher scores representing greater socially desirable responding. The internal consistency of the scale in this study was acceptable ($\alpha = .66$).

**Procedure**

Participants were recruited to a larger study on sexuality and intimacy on the Internet that had received ethical approval from the Research Ethics Board at University of New Brunswick. We used two approaches for recruitment: a) broad-based online recruitment with advertisements placed in forums such as e-newsletters, online classified ads, and Facebook groups; and, 2) recruitment targeting forums and people who would be likely to have participated in cybersex (e.g., existing participant databases; posting to sex-specific websites). After providing informed consent, participants first completed the background questionnaire, followed by the Global Measure of Solitary-Arousal Online Sexual Activity, the Global Measure of Cybersex, the Lifetime Cybersex Experience Questionnaire, the Frequency of Cybersex Experience Questionnaire, the Socially Desirable Response Set-5, three problematic Internet use screening questions as well as
other measures related to their cybersex experience. Those who did not indicate cybersex experience on either the Global Measure of Cybersex or the Lifetime Cybersex Experience Questionnaire were redirected to a parallel study on aspects of online and offline sexual activity. After completion of the study, participants were redirected to a website with debriefing information. On this page, participants had the option of submitting their name and contact information into a prize draw and/or a participant database to be invited to future studies conducted by the research group. Those who opted to enter their contact information into the participant database were invited to complete the measures (in addition to other measures) a second time two weeks after completion of the study at Time 1; reminder invitation emails were sent within three weeks of the first email.

Results

Preliminary Analyses

Seventy-four (20 men and 54 women) of the 376 participants completed the measures at Time 2. A MANOVA revealed that participants who did and did not complete the measures at Time 2 did not differ significantly in terms of gender, age, relationship status, number of recent sex partners, and average active hours on the Internet in a week, $F(6, 365) = 1.01, p = .42$. Prior to the analyses, we used expectation maximization in SPSS to replace missing data on the predictor variables: age, number of recent sex partners, daily hours online per week, SDRS-5, Frequency-Sol, Frequency-PP, and Frequency-NP (12% missing or less on a single variable).
Prevalence of Cybersex on the Single and Multi-item Measures

We first compared the percentage of people who endorsed cybersex on the single-item and multi-item measures at Time 1. More participants endorsed Multi-Cyber (98.1%) compared to Single-Cyber (73.4%). To determine the concordance and discordance between the two measures, we created three groups: the Concordant Group, the Discordant Multi-Only Group, and the Discordant Single-Only Group. As predicted (H1), more participants were in the Concordant Group (71.5%) than the Discordant Multi-Only (26.6%) which had more participants than the Discordant Single-Only Group (1.9%), $\chi^2(2) = 281.53, p < .001$.

Next, in order to examine the extent to which participants changed their responses to the Single-Cyber after being primed with the Multi-Cyber, we compared responses at Time 1 and Time 2. Overall, 74 participants (22.7% of the Concordant Group and 13.0% of the Discordant Multi-Only Group) completed the measures at Time 2. None of the participants who were Discordant Single-Only at Time 1 completed the measures at Time 2. Of participants who endorsed Single-Cyber at Time 1, 91.0% endorsed it at Time 2. Similarly, 96.0% of participants who endorsed the Multi-Cyber at Time 1 did so again at Time 2, indicating high temporal stability in responses to both measures. We compared membership in the Concordant and two Discordant Groups at Time 1 and Time 2. To assess the temporal reliability of providing concordant versus discordant responses, we first computed the kappa statistic with respect to Concordant and Discordant Multi-Only group membership for the 74 participants who completed the measures at both times. There was significant agreement between whether participants were in the Concordant Group or Discordant Multi-Only Group at Time 1 and Time 2, $k = .53, p < .001$. Second,
due to small cell sizes, we used cross-tabs to examine changes in group membership between Time 1 and Time 2 (see Table 4.1). Most participants retained their concordant or discordant responses over time. That is, as expected participants in the Concordant Group remained in the Concordant Group (93.4%). However, contrary to predictions (H2), most participants (61.5%) who provided discordant responses at Time 1 also remained discordant at Time 2. Additionally, some participants (6.6%) who were concordant at Time 1 became discordant at Time 2.

**Relationship Context of Cybersex**

Of the total sample, 37% had cybersex only with their primary partner (Multi-PP Only); 61% endorsed cybersex with a non-partner (Multi-NP). Given the very small number of people who were in the Discordant Single-Only Group ($n = 7$), we dropped this group from further analyses. We used a 2 (concordant/discordant) x 2 (Multi-PP Only/ Multi-NP) chi-square test for independence (with Yates Continuity Correction) to examine whether the proportion of participants in the Concordant Group and Discordant Multi-Only group with cybersex experience with a non-partner differed from those with cybersex experience only with a primary partner (H3). As predicted, the proportion of participants in the Discordant Multi-Only Group was significantly greater for the participants with Multi-PP Only (45.7%) than for the participants with Multi-NP (16.0%), $\chi^2 = 36.92, p < .001, \phi = -.32$. Although not hypothesized, the reverse was also true; the proportion of participants in the Concordant Group was significantly greater for the participants with Multi-NP (84.0%) than for those with Multi-PP Only (54.3%). In sum, a significantly greater proportion of participants who reported cybersex on the multi-item measure only had cybersex experience only with a primary partner than with a non-
Table 4.1

*Number (and Percent) of Participants in Concordant and Discordant Groups at Time 2 sorted by Group Membership at Time 1*

<table>
<thead>
<tr>
<th>Time 1 Group</th>
<th>Time 2</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Concordant Group</td>
</tr>
<tr>
<td>Concordant Group</td>
<td>57 (93.4)</td>
</tr>
<tr>
<td>(n = 61)</td>
<td></td>
</tr>
<tr>
<td>Discordant Multi-</td>
<td>5 (38.5)</td>
</tr>
<tr>
<td>Only (n = 13)</td>
<td></td>
</tr>
</tbody>
</table>

*Note: N = 74. Concordant Group endorsed both measures of cybersex, Discordant Multi-Only Group endorsed the multi-item measure but not the single-item measure; Discordant Single-Only Group endorsed the single-item measure but not the multi-item measure. None of the participants in the Discordant Single-Only Group at Time 1 completed the measures at Time 2.*
partner. Of the participants who indicated cybersex experience on both measures, a significantly greater proportion had cybersex experience with a non-partner than with a primary partner only.

**Factors Affecting Concordant and Discordant Group Membership**

We conducted a discriminant function analysis (DFA) to examine whether gender, age, number of recent sex partners, daily hours online per week, SDRS-5, Frequency-Sol, Frequency-PP, and Frequency-NP distinguished Concordant from Discordant Multi-Only Group membership. The results of the DFA revealed one significant function that accounted for 9% of the variance, \( \chi^2 (8) = 35.19, p < .001 \). The function correctly classified 60.6% of cases in the sample: 58.2% of the Concordant Group and 67.0% of the Discordant Multi-Only Group. As predicted (H4), using a conventional correlation of .30 as a cut-off for interpretation, we found that a greater number of recent offline sex partners, more frequent solitary-arousal online sexual activity experience, and more frequent cybersex with both types of partners loaded on the function (see Table 4.2). However, contrary to predictions, age, gender, daily hours online per week, and socially desirable response set were not correlated with the function. Univariate analyses of variance examining group differences were consistent with the discriminant function (see Table 4.2). These results indicate that participants in the Concordant Group reported more sexual experience than did participants in the Discordant Multi-Only Group.

**Discussion**

The goals of this study were to examine how well people’s responses to a single-item measure of a sexual behaviour domain captured the prevalence of that behaviour and to identify factors that may influence people’s responses to these measures. To do so, we
Table 4.2

Summary of the Discriminant Function Analysis Predicting Concordant and Discordant Multi-Only Group Membership

<table>
<thead>
<tr>
<th>Variable</th>
<th>Function 1</th>
<th>Concordant Group (n = 268)</th>
<th>Discordant Multi-Only Group (n = 100)</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td>-.11</td>
<td></td>
<td></td>
<td>NA</td>
</tr>
<tr>
<td>Age</td>
<td>.05</td>
<td>28.12</td>
<td>27.83</td>
<td>8.74 8.43  NA</td>
</tr>
<tr>
<td>Daily Hours Online per Week</td>
<td>.13</td>
<td>5.89</td>
<td>5.57</td>
<td>3.46 3.76  NA</td>
</tr>
<tr>
<td>SDRS-5</td>
<td>.24</td>
<td>18.04</td>
<td>17.45</td>
<td>3.43  NA</td>
</tr>
<tr>
<td>Number of Recent Sex Partners</td>
<td>.38</td>
<td>1.37</td>
<td>1.07</td>
<td>0.99 0.65  5.35*</td>
</tr>
<tr>
<td>Frequency-Sol</td>
<td>.59</td>
<td>2.72</td>
<td>1.91</td>
<td>1.95 1.91  12.84***</td>
</tr>
<tr>
<td>Frequency-PP</td>
<td>.34</td>
<td>0.77</td>
<td>0.60</td>
<td>0.78 0.60  4.20*</td>
</tr>
<tr>
<td>Frequency-NP</td>
<td>.72</td>
<td>0.60</td>
<td>0.25</td>
<td>0.76 0.48  19.15***</td>
</tr>
</tbody>
</table>

Note. Rc = .30. SDRS-5 = Socially Desirable Response Set. Frequency-Sol = Frequency of solitary-arousal online sexual activity. Frequency-PP = Frequency of cybersex with a primary partner. Frequency-NP = Frequency of cybersex with a non-partner. Structure coefficients (correlations) greater than .30 are in bold.

*p < .05  *** p < .001
used a novel behaviour, cybersex, as a case study and compared participants’ responses to a single-item and a multi-item measure. This approach facilitated an examination of the errors and biases affecting people’s responses to the single-item measure (McCallum & Petersen, 2012). As expected, most participants provided concordant reports on the two measures. However, more than one-quarter of participants gave discrepant responses. The majority of these individuals did not endorse the single-item measure even though they endorsed one or more item on the multi-item measure. We also found that participants who did and did not endorse the single-item measure differed in their sexual experiences, although not in their personal characteristics, suggesting that failure to endorse the single-item measure was not random. This study contributes to the research on sexual terminology and measurement of sexual behaviours and behaviour domains by providing evidence that responses to single-item measures offer an incomplete picture of the prevalence of sexual behaviours.

**Limitations of Single-item Measures**

The results shed light on the extent to which people’s responses to single-items capture the prevalence of behaviour domains. In keeping with past research that has concluded that single-item measures are reliable (Dollinger & Malmquist, 2009; Nyitray et al., 2010), we found considerable temporal reliability for both measures. That is, 91% of participants who endorsed the single-item measure at Time 1 did so again at Time 2; 96% of the participants who endorsed the multi-item measure at Time 1 did so again at Time 2. However, our findings indicate that temporal reliability is not a sufficient psychometric quality for justifying the use of a single-item measure. Temporal reliability evaluates the extent to which participants are consistent in the way they respond to a
measure at two points in time. It does not, however, assess whether individuals make
errors of commission or omission on the measure. We found that very few people made
errors of commission on the single-item measure; only seven participants endorsed the
single-item measure but not the multi-item measure at Time 1. In contrast, 26.6% of the
participants made errors of omission at Time 1 in that they reported cybersex experience
on the multi-item measure but not the single-item measure. For some people, this type of
discordant response is likely because of recall difficulties. Indeed, we found that some of
the participants who made errors of omission at Time 1 did not do so at Time 2 after
being presented with the list of behaviours that constitute cybersex. However, other
participants were consistent in their errors of omission on the single-item measure at
Time 2—that is they continued to endorse one or more behaviours on the multi-item
measure at Time 2 but still did not endorse the single-item measure. The finding of a high
rate of errors of omission is made even more compelling by our method. In response to
data showing ambiguities in the interpretations of various sexual terms (e.g., Byers et al.,
2009; Shaughnessy, Byers, & Thornton, 2011), within our instructions to the single-item
measure we provided a clear and specific definition of cybersex that included examples
of the items found in the multi-item measure (see Appendix C). It is likely that the use of
single-item measures without conceptual definitions results in even more people making
errors of omission on these measures. Overall, these findings strongly suggest that single-
item measures of sexual behaviour domains under-estimate the prevalence of experience
and that this under-estimation occurs even in the presence of a conceptual definition and
evidence of temporal reliability.
Factors Affecting Concordant and Discordant Group Membership

We found evidence that people made systematic rather than random errors of omission on the single-item measure. Specifically, participants who provided concordant responses (i.e., endorsed both the single-item and multi-item measure) differed significantly from those who only endorsed the multi-item measure in terms of the relationship context of their cybersex experience and their sexual experience in general. Thus, these factors differentiated individuals with cybersex experience who were more and less likely to endorse the single-item measure. In contrast, the personal characteristics typically examined in sex research such as gender and age and/or the tendency to provide socially desirable responses did not differentiate concordant or discordant responders.

Context. Our findings suggest that people’s responses to single-item measures that rely on global sexual terms are affected by stereotypes about the behaviour domain under investigation. In this study, some of the participants had cybersex experience only with a primary partner; others had cybersex experience with one or more non-partners whether or not they also had experience with a primary partner. The stereotype about cybersex is that it occurs with a non-partner; thus, these types of activities with a primary partner do not fit with the stereotype. We found that a greater proportion of the participants with cybersex experience only with their primary partner (i.e., 46% who had never experienced cybersex with a non-partner) did not report their experience on the single-item measure compared to the proportion of the participants who had engaged in cybersex with a non-partner (16%). People who have cybersex with their primary partner are less likely to label their experiences as cybersex; rather, many may think of these experiences as something else, perhaps as part of sexual arousal, seduction, flirting, or...
simply one more aspect of their overall communication. This finding suggests that the
extent to which previous studies describe and explain the experiences of people who
engage in non-stereotyped activities (in this case, cybersex with their primary partner) is
limited. Although we examined only one behaviour domain, it is likely that a similar
phenomenon affects responses to single-item measures assessing other behavioural
domains. That is, it is likely that people whose only experiences are inconsistent with
assumptions and stereotypes about a behaviour domain (e.g., BDSM, swinging) may not
be willing to label their behaviour with a term that they do not see as suitable for
themselves. As a result, they would be less likely to endorse a single-item measure (i.e.,
more likely to commit errors of omission) than people who have stereotypic experiences.
This interpretation is consistent with previous research that has demonstrated that people
use the context of their experiences (e.g., who their partner is, how the activity came to
happen) to decide whether to label their behaviours with a particular term such as having
sex (Peterson & Muehlenhard, 2007; Trotter & Alderson, 2007). However, it would be
beneficial to replicate this finding with other behaviours including those with negative,
positive, and neutral stereotypes.

**Sexual experience.** Our findings also suggest that participants’ responses to single-
item measures are affected by the extent of their sexual experience. That is, compared to
the Discordant Multi-Only Group, participants in the Concordant Group reported more
recent sex partners, more frequent solitary-arousal online sexual activity, more frequent
cybersex with a non-partner, and more frequent cybersex with a primary partner. This
finding indicates that participants with more frequent sexual experience with a variety of
online and offline activities and a variety of partners were more likely to endorse the
single-item measure than were those with comparatively less sexual experience. There may be a number of explanations for this finding. First, it is possible that people with more sexual experience are more sexually open and positive about their sexuality in general. Consequently, they may have been more likely to have had an experience that matches the definition of cybersex and/or be more willing to label their experience as cybersex (i.e., endorse the single-item measure). Second, it is possible that it is easier to recall high frequency activities than low frequency activities. Perhaps some participants simply forgot about their cybersex experience until they were prompted with the multi-item list. This explanation is made less likely by our finding that more sexual experience in general, not just more frequent cybersex, was associated with concordant responding. This suggests that this finding was not likely due to forgetting. Indeed, Schroder and colleagues (2003) argue that memory bias likely results in over-reporting, not under-reporting, low frequency events – essentially, errors of commission on the single-item measure not errors of omission. Regardless of the reason for the association between sexual experience and likelihood of endorsing the single-item measure, it is unclear whether previous research about cybersex represents all types of cybersex participants (e.g., people who engage in cybersex but not other online sexual activities) or only people who engage in cybersex as part of a wide range of sexual experiences. In general, these findings suggest that results based on single-item measures of sexual behaviour domains are less likely to reflect the experiences of people with lower frequency and less variety of sexual activity.
Limitations

This study is not without its limitations. In our efforts to control the influence of participant characteristics on our findings, we have limited the generalizability of these findings to heterosexual men and women largely from western nations. It is likely that interpretation of sexual terminology, and subsequently endorsement of single-item measures, are influenced by sociocultural factors, sexual orientation, and personal characteristics that we did not assess (e.g., personality traits; Catania et al., 1990; Meston et al., 1998). Given research demonstrating differences between heterosexual and sexual minority individuals’ online sexual activity experience (Albright, 2008; Daneback et al., 2008), it is particularly important to replicate this study with sexual minority individuals. Additionally, the study and recruitment were conducted online. As such, our participants likely represent a certain segment of society. For example, the participants were relatively well-educated and young. Future research should examine the extent to which these findings generalize to other demographic groups. Moreover, only 74 participants (20%) opted to complete the measures at Time 2. The Time 2 sample likely reflects highly motivated volunteer participants who not only entered their information in our participant database, but also read and responded to the email recruitment for Time 2. Their greater motivation may be related to their interest in and experiences with cybersex. If so, the high consistency in these participants’ responses from Time 1 to Time 2 may be inflated compared to what would be found in less motivated samples. In fact, most of the Time 2 sample provided concordant responses at Time 1, suggesting that they respond consistently to measures of the same construct in general. The measure of socially desirable responding used in this study exhibited low internal consistency. This may be
because the measure was a short-form version. Unfortunately, the low internal consistency limited our ability to detect the extent to which the tendency to respond in the socially desirable way influenced responses on either of the cybersex measures. In the future, researchers should re-examine social desirability effects on single and multi-item measures using a longer and more reliable scale. Finally, our case study represents an important advance in shedding light on the accuracy of single-item measures of a sexual behaviour domain. However, our approach did not allow us to assess how many people made errors of omission on both the single-item and multi-item measures. Other approaches to evaluating single-item and multi-item measures, such as follow up interviews, are needed.

Conclusion

The findings of this study point to important considerations for self-report research on cybersex in particular and sexual behaviour domains in general. Although the results require replication with other sexual behaviour domains, our finding that more than a quarter of participants endorsed the multi-item measure but not the single-item measure suggests that results based on single-item measures likely under-estimate the prevalence of experience. In addition, we found that even with the inclusion of a conceptual definition, both context and extent of sexual experience were associated with providing discordant responses. This suggests that single-item measures are likely biased by stereotypes about the behaviour and sexual experience, calling into question the representativeness of sex research findings based on single-item measurement in general, and previous research on cybersex specifically. However, there are a number of ways that sex researchers can enhance the accuracy of their results. First, researchers should limit
the use of single-item measures, especially for determining inclusion criteria or estimating the prevalence of experience. Second, when using single-item measures, researchers need to provide a clear and specific conceptual definition within item instructions in order to decrease the impact of idiosyncratic interpretations based on stereotypes and past experience. Researchers should also explicitly address stereotypes associated with the behaviour within these definitions or item instructions to augment accuracy. Specifically, researchers need to consider whether mentioning the range of possible relationship contexts, specific activities, or frequency of experience will facilitate accurate responding. Nonetheless, our findings suggest that, even after taking these steps, the best approach for accuracy in measurement of sexual behaviour domains is to use multi-item measures with demonstrated content validity.
References


CHAPTER V
Transition Text II

In Chapter IV, although most people were concordant in their responses to the single-item and multi-item measures of cybersex, many people endorsed the multi-item measure and not the single-item measure. Additionally, as reported in Chapter IV, people who only endorsed the multi-item measure were more likely to have had cybersex only with their primary partner compared to those who endorsed both measures. These results suggested that the single-item measure was limited in its accuracy and, thus, supported the use of the multi-item measure to assess cybersex experience. The results also provided preliminary evidence that it is important to specify the partner context when measuring cybersex experience. However, the research in Chapter IV did not include an examination of how the partner context affected cybersex experiences. Additionally, in both Chapters II and IV, the men and women did not differ in their conceptualizations of cybersex nor in their concordant or discordant responses to the single- or multi-item measure of cybersex. However, in these manuscripts, differences in men’s and women’s actual or desired cybersex experience were not examined. Therefore, the goal of Chapter VI, was to compare men’s and women’s prevalence, frequency, and desired frequency of cybersex within the three relationship contexts: primary partners, known non-partners, and strangers. Based on the results reported in Chapter IV, the multi-item measure was used as the inclusion criteria for Manuscript 3 as well as to assess the prevalence of cybersex experience (see Appendix C). Further, sexual script theory was used as a framework for examining cybersex activities.
CHAPTER VI

Contextualizing Cybersex Experience: Heterosexually Identified Men and Women’s Desire for and Experiences with Cybersex with Three Types of Partners

The Internet provides opportunities for a wide range of sexual experiences. For example, people can go online to look for and find information about sexual health, sexual orientations, sexual techniques, and sexual behaviors. They can also view, read, or post sexually explicit materials such as erotic or pornographic stories, pictures, and videos. People also engage in cybersex – a constellation of online activities with a partner that occur in real-time and involve sexual communications about sexual activities, fantasies, and/or desires (Shaughnessy, Byers, & Thornton, 2011; see Chapter II).

Cybersex likely is becoming more common given the increasing ease of real-time communication technologies. However, in contrast to the extensive research on viewing sexually explicit material (i.e., pornography) on the Internet, there has been little research on cybersex (Döring, 2009). Remarkably, what research there is on cybersex has failed to consider participants’ relationships with the individuals with whom they engage in cybersex; we refer to this relationship as the partner context in this study. The partner context is important in understanding both non-sexual online interactions and offline sexual behavior. Therefore, the overall goal of this study was to enhance our understanding of the prevalence, frequency, and desired frequency of cybersex experiences within three partner contexts that differ in their degree of anonymity: primary romantic partners (primary partners), known others who are not committed partners

---

1 This manuscript is under review at Computers in Human Behavior.

106
(known non-partner), and strangers. We excluded people who reported problems with their use of the Internet for sexual purposes in order to focus on normative use.

The Partner Context of Cybersex

The partner context of cybersex indirectly alters the anonymity of the interaction. Anonymity is a key aspect in theoretical frameworks and research on sexual and non-sexual online communications and phenomenon (e.g., cyberbullying; Chiou & Wan, 2006; Christopherson, 2007; Cooper, 1998; Moore, Nakano, Enomoto, & Suda, 2012; Ross, 2005). One aspect of anonymity online stems from interacting with people with whom one was not previously, nor need to become, acquainted (Derks, Fischer, & Bos, 2008). The type of cybersex partner changes the extent to which people are known to each other. Thus, it changes the level of anonymity during the interaction. In the three types of partners that we examined, complete anonymity is only present in cybersex with a stranger. However, cybersex with a known non-partner is more anonymous than cybersex with a primary partner because known non-partners are less likely to be familiar with each other's sexual patterns offline than are primary partners. Consequently, examining the partner context provides an avenue for linking cybersex research with research on other online interpersonal interactions.

Researchers have not examined the partner context of cybersex. In fact, researchers have generally assumed that cybersex occurs between strangers (e.g., Daneback, Cooper, & Månsson, 2005; Dijkstra & Barelds, 2011; Goodson, McCormick, & Evans, 2001). However, research on non-sexual online interpersonal communication indicates that most people use the Internet as a supplement to traditional forms of communication to maintain existing offline close relationships such as with family,
friends, and romantic partners (e.g., Bargh & McKenna, 2004; Miczo, Mariani, & Donahue, 2011; Ramirez & Broneck, 2009). Similarly, Cooper, Månsson, Daneback, Tikkanen, and Ross (2003) found that both men and women report using the Internet to maintain love/sex connections more often than to look for love or sex partners. Therefore, it is likely that people participate in cybersex as a strategy to maintain offline relationships. To fully understand cybersex, it is important to examine these experiences within the partner context of the dyad involved.

**Theoretical Framework**

**Sexual scripts.** Script theory provides an approach to understanding how social behaviors function within larger societal and cultural processes. Scripts are conceptual representations of stereotypical sequences of events that guide individuals’ behavior (Abelson, 1981). They include information on the roles, activities, context, motivations, and outcomes of events – essentially the who, what, where, when, how, and why of activities. Scripts can vary along different *tracks*. Script tracks are analogous to subcategories of scripts and contain shared aspects as well as unique aspects of an overarching script.

Sexual scripts are the overarching scripts that guide offline sexual behaviors. In North America, the dominant sexual script for heterosexual sexual activity is romantic relationship focused and gender-based (McCormick, 2010; McHugh, Pearlson, & Poet, 2012; Willetts, Spreacher, & Beck, 2004). Specifically, men and women are encouraged towards sexual expression primarily within a loving relationship (Willetts et al., 2004). However, even in this context, women are encouraged towards sexual restraint whereas men are encouraged towards sexual expression.
Sexual scripts in cybersex. There is some evidence that online interpersonal interactions, including cybersex, are new tracks of existing sexual scripts. For example, researchers studying virtual worlds such as Second Life have found that scripts for non-sexual interactions offline are present in parallel online interactions (e.g., Yee, Bailenson, Urbanke, Change, & Merget, 2007). Additionally, researchers have found parallels between offline and online sexual activity. For example, individuals who report having online sex partners, experience with specific sexual interests, and acting on compulsive sexual behaviors online also tend to report similar activities, experiences, interests, and behaviors offline (Craft, 2012; Daneback et al., 2005; Schneider, 2000). Therefore, we examined whether two aspects of offline sexual scripts were also characteristic of cybersex experiences: the pattern of sexual activity with different types of partners and gender differences in experience.

Partner Context of Cybersex

Offline partnered sexual scripts. The prevailing cultural scenario in North America emphasizes sexual activity in the context of a loving, monogamous romantic relationship (Willetts et al., 2004). However, sexual activity outside of committed relationships has become more accepted – particularly for young people and those who are not in a committed romantic relationship (McHugh et al., 2012). People engage in sexual activity outside of a relationship with people whom they know but are not their partner or whom they have just met. Recently, Wentland and Reissing (2011) examined people's expectations regarding sexual encounters outside of a committed relationship and found that people expect to engage in sex more often with people they know better compared to those they know less well. These findings suggest that sexual scripts
prescribe offline sexual activity, and doing so more often, with a primary partner followed by a known non-partner, and then a stranger.

Some evidence suggests that offline sexual experiences conform to sexual scripts regarding types of sexual partners. For example, people in romantic relationships engage in sexual activity regularly with their primary romantic partner and most do not engage in extradyadic sexual activity (i.e., infidelity; Mark, Janssen, & Milhausen, 2011; Munsch, 2012; Weiderman, 1997; Willetts et al., 2004). Furman and Shaffer (2011) examined young adults’ sexual experiences with different types of partners offline. They found that young adults were most likely to engage in sexual activity with a romantic partner. However, participants did not differ in their likelihood of engaging in sexual activity with a friend compared to casual acquaintances/someone they just met. This latter finding may be because Furman and Shaffer combined two quite different types of sexual partners into one category. It is likely that there are more similarities in sexual experiences with friends and casual acquaintances than with either of these known partners and someone who is a relative stranger.

**Partner context of sexual scripts in cybersex.** It is likely that some people engage in cybersex with a primary partner, known non-partner, and/or a stranger. Some researchers have found that a minority of people report having cybersex with someone they met online—i.e., with a stranger (Daneback et al., 2005; Dijkstra & Barelds, 2011; Goodson et al., 2001). There also is indirect evidence to suggest that people engage in cybersex with a primary partner. For example, studies have found that some people engage in other online sexual activities (e.g., viewing pornography) with their primary partner (Daneback, Træen, & Månsson, 2009; Maddox, Rhoades, & Markman, 2011).
However, researchers have not examined cybersex with a primary partner or known non-partner directly, nor have they compared the likelihood of engaging in cybersex with different types of partners. Based on sexual scripts and offline research, we expected that more people would report cybersex with a primary partner, followed by a known non-partner, and then a stranger, in that order. It is likely that some people engage in cybersex with all three types of partners, whereas other people engage in cybersex with only one type of partner. Therefore, we also explored the percentage of people who reported cybersex with only one type of partner as well as with all three partner types.

**Partner context of actual and desired frequency of cybersex.** The partner context likely affects not only the prevalence of cybersex but also people’s actual and desired frequency of experience. In keeping with script theory, we expected that people would engage in and desire more frequent cybersex with a primary partner, followed by a known non-partner, and then a stranger. Additionally, researchers have shown close connections between desired and actual frequency of a range of offline sexual activities (Santtila et al., 2008; Spector, Carey, & Steinberg, 1996). In general, people who have higher levels of sexual desire for one type of sexual activity or stimuli tend to also have higher levels of sexual desire for other types of activities and stimuli – that is, sexual desire in one context predicts sexual desire in another (Spector et al., 1996; Winters, Christoff, & Gorzalka, 2010). Thus, we expected that desired frequency of cybersex in one partner context would be positively associated with desired frequency of cybersex in the other partner contexts. However, the relationship between desired and actual frequency of cybersex is likely partner context specific. For example, people who desire frequent cybersex with their primary partner likely expend effort to encourage their
primary partner to engage in cybersex, but not necessarily to find other types of cybersex partners. Similarly, people who desire frequent cybersex with a known non-partner or a stranger likely are willing to expend effort to find a known non-partner or stranger, but not necessarily to engage with their primary partner. Therefore, we expected that there would be a significant association between desired and actual frequency of cybersex within each partner type, but not across partner types. Further, because people’s level of desire and thus their effort in pursuing cybersex with the specific partner would be context specific, we did not expect that the frequency with which men and women engage in cybersex in one partner context would be related to the frequency with which they engage in cybersex in any other partner context.

**Gender Differences in Cybersex Experiences**

**Offline gendered sexual scripts: The traditional sexual script.** Although there is some evidence that sexual scripts for men and women are converging, the traditional sexual script (TSS) remains the dominant gender-based sexual script in North America (McCormick, 2010). The TSS indicates the level of sexual desire and the types of sexual relationships that are appropriate for men and women. In general, the TSS is permissive towards male sexual expression, which in turn encourages desire for and actual sexual experience with a variety of partners (Byers, 1996; McCormick, 2010). The TSS is less permissive towards female sexual expression, which in turn discourages sexual desire and experience, especially outside of a primary romantic relationship (McHugh et al., 2012). Thus, according to the TSS, men should desire and engage in sexual activity with all types of partners. Women, in contrast, should desire and engage in sexual activity primarily with a primary partner. Indeed, research has consistently found that, compared
to women, men desire and engage in more frequent sexual activities, including seeking sexually explicit material online, and report a greater prevalence of specific sexual experiences (e.g., anal sex, oral sex; Baumiester, Cantanese, & Vohs, 2001; Petersen & Hyde, 2010; Shaughnessy, Byers, & Walsh, 2011; Velezmoro, Negy, & Livia, 2012).

The traditional sexual script in cybersex. Cybersex provides an alternative sexual interaction to offline sexual activity. According to the TSS, in both online and offline situations, men would desire sex more than do women. A review of the literature revealed no studies that compared men’s and women’s desired frequency of cybersex. Based on the TSS, it is likely that, compared to women, men will desire more frequent cybersex with each type of partner. However, heterosexual men’s ability to enact their desire is constrained by the availability of a willing female partner. The number of available partners determines the extent to which a population is open or closed. When sexual activity occurs between known partners, there is a finite number of potential sexual partners. In cybersex with a primary partner, the population is completely closed because there is only one possible sexual partner. In contrast, when people engage in sexual activity with a stranger, the population is only constrained by the number of willing partners that the person seeks. Thus, cybersex with a stranger is an open population. Although cybersex with a known non-partner has more potential partners than cybersex with a primary partner, it is still a relatively closed population because it contains a finite number of people. Given the TSS and the importance of open and closed populations in enacted offline sexual behaviors, men and women likely differ in whether they have ever engaged in (prevalence) and the frequency with which they have engaged in, cybersex with a stranger but not with a primary partner or known non-partner.
Current Study and Hypotheses

We first examined the percent of men and women who had engaged in cybersex with a primary partner, a known non-partner, a stranger, in only one of these partner contexts, and in all three partner contexts (Research Question) because researchers have not examined the effects of partner context on the prevalence of cybersex. In addition, the following hypotheses were derived from sexual script theory and research on offline sexual activities:

Hypothesis 1: For both men and women, the prevalence of cybersex would be greatest with a primary partner, followed by a known non-partner, and a stranger, in that order.

Hypothesis 2: More men than women would report cybersex with a stranger.

Hypothesis 3: For both men and women who have engaged in cybersex with all three partner types, the frequency of cybersex with their primary partner would be greatest followed by cybersex with a known non-partner, and finally cybersex with a stranger, in that order.

Hypothesis 4: Men would report engaging in more frequent cybersex with a stranger than would women.

Hypothesis 5: For both men and women, desired frequency of cybersex with a primary partner would be greatest, followed by a known non-partner, and then a stranger, in that order.

Hypothesis 6: Men would desire more frequent cybersex in each partner context than would women.
Hypothesis 7: For both men and women, people who desired more frequent cybersex in one partner context would also desire more frequent cybersex in the other two partner contexts. However, for each partner context, higher desired frequency of cybersex will be related to engaging in more frequent cybersex with the respective partner only.

Methods

Participants

Individuals 18 years and older were recruited to an online study about sexuality and intimacy on the Internet through: a) broad-based online recruitment with advertisements placed in forums such as e-newsletters, online classifieds ads, and Facebook groups; and, b) forums and people who would be likely to have participated in cybersex (e.g., existing participant databases; posting to sex-specific websites). Most participants (55.5%) heard about the study through an email invitation from the researchers or a friend/colleague. Advertisements were active from April 2011 to November 2011. Potential participants were directed to a research-listing landing page. Upon selecting the link to the study, participants were randomly assigned to one of two overlapping surveys focused on cybersex experiences (Survey 1) or motives (Survey 2), respectively. Those who gave permission were later contacted to complete the other survey.

We had 1,468 unique visitors to the consent form for Survey 1 and 538 consented to complete the survey (36.6%); 1,802 unique visitors viewed the consent form for Survey 2 and 506 consented to complete the survey (28.1%). Of these, 382 (271 women and 111 men) unique participants met inclusion criteria (i.e., reside in developed Western countries, identify as heterosexual, and report at least one of the cybersex experiences).
We deleted 10 participants who had excessive missing data (>25% missing) and three participants who endorsed all three problematic Internet use screening items. For the 74 participants (20 men and 54 women) who completed both surveys, we used survey start-time-stamps to identify which survey was completed first and used these responses in analyses. The analyses of desired frequency of cybersex used responses to Survey 1 regardless of the order of completion. Half of the participants (51%) completed Survey 1 before Survey 2. A MANOVA was used to determine whether the participants who completed only one survey differed from those who completed both surveys in terms of their background characteristics (gender, age, relationship status, number of recent sex partners, number of romantic relationships, and average active hours on the Internet in a week). It was not significant, $F(6, 358) = 0.55, p = .77$. Similarly, participants who completed only Survey 1 ($n = 154$) did not significantly differ from those who completed only Survey 2 ($n = 139$) on the same set of background variables, $F(6, 286) = 0.94, p = .47$.

The sample used in the current study consisted of 105 heterosexual men and 264 heterosexual women. Participants ranged in age from 18 to 72 years old ($M = 28.1, SD = 9.0$). Most participants (63.4%) possessed a degree from a college or university. In terms of location, 75.0% were living in Canada, 19.0% in the USA, and 6.0% in another developed Western nation (e.g., UK, Australia). Most participants (73.5%) were in a committed relationship. Participants reported an average of 1.2 ($SD = 1.0$) sexual partners in the previous six months and 3.2 ($SD = 3.3$) romantic partners in their lifetime. They spent an average of 5.8 ($SD = 3.5$) active hours per week on the Internet.
Procedure

Participants first completed an informed consent form that stressed the confidential and voluntary nature of participation, provided information on how to complete the study, and requested permission to link their data from the survey they were about to complete to other relevant research completed for the research team. Next, consenting participants created their own username and password to access the survey. For both surveys, participants first completed a background questionnaire, followed by the Lifetime Cybersex Experience Questionnaire and the Frequency of Cybersex Experience Questionnaire. Participants who did not indicate that they had engaged in at least one cybersex experience were redirected to a parallel study. Only participants in Survey 1 completed the Desired Frequency of Cybersex Questionnaire. In both surveys, participants completed a variety of other questions not relevant in this study as well as three screening items assessing problematic Internet use. After completion of the study, participants were redirected to a webpage with debriefing information. On this page, participants had the option of submitting their name and contact information into a prize draw and/or a participant database to be invited to future studies conducted by the research group (e.g., the second survey of this study). The university’s Research Ethics Board approved both surveys.

Measures

We used a Background Questionnaire to assess demographic (e.g., gender, age) and background (e.g., average number of hours spent online per week) information.

We used the 8-item Lifetime Cybersex Experience Questionnaire (Shaughnessy & Byers, in press; see Chapter IV) to assess participants’ lifetime experiences with
cybersex. Using a checklist response format, participants indicated whether they had ever engaged in each of the activities listed with a: a) primary partner; b) known non-partner; and/or c) stranger. Each type of partner was defined in the instructions, just above the checklist. Primary partner was defined as “a person who was your primary romantic partner at the time of the activity; this person might still be your partner or the relationship may have ended. If you had a partner outside of your primary relationship, these experiences go with known non-partner”. We defined known non-partner as “someone you knew but who was not your primary partner at the time of the activity. This could be a friend, colleague/classmate, ex-partner, or partner outside of a primary relationship”. Finally, we used the term Unknown Other to refer to the stranger context and defined it as “someone you do not know at all and had not met at the time of the activity”. The internal consistency for the scale for all three types of partners was excellent: primary partner $\alpha = .87$, known non-partner $\alpha = .91$, and stranger $\alpha = .91$.

Experience with cybersex was operationally defined as having engaged in one or more of the activities with that type of partner.

Desired Frequency of Cybersex was assessed using an item adapted from the Dyadic Scale of the Sexual Desire Inventory (Spector et al., 1996). The authors provided evidence for strong reliability and construct validity of the original scale. Participants indicated how frequently they would have liked to engage in cybersex in the previous month within each partner context separately. Responses were on a 7-point frequency scale ranging from not at all (0) to more than once a day (6). Only Survey 1 included this item.
Actual Frequency of Cybersex was assessed using a single item. For each partner context, participants were instructed to “[Think] of all the cybersex activities you have done with a [partner type]” and indicate the frequency with which they had engaged in cybersex in the previous 6 months on a 7-point frequency scale ranging from never (0) to daily/more than once a day (6). This resulted in three frequency scores, one for each partner context.

Results

Preliminary Analyses

Initial screening and cleaning procedures revealed no missing data on items used to create the prevalence of cybersex variables. However, missing data on the remaining continuous variables ranged from a low of 4.7% on the desired frequency of cybersex with a primary partner to a high of 12.2% on actual frequency of cybersex with a primary partner. The missing data pattern suggested that data was likely missing at random (MAR; Allison, 2001; see Appendix F). Therefore, we used expectation-maximization to replace missing values. Each of the desire items exhibited a positive skew; 84% of the sample reported desiring cybersex once a week or less (0 – 3) with a primary partner; 93% with a known non-partner, and 95% with a stranger. To help minimize the impact of the skew, we recoded these variables into not at all (0), less than once a week (1), and once a week or more (2). Similarly, for frequency of cybersex, 83% of the sample reported once or twice or less (0 – 2) with a primary partner, 92% with a known non-partner, and 94% with a stranger; therefore, we recoded the actual frequency variables into never (0), less than once a month (1), and once a month or more (2).
Prevalence of Cybersex

The prevalence of cybersex experience for each type of partner is reported in Table 6.1. Most participants reported at least one cybersex activity with a primary partner in their lifetime. Most of these individuals had also engaged in cybersex with one of the other partner types — that is, only a minority reported only engaging in cybersex with a primary partner. In contrast, less than half of the participants reported having ever engaged in cybersex with a known non-partner or with a stranger; very few had exclusively engaged in cybersex with either of these partner types. Similarly, few had engaged in cybersex within all three partner contexts.

In order to compare men’s and women’s prevalence of cybersex experience with each type of partner (H1 & H2), we conducted a 2 (gender) x 3 (partner context) between-within subjects analysis of variance (ANOVA). ANOVA can be reliably used to analyze dichotomous variables provided that the sample size for the within subjects variable is at least 20 and the proportion of scores falling in each cell is greater than 20% (Lunney, 1971)—assumptions met by our data. The main effects for both partner type and gender were significant, $F(2, 366) = 63.65, p < .001, \eta_p^2 = .26$ and $F(1, 367) = 18.11, p < .001, \eta_p^2 = .05$. The interaction was not significant, $F(2, 366) = 1.30, p = .27$.

Follow-up mean comparisons using the Bonferroni method (Field, 2009) revealed that significantly more participants reported cybersex experience with a primary partner than with a known non-partner ($p < .01$) and with a stranger ($p < .01$), which did not differ ($p = .11$) (see Table 6.1 for the equivalent percentages). Additionally, the men reported cybersex experiences in more partner types than did the women ($M = 0.64$, and $M = 0.52$, respectively). To clarify the gender differences, we conducted two additional analyses.
<table>
<thead>
<tr>
<th>Partner Context</th>
<th>Overall %</th>
</tr>
</thead>
<tbody>
<tr>
<td>With a Primary Partner</td>
<td>82.4</td>
</tr>
<tr>
<td>Only with a Primary Partner</td>
<td>37.4</td>
</tr>
<tr>
<td>With a Known Non-Partner</td>
<td>45.8</td>
</tr>
<tr>
<td>Only with a Known Non-Partner</td>
<td>6.2</td>
</tr>
<tr>
<td>With a Stranger</td>
<td>37.1</td>
</tr>
<tr>
<td>Only with a Stranger</td>
<td>6.5</td>
</tr>
<tr>
<td>All three types</td>
<td>15.4</td>
</tr>
</tbody>
</table>

Note: $N = 369$. 
First, we examined whether the percent of men and women who reported cybersex within all three partner contexts differed. In keeping with the previous analysis, a significantly greater percentage of men (24.8%) than women (11.7%) reported having engaged in cybersex with all three types of partners, $\chi^2 = 8.78, p < .01, \eta_p^2 = .16$. Next, we examined whether there were gender differences in the percent of men and women who had only engaged in cybersex with a primary partner. We could not examine the gender difference in cybersex with a known non-partner only and a stranger only because so few people reported this experience. In contrast, to the previous analyses, significantly more women (42.4%) than men (24.8%) reported having engaged in cybersex with a primary partner only, $\chi^2 = 9.27, p < .01, \eta_p^2 = .17$.

**Frequency of Cybersex Experience**

We examined whether the partner context of cybersex and gender affected participants' actual frequency of cybersex experience (H3 & H4) in two ways. First, we selected the 26 men and 31 women who reported an prevalence of cybersex with all three types of partner and used a 2 (gender) x 3 (partner type) mixed between-within ANOVA. The results revealed a significant main effect for partner type, $F(2, 54) = 3.92, p = .03, \eta_p^2 = .13$. The main effect for gender and the interaction were not significant, $F(1, 55) = 3.84, p = .06, F(2, 54) = 0.97, p = .38$, respectively. Follow up mean comparisons using the Bonferroni method provided partial support for the partner context hypothesis (H3). Participants reported significantly more frequent cybersex with a primary partner ($M = 0.94$) than with a stranger ($M = 0.59, p < .001$). The frequency of cybersex with a known non-partner ($M = 0.74$) fell between the frequency cybersex with a primary partner and a stranger, but did not differ significantly from either ($p = .34, p = .31$, respectively).
Second, because relatively few participants reported engaging in cybersex in all three partner contexts, we also conducted separate one-way (gender) ANOVAs for each partner context using only the participants who reported an prevalence of cybersex within that partner context. For cybersex with a primary partner, the men \((n = 90)\) and women \((n = 214)\) did not significantly differ in their actual frequency of cybersex experience, \(F(1, 303) = 2.25, p = .14\) (see Table 6.2). Similarly, the men \((n = 58)\) and women \((n = 111)\) who reported cybersex with a known non-partner did not significantly differ in their actual frequency of experience, \(F(1, 168) = .05, p = .82\). In contrast, for cybersex with a stranger, the men \((n = 52)\) reported significantly more frequent experience than did the women \((n = 85)\), \(F(1, 136) = 11.40, p = .001, \eta^2_p = .08\).

**Desired Frequency of Cybersex**

We conducted a 2 (gender) x 3 (partner context) between-within ANOVA to examine whether gender (63 men; 166 women) and type of partner affected participants’ desired frequency of cybersex (H5 & H6). We found significant main effects for gender and partner context, \(F(1, 227) = 24.98, p < .01, \eta^2_p = .10\) and \(F(2, 226) = 27.69, p < .01, \eta^2_p = .20\). The interaction was not significant, \(F(2, 226) = 1.87, p = .16\). Follow-up mean comparisons using the Bonferroni method indicated that participants desired significantly more frequent cybersex with a primary partner \((M = 0.85)\) followed by a known non-partner \((M = 0.56)\) and a stranger \((M = 0.38)\). All three means differed significantly from each other \((p < .001\) for all three comparisons). Additionally, overall the men desired significantly more frequent cybersex than did the women \((M = 0.79\) and \(M = 0.41\) respectively).
Table 6.2

*Men and women's average frequency of cybersex experience with each type of partner.*

<table>
<thead>
<tr>
<th>Cybersex Partner Context</th>
<th>Men</th>
<th>Women</th>
<th>p</th>
<th>np²</th>
</tr>
</thead>
<tbody>
<tr>
<td>Primary Partner</td>
<td>90 0.96</td>
<td>214 0.82</td>
<td>.14</td>
<td></td>
</tr>
<tr>
<td>Known Non-Partner</td>
<td>58 0.79</td>
<td>111 0.77</td>
<td>.82</td>
<td></td>
</tr>
<tr>
<td>Stranger</td>
<td>52 0.90</td>
<td>85 0.47</td>
<td>.001</td>
<td>.08</td>
</tr>
</tbody>
</table>

*Note. In each context, only participants who had experienced cybersex in that context are included in the analysis*

*a* 90 men and 214 women.

*b* 58 men and 111 women.

*c* 52 men and 85 women.
The bivariate correlations between desired frequency and actual frequency of cybersex in each partner context are reported in Table 6.3. First, we examined the correlations between desired frequency of cybersex within different partner contexts (H7). As predicted, participants who desired more frequent cybersex within one partner context also desired more frequent cybersex within both of the other partner contexts. Next, we examined the relationships between desired and actual frequency of cybersex with each type of partner (H8). As predicted, for all three partner contexts, people who desired more frequent cybersex also engaged in more frequent cybersex with the respective partner type. However, participants who desired more frequent cybersex with either a primary partner or a stranger also engaged in more frequent cybersex with a known non-partner. Finally, we examined the correlations between the frequencies of cybersex within different partner contexts. As expected, the frequency of cybersex with a primary partner was not related to the frequency with a known non-partner or stranger. However, people who engaged in cybersex more frequently with a known non-partner also reported significantly more frequent cybersex with a stranger. These variables shared less than 2% of their variance.

**Discussion**

The purpose of this study was to enhance our understanding of cybersex with three types of partners: primary partner, known non-partner, and stranger. To our knowledge, this study is the first examination of the partner context of cybersex. These three types of partners differ in their degree of anonymity, with stranger being the most anonymous and primary partner the least. Overall, we found that the majority of participants reported a prevalence of cybersex with a primary partner. Additionally,
Table 6.3
Spearman's Rho Correlations Among Desired and Actual Frequency of Cybersex Experience with a Primary Partner, Known Non-Partner, and Stranger

<table>
<thead>
<tr>
<th></th>
<th>1.</th>
<th>2.</th>
<th>3.</th>
<th>4.</th>
<th>5.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Desired Frequency for Cybersex with a Primary Partner</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Desired Frequency for Cybersex with a Known Non-Partner</td>
<td>.35**</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Desired Frequency for Cybersex with a Stranger</td>
<td></td>
<td></td>
<td>.27**</td>
<td>.50**</td>
<td></td>
</tr>
<tr>
<td>4. Frequency of Cybersex with a Primary Partner</td>
<td>.35**</td>
<td>.05</td>
<td>.06</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Frequency of Cybersex with a Known Non-Partner</td>
<td>.19**</td>
<td>.52**</td>
<td>.14*</td>
<td>.07</td>
<td></td>
</tr>
<tr>
<td>6. Frequency of Cybersex with a Stranger</td>
<td>-.07</td>
<td>.10</td>
<td>.35**</td>
<td>-.05</td>
<td>.14**</td>
</tr>
</tbody>
</table>

Note. N = 229.

*p < .05  **p < .01
approximately half had engaged in cybersex with a known non-partner, and a substantial minority with a stranger. Even though we selected only people with cybersex experience, participants reported infrequent cybersex with any type of partner. In fact, most of the sample reported engaging in cybersex only once or twice in the previous six months. However, there did appear to be a small group of men and women who were actively involved in cybersex in that they reported engaging in cybersex within all three partner contexts. These findings are consistent with previous research that has demonstrated that most online sexual activity users are recreational participants who engage infrequently in solitary and/or partnered activities (Grov, Gillespie, Royce, & Lever, 2011; Shaughnessy et al., 2011; Velezmoro et al., 2012). The results also demonstrate that some of the same overarching sexual scripts that guide offline sexual activity also characterize cybersex—that is, that cybersex is a sexual script track. Specifically, we found that two aspects of the most prevalent North American sexual script were present in cybersex experiences—that is, that sexual activity is romantic relationship focus and gender-based.

The Role of Anonymity in the Partner Context of the Enacted Cybersex Script

The results of this study shed light on the role of anonymity in the partner context of cybersex. Previous researchers have proposed that anonymity is an important aspect of people's experiences on the Internet (e.g., Christopherson, 2007; Moore et al., 2012). Research on online sexual activities has been guided by the assumption that anonymity is a primary motivation for engaging in online sexual activities. Essentially, researchers have posited that people participate in these kinds of online activities because of the perceived safety in the anonymity of online sexual activity that, in turn, allows people to act in ways that differ from the dominant offline sexual scripts and sexual norms.
(Cooper, 1998: Ross, 2005). This implies that, in anonymous online sexual activities, women are freed from the restraints of the Traditional Sexual Script to take an active role in their sexual activities. In keeping with these assumptions, researchers have focused on cybersex with a stranger, the most anonymous online partner context (e.g., Daneback et al., 2005; Dijkstra & Barelds, 2011; Goodson et al., 2001), even though people can also engage in cybersex with people who are known to them (i.e., with partners and known non-partners). Our findings suggest that anonymity is not likely a primary motivating factor for engaging in cybersex. Although some participants reported engaging in cybersex with a stranger (i.e., the most anonymous partner context), we found that cybersex in this partner context was the least common, least frequent, and least desired. Further, few participants reported engaging in cybersex only in this context. In contrast, we found that the most common, most frequent, and most desired cybersex partner was the least anonymous—with a primary partner. We also found that when men and women engaged in cybersex outside of a primary partnership, they were more likely to do so with known non-partners than with strangers—the partner context with a moderate amount of anonymity. Thus, similar to non-sexual online communication (Bargh & McKenna, 2004; Miczo et al., 2011; Ramirez & Broneck, 2009), our findings suggest that cybersex is largely an extension of offline relationships.

There is some evidence that anonymity, although not the primary factor, does affect the relationships between participants’ desired and actual frequency of cybersex. First, although we found that people who desired more frequent cybersex with one type of partner also desired more frequent cybersex within the two other partner contexts, the strength of this association was weakest between the most anonymous (stranger), and
least anonymous (primary partner) contexts. That is, the anonymity of the partner context appeared to have affected participants' desired frequency of cybersex within that context. However, this finding is also consistent with offline research that has demonstrated that individuals with higher sexual desire in one context also have higher desire in other contexts (Spector et al., 1996; Winters et al., 2010), and extends this research to the Internet. Thus, the results suggest that in addition to the anonymity of the partner context, individual differences in sexual desire likely affect desire for cybersex in all contexts.

Second, we found that the frequency with which participants engaged in cybersex in one partner context was not, for the most part, related to the frequency with which they engaged in cybersex in other partner contexts. This finding suggests that people who engage in cybersex do not simply engage with anyone. Rather, they engage in more frequent cybersex within partner contexts that matched their desired degree of anonymity. That is, participants who desired more frequent cybersex with an anonymous partner (i.e., stranger) reported engaging in more frequent cybersex within partner contexts that reflected at least some degree of anonymity: cybersex with a stranger and/or with a known non-partner. The reverse was also true; people who desired more frequent non-anonymous cybersex – that is, cybersex with a primary partner – reported engaging in more frequent cybersex within partner contexts that contain a degree of non-anonymity: with primary partners and known non-partners. These findings suggest that cybersex with a known non-partner fulfills desire for both anonymous and non-anonymous cybersex experiences. This may be because cybersex in the known non-partner context can include a wide variety of types of partners (e.g., friends with benefits, casual sex with acquaintances; Furman & Shafer, 2011; Wentland & Reissing, 2011). However, the
desired frequency of cybersex with a known non-partner only predicted actual frequency of cybersex within this same partner context, suggesting that desire for a moderate amount of anonymity in cybersex likely is unique. Research is needed to better understand the nuances in people’s cybersex desires, desired level of anonymity, and experiences with partners and within contexts that realize these desires.

Together, these findings suggest that anonymity is one of many motivations for engaging in cybersex within a particular partner context. That is, some people desire cybersex for reasons other than anonymity; and thus, engage in cybersex with whichever type of partner they can find. Others likely desire, and thus engage in, cybersex with a specific degree of anonymity, or a specific type of partner. Either way, the anonymity in partner context is likely but one aspect of the experience of anonymity during cybersex. For example, the extent of anonymity in online interactions is also related to the modes and devices of communication during cybersex. Indeed, recent research suggests that other aspects of online interactions, such as lack of eye contact, may be more important for lowering behavioral inhibition online than is identifiability (Lapidot-Lefler & Barak, 2012). These disinhibiting cues likely are present even in known other partner contexts. Research is needed to understand the implications of behavioral inhibition and identifiable cybersex partners.

The Role of Gender in the Enacted Cybersex Script

The results provide evidence that the TSS characterizes some but not all of men’s and women’s cybersex experiences and desires. According to the TSS, men should desire and engage in sexual activity with a variety of partners whereas women should desire and engage in sexual activity mainly within a primary romantic partnership (Byers, 1996;
McCormick, 2010; McHugh et al., 2012; Willetts et al., 2004). Consistent with the TSS, we found that, compared to the women, the men desired more frequent cybersex overall. Further, they were more likely to engage in cybersex with all three types of partners and not solely with a primary partner. Additionally, the men reported more frequent cybersex with a stranger than did the women. Conversely, we found that, compared to the men, significantly more of the women reported cybersex experience only with a primary partner. These findings extend past research that has shown that, compared to women, men desire more sexual activity, report engaging in more offline casual sex, and seek sexually explicit material online more often by demonstrating that this pattern is also evident in cybersex (Baumeister, et al., 2001; Petersen & Hyde, 2010; Shaughnessy et al., 2011; Velezmooro et al., 2012).

The results also revealed a number of aspects of men’s and women’s cybersex experiences that were similar. First, both men and women participate in cybersex with a variety of partners. That is, we found that more than one-third of both men and women reported engaging in cybersex in each of the three partner contexts separately. Second, consistent with offline relationship sexual scripts (McHugh et al., 2012; Wentand & Reissing, 2011; Willets et al., 2004), both the men and the women were most likely to engage in cybersex with a primary partner and to do so more frequently, followed by a known non-partner, and then a stranger, in that order. Third, neither the men nor the women engaged in frequent cybersex with any partner. That is, even the men on average engaged in cybersex less than once a month within each partner context separately. Additionally, the men and women did not differ in their frequency of cybersex with a primary partner or a known non-partner. Similarly, the men and women who had
experienced cybersex within all three partner contexts did not differ in their frequency of cybersex with a stranger. Finally, although the men desired more frequent cybersex overall than did the women, neither the men nor women desired frequent cybersex with any of the partners.

The pattern of gender similarities and differences suggests mechanism by which gender influences the enacted cybersex script. Our results suggest that gender affects the partner context in which people desire cybersex—that is, in keeping with the TSS men are more likely than are women to desire cybersex across all types of partners. It is likely that people’s desire then motivates their efforts to find a partner that fits the particular context. However, regardless of desire, people’s ability to enact their desired cybersex experience is constrained by the availability of sexual partners – that is, the extent to which the partner population is open. As a result, men and women do not differ in their cybersex experience with a primary partner or known non-partner because these populations are closed. Indeed, compared to the women, the men only reported more frequent cybersex experience with a stranger – an open population. Further, it is likely that some people, men and women, are open to a broad range of cybersex partners and that men are more likely than women to exhibit this openness. Together, the findings extend past research on the TSS in online sexual activities (Shaughnessy et al., 2011) by demonstrating that the partner context of cybersex is essential for understanding the extent to which the TSS is evident in men’s and women’s enacted cybersex experiences. However, research is needed to better understand the factors that motivate men and women to seek out cybersex and how these differ depending on the partner context. Overall, these findings are consistent with research on offline sexual activity that
demonstrates that gender differences persist in some but not all aspects of enacted sexual activities (Byers, 1996; Simms & Byers, 2013).

Limitations

This study provides an initial examination of the partner context of cybersex. However, it is not without its limitation. Because we only included people who had engaged in cybersex in at least one partner context, the results do not provide an indication of how common cybersex within any partner context is in the general population. In addition, participants were highly educated North Americans who identified as heterosexual. As such, the extent to which the results are generalizable to less-educated and sexual minority individuals as well as to people living in other countries is unknown. Finally, we used self-report measures of cybersex experience and desire that were developed for this study. Thus, information about the accuracy, reliability, and validity of the measures is limited. However, the questionnaires were developed based on formats and items used in other measures with demonstrated psychometric properties (e.g., Shaughnessy et al., 2011; Spector et al., 1996). Thus, the results are likely reliable and valid.

Conclusions

The results of this study indicate that both gender and the degree of anonymity in the partner context are crucial to understanding cybersex. As such, they provide an essential step towards connecting research on online sexual activities with research and theories on both non-sexual online communications and offline sexual activities. For many people, cybersex is likely a modern approach for maintaining sexual relationships that either already exist or that would likely exist offline (as in the case of a primary
partner and possibly a known non-partner). Thus, cybersex is not only another avenue for sexual expression generally, it is also another avenue for sexual expression within primary romantic relationships specifically. The findings suggest that by focusing on cybersex with a stranger or in the context of infidelity, researchers have neglected the scope of online sexual experiences. In order to understand people’s online sexual behavior, including cybersex, it is important that researchers assess not only the behaviors but also the relationship context in which the behaviors occur.
References


CHAPTER VII

Overall Discussion

The overall goal of the current research was to enhance our understanding of cybersex – a sexual communication between at least two people that is focused on sexual relations and occurs via synchronous Internet modes. There has been little research on cybersex and there are significant methodological limitations in the research that exists. Given these limitations, the first contribution of this dissertation is improved measurement of cybersex and, at the same time, information to improve measurement of online behaviours. Additionally, the current findings extend the research on cybersex by providing novel information about the non-problematic cybersex end of the continuum of non-problematic to problematic cybersex experiences as well as the sexual scripts that guide cybersex. Ultimately, the results supported the importance of measuring and examining the relationship context of cybersex experience.

Contributions to the Literature

The current research contributes to the literature in at least three areas: 1) measurement in cybersex and online behaviour research; 2) understanding of non-problematic cybersex experience; and, 3) understanding of cybersex sexual scripts. These contributions are described in more detail in the following sections.

Measurement Improvements in Cybersex Research

This dissertation provides information that will contribute to improvements in the measurement used in cybersex research. First, Chapters II and IV contribute conceptual and operational definitions of cybersex derived from an empirical examination of participants’ understanding of the term. Previous researchers used their own
understanding of cybersex as their conceptual definition and rarely used operational
definitions that matched the conceptual definition (e.g., Daneback, Cooper, & Månsson,
2005; Goodson, McCormick, & Evans, 2001). Second, in Chapter IV, the results revealed
the benefit of using a multi-item measure of cybersex over using a single-item measure
even when the single-item measure included a clear operational definition. Third, the
results reported in Chapters IV and VI revealed the importance of including the
relationship context in cybersex measures. In Chapter IV, the results suggested that
people who participate in cybersex with only their primary partner are under-represented
in previous cybersex research because this research has not included the relationship
context of these experiences. In Chapter VI, it was found that most people engage in
cybersex with their primary partner. Overall, the findings of this dissertation suggest that
previous research does not provide a clear account of cybersex experience because of the
reliance on single-items, absence of a conceptual definition of cybersex, and absence of
the relationship context of cybersex in measures.

This dissertation also provides information for improving measurement of
people’s experiences with online sexual activities and online behaviours in general. The
results suggest that the behaviours consistent with the term cybersex (e.g., describing
specific sexual acts you would do to another person as if it was happening, behaving
sexually for another person to watch) were more important to the experience of cybersex
than were the specific technological aspects (e.g., instant messenger versus chat room,
home computer versus lap top) of the activity. As reported in Chapter II, participants
included a clear reference to the online (or Internet-mediated) aspect of cybersex in their
definitions, but by-and-large did not specify the modes, forums, or devices used for
cybersex. In Chapter IV, most participants were concordant in their responses to the single-item and multi-item measure of cybersex – the latter did not include reference to any modes, forums, or devices used for cybersex activities. In contrast, many researchers have examined online interpersonal behaviours, both non-sexual and sexual including cybersex as they occur within specific forums or modes of communication (e.g., Christofides, Muise, & Desmarais, 2012; McKenna, Green, and Smith, 2001; Weisskirch & Delevi, 2011). For example, researchers typically study texting on cell phones separately from instant messaging via online software. However, the advent and growing popularity of smart phones blur the distinction between texting and instant messaging. Is using one’s smart phone to send an instant message via Skype all that different from using the same device to send a text via SMS (i.e., short message service)? The underlying phenomenon is arguably synchronous communication regardless of the forum, mode, and even device (for instance, people can send a text message from their computer to a cell-phone). This finding is important for the study of online behaviours in general because it allows researchers to compare behaviours across studies, time, and social context despite differences and changes in technological capabilities and popularity of various online media.

The Continuum of Cybersex Experience

This dissertation contributes new information about non-problematic cybersex to the literature on the continuum of cybersex experience. Most sexual behaviours exist on a continuum ranging from non-problematic to problematic (Hyde, DeLamater, & Byers, 2012). Researchers have found that some people engage in non-problematic or recreational online sexual activities, other people’s participation in online sexual activity
appears to be at risk of leading to problems, and still others engage in problematic online sexual activities (Cooper, Delmonico, & Burg, 2000; Cooper, Scherer, & Marcus, 2002). Cybersex experience also likely exists on a continuum of non-problematic to problematic. Conceptualizing cybersex experience as on a continuum acknowledges that cybersex behaviour, in-and-of-itself, is not inherently problematic. Indeed, it is hard to imagine that cybersex within a primary romantic partnership would always be problematic. Unfortunately, prior to this dissertation, little was known about the non-problematic end of the continuum of cybersex. Overall, the results of this dissertation suggest that the continuum of non-problematic to problematic cybersex experience is best understood by including the relationship context in conceptualizations.

The results in this dissertation extend our understanding of non-problematic cybersex in several ways. First, the results suggest that non-problematic cybersex likely is common and problematic cybersex likely is uncommon. In Chapter II, 66% of the sample reported cybersex experience. In the surveys used in Study 2 (i.e., Chapters IV and VI), 78% and 79%, respectively, of participants reported at least one cybersex experience (see Appendix F). Further, only three participants were screened out of Study 2 because they reported problematic online experiences. Second, the results indicated that, despite cybersex stereotypes, many people engage in non-problematic cybersex with their primary partner and known non-partners as well as with strangers. Third, the results in Chapter VI suggested that, similar to solitary-arousal and other partnered-arousal online sexual activities (Grov, Gillespie, Royce, & Lever, 2011; Shaughnessy, Byers, Clowater, & Kalinowski, 2013; Shaughnessy, Byers, & Walsh, 2011; Velezmooro, Negy, & Livia, 2012), the vast majority of cybersex participants engaged in these activities infrequently.
(once or twice in the past six months or less within any relationship context). Fourth, cybersex participants also desired infrequent cybersex (once a week or less within any of the relationship contexts). Fifth, in Chapter VI, the results suggested that the prevalence, frequency, and desired frequency of cybersex declined as the degree of anonymity in the partner context increased (i.e., primary partners, followed by known non-partners, and then strangers). Thus, the findings in this dissertation suggest that, for people who engage in non-problematic cybersex, non-anonymous cybersex contexts outweigh anonymous contexts.

**Cybersex Scripts**

The results of this dissertation extend past research on online sexual activities by suggesting that cybersex is a new track of offline sexual scripts. Previous researchers have suggested that the Internet provides an environment in which people could (and would) act counter to the scripts that guide offline behaviours (Ross, 2005). In contrast, the results in this dissertation indicate that heterosexual men and women act consistently with the dominant cultural scenarios that guide offline sexual behaviour. Specifically, the results reported in Chapter VI suggest that the romantic relationship focus and traditional sexual script (TSS) that guide offline heterosexual sexual activity also guide men's and women's cybersex experiences (Byers, 1996; McCormick, 2010; McHugh, Pearlson, & Poet, 2012; Willetts, Sprecher, & Beck, 2004). Additionally, as with offline sexual behaviour (Baumeister, Cantanese, & Vohs, 2001), the findings suggest that the interpersonal scripts in cybersex reflect these dominant cultural scenarios. As reported in Chapter IV, both men and women's cybersex experiences were predominantly within romantic relationships. However, consistent with the TSS and research on offline casual
sex experience (e.g., Petersen & Hyde, 2010), men and women differed in the frequency with which they engaged in cybersex with strangers. Moreover, the results in Chapter VI provided evidence of an intrapsychic script in cybersex. People’s desired frequency of cybersex is an individual factor and represents one aspect of intrapsychic scripts. Consistent with sexual script theory and research (Spector, Carey, & Steinberg, 1996; Winters, Christoff, & Gorzalka, 2010), this intrapsychic script appeared to influence men’s and women’s enacted cybersex experience (i.e., the interpersonal script) in that as desired frequency of cybersex within a specific relationship context increased so too did the actual frequency of cybersex within that relationship. Overall, these results provide evidence that sexual scripts in cybersex parallel the sexual scripts for offline sexual activity.

Limitations

This dissertation addressed many of the methodological limitations present in previous research on cybersex. First, an empirical approach was taken to support the reliability and validity of the newly created measures of cybersex experience. Second, to address the over-focus on problematic experiences, the studies focused on non-problematic cybersex and participants were screened for problematic use. Third, the dissertation was framed in theoretical perspectives that considered the sexual aspects (i.e., sexual scripts), cyberpsychology aspects (i.e., anonymity), and behaviour aspects (i.e., behavioural domains) of cybersex in order to rectify the limited use of theory in cybersex research. Fourth and finally, to address the limited diversity of variables examined, participants were asked about their prevalence, actual frequency, and desired frequency of cybersex as well as the relationship context of their actual and desired experiences.
Nevertheless, there are limitations to the current research. Limitations specific to the demographics of the samples and each study were discussed in the relevant chapters. Therefore, in the following sections only limitations related to all three studies are discussed: sampling procedures, self-report and newly developed measures, and cross-sectional research design.

**Limitations of the Sample**

This dissertation is limited in its generalizability due to a reliance on convenience samples of volunteer participants. First, the research relied on convenience samples because participants were recruited from the University campus (Chapter II) and specific online forums (e.g., Facebook). Participants recruited through these contexts likely differ from the general population on background and demographic characteristics. For example, compared to the Canadian population estimates in which the majority of the participants resided (Statistics Canada, 2012), the participants in this dissertation are younger on average. Second, the participants also likely differ from the broader population because they are people who volunteer for sexuality research. Researchers have found that people who volunteer for sexuality studies tend to be more sexually experienced, more liberal in their sexual attitudes, and express more comfort with sexual topics compared to those who do not volunteer for these types of studies (Wiederman, 1999). In Study 2 (reported in Chapters IV and VI), participants also volunteered to participate in a study on “sexual activities and intimacy on the Internet”. Thus, it is possible that more people with cybersex experience within a primary romantic relationship than with non-partners elected to participate in this research because of the wording used to describe the study. Third, the samples reported in Chapters IV and VI
contained more women than men. In Study 2 (reported in Chapters IV and VI), people who reported engaging in solitary-arousal online sexual activities but not cybersex were screened out of the research. Thus, it is possible that more men than women were screened out of the study. It is not known how the unequal sample of men and women affected the results. Finally, it is unlikely that the results reported in Chapters VI generalize to the broader population because the samples included only participants who reported one or more cybersex experiences. Specifically, even considering the inclusion criteria, the results provide little information on the commonality of cybersex in the broader population. Such information would require population-based samples that included people without regular Internet access. In sum, more research is needed with larger, representative, random samples that include a wider range of participant characteristics.

Limits in Measurement

This dissertation also is limited by the use of new self-report measures. Many sex researchers have documented a wide range of biases that affect the reliability and validity of self-report measures (e.g., Catania, Gibson, Chitwood, & Coates, 1990; Fenton, Johnson, McManus, & Erens, 2001; McCallum & Peterson, 2012; Meston, Heiman, Trapnell, & Paulhus, 1998; Schroder, Carey, & Vanable, 2003; Wiederman, 2004). Some of these biases were discussed and examined in the context of participants’ reports on the single-item and multi-item measures of the cybersex experience in Chapter IV. These same concerns are also relevant to participants’ responses on the measures of desired and actual frequency of cybersex, the background questionnaire, and the Problematic Internet Screening Questions. In particular, participants may be limited in their ability to
accurately self-report when items include recall demands. Researchers generally believe that participants’ accuracy in recalling behaviours decreases as the time frame for recall increases (Wiederman, 2004). However, Schroder and colleagues (2003) noted that low-frequency behaviours likely require longer reporting intervals to obtain representative self-reports. The time-frames in the current research were selected in order to balance the recall demands with the expected low-frequency of cybersex events. Finally, a clear understanding of the reliability and validity of new measures requires convergence of findings across studies and samples. Thus, additional research supporting the psychometric properties of the measures and clarifying the extent of self-report bias will increase the confidence of the findings in this dissertation.

It is important to interpret the findings in light of the potential influence that participants’ self-report tendencies may have had on the results. For example, Wiederman (2004) suggested that participants respond to items within and across measures in a survey with a desire to be consistent in their behaviours and their beliefs. As such, the positive correlations between desired frequency and actual frequency of cybersex within each relationship context may reflect participants’ desire to be consistent across items, beliefs that desired frequency and actual frequency are related to each other, as well as the true relationship between these constructs. However, the use of different response options for the desired and actual frequency of cybersex likely decreased the impact of these self-report biases on the results.

**Cross-Sectional and Correlational Study Design**

The results of this dissertation provide a snapshot of people’s cybersex conceptualizations and experiences at a single moment in time. That is, the studies are
cross-sectional in design. Additionally, the studies are correlational in that they focus on the relationships between variables. Thus, the results do not infer causation. In this dissertation, the direction of relationships between variables was interpreted within the context of theoretical assumptions. For example, it was assumed that people who desired more frequent cybersex would engage more frequently. However, the reverse direction could also be true: people who engage in more frequent cybersex may begin to desire more frequent cybersex. Moreover, an unmeasured variable may cause people to both desire and engage in more frequent cybersex. For example, other contextual variables associated with people’s offline sexual relationships, such as geographical distance from a primary partner, may spur both greater desire and greater frequency of cybersex within that relationship. Similarly, another, unmeasured factor on which men and women differ may cause the difference in men and women’s frequency of cybersex with a stranger. For example, researchers have found that men report more Internet usage and greater computer self-efficacy than do women (Jackson, Ervin, Gardner, & Schmitt, 2001). Future research with more variables is needed to replicate and clarify the current findings.

**Future Directions**

Overall, this dissertation has the potential to rejuvenate cybersex research by providing empirically supported definitions of cybersex and being the first to examine the relationship context of cybersex experience. As such, these contributions raise many questions about cybersex experience for future investigation both in terms of the research needed to address the methodological limitations in the current research and beyond. For example, research that contributes to a broader understanding of sexual scripts online will not only increase our understanding of cybersex but will also contribute to a better
understanding of the continuum of non-problematic to problematic online sexual activities. It would be beneficial for researchers to include a comparison group of people who identify as having problematic cybersex experiences in future studies. Additionally, the dissertation findings revealed two key areas warranting future investigation with non-problematic cybersex users: 1) people’s motivations for engaging in cybersex within different relationship contexts; and, 2) the function and outcomes of cybersex with primary partners.

**Methodological improvements**

Future research needs to address the methodological limitations in the current dissertation. First, researchers should use population-based, stratified random sampling recruitment methods in order to address limitations regarding the sample (e.g., convenience, heterosexual, Internet respondents). Inclusion of strata (or subgroups) based on gender, age, ethnicity, province (in Canada), rural/urban location, education, and sexual orientation would improve confidence in the generalizability of results to the larger population. Second, researchers should recruit offline, using for example a random-digit telephone dialing procedure in order to minimize the impact of Internet access on participation. Third, recruiting for and assessing cybersex experience within a study of a wide range of non-sexual online activities would likely decrease the impact of volunteer bias specific to sex research. Fourth, use of prospective methods would assist in controlling for recall bias. Use of longitudinal designs would provide information about the causal relationships between variables. Specifically, researchers should examine whether intrapsychic factors (e.g., desired frequency of cybersex, motivations for cybersex) increase prior to interpersonal factors (e.g., enacted cybersex experience).
Together, these methodological changes would improve confidence in the findings as well as providing additional information about the examination of the psychometric properties of the new scales.

Qualitative research is also needed to provide detailed information on the cybersex phenomenon within primary relationships and outside of primary relationships. In particular, researchers should recruit men and women who engage in cybersex with their primary partners, as well as those who engage in cybersex outside of a primary relationship, to participate in interviews about their lived experiences. Such interviews should include questions to elicit information about how cybersex fits into people's online and offline lives. For example, do people engage in cybersex within romantic relationships that primarily occur online or also those that primarily occur offline? Do factors within an individual's romantic relationship such as geographic distance influence whether and how often they desire and actually engage in cybersex? Does an individual's relationship status influence with whom they engage in cybersex at different points in time? Additionally, a qualitative approach to research could provide rich data regarding the similarities and differences in technological factors (e.g., cybersex via online instant messenger or text) and specific activities (e.g., detailing sexual activities or assisting with the creation of fantasies) involved in cybersex within the different relationship contexts.

Motivations for Cybersex

Research is needed on people's motivations for engaging in cybersex. The current research was primarily focused on the relationship context of men's and women's cybersex experiences. The findings suggested that some people only engage in cybersex with one type of partner; others engage in cybersex with multiple types of partners.
Therefore, more research is needed to understand why people engage in cybersex generally, and within each type of relationship specifically. Sexual motivations reflect people's psychological needs or goals that function to encourage certain sexual activity (Cooper, Shapiro, & Powers, 1998). Researchers have not examined people's motivations for cybersex. Yet, motivations likely predict the relationship context of people's cybersex experiences as well as the frequency with which they engage in cybersex. Additionally, gender similarities and differences in motivations for cybersex will contribute to a broader understanding of the sexual scripts guiding cybersex. Moreover, people's motivations for cybersex may differentially predict the outcomes of their cybersex experiences. In fact, researchers have found that some categories of motivations for engaging in sexual activity offline are unrelated to sexual outcomes such as sexual satisfaction whereas others predict greater positive sexual outcomes (e.g., Stephenson, Ahrold, & Meston, 2011). It is likely that engaging in cybersex satisfies some motivations (e.g., sexual exploration) more so than others (e.g., intimacy), which in turn may leave the participant with each motive more or less satisfied. Therefore, research on the motivations for cybersex will contribute to cybersex theory development and increase understanding of the connections between cybersex and offline sexual activity.

**Cybersex within Primary Romantic Relationships**

Research is needed to better understand the function and outcomes of cybersex in primary romantic relationships. This dissertation provided the first empirical examination of cybersex within relationships. The results reported in Chapters IV and VI suggest that cybersex with a primary partner is common. Thus, more research is needed to examine the role that cybersex plays in primary romantic relationships as well as the impact these
activities have on each partner separately and the dyad as a whole. It may be that cybersex is an activity that reflects the influence of technology on sexual intimacy and maintenance of sexual relationships. Recently, Hertlein (2012) proposed an empirically-supported multitheoretical model to describe the ways in which technology impacts on couple relationships. The impacts include changes in the definition of intimacy as well as in formation and maintenance processes in relationships. However, it is also possible that instead of reflecting changes, cybersex experiences create changes. Grov and colleagues (2011) found that people in committed relationships who used the Internet to access sexually explicit stimuli reported that these experiences increased their frequency of sexual activity with their partner, their openness to trying new things, and eased their communication about sexual wants. Cybersex likely exerts similar influences. Therefore, longitudinal research is warranted in order to clarify the use of cybersex within a primary relationship (including fluctuations in frequency and desired frequency of cybersex), the impact of technology on people’s cybersex experiences, and the impact of cybersex on the sexual and non-sexual aspects of people’s offline relationships. Such studies also would benefit from use of dyadic research designs in which both members of a primary romantic relationship are asked about their use of cybersex with each other as well as the impact of these activities on their own and their partner’s psychosocial functioning and on their relationship functioning.

Applications and Conclusions

This dissertation highlights the limited connections between sex research and cyberpsychology research. Cybersex is a sexual behaviour that occurs through Internet mediated communication. Yet, few sex researchers have drawn on cyberpsychology
theories and findings to examine cybersex. Similarly, few cyberpsychology researchers have examined online sexual activities, including cybersex. Consequently, research findings to date are limited in their descriptive and explanatory potential of the online sexual activity phenomenon. Moreover, by avoiding the sexual realm of people’s social lives, cyberpsychology research is hindered in its ability to fully understand the Internet’s impact on social relationships. Therefore, cyberpsychology researchers need to also consider people’s sexual lives to develop a comprehensive understanding of the role of the Internet on social and interpersonal phenomenon. Likewise, sex researchers need to incorporate current theories on online interpersonal interactions into their studies of online sexual activities.

This dissertation offers information that would be useful for health educators and clinical practitioners who include sexuality in their practice. There is a paucity of research on the inclusion of cybersex in health education curricula or clinical practice. Researchers have found that only 20% of a sample of certified marriage and family therapists routinely asked about cybersex and 35% believed that there were very few or no circumstances under which cybersex could be adaptive, helpful, or useful for couples (Goldberg, Peterson, Rosen, & Sara, 2008). Rimington and Gast (2007) argued that health educators needed to add cybersex to curricula in order to warn against potential addiction. The results of this dissertation are consistent with these researchers in suggesting that health educators and clinicians should talk about cybersex. However, the results of this dissertation also suggest that the integration of cybersex in health curricula and clinical practice needs to incorporate information about non-problematic cybersex experiences. Health educators and clinicians should talk about similarities in men’s and
women’s participation in cybersex and the relationship context of cybersex in order to avoid repeating misinformation when discussing cybersex. It is likely that the best educational and clinical practice regarding cybersex will arise from discussing these activities in the context of people’s overall sexual lives.

This dissertation provides information about cybersex that is essential to invigorating research not only on cybersex experience specifically, but also on interpersonal online sexual activities in general. A key finding of this dissertation was the importance of the relationship context in cybersex activities and constructs related to cybersex. Examinations of the relationship context in people’s online sexual activities likely will prove fruitful for expanding knowledge of use of the Internet for sexual expression and arousal. Additionally, many of the findings (e.g., gender similarities and differences) highlight similarities between research on cybersex and research on non-sexual interpersonal online activities as well as offline sexuality. Moreover, the findings are relevant to developing more comprehensive theories on modern sexuality that take into account the prevalence of technology-mediated communication. In a world inundated with social uses of technology, knowledge frameworks for human behaviour necessitate an accommodation or assimilation of technological factors. Sexuality researchers need to keep abreast of these factors or risk having their research findings become antiquated.
References


APPENDIX A

Informed Consent for the Surveys Used in Study 2

please read through and answer questions at the bottom of this form

What is this about?

You are invited to take part in a study about sexual activity and intimacy on the Internet. You will be asked about yourself (e.g., job, relationship status) and your experiences with sexuality and intimacy online [and your motivations, and your evaluations of your sexual and intimate experiences online]. You will also be asked a few questions about your experiences offline. You will not be asked questions that identify who you are.

Who is doing it?

The study is being conducted by Krystelle Shaughnessy, MSc and PhD Candidate, under the supervision of Sandra Byers, PhD and Professor in the Department of Psychology, at the University of New Brunswick.

What will I have to do?

If you choose to participate, you will complete an online questionnaire. We ask that you complete the survey in a private setting and at a time that you will not be distracted. Most people take between 15 and 25 minutes to answer all the questions. If you have to stop part way through the questions, you will be able to leave the survey and save your answers to finish at a later time.

What will I get for participating?

You will get a chance to put your name in a prize draw for a $50Cnd VISA gift certificate. The chances of winning are approximately 1 in 40.

Why should I participate?

By filling out this questionnaire, you will be giving important information that will help us to better understand the role the Internet plays in people’s sexual well-being.

How is this safe for me to do? How do you keep my answers private and confidential?

1 Study 2 was reported in Chapters IV and VI. The words enclosed in square brackets were included in the informed consent for Survey 2 only. Materials for Study 1 (Chapter II) are not included in the appendices because it was a secondary analysis of a larger existing dataset.
The registration, survey, and data are stored on a secure server hosted by the University of New Brunswick, Canada. This means that only the researchers and IT specialists that run this research can access your answers. The data will be summarized and grouped in reports – no identifying information will be reported. The information you give to enter the prize draw (completed at the end of the survey) will be stored separately from your personal login, password, and survey data to make sure you stay anonymous. We encourage you to complete the survey in a private setting for your own comfort and to ensure your answers remain confidential as you enter them.

**What are my rights as a participant in this survey?**

Participation in the study is *completely voluntary*. If at any time you feel you do not want to continue for any reason, you are free to withdraw without penalty. You can also choose not to answer a specific item and continue with the survey. *The researchers can only use your data after you click finish at the end of the survey.*

**Why might I not want to do it?**

Some people find the questions in this survey sensitive either for themselves or for their relationships. We do not expect that you will feel uncomfortable during the study but sometimes people do. If you are worried about this, please see the frequently asked questions below.

We strongly encourage you to try to finish the survey in one sitting but if you cannot, you can use your login and password to finish it at another time.

This project is on file with the Research Ethics Board, University of New Brunswick (REB #2011-033). If you have any questions or concerns about your rights or treatment as a participant, you may contact the Chair of the Department of Psychology Ethics Committee, Dr. David Clark (psycethics@unb.ca)

I confirm that I live in Canada and I am 18 years or older, or I live elsewhere and I am at an age where I can legally consent to participate (at least 21 years in some regions, at least 18+ in some other regions).

YES       NO

I have read and understood the above information and consent to participating in the survey.

YES       NO
I consent to letting the researchers use my login information to link the answers from this survey to answers to other research surveys I have completed for these researchers in the past or will complete in the future.

We ask permission to link your data between studies because it is important and useful to know how individuals have responded to questions in one study also respond to related questions in another study. We link data by using your username to attach your answers from this questionnaire to questionnaires you have already answered in the past. We only have access to questionnaires that Krystelle Shaughnessy has conducted under the supervision of Dr. Sandra Byers. Linking data does not compromise anonymity or confidentiality in any way.

YES
No
Unsure at this time

FREQUENTLY ASKED QUESTIONS
What if I become upset by the questions?
What if I run out of time or am interrupted while I'm filling out the survey?
Why do I have to register?
How do I use my login and password?
How can I contact the researcher if I have questions or concerns?
APPENDIX B

Frequently Asked Questions

What if I become upset by the questions?

Here are some resources you can access:

http://www.sexualityandu.ca

This website, administered by the Society of Obstetricians and Gynecologists of Canada, provides credible and up-to-date information and education on sexual health.

http://www.plannedparenthood.org/

Planned Parenthood is a leading sexual and reproductive health care advocate and provider. Planned Parenthood has 97 independent local affiliates that operate nearly 880 health centers throughout the United States, providing high-quality services to women, men, and teens.

http://www.cfsf.ca/

Canadian Federation for Sexual Health (formerly Planned Parenthood Federation of Canada) is a non-judgmental, pro-choice, sex-positive and rights-based organization that provides information and services to support informed decision-making related to sexual and reproductive health.

http://www.sexualhealth.com/

The Sexual Health Network is dedicated to providing easy access to sexuality information, education, mutual support, counseling, therapy, healthcare, products and other resources for people.

http://www.camh.net/

The Center for Addiction and Mental Health website has information and self-evaluation tools for a range of potential problem areas including Internet use.

What if I run out of time or am interrupted?

If you do not finish the survey, you can use the username and password you created to get back into the survey at the same spot you left it at later. That way, you can close the survey and return to it later to finish it.

Why do I have to register? How do you use my login and password?
We ask you to create a login and password for a few reasons:

1) If you have to stop the survey before you are done, you can go back and finish the survey by using the login and password at a later time.

2) If you stop the survey and forget to go back to it we can send you an email to remind you about the survey by using your registration information.

3) If you want to participate in other studies in the future, you can use your login and password to get to these surveys.

4) If you agree, we can use your login to link your data from two or more surveys together. This is important for us to do even better research and understand sexuality on the Internet even better. When you agree, we link data by using your username to find your answers in one study, and attach them to your answers in another study. Doing this linking does not change the anonymity or confidentiality of your answers because only the researcher does this linking. Also, we can only link your data from this survey to other studies conducted by Krystelle Shaughnessy and Sandra Byers that are relevant to the questions being asked in this study.

We will not use your registration information for any other reasons. We will not give your registration information to anyone else. If you answer that you do not want us to link your data to other surveys we will not link your data but you can still fill out the survey.

**How do I contact the researcher?**

You can contact Krystelle Shaughnessy (Krystelle.s@unb.ca) or Dr. Sandra Byers (byers@unb.ca) for more information or with your questions and comments about the study.
APPENDIX C

Questionnaires and Measures Used in Study 2

Background Questionnaire

How did you hear about this study?
- Invitation email from researcher
- Invitation email from someone I know
- Posting on research listing website (e.g., Psychological Research on the Net hosted by Hanover College)
- Posting on Kijiji, Craig’s list, or another online classifieds
- Notice in an E-NEWSLETTER (e.g., student e-news)
- Notice from a professional listserv or newsletter (e.g., CSRF, SSSS)
- Notice from a social/personal listserv or newsletter (e.g., club, networking group)
- Posting to an online group or discussion forum (e.g., special interest group)
- Facebook group or facebook advertisement
- Advertisement on a Website
- Poster seen offline
- Other, please specify: __________.

Which best describes your gender? (please select one)
- Male
- Female
- Transgender: Male to Female
- Transgender: Female to Male
- No answer

How old are you? __________ years

How would you best describe your ethnicity? ________________

Where do you currently live?
- Canada
- USA
- Other, please specify: __________

What is your first language
- English
- French
- Spanish
- Other, please specify: ________________

---

2 Study 2 was reported in Chapters IV and VI. Participants completed other questions and measures not relevant to the dissertation. These are not included in the appendix.
What is the highest level of education that you have completed?
- Some school without high school diploma
- High school graduate
- Some college/university education
- Degree from a college or university
- Post-graduate degree
- No answer
- Other, Please specify: _____

Which of the following BEST describes your sexual orientation?
- Heterosexual
- Lesbian
- Gay
- Bisexual
- Questioning
- Unlabelled
- Not sure
- No answer
- Other (please specify): ________________

What is your current relationship status?
- Married or cohabiting (living with a partner)
- In a committed relationship
- Dating but not in a committed relationship
- Not dating or married
- Other (please specify): ____________________
- No answer

—if answered is in a committed relationship—

Is your current committed relationship partner:
- Male
- Female

How long have you been with your partner?: _____ years and/or _______ months

How many different committed partners have you had in your lifetime? ______

—if answer is not in a committed relationship —

How long ago did your most recent committed relationship end? _____ months
and/or ______ years

Was your most recent committed partner:
- Male
- Female
How long did your most recent committed relationship last?: _____ years and/or
______ months

How many different committed partners have you had in your lifetime? ______

----everyone----

How many different partners have you had sex (vaginal penetration and/or anal
penetration) with ever? __________

How many different partners have you had sex (vaginal penetration and/or anal
penetration) with in the past six months? _____

How many different partners do you foresee yourself having sex with during the next five
years (Please give a specific, realistic estimate)? _____

How many different partners have you had sex on one and only one occasion? _____

In the next questions, when the term active is used, it means actually using the Internet
not having webpages, websites, or Internet programs open that you are not using or
looking at while you do something else. So, active means that you are using the program
on the Internet or looking at/reading the webpage/website.

About how many hours a day, during the week (i.e., Monday to Friday), do you spend
active on the Internet?
[Drop down menu 0 – 24]

About how many hours a day, during the weekend (i.e., Saturday and Sunday), do you spend active on the Internet?
[Drop down menu 0 – 24]
Global Measure of Solitary-Arousal Online Sexual Activity

**Solitary-arousal online sexual activities** are any things you do on the Internet that involve sexually explicit stimuli that are NOT interactive. These activities include viewing sexually explicit pictures, videos, and reading sexually explicit stories and include all types of sexual stimuli (mainstream, kinks, fetishes, conventional or unconventional). The key to these activities is that they are not interactive, rather they are things you can do on your own, without having another person online involved.

Have you ever participated in solitary-arousal online sexual activities?

- Yes
- No

--- if yes to above ----

How often have you participated in solitary-arousal online sexual activities in the last 6 months?

<table>
<thead>
<tr>
<th>Never</th>
<th>One or twice</th>
<th>A few times</th>
<th>Once or twice a month</th>
<th>Once or twice a week</th>
<th>Many times in a week</th>
<th>Daily or More than once a day</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Global Measure of Cybersex

**Cybersex** is a real-time communication with another person that occurs through a device connected with the Internet (e.g., computer, cell phone, BB, Iphone, etc) in which one or both of you describe sexual activities, sexual behaviours, sexual fantasies, or sexual desires that may lead to feelings of sexual pleasure or physical intimacy. You and/or your partner may or may not be stimulating yourself/himself/herself sexually during this conversation.

Have you ever had cybersex?

- Yes
- No

--- if yes to above ----

How often have you had cybersex in the last 6 months?

<table>
<thead>
<tr>
<th>Never</th>
<th>One or twice</th>
<th>A few times</th>
<th>Once or twice a month</th>
<th>Once or twice a week</th>
<th>Many times in a week</th>
<th>Daily or More than once a day</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Have you ever had cybersex with (check all those that apply):

- someone who was and still is your romantic partner
- someone who was your romantic partner at the time but is not your romantic partner anymore
- someone you knew (or still know) but who has never been your romantic partner
- someone you did not know and have never met
Lifetime Cybersex Experience Questionnaire

People do a lot of different sexual and/or intimate things on the Internet that include other people. People also do these kinds of activities with different kinds of partners. Below is a list of activities that some people do, and that you may have experienced.

For each activity, please check the box if you have EVER done the activity with a primary partner, a known non-partner, and/or an unknown other.

A PRIMARY PARTNER is a person who was your primary romantic partner at the time or the activity. This person might still be your partner or the relationship may have ended. *If you had a partner outside of your primary relationship, these experiences go with the “known non-partner”.*

A KNOWN NON-PARTNER is someone you knew but who was not your primary partner at the time of the activity. This could be a friend, colleague/classmate, ex-partner, or partner outside of primary relationship.

UNKNOWN OTHER is someone you do not know at all and have not met.

<table>
<thead>
<tr>
<th>I have….</th>
<th>Primary Partner</th>
<th>Known Non-partner</th>
<th>Unknown Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>Created a story based on sexual fantasies with another person where you each add to the story as it goes.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Described specific sexual acts you would do to another person as if it was happening.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Had someone describe specific sexual acts they would do to you as if it was happening.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Described in detail a sexual activity or sexual scene back and forth with another person as if it was happening</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Described your sexual fantasies and/or sexual desires to another person.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Had another person describe their sexual fantasies and/or sexual desires to you.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Behaved sexually for another person to watch.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Watched someone behave sexually</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

171
--- if participant endorsed at least one of the lifetime cybersex experience items ---

The types of activities you said on the last page that you have done online are the kinds of activities we call CYBERSEX.
For the rest of this survey, we will be asking you about different aspects of your experiences with these activities.
So, when we use the word cybersex, we want you to think of the activities from the last page that you said you have done.

--- if participant endorsed cybersex experience question in demographics but not one lifetime experience item ---

Earlier you said that you have had a CYBERSEX experience. In the space provided, please tell us what you did (do) when you had (have) cybersex.

When I have had cybersex, I (type in the activity or activities you do):

<table>
<thead>
<tr>
<th>Desired Frequency of Cybersex</th>
</tr>
</thead>
<tbody>
<tr>
<td>Think of all of the types of cybersex experiences that were listed in the last table (e.g., creating a story based on sexual fantasies with another person, behaving sexually for another person to watch, etc.).</td>
</tr>
</tbody>
</table>

During the last month, how often would you have liked to have cybersex?

<table>
<thead>
<tr>
<th></th>
<th>Not at all</th>
<th>Once a month</th>
<th>Once every two weeks</th>
<th>Once a week</th>
<th>Twice a week</th>
<th>3 or 4 times a week</th>
<th>Once a day</th>
<th>More than once a day</th>
</tr>
</thead>
<tbody>
<tr>
<td>with a primary partner?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>with a known non-partner?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>with an unknown other?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Frequency of Cybersex Experience Questionnaire

Think of all of the types of cybersex experiences that were listed in the last table/previously (e.g., creating a story based on sexual fantasies with another person, behaving sexually for another person to watch, etc.).

In the last 6 months, how frequently have you had cybersex with each of the types of partners listed?

<table>
<thead>
<tr>
<th></th>
<th>Never</th>
<th>Once or twice</th>
<th>A few times</th>
<th>Once or twice a month</th>
<th>Once or twice a week</th>
<th>Many times in a week</th>
<th>Daily or More than once a day</th>
</tr>
</thead>
<tbody>
<tr>
<td>In the last 6 months, how frequency have you had cybersex with…</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A Primary partner</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A known non-partner</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>An unknown other</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Problematic Internet Use Screening Questions

People have many different experiences with the Internet. Please indicate which of the following experiences you have had.

I believe I am an Internet sex addict

Yes No

I am secretive, or I lie about the amount of time spent online or type of sexual/romantic fantasy activities carried out online

Yes No

I have been seen by a psychologist, counselor, or other mental health provider for help with an emotional problem, where the Internet was part of the problem

Yes No

I have neglected my obligations, such as my family or work, for 2 or more days in a row because of my Internet use

Yes No
Socially Desirable Response Style

Listed below are a few statements about your relationships with others. How much is each statement TRUE or FALSE for you?

<table>
<thead>
<tr>
<th></th>
<th>Definitely True</th>
<th>Mostly True</th>
<th>Don’t Know</th>
<th>Mostly False</th>
<th>Definitely False</th>
</tr>
</thead>
<tbody>
<tr>
<td>I am always courteous even to people who are disagreeable.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>There have been occasions when I took advantage of someone.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I sometimes try to get even rather than forgive and forget.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I sometimes feel resentful when I don’t get my way.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No matter who I’m talking to, I’m always a good listener.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
APPENDIX D

Debriefing Pages for Study 2

Survey 1

There are a wide range of activities that involve sexuality that people do on the Internet. These range from looking for information about sex, to watching or reading erotica, to interacting sexually with another individual. Many people (up to 70%) of all ages do something online that involves sexual arousal. For most of these people, their activities are simply a way they express themselves sexually and do not create problems in their lives. Researchers have only started to ask questions about what people do on the Internet that involves sexuality, including cybersex.

Cybersex is an online sexual activity that involves at least two people. Researchers, clinicians, and the media often think of cybersex as something that only occurs between strangers and leads to problems offline. People who have cybersex can be offline committed partners, people who know each other but are not partners, or strangers. The goal of this study was to find out more about cybersex. Specifically, we wanted to see how common cybersex is, how often it occurs, what types of cybersex activities people typically have, and who they have cybersex with. Because research on offline sexual activity suggests men and women have some differences with their sexual experiences, we also want to know whether men and women have the same types of cybersex experiences.

Survey 2

People have a number of different reasons for having sex offline (see Meston & Buss, 2007 for a discussion). These reasons range from physical reasons, dealing with negative emotions, to wanting intimacy, to power dynamics, to getting or giving gifts. People also experience different rewards and costs from their sexual activities offline and may even experience a certain activity as both rewarding and costly (Lawrance and Byers, 1998). When it comes to online sexual activities, such as cybersex, researchers have only started to ask questions about people’s experiences using the Internet for sexuality.

Cybersex is an online sexual activity that involves at least two people. People who have cybersex can be offline, committed partners, people who know each other but are not partners, or strangers. There is little known about why people have cybersex and what rewards and costs they experience from these activities. The goal of this study was to learn about people’s motivations for cybersex and how they experience their cybersex activities in terms of rewards and costs. We also want to know how motivations, rewards, and costs are related to cybersex experiences with different types of partners. Because men and women report differences in the strength of different sexual motivations, rewards, and costs offline, we also want to know whether they do so for cybersex experiences.

1 Study 2 was reported in Chapters IV and VI.
Both Survey 1 and Survey 2

If you are interested in learning more about this topic, you may want to read these articles:

Now that you are done the survey, you may want to erase the cache of your web browsers to remove evidence of your participation in the study. You can usually do this in the options tab of your web browser.

Most people do not have problems with how they use the Internet for sexual arousal. However, if you are concerned about your own or someone else’s use of the Internet for sexual reasons, you may find these resources helpful:

http://www.internetbehavior.com/index2.htm
This website has lots of information on problems with using the Internet for sexual purposes, and specifically cybersex.

http://www.cybersexualaddiction.com/
This website has resources, information, and self evaluation tests about online sexual problems.

If you have other concerns or something has caused you to feel upset or raised questions, these resources may be helpful:

http://www.camh.net/
The Center for Addiction and Mental Health website has information and self-evaluation tools for a range of potential problem areas including Internet use.

http://www.sexualityandu.ca
This website, made by the Society of Obstetricians and Gynecologists of Canada, provides credible and up-to-date information and education on sexual health.

If you are feeling upset, please click HERE to get a list of other resources that may be helpful for you.

Thank you again for completing the study!

To enter your name in the prize draw, to get the results of this study, and/or to be notified of future research from this research group, click below.
APPENDIX E

Ballot Page for Study 2

To thank you for participating in this study, we invite you to enter your name into a draw for a $50Cnd VISA gift certificate. Chances of winning are approximately 1 in 40.

To enter your name in the prize draw, please enter your email address here:

________________________________________

Would you like the results of this survey emailed to you?

☐ Yes
☐ No

Would you like to be invited to participate in future studies conducted by the

Human Sexuality Research Group at UNB?

☐ Yes
☐ No

Are you willing to have your data from this study linked to data from other studies that you complete using the same login information you created at the beginning of this study?

☐ Yes
☐ No

If you have any questions or concerns about this study you may contact the researchers Krystelle Shaughnessy (krystelle.s@unb.ca) or Dr. Sandra Byers (byers@unb.ca) or the Chair of the UNB Department of Psychology Ethics Committee, Dr. David Clark (psycethics@unb.ca).

177

1 Study 2 was reported in Chapters IV and VI. Survey 1 and Survey 2 contained the same ballot form.
APPENDIX F

Creation of Database for Study 2

Preliminary Database Generation

The results presented in Chapters IV and VI (Study 2) are based on data from two separate surveys conducted for this dissertation. The data from these surveys (Survey 1 and Survey 2) were combined to create the database used in Study 2 (reported in Chapters IV and VI). Recruitment for these surveys was not limited to heterosexually-identified individuals, nor to people who had experience with cybersex. Thus, the number of people consenting to the surveys, initiating the surveys, and completing the surveys is different from the sample retained for analyses in the manuscripts based on these surveys. For the most part, these preliminary sample sizes are not reported in the manuscripts.

A total of 1,511 people viewed the consent form for Survey 1 and 581 consented to completing the survey; 1,856 people viewed the consent form for Survey 2 and 560 participants consented to completing the survey. In creating the databases, I first used the user-generated login names and email addresses to identify duplicate entries. When duplicates were found and both entries completed, I used the time stamp for starting the survey to identify the earlier of the duplicates, which was retained in the sample. When one of the duplicate entries was incomplete due to early drop out in the survey (i.e., before or just after the background questionnaire), the completed entry was retained. After deleting duplicate entries, the initial response rate was 35.6% (N = 538) for Survey 1 and 27.3% (N = 506) for Survey 2. Next, I selected the subsample of participants who met the demographic inclusion criteria (heterosexual men and women from developed,

\[1\] Study 2 was reported in Chapters IV and VI.
western nations) within each study. This step yielded a total of 310 (57.6%) participants in Survey 1 and 282 (55.7%) participants in Survey 2. Of these participants, 245 (79.0%; 175 women, 70 men) in Survey 1 and 219 (77.7%; 154 women and 65 men) in Survey 2 reported cybersex experience by endorsing either the Global Measure of Cybersex or at least one item on the Lifetime Cybersex Experience Questionnaire and were retained for analyses. Participants who did not report cybersex experience on either of these measures of cybersex experience were dropped. These samples provided the starting point for database merging, cleaning, and screening specific to each manuscript.

**Data Cleaning**

Chapters IV and VI are focused on measures of cybersex experience that participants in both Survey 1 and Survey 2 completed in the same order. Therefore, for both of these chapters, I merged the databases to improve the sample size for the analyses. Because I cross-recruited between studies, I used participant usernames to identify 21 men and 54 women who completed both Survey 1 \((n = 36)\) and Survey 2 \((n = 39)\). I also used time stamps to identify whether these participants completed Survey 1 or Survey 2 first. One of these participants and nine who only completed one survey had excessive missing data (>25% missing) and were eliminated from the sample. The total merged sample size was 379 (111 men, 265 women); 74 participants (20 men and 54 women) completed both studies.

Next, within the merged database, I used the total score on the Problematic Internet Use Screening Questions to identify participants who endorsed multiple items that suggested problems with their Internet use. Upon examination of the individual item frequency distributions, I elected to drop the item “I am secretive, or I lie about the
amount of time spent online or type of sexual/romantic fantasy activities carried out online" from further examination. The item was worded in such a way that individuals with uncommon or taboo, yet non-problematic, sexual interests could have easily endorsed it. Additionally, 18.5% (n = 70) of the sample had endorsed this item, attesting to its commonality and thus limited use for screening. I used a cut-off of two out of three of the remaining items endorsed to flag potentially problematic Internet users. Only three participants were flagged based on this criterion; these participants were removed from the sample. Therefore, the sample used in the missing values analyses and screening consisted of 376 participants (108 men, 268 women).

**Approach to Missing Data**

In order to address missing data in Chapters IV and VI, a two-step process was used. In the first step, the merged database served as the source data for examining missingness, outliers, and assumptions. I conducted Missing Values Analyses (MVA) in SPSS v.19 for the frequency and desired frequency items separately because only participants who completed Survey 1 were administered the desired frequency of cybersex items. Prior to conducting the MVAs, I ensured appropriate skip patterns were reflected in the data and replaced missing data due to these skips with 0 codes (i.e., *never* or *not at all* response options). In the second step, missing data were imputed for Chapter IV and Chapter VI separately because the sample sizes were different (albeit, only by 7). However, the same procedure was used for each chapter. Missing data were imputed using the expectation-maximization algorithm (EM) in SPSS 19.0. EM is a single-value imputation procedure that uses the available data and distribution in an iterative process for selecting the value to substitute for the missing data point (Schafer & Graham, 2002;
Tabachnick & Fidell, 2007). The procedure has two steps. In the E-step an estimated value based on parameters in the complete dataset is substituted for the missing value. Then, the parameters are re-estimated using the filled in data. This procedure is performed over numerous iterations until convergence is achieved and the substituted data are saved. To be conservative, I set convergence at 50 iterations.

**Step 1: Missingness, Outliers, and Assumptions**

To minimize the impact of outliers on the EM imputation, I conducted a preliminary assessment of univariate outliers and statistical assumptions using procedures outlined by Tabachnick and Fidell (2007). Specifically, I examined histograms and box plots to identify univariate outliers and univariate normality. The frequency of cybersex and desired frequency of cybersex variables demonstrated a zero-inflated distribution that created a positive skew. However, because I expected this distribution reflected the actual distribution in the population, I chose not to transform these variables. Rather, I elected to impute data on the original scale and adjust variables afterwards as needed. Scores on predictor variables in Chapter IV (e.g., active hours spent online, number of recent sex partners) that were extreme and discontinuous from the distribution were recoded to maintain their rank but moved closer to the distribution. Next, I used these transformed variables in pairwise scatterplots with the continuous variables to examine linearity and homoscedasticity between pairs of variables. There were no clear violations of linearity.

The amount of missing data in the initial database varied from a low of 0% on demographic and background variables and 0.3% on the frequency of solitary-arousal online sexual activity experience to a high of 12.2% on the frequency of cybersex with a primary partner. Missing data on the desired frequency variables (only found in Survey 1)
ranged from 4.7% (primary partner) to 9.4% (stranger). Although seemingly a large range, statisticians generally consider these typical and manageable amounts of missing data (Enders, 2003; Johnson & Young, 2011). I examined the pattern of missing data using MVA multiple times including a different set of demographic and background variables (e.g., gender, age) each time. I always included the target dependent variables (e.g., frequency of cybersex and desired frequency of cybersex in separate MVAs). Using a conservative alpha of .01 (standard for testing assumptions), Little’s test for missing completely at random (MCAR) was almost always significant indicating that the data violated the assumption of MCAR (final selection for Chapter IV Little’s $\chi^2 = 294.51, p = .003$; for Chapter VI Little’s $\chi^2 = 136.27, p = .000$). However, MCAR is a stringent assumption that is difficult to meet with real data (Schafer & Graham, 2002). Additional inspection of the data indicated that participants who completed Survey 1 first and those who completed only one survey were missing more data on the frequency of cybersex items than their counterparts. Additionally, slightly more men were missing data on the frequency of cybersex with a stranger item and there were some variations in missing data by relationship status. However, there were no clear and consistent patterns in the data that suggested MAR was violated.

**Step 2: Imputation of Missing Data**

For Chapter IV, the EM imputation was conducted using the three frequency variables and all of the predictor variables (e.g., gender, age, number of recent sex partners) together. For Chapter VI, EM imputation was conducted for the frequency variables separate from the desired frequency variables. In both cases, only the three dependent variables and gender were included in the imputation procedure. This
approach accounted for the expected differences in the distribution by gender and relationship context. For Chapter VI only, I conducted independent sample $t$-tests and Levene's test of equality of variance to compare the imputed dataset with the original complete-only data set. None of the analyses were significant indicating that the imputed dataset maintained the original distribution while improving sample size. Additionally, the resulting imputed values had a bottom bound of zero, thus fitting within the range of response options.

References


Curriculum Vitae

Candidate's full name: Krystelle Nicole Shaughnessy

Universities attended:
- Bachelor of Arts, Honours, University of Ottawa, 2001-2005
- Master's in Science, Acadia University, 2005-2007
- University of New Brunswick, 2007-Present

Publications:


**Conference Presentations:**

Shaughnessy, K, & Byers, E. S. (2013, June). Contextualizing cybersex experience: Heterosexually identified men and women’s desire for and experiences with cybersex in three types of relationships. In K. Blair (Chair), *Not the usual suspects: Unique Predictors of relationship satisfaction & functioning in diverse relationship types*. Symposium presented at the Canadian Psychological Association Annual Convention, Quebec City, Canada.


Fudge, M., Shaughnessy, K., & Byers, E. S. (2012, September). Variety of online sexual activities: What are students really doing online? Poster presented at the annual meeting of the Canadian Sex Research Forum, Ottawa, Canada.


Shaughnessy, K., & Byers, E. S. (2011, September). *Specificity in attitudes towards online sexual activity*. Poster presented at the annual meeting of the Canadian Sex Research Forum, Vancouver, Canada.

Thompson, A., Shaughnessy, K., O'Sullivan, L., & Byers, E. S. (2011, September) *Are your biases showing? An IAT test of students' implicit attitudes toward sex among the elderly*. Paper presented at the annual meeting of the Canadian Sex Research Forum, Vancouver, BC.


Shaughnessy, K., & Byers, E. S. (2010, July). Outcomes of online sexual activity: Perspectives of college, community, and sexual minority samples. In E. S. Byers (Chair), Non-problematic online sexual activity. Symposium conducted at the annual meeting of the International Academy of Sex Research, Prague, Czech Republic.


