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Media Preference Choices for Cybersex Engagement in Long-Distance Romantic Relationships

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Abstract

Based on Media Richness Theory and Media Synchronicity Theory, the present study tests the theories' applicability in predicting media preferences to engage in cybersex among individuals involved in long-distance romantic relationships. The study examines and further develops the research field, testing for correlations between different demographic and relationship variables and medium preferences. A total of 277 respondents participated in an online survey anonymously, of which 240 respondents had been in a long-distance romantic relationship at some point in time during the last three years. A total of 162 respondents also engaged in cybersex with their partner. The most preferred form of cybersex was sexting and nudes over instant messenger that was not on a social media platform. These results indicate a preference for asynchronous forms of media with limited availability for immediate feedback and social cues. The results challenge the application of Media Richness Theory and Media Synchronicity Theory to predict media preferences among partners in long-distance romantic relationships to engage in cybersex, which suggests further research is needed.

Keywords

Long-distance romantic relationships, Cybersex, Communication technology, Media Synchronicity Theory, Media Richness Theory, Media preferences.

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1. Introduction

In times of an ongoing pandemic (Coronavirus Disease (COVID-19) Pandemic, n.d.) journalists around the world brings attention to an increase in long-distance romantic relationships (henceforth LDRRs) due to enforced travel-bans and self-isolation (among others Abernethy, 2020, April 8; Dann, 2020, April 17; Illien, 2020, April 11). However, long before the outbreak of the COVID-19 pandemic, partners in romantic relationships have been geographically separated for various reasons such as work, education and travels (Bigar, 2020, April 10; Pinsker, 2019, May 14). The continuous introduction of new communication technology to the market means the number of ways to maintain LDRRs is increasing exponentially (Janning, Gao, & Snyder, 2018). Especially, real-time communication through digital devices, e.g. video chatting, allows for geographically separated partners to stay connected independent of the geographical distance between them (Gereis, 2018). Today, mobile communication is a prominent activity among modern couples to maintain relationships (Coyne, Stockdale, Busby Iverson, & Grant, 2011). The ease of accessing other people offered by mobile communication makes it one of the most common ways to connect with others (Morey, Gentzler, Creasy, Oberhauser, & Westerman, 2013). Previous research has found that sexual intimacy tends to be crucial in romantic relationships (Byers, 2005; Hooghe, 2012). Given this, and the rapid development of communication technology, Goldsmith and Byers (2018) argue that it is reasonable to study LDRR partners' application of communication technology to engage in sexual intimacy maintenance behaviours, e.g. cybersex. Sending and receiving sexually stimulating messages is far from a new phenomenon (Weisskirch & Delevi, 2011), but the ease of doing so has increased by the rapid growth of mobile communication (ibid.).

Fourteen million couples are estimated to be in a LDRR in the United States alone in 2019 (Long Distance Relationship Statistic, 2020). Despite this, numerous researchers within the social science field bring attention to the fact that LDRRs and the communication between partners in such relationships are vastly understudied (among others see Rhodes, 2002; Stafford, 2005; Dargie, Blair, Goldfinger & Pukall, 2015). Wiederhold (2011) highlights that research on sexting among consensual romantic relationships in the United States is underdeveloped. Further, Rhodes (2002) and Gereis (2018) express the need for research on the application of various communication technology to maintain sexual intimacy among partners in LDRRs. Moreover, Daneback, Cooper and Månsson (2005) highlight that it is crucial to understand cybersex for sexuality researchers, as it provides an opportunity for humans to become aroused from another with limited cues available. Similarly, given the commonality of cybersex, it is also relevant to developers of communication technology to understand the needs of its users (ibid.).

In an increasingly globalized world marked by the rapid development of communication technology, the need to fill the aforementioned research gap is particularly timely. As such, this quantitative study investigates LDRR partners' media preferences when engaging in cybersex and aims to give an impression of the overall picture. As stated above, previous researchers have asked these questions and called for attention to an understudied area. Therefore, the aim is to identify variables, i.e. different characteristics, which future research may investigate in more detail through qualitative research. This study contributes to the existing research by; (i) characterizing LDRR partners who choose to engage in cybersex and those who choose not to, (ii) assessing the applicability of Media Richness Theory and Media Synchronicity Theory to predict media preferences when engaging in cybersex with a partner in LDRR, and (iii) investigating media preferences among partners in LDRRs concerning available cues and synchronicity when engaging in cybersex with their partner.

1.1 Research questions

Inspired by previous research and given that this is an understudied area, the following research questions were developed to guide this study. Due to the limited resources, the scope has been limited to only consider LDRR partners' media preferences to engage in cybersex rather than investigate, e.g. media preferences for various other communication needs in LDRRs. The variables investigated, demographic and relationship backgrounds of the respondents, have primarily been adapted from findings in previous studies. Additionally, given the quantitative nature of this study, it does not discuss any underlying motivations or a more profound understanding of such preferences.

RQ1: *Which communication technology medium is most preferred among long-distance romantic relationship partners when engaging in cybersex with each other?*

RQ2: *Do the predictive claims of Media Richness Theory and Media Synchronicity Theory explain these media choice preferences for engaging in cybersex among partners in long-distance romantic relationships?*

RQ3: *Do the preferences vary based on background or relationship history?*

This paper consists of 7 chapters. In chapter 2, the theoretical frameworks applied in this study and related research are presented. With an understanding of the state of the art and the previous studies that inspired the data collection method, the data collection, as well as broader methodological considerations, are explained in chapter 3. Next, the analysis conducted on the collected data and the subsequent results of this are presented in chapter 4. Towards the end of this paper, the outcomes of the data collection are discussed concerning findings in previous studies; see chapter 5, while the limitations are discussed in chapter 6. Last, implications for future studies and the conclusion are presented.

2. Literature Review

This chapter is divided into two main sections. The first section (§2.1) explains the theoretical impetus of Media Richness Theory (henceforth MRT) and Media Synchronicity Theory (henceforth MST), given its importance for this study. The theoretical impetus covered below, have been limited to concepts relevant for the application of the theories in this study primarily based on which aspects have been applied in previous interpersonal communication research (see §2.2.2 for an overview). Therefore, concepts that are somewhat relevant for organizational contexts but not for relational intimacy maintenance in interpersonal communication contexts — i.e. the conveyance and convergence, according to MRT, are largely omitted from the present discussion. MRT and MST are both relevant to this study, given that the latter is a further development of the first, and given the similarity between the theories and their recurring application in the field of relationship development and maintenance.

The second section (§2.2) is divided into two subsections. The first discusses definitions from previous research of the two central concepts: LDRRs and cybersex, given the ambiguity in existing literature concerning the definitions. The following subsection: §2.2.2; discusses existing research in areas relevant to this study. The focus is on previous studies that have applied MRT and MST in interpersonal communication, primarily concerning close relations and LDRRs. The last part of the subsection brings attention to previous studies concerning media usage for cybersex among partners in LDRRs. Given the limited resources of this study, the scope has been limited to aspects of LDRRs and cybersex that were investigated in the survey (see §3.2).

2.1 Theoretical impetus: Media Richness Theory and Media Synchronicity Theory

Daft and Lengel (1986) proposed MRT for managers to enhance workplace communication by matching the characteristics of the task with the characteristics of a particular media, in order to assess which medium was the most effective for a given task. A medium's richness is said to be dependent on four different factors: (i) the medium's ability to transmit various cues such as body language; (ii) its ability to enable feedback, (iii) its ability to transmit various languages, and (iv) its ability to individualize messages (ibid.). These factors define the ability provided by the medium for communication partners to change understanding within a given time frame (ibid.). In other words, a medium's richness is defined by its ability for the sender to transfer new information in various ways and by the possible feedback rate at which the respondents can reply. Given these assessment factors, face-to-face communication is a rich medium, whereas a written e-mail is a less rich medium, and a regular voice call would be somewhere in between. Nevertheless, Daft and Lengel (1986) associate richness with equivocality of the task - the more equivocal task, the higher the risk it could be interpreted differently. Rapid feedback and ability to present new information or the same information in various ways decrease the risk of misunderstandings and enhance the ability for the communication partners to reach shared meaning (ibid.). Therefore, the authors suggest that richer media are preferred if ambiguous tasks are performed (ibid.). Meanwhile, to communicate less equivocal tasks, where a given outcome is likely to be interpreted equally by all partners involved, less rich media is suggested to be more efficient (ibid.).

Despite that Daft and Lengel (1986) developed MRT to assess media's effectiveness in communicating various tasks within organizations, it has repeatedly been used to assess media choice in interpersonal communication contexts (Dennis, 2009; e.g. Dainton & Aylor, 2002; Doring, 2009). However, Dennis (2009) highlights that research has found limited support for MRT as respondents have made choices divergent from what was predicted by the theory. As a result of this, Dennis and Valacich (1999) proposed MST. Dennis and Valacich (1999) argue that the dimensions of MRT originate from Social Presence Theory. Social presence is defined as the medium's ability to transmit social cues and thereby increase the feeling of interlocutors being close to each other despite interacting through a screen. Therefore, MRT fundamentally believes that media richness and social presence are positively associated. In contrast, MST proposes that the perception of richness is socially constructed, making individual and cultural preferences equally as crucial as information processing capabilities to change understanding within a specific timeframe - and thereby assessing the richness of a medium. It has been found that a limitation of language variety, such as loss of verbal or non-verbal cues, does

decrease or eventually eliminate social presence (Short, Williams, & Christie, 1976). To understand the effects of media use on the ability to communicate and process information, Dennis and Valacich (1999) highlight five media characteristics which they label: (i) immediacy of feedback (the ability to send and receive rapid feedback); (ii) symbol variety (the ability to use various forms of communication); (iii) parallelism (see just below); (iv) re-hearsability (the ability to edit and fine-tune messages); and (v) re-processability (the ability to store and re-visit messages). While four of the characteristics are similar to characteristics defined in MRT, parallelism is not. Parallelism is referred to as the width of the medium; the number of simultaneous conversations it allows (Dennis & Valacich, 1999). The authors do, however, note that increased parallelism increases the difficulty in coordinating conversations and that it is of less importance to smaller group communications (ibid.). Media synchronicity refers to the ability of individuals to work together on a mutual activity at the same time (Dennis & Valacich, 1999). In conveying information, low media synchronicity tends to be preferred as it allows the respondents to focus on the information at different points in time and eventually re-visit it (ibid.). On the other hand, in developing shared meaning - the convergence process - high synchronicity is preferred (Daft & Lengel, 1986). While feedback tends to improve communication outcomes, synchronous media is preferred. Meanwhile, this also implies challenges; namely, it requires the partners to communicate at the same point in time, and rapid feedback is expected (Dennis & Valacich, 1999). For partners in LDRRs, this implies that in certain situations partners may want immediate feedback; e.g. to maintain intimacy or sexual arousal (Janning et al., 2018), whereas in other situations it may be more suitable with less immediate feedback; e.g. writing a thoughtful love letter (ibid.). Further, less synchronous media with lower feedback rates tend to offer higher re-hearsability (Dennis & Valacich, 1999), which may be another important factor for partners in LDRRs. Higher levels of re-hearsability tend to enhance conveyance and convergence, though it tends to lower the ability of feedback (ibid.).

Dennis and Valacich (1999) highlight that media, especially new media, tend to have a range of capabilities that may or may not be utilized. For example, a written e-mail allows for the use of graphics, while this is unlikely to be possible in face-to-face interactions. As a medium may be applied in various ways and allow for more or fewer capabilities, the best medium for a given situation is a medium with the most contextually suitable characteristics (Dennis & Valacich, 1999). Therefore, it may be argued that the best medium may even be a set of media in order to achieve successful communication efficiency; i.e. the receiver of a message understands and interprets it as the sender of the message expected.

2.2 The state of the art

This section surveys existing research on relational intimacy and cybersex in LDRRs regarding the application of digital communication media. First, the central concepts, which were presented to the respondents as LDRRs and cybersex, are discussed below. Second, in §2.2.2, existing studies that has applied MRT and MST in interpersonal relationship contexts are reviewed. Later in the same subsection, previous studies that have investigated cybersex among partners in LDRRs are presented.

2.2.1 Central concepts

Jiang and Hancook (2013) brought attention to the commonality of LDRRs, primarily given the drastic increase of mobility and the adaption of various communication technology as an effect of globalization. The definitions of LDRRs vary in the research field. Dainton and Aylor (2002) describe the term as a relationship in which the partners cannot meet face-to-face most days. Meanwhile, Stafford (2005) considered a relationship long-distance when partners have expectations of a continued close connection while geographically separated for at least one month. She further added that the distance between the partners should create obstacles for the partners to meet during that entire time, one month, given that communication is limited to no face-to-face communication (ibid.). Further, Dargie et al. (2015) argue that LDRRs should be categorized based on factors such as the time spent geographically separated, geographical distances between the partners or time spent between meeting opportunities in real-life. However, shared among various definitions is primarily one thing: a certain amount of time must be spent geographically separated. An adapted definition of LDRRs was applied in this study, see below.

The LDRR should have taken place within the last three years in order to limit the loss of memory data. The definition of a LDRR, provided to respondents of this study, was presented as follows:

A relationship is considered long-distance when the partners involved are geographically separated for at least one month but still have expectations of a continued closed connection. Further, the geographical distance makes it difficult or even impossible to see each other in person for that entire time. Whether this relationship is present or past (happened within the last three years), please consider this specific relationship for the rest of this survey. If you have had more than one long-distance romantic relationship within this time frame, please consider the most recent one.

Merkle and Richardson (2000) introduced the term computer-mediated romantic relationship (henceforth CMRR). CMRR is a relationship that initially begins online and is maintained by computer-mediated communication (henceforth CMC) as geographic proximity does not take place at any point in time (ibid.).

Moreover, the definitions of cybersex vary in the literature. An early definition by Leiblum (1997) state that sexual behaviour communicated through a computer or cellular device is a form of cybersex. It may include pictures, movies, voice messages or text messages and real-time conversations. Daneback et al. (2005) argued that the purpose of cybersex is a sexual pleasure through sex communication between two or more people online which may include masturbation by any of the participants. Similarly, Shaughnessy, Byers and Thornton (2011) defined cybersex as real-time sexual communication online concerning sexual activities, fantasies, or desires. An adapted definition of cybersex was applied in this study and was presented to the respondents as follows:

Cybersex is any form of sexual behaviour that is communicated through a computer or cellular device. It includes pictures, movies, sounds, text messages, and real-time conversations. In this research, cybersex exclusively refers to sexual behaviour communicated through a computer or cellular between romantic partners in long-distance relationships.

2.2.2 Related research

The application of various communication technology devices offers romantic partners in LDRRs an opportunity to create shared cyberspace in which intimacy and mental closeness can be created and maintained (Janning et al., 2018). MRT has been applied in research on interpersonal communication, e.g. Harwood (2000), Jiang and Hancook (2013), and Janning et al. (2018). In interpersonal communication between LDRR partners, MRT predicts that richer media can support quick communication and reduce uncertainty. In comparison, leaner media offer the opportunity to edit messages before sending them, as well as store messages and re-visit them at any point in time. Daft and Lengel (1986) highlight that media choice tends to differ based on communication purpose, given that features of less rich media such as the opportunity to edit a message before it is sent may be preferred in some interpersonal situations. For partners in LDRRs, this implies that taking a picture may serve another purpose than a video call in creating and maintaining intimacy, and not one that would necessarily be considered less preferential as MRT would predict. In other words, media choice and preference may be about personality; a decisive factor for some partners in LDRRs and of less importance to others (Janning et al., 2018).

Harwood (2000) surveyed grandparents and their grandchildren. A total of 117 respondents completed a survey, in which face-to-face and phone contact were rated as the most common communication formats; this suggests that media that allows communication of multiple cues and high social presence can be advantageous (ibid.). Similarly, Utz (2007) conducted two different studies of a total of 203 respondents. These studies found that phone calls were more preferred than e-mail to maintain a long-distance friendship among very close friends, given that people tend to choose richer media when communicating with people they care about (ibid.). Stafford (2005) argued that face-to-face is the richest form of communication in intimate relationships. Meanwhile, she argues that face-to-face interactions are not crucial for romantic partners to feel intimate (ibid.); while geographically separated, it by definition is impossible to communicate face-to-face at times. Correspondingly, previous

studies have found that intimacy can be achieved among partners in LDRRs through media that allow for verbal and non-verbal cues to be transmitted (Neustaedter & Greenberg, 2011; Jiang & Hancook, 2013; Janning et al., 2018). Jiang and Hancook (2013) collected 876 diaries from 126 participants in LDRRs, showing that intimacy was primarily maintained through continuous application of various communication channels. Neustaedter and Greenberg (2011) took a closer look at the use of video chatting between partners in LDRRs; 12 out of 14 interviewees reported to hug or kiss their partner through video chatting as part of intimacy maintenance behaviour.

Ruppel (2015) examined the use of communication technology in romantic relationships. Surveyed respondents had, on average, been in a romantic relationship for 2,46 years ranging between 1,5 months to 13 years (ibid.). Holmberg and MacKenzie (2002) studied respondents between 18 and 43 years old, looking at factors that lead both parties to feel satisfied in their romantic relationship. The study suggested, that emphasis should not be put on the duration of the relationship, but rather on the many different stages that may occur in said relationship, e.g. kissing for the first time, holding hands, having sex and sharing intimate details of one's personal life. The data collected from the respondents were, therefore, assessed as equally relevant when measuring relationship satisfaction, regardless of how long they had been in a relationship (ibid.).

Daft, Lengel and Trevino (1987) surveyed 95 managers concerning their media choices; the results showed that oral communication formats were more preferred than written communication formats due to the rapid feedback and multiple cues available orally. Even though the study was conducted in an organizational context, common limitations concerning audio-visual communication formats are still relevant for partners in LDRRs; these include limited screen size, Internet connection, and the absence of physical touch, smell and taste. However, affective devices are developed to increase intimacy and add a factor of physical touch for partners in LDRRs (Saadatian et al., 2014). Gibbs, Vetere, Bunyan and Howard (2005) founded the umbrella term 'phatic technologies' to describe such affective devices. "Your Gloves" is a haptic glove re-creating hand-holding (Gooch & Watts, 2012), "Mobile Feelings" utilizes blinking lights and a micro-ventilator to recreate a person's heartbeat and breath implicitly (Sommerer & Mignonneau, 2010), and "Kissenger" is an interactive device through which partners can transmit kisses (Saadatian et al., 2014). These are all a few examples of phatic technologies that recreate human touch to increase intimacy. That said, video chatting is said to be favourable in LDRRs as it best mimics face-to-face communication when this is not available (Mickus & Luz, 2002).

Janning et al. (2018) found that communication technology that allow for audio-visual cues are assessed as most meaningful in creating intimacy among the 262 surveyed respondents. These findings confirm Harwood (2000) and MRT in arguing that the richest medium for intimacy creation and maintenance is a medium that most closely mimics face-to-face interactions and contains more social cues; e.g. sound, facial expression and body languages, such as a video call or a phone call. Likewise, synchronous media tend to increase the sense of social presence, which possibly lead to a greater feeling of intimacy (ibid.). Research on relationship development and the use of communication technology in ongoing romantic relationships have, however, been inconsistent in their results (Ruppel, 2015). In some instances, the reduction in cues in communication technology by using, for example, text-based medium, suggested being more encouraging for self-disclosure (Joinson, 2001). This would then appear to contradict MRT, which argues that more cues would correlate with more self-disclosure in interactions online (Daft & Lengel, 1986).

Although relationship development and the use of communication technology in romantic relationships have been studied before, the area of sexual intimacy is relatively understudied (Ruppel, 2015). Considering the increased mobility and the possibility to meet potential partners from all over the world through the Internet, this area is in dire need of further research (see §1 for an overview). Doring (2009) brings attention to the increase of synchronous CMC and thereby an expected increase in cybersex activities as well as the research on the topic. Gereis (2018) surveyed 122 respondents in LDRRs to investigate their usage of communication technology to engage in sexual intimacy maintenance and cybersex. The respondents engaged in cybersex once or more per month by using any of the five communication technology; sexting (sending and receiving sexually suggestive images, videos, or texts on cell phones), video chat (visual communication performed with other

Internet users by using a webcam and dedicated software), phone calls, e-mail and social media (Gereis, 2018). Goldsmith and Byers (2018) surveyed 232 respondents in LDRRs, of which most respondents reported to engage in cybersex with their partner two to three times a month. Gereis (2018) found that sexting was the most common means of communication to engage in cybersex (averaging a few times a month), followed by video chat (averaging once a month) and phone calls (averaging less than once a month). These findings challenge MRT and MST in predicting media preferences in such instances, given that less rich media and asynchronous communication was preferred in sexual intimacy maintenance among these respondents.

There are primarily two categories of cybersex; the visual, e.g. pictures, and the rather interactive or communicative such as texting and calling (Daneback et al., 2005). Byers (2005) conclude that men tend to have a greater interest in sexual activities than women; however, engagement in relationship maintenance behaviours is said to be more common among women (Dainton & Stafford, 2000; Merolla, 2012). Cooper, Månsson, Daneback, Tikkanen & Ross (2003) found that women preferred interactive forms of cybersex; such as synchronous video or phone call, whereas men tend to prefer rather visual forms of cybersex; such as asynchronous nudes and short movies. At the same time, sexual fantasies (Renaud & Byers, 2001), masturbation (van Anders, 2012) and solitary cybersex (Shaughnessy, Byers, & Walsh, 2011) tend to be more common among men. Daneback et al. (2005) surveyed 1835 respondents of which 931 were women, and 901 were men. 34% of these women reported having engaged in cybersex, and 30% of the men (ibid.). The younger respondents reported greater engagement in cybersex than the older respondents (ibid.). Additionally, some differences were suggested among men of various sexualities; homosexual and bisexual men reported greater engagement in cybersex than heterosexual men in LDRRs (ibid.). Meanwhile, no difference by sexuality was found among the women (ibid.). Stafford (2005), Shwayder (2012), Rainie (2013), and Janning et al. (2018) highlighted that most studies investigating LDRRs include young people, often between 18 and 25 years old, due to their reasonable familiarity with and usage of technology.

Shaughnessy and Byers (2013) surveyed 351 respondents. They found that cybersex with a committed partner was more preferred than with known others or strangers. These findings are argued to prove cybersex being a crucial component in relationship maintenance among romantic partners (Bargh & McKenna, 2004; Ramirez & Broneck, 2009). Reis and Shaver (1988) explain that intimacy is developed when person A shares personal information, thoughts, or feelings with person B. This may also be referred to as self-disclosure, being a crucial part in relationship development through an increase of intimacy (Hargie, 2011). While people tend to have less control over what is communicated nonverbally than what is communicated verbally, nonverbal communication plays a crucial role in communicating feelings and emotions (ibid.).

Neustaedter and Greenberg (2011) interviewed 14 people in LDRRs. The interviewees' primary reason for using video chat was to create a form of shared presence despite the geographical separation, and the ability it offers to see their partner. Two of the 14 interviewees had tried cybersex but did not continue to engage in it as they felt it was awkward (ibid.). At the same time, two interviewees reported that they continuously engaged in cybersex with their partner by using video chat, while some interviewees stated that they tend to visually tease their partner by sending pictures showing nudity, or through sexting (ibid.). Eight interviewees had never engaged in cybersex through video chat as they reported feeling shy, and two respondents avoided it due to the fear of revenge porn (ibid.). According to a survey on sex and technology among teens and young adults, women often feel pressured to engage in cybersex; meanwhile they are more likely to be victims of revenge porn (Associated Press & MTV, 2009) and more likely to get “slut-shamed” - publicly shamed and labelled a slut (Lenhart, 2009). Neustaedter and Greenberg (2011) concluded that among other factors, video chats do enhance the partners' intimacy, but preferences are subjective and personal.

The development from an Internet-based relationship into a face-to-face relationship seems to be partially dependent on both partners' willingness to have a more personal communication through self-disclosure (McKenna & Bargh, 2000). Dainton and Aylor (2001) compared geographically close romantic relationships (henceforth GCRRs) and LDRRs in a study in which they found that time spent together; i.e. geographic proximity was positively related to relationship trust. Similarly, sexual activity is positively associated with sexual satisfaction (Peplau, Fingerhut, & Beals, 2004; Schwartz &

Young, 2009). Therefore, mutually engaging in cybersex with one's partner while geographically separated is a strategy for sexual maintenance (Goldsmith & Byers, 2018). Meanwhile, relationship outcomes were negatively influenced by uncertainty regarding the future of the relationship (Dargie et al., 2015). However, the most common reasons for the geographic separation of romantic partners in previous studies have been education and employment (Jiang & Hancook, 2013; Gereis, 2018; Janning et al., 2018) given that most of these respondents know the approximate time spent apart which limits the uncertainty regarding the future of the relationship. Stafford, Merolla, and Castle (2006) found that approximately 33% of the 335 respondents in their study terminated their relationship within the first three months when transitioning from LDRR to GCRR. The main reason for this was primarily increased partner knowledge of positive and negative characteristics (ibid.).

Based on the importance and centrality of MRT and MST to the communication research field, the importance of sexual intimacy in sustaining LDRRs and findings in previous studies, the data collection method described in the next chapter has been applied. It will assess MRT's and MST's applicability in predicting media preferences among partners in LDRRs when mutually engaging in cybersex to support answering the research questions posited in this study (see §1.1).

3. Methodology

The research design applied in this study is described in the chapter below. The first section (§3.1) motivates the choice of data collection method given the potentially sensitive nature of the study. The following section (§3.2) in detail, explains and motivates the structure of the distributed survey in three different subsections based on the data collected; demographic data, relationship data, and cybersex data. Having explained in detail the complete survey the outcomes and implications of the pilot testing will be discussed, and the survey sampling method will be explained in §3.3. Later, a descriptive overview of the survey respondents is presented (§3.4). Towards the end of the chapter, the data analysis is explained (§3.5) and the chapter ends with a discussion of the researchers' ethical considerations in conducting this study (§3.6).

In conducting this study, a deductive approach and quantitative measures of operationalization have been applied; see §2.1 for an explanation of the theoretical impetus to be tested in this study. The specifics are further developed below. This study investigated preferred media choices among respondents in LDRRs to engage in cybersex with their partner and whether MRT and MST accurately predicted these or if different predictive statements can be posited as a result of this study's findings. This study has primarily been guided by findings in previous studies, i.e. a deductive approach. Therefore, the variables included in the survey are primarily limited to variables included in previous studies, see §2.2.2 and §3.2. Given the quantitative measures of operationalization of this study (§3.2), underlying reasons and thorough understanding for various preferences as well as correlations to other variables than the ones included in the survey, e.g. occupation, country of residency, and distance between the partners are left outside of the scope of this study.

3.1 Data collection method

The motives behind the applied data collection method are explained below. Given that engagement in cybersex among partners in LDRRs are a seemingly unexplored area in research, see chapter 1, this study aimed to explore and create an overview of the current situation. This is so that subsequent research can be geared to particular queries, including some adopting methods which allow for the detailed descriptions necessary to achieve this, e.g. interviews. A descriptive study, according to Saunders, Lewis, and Thornhill (2016) initially use quantitative research to support qualitative research methods to potentially understand the findings further. Therefore, a brief understanding of the respondents' current preferences will possibly motivate and guide the need for future, more qualitative research in the area. A survey was deemed suitable as it offers the opportunity to collect a high number of responses in a reasonable short amount of time (Bryman, 2012). The aim was to investigate respondents' media preferences concerning cybersex engagement with their partner in a LDRR. Both Bryman (2012) and Saunders et al. (2016) highlight that, primarily, preferences are suitable to study through surveys. However, whether the preferences are mirroring the reality cannot be assessed in this survey. Bryman (2012) highlights self-reporting of behaviour as questionable due to the tendency of people behaving differently from what they explicitly can explain, e.g. due to social desirability tendencies and vague self-awareness. However, a potential advantage with the survey was the fact that any inaccurate reporting is likely to have a minimal effect on the results, given that surveys allow the collation of many respondents' answers. However, as stated above, the shortcomings of a survey as a method for respondents' self-reporting has been acknowledged. It was established that the survey would be taken voluntarily and that it would be conducted online so as to be anonymous in order to decrease the risk of receiving socially desirable answers from respondents (Dillman, Smyth, & Christian, 2014).

Two previous studies inspired the survey. First, the study conducted by Gereis (2018) concerning media use in cybersex informed the present study in terms of which media to assess and why particular media are more relevant than others. Second, the study conducted by Janning et al. (2018) helped inform the present study’s measurements and the definition of a LDRR, various independent factors of relevance and the relevance of MRT. For an overview of related research, see §2.2.2.

3.2 Measures

Below, parts of the survey will be explained and motivated. This section is divided into three subsections, corresponding to the nature of the survey questions. First, the demographic data collected is motivated (§3.2.1), primarily focusing on the demographic characteristics of the respondents. Second, the relationship data collected is motivated primarily concerning the nature of the respondents' LDRRs (§3.2.2). Third, the cybersex data collected is explained and motivated, primarily focusing on media preferences for cybersex engagement in relation to the theoretical concepts of MRT and MST (§3.2.3). A version of the complete, final survey can be found in Appendix 1.

Rather than start with the more sensitive questions concerning cybersex engagement, questions concerning demographic aspects and the relationship history were collected, which later allowed the researchers to understand and potentially characterize the respondents who did and did not engage in cybersex (see §3.4). This order of questions allowed for the collection of demographic data on all respondents regardless of whether they had engaged in cybersex, which in turn allowed to assess if the group that did not engage in cybersex typically had a different demographic make-up compared to the group who did engage in cybersex. By structuring the survey this way, the researchers could ensure that the respondents had sufficient knowledge and experience to complete the rest of the survey successfully.

3.2.1 Demographic data

The survey began with a statement of informed consent in which the respondents could read about the researchers, the aim of the research, and the analysis of the anonymous results from the survey (see §3.6). The first survey question asked about the respondents' age in the following intervals: '17 years or younger', '18-24 years old', '25-30 years old', '31-35 years old', '36-40 years old', '41 years and older'. To comply with ethical and legal restrictions, participation in this survey was restricted to respondents over the age of 18 years (see §3.6). Therefore, this first question was a filter question where everyone responding that they were under 18 years old were filtered out. If the respondents were 18 years or older, they proceeded to a question concerning whether they currently are or had been involved in a LDRR according to the definition stated in §2.2.1. Respondents that answered 'no' to this question had completed the survey, and respondents who responded 'yes' continued to the next two questions, regarding their gender and sexual orientation. These variables were asked about as past research has found different preferences concerning technology in cybersex corresponding to gender (e.g. Gereis, 2018) and sexual orientations (e.g. Daneback et al., 2005).

3.2.2 Relationship data

The respondents then moved on to overarching questions regarding their relationship. These questions were asked for two various reasons. First: in order to analyze possible correlations between these variables and the cybersex variables (see §3.2.3 below). Second, in order to possibly characterize the group of respondents who chose to engage in cybersex with their partner in LDRR and the group of respondents who chose not to. The variables investigated were primarily guided by findings in previous research (see §2.2.2).

First, the respondents were asked whether they met their partner 'online' or 'offline'. If the answer was 'online', a follow-up question was asked concerning if they have ever met their partner in real life. Those answering 'offline' jumped straight to the next question for all respondents: the amount of time they had been in this relationship in total - 'less than 6 months', '6-12 months', '1-2 years', '3-5 years', '6-10 years' and 'more than 10 years'. Next was a question about whether the partners had ever been living geographically close for more than three months as this has been proven a turning point in the transition from LDRR to GCRR, see §2.2.2 for an overview (Stafford et al., 2006).

The following question asked about the time spent geographically separated over the last year. It was clarified that answers were still relevant from the respondents whose relationship had lasted less than a year. Last, the respondents were asked whether they at times of geographic separation, tended to know when they would see their partner next in real-life. The respondents could choose between 'yes, the amount of time spent geographically separated is always certain'; 'yes, in more than half of the cases';

'yes, but only in less than half of the cases' and 'no, the amount of time spent geographically separated is always uncertain'.

3.2.3 Cybersex data

As the respondents reached the section in the survey concerning their engagement in cybersex with their partner during geographical separation, the questions became more personal and therefore likely of a more sensitive nature. The following questions were primarily guided by findings in previous research (see §2.2.2). Initially, the respondents were asked whether they had engaged in cybersex with their partner according to the definition in §2.2.1. Respondents who indicated that they did not engage in cybersex had then completed all questions relevant to them and reached the end of the survey. For respondents who had engaged in cybersex, they were then asked to specify the number of times they engaged in cybersex monthly with their partner - 'less than 1 time'; '1-5 times'; '6-10 times'; '11-15 times'; 'more than 15 times'.

The following questions were developed to assess whether MRT and MST could explain media preferences to engage in cybersex with a LDRR partner. First, the respondents were asked how they prefer to engage in cybersex with their partner through one of the following options: 'video sex', 'phone sex', 'sending or receiving nudes', 'sexting (sending or receiving sexual text messages)', 'voice messages', or 'a combination of two or more'. Here, video sex and phone sex accounted for the richest and most synchronous media, according to MRT's and MST's definitions. The other options accounted for less rich and rather asynchronous media, according to MRT's and MST's definitions. If the respondents answered, 'a combination of two or more' a follow-up question asked them to specify which combination they prefer; 'sexting and nudes', 'sexting and voice messages', 'voice messages and nudes' or 'other' where they could specify a different combination. Next question asked all respondents to rank their preferences for cybersex with their partners - 1 was the most preferred, and 5 was the least preferred. The options to rank were the following: 'instant messenger on social media', 'instant messenger through an app other than social media', 'Snapchat', 'SMS or text message', 'regular or FaceTime voice call', 'FaceTime video call', and 'other'. Next, the respondents were asked to specify the most important aspects to them when engaging in cybersex by choosing up to three options; 'I prefer to see nudes of my partner', 'I prefer to send nudes of myself to my partner', 'I prefer to hear my partner's voice', 'I prefer my partner to hear my voice', 'I prefer to both see and hear my partner simultaneous in real-time', 'I prefer my partner to both see and hear me simultaneous in real-time' and 'other' where the respondents could specify a different aspect. The next two questions assessed respondents' possible considerations regarding response rate when they were engaging in cybersex with their partner. First, they were asked whether they ever considered the response rate when engaging in cybersex - 'yes' or 'no'. They were then asked to check all statements with which they agreed - 'I prefer an instant response when engaging in cybersex with my partner', 'I prefer to reply instantly when engaging in cybersex with my partner', 'I prefer not to have an instant response', 'I prefer not to reply instantly', 'I do not know whether I prefer to reply instantly or not', 'I do not know whether I prefer my partner to reply instantly or not', 'none of the above', or 'other' under which they could specify a different aspect. The penultimate question concerned the use of phatic technologies during cybersex (see §2.2.2); the respondents could choose between answer option 'yes' or 'no' concerning whether they had previously used them. Last, the respondents were asked if they agreed with any of the following statements. If so, they were asked to select all the following statements that were relevant - 'I feel uncomfortable sending nudes/short videos of myself to my partner', 'I feel uncomfortable that my partner can watch me as I engage in cybersex', 'I feel uncomfortable that my partner can hear me as I engage in cybersex', 'I feel uncomfortable that my partner can hear and watch me in real-time as I engage in cybersex', 'I feel uncomfortable sending texts/nudes/short videos/voice messages that my partner may save', 'I am afraid of being a victim of revenge porn', 'I choose not to engage in cybersex with my partner due to other concerns', 'I have no concerns regarding cybersex with my partner', 'none of the above' and 'other' where respondents could voluntarily specify a different concern in their own words. This question was developed to potentially support answers on previous questions and to investigate the possibility of a correlation between various concerns on the one hand, and the demographic background and relationship history and media preferences on the other hand.

3.3 Survey pilot testing and sampling method

In this section, the outcomes of the pilot test are discussed alongside the survey sampling method is presented towards the end. In creating the survey, the online survey tool Google Forms was used. An online survey tool makes it possible to store, download, and externally analyze the results during and after the data gathering process (Saunders et al., 2016). Additionally, applying an online survey tool allowed the researchers to access, with efficiency, a great number of people at a great geographic distance while keeping the costs of creation and the costs of distribution low (ibid.). Given that various forms of cybersex require knowledge about communication technology, an online survey was judged as suitable for the target group of this survey and it was deemed beneficial for the ethical considerations (see §3.6).

To increase validity and reliability, a data requirement table inspired by Saunders et al. (2016, p. 447) was created, see Appendix 2. Essentially, this allowed the researchers to understand the contribution and importance of each survey question to answer the research questions. Further, this increases the internal validity by ensuring that each question is measuring what it is intended to measure (ibid.). For example, through giving set time ranges rather than a scale, the risk of respondents interpreting the same question differently decreases. Additionally, it increases the reliability and the possibility of receiving similar outcomes if the survey is taken at another point in time or with another sample (ibid.). The validity and reliability are further discussed in chapter 6.

Before finalizing the survey and making it public, it was distributed to a pilot group to ensure it efficiently contributed with data to answer the research questions. The survey was pilot-tested on ten respondents in the researchers' networks. Half of these respondents were fellow current Master students that were able to provide critical feedback given their current concerns with research design and an understanding of the theoretical framework. Meanwhile, the other half were other acquaintances that did not currently or previously identify as Master students of communication to ensure that respondents of various other backgrounds could complete the survey without any challenges given that this group most likely represented the average potential survey respondents. The feedback provided primarily resulted in changes to the section of 'Cybersex data' (see §3.2.3), and in smaller adjustments to other questions as further detailed below.

It was suggested to highlight the ranking instructions on the question that asked respondents to rank their preferred platforms used to engage in cybersex with their partner, by making these bold. Unfortunately, this was not possible, but keywords were capitalized. Additionally, according to the feedback, there was some loss of data on this same question due to poorly formulated answer options. Therefore, the answer options were revised to be more general and therefore, more inclusive, e.g. specific answers as Skype and WhatsApp were removed. At the same time, ‘regular or FaceTime voice call’, ‘instant messenger through an app other than social media’ and ‘FaceTime video call’ were added. At the time of the pilot test, every box on this question could be checked. This was solved by changing place on rows and columns; i.e. the ranking option 1 to 5 were set as rows, and the various platforms were set as columns rather than the other way around. This limited the answer options to one ranking per preferred platform choice. Moreover, loss of data was noted on the very last question regarding the respondents' concerns. To avoid this, answer options 'none of the above' and 'I have no concerns regarding cybersex with my partner' were added in addition to the pre-existing 'other'. Similarly, the answer options to the questions regarding the respondents' response rate preferences were re-stated to ensure the researchers were capturing respondents who were strongly against instant responses. Additionally, three minor clarifications were made. First, respondents involved in more than one LDRR that fulfilled the criteria were asked to consider the most recent one in order to reduce the risk of lost memory data. Second, for the question concerning the time spent geographically separated, it was clarified that respondents' whose relationship had lasted less than a year should still specify their time spent geographically separated to ensure their responses were still relevant. Third, on the question where the respondents were asked to choose the most important cues to them, the answers were limited to three whereas before they could choose as many as they wanted to. On the one hand, this was to ensure the respondents had an opportunity to choose more than one answer to be able to take a point of departure in themselves, e.g. 'I prefer to send nudes of myself' or in their partner, e.g. 'I prefer to receive

nudes of my partner', and to capture possible differences between the two perspectives, e.g. whether one prefers to send something themselves, and receive something else from their partner. On the other hand, this was done to limit the possible combinations of answer options in the data analysis for the ease of analysis when looking for patterns of behaviour given a potentially low number of respondents. Furthermore, three general adjustments were made. First, the anonymity of the respondents' answers was further clarified in the informed consent section. Second, the background colour was adjusted to a darker colour to increase reader-friendliness. Third, contact information to the researchers was added at the very end of the survey to ensure respondents knew how to contact the researchers after having completed the survey.

Once the revisions were corrected as described above, the survey was finalized and distributed according to the chosen sampling method. This was done through the researchers' private social network sites on www.facebook.com, www.instagram.com, and www.linkedin.com. Therefore, a non-probability sample was adopted. A snowball sampling method was applied in which a few initial potential respondents were contacted and kindly asked to share the survey with acquaintances they thought may be interested in participating in the survey. Additionally, a convenience sampling method was applied where the possible sample was chosen based on the ease of access, e.g. when the survey was shared in Facebook groups such as 'Expats in Gothenburg'. In each case, voluntary self-selection was applied, where people who came across the survey freely could choose whether to participate or not (Bryman, 2012). The applied sampling strategy; i.e. voluntary self-selection, has probably led to a biased sample given that people who, on the one hand, has engaged in cybersex with their partner in a LDRR and, on the other hand, tend to be open about a potentially sensitive topic, completed the survey. While it limits the generalizations of the results (see chapter 6) it has not caused any further problems given that these characteristics were crucial for the respondents to successfully complete the survey.

3.4 Respondents

The number of respondents reached a total of 277, which given the measures, was a confident base for being able to conduct statistically sound analyses. Out of these, one respondent was not able to complete the survey as the respondent did not fulfil the age requirement (see §3.6). An additional 36 respondents had not been involved in a LDRR at some point in time during the past 3 years, giving a total of 240 relevant responses collected.

Of the 240 respondents; 36,3% (87 respondents) indicated to be '18-24 years old', 45,8% (110 respondents) indicated to be '25-30 years old', 10,8% (26 respondents) to be '31-35 years old', 3,8% (9 respondents) to be '36-40 years old' and the remaining 3,3% (8 respondents) indicated to be '41 years or older'. 69,6% (167 respondents) identified as 'female' and 28,3% (68 respondents) identified as 'male', 0,4% (1 respondent) identified as 'other' and 1,7% (4 respondents) 'prefer not to say'. 80% (192 respondents) reported to be 'heterosexual', 10,4% (25 respondents) 'bisexual', 6,7% (16 respondents) 'homosexual', 1,3% (3 respondents) identified as 'other', and the remaining 1,7% (4 respondents) 'prefer not to say'.

In terms of total relationship length, the answer distribution was as following; 2,9% (7 respondents) had been in a relationship for '1-3 months', 8,8% (21 respondents) between '4-6 months', 7,0% (17 respondents) between '7-11 months', 29,6% (71 respondents) had been in a relationship for '1-2 years', 28,3% (68 respondents) had been in a relationship for '3-5 years', 10% (24 respondents) had been in a relationship for '6-10 years' and lastly, 4,2% (10 respondents) had been in a relationship for 'more than 10 years'. It should be noted that the time spent in a LDRR of the total relationship length has not been investigated and therefore, not specified. Moreover, 60,8% (146 respondents) met their partner 'offline' and 39,2% (94 respondents) met their partner 'online'. Out of the 94 respondents who met their partner 'online' 93,6% (88 respondents) 'had met their partner in real life', the remaining 6,7% (6 respondents) 'had not met their partner in real life', i.e. CMRR.

63,7% (153 respondents) had lived geographically close to each other for more than three months during their relationship, and 36,3% (87 respondents) had either never lived geographically close to their partner or done so for less than three months. When it came to the duration of geographic separation during the last year of the LDRR, 30% (72 respondents) spent '1-3 months' apart, 29,6% (71

respondents) spent between '4-6 months apart', 21,7% (52 respondents) spent '7-9 months' apart and the remaining 18% (45 respondents) spent 'more than 9 months' apart. 42,5% (102 respondents) indicated that they 'always know, when they will meet their partner in real-life next', 17,1% (41 respondents) reported they did know, but in less than half of the cases. 19,6% (47 respondents) indicated they knew so in more than half of the cases, and 20,8% (50 respondents) never knew when they would see their partner in real life next.

3.5 Data analysis

This section motivates the choice of software applied in the data analysis and explains the data analysis conducted. The University of Gothenburg provides SPSS 26 which was used to compute all data analysis. IBM develops the statistical software SPSS, and it offers a comprehensive set of various statistical tools, particularly for the analysis of social sciences data (IBM SPSS Statistics: Features and Modules, n.d.). It allows for researchers and businesses to run frequency tests, identify potentially significant correlations and conduct numerous ad-hoc tests on the data collected (ibid.).

The survey answers were downloaded from www.google.com and exported to an Excel-file. Every unique answer option was replaced, i.e. coded, with a unique number in Excel because SPSS requires data formatting in numeric form, see Appendix 3. The coded survey answers were then imported to SPSS. In SPSS, the corresponding answer option to the respective unique number was assigned under 'Values'. The measure for every variable was imported as nominal data given that much of the data could not be ordered in a numerically meaningful way. Therefore, the scale of measurement had to be corrected to ordinal data for the variables 'Age', 'Relationship Length', 'Geographic Separation' and 'Frequency' given that this data could be ordered in a numerically meaningful way, e.g. logically increasing time-intervals. Last, through filtration, it was ensured that only responses from respondents of 18 years and older who had been involved in a LDRR at some point in time during the past three years were included in the dataset, leaving a total of 240 unique responses. Based on this dataset, another dataset was produced, representing only the respondents who had engaged in cybersex with their partner in LDRR, including 162 individual responses. A third dataset was created in which the respondents' answers to the variables 'Medium' and 'Combination' were merged - so that the answer option 'a combination of two or more of the above' in the column 'Medium' was replaced with the answer that respective respondent chooses for 'Combination'. In doing so, it was possible to rank these answers according to MRT in one column named 'MRT Ranking' - ranging from 'video sex' with most available cues followed by 'voice messages and nudes', 'sexting and nudes', 'sexting and voice messages', 'phone sex', 'nudes', 'sexting' and 'other' with least available cues - and MST in another column named 'MST Ranking' - ranging from 'video sex' as most synchronous media followed by 'phone sex', 'voice messages and nudes', 'sexting and nudes', 'sexting and voice messages', 'nudes', 'sexting' and 'other' as most asynchronous media. By ranking the answer options, it was possible to change the 'Measure' in SPSS from 'Nominal' to 'Ordinal' given that the new variables could be ordered in a numerically meaningful way according to MRT respective MST.

While univariate analysis - where one unique variable is presented on its own (Bryman & Cramer, 2011) - was conducted to calculate frequencies for the respective variable and to answering RQ1 (see §1.1) , bivariate analysis - where the connections between two variables are explored (ibid.) - was of importance in producing findings which help answer RQ2 and RQ3 (see §1.1).

3.6 Ethical considerations

Below the ethical considerations in conducting the survey are discussed; these include, the informed consent section of the survey, ensured anonymity, and legal restrictions.

In line with Codex rules and guidelines for research (Codex Rules and Guidelines for Research, 2020) the informed consent section of the survey informed the respondents about: the researchers, the aim of the study and the method used, anonymous and voluntary participation and how to get in contact with the researchers concerning withdrawal or concerns, and the analysis of the results from the survey. Further, it was highlighted that the survey questions might be of a sensitive nature to

prepare the respondents of any potential consequences this may have. This is important from a research perspective to ensure respondents made an informed choice to continue taking the survey.

Data collection through an online, voluntarily, and anonymous survey reduces some ethical considerations involved in data collection (Saunders et al., 2016). Anonymity was supported by the fact that the survey was taken online and that no personal data which may link any individual with their responses were gathered. Given a rather personal and possibly sensitive topic, offering an anonymous survey may increase respondents' willingness to share truthful information about their preferences (Bryman, 2012). However, Bryman (2012) highlights ethical principles such as integrity and objectivity of the researchers, respect for others, avoidance of harm and privacy of the respondents, which is in line with the RESPECT Code (RESPECT project, 2004). Considering this, the researchers were at no point in time manipulating the data collected, and there were no conflicts of interest between the researchers, e.g. concerning the recruitment of respondents.

In almost all EU Member States, the age of majority is 18 years (European Union Agency for Fundamental Rights, 2017). According to the European Union Agency for Fundamental Rights, the age of majority implies that a person acquires full legal capacity and is then liable for any contractual obligations. Therefore, to comply with legal restrictions in Sweden, which is an EU Member State, and ensure that every respondent was legally allowed to engage in sexual behaviour and agree to take part in the survey without parents' consent, only respondents above the age of 18 were allowed to take part in the study.

4. Results

In this chapter, the results of the survey will be presented in two main sections. The first section (§4.1) will cover the descriptive statistical analysis of the data collected; the demographic data and the relationship data have been presented in §3.4 above as these characterize the respondents of the survey. However, the results of the cybersex data are presented below as they contribute to answering the research questions of this project, primarily RQ1 (see §1.1). The second part of this chapter (§4.2) presents the results of the inferential statistical calculations conducted on the collected data and in SPSS. The inferential statistical calculations primarily answer RQ2 and RQ3 (see §1.1). Therefore, the inferential tests have been limited to tests that potentially could contribute with crucial information about the respondents´ media preferences to engage in cybersex with their partner in a LDRR. Additionally, whether MRT or MST accurately predict these preferences or render observations which might allow this study to offer supplementary theoretical predictions, at least where media preference choices in relation to cybersex in LDRRs are concerned, are further discussed below.

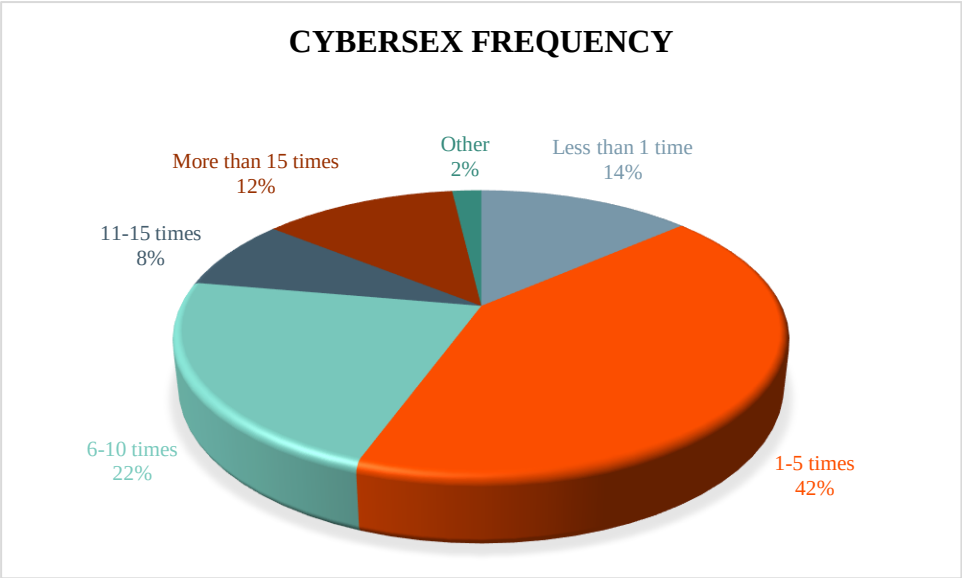
4.1 Descriptive statistical calculations

Frequency tests were run on the respective cybersex variables in SPSS and the results of the cybersex data are presented below. This is done graphically to increase reader friendliness, and the most common answer options or the otherwise most notable patterns are mentioned concerning the respective graph when relevant. For five of the survey questions, the respondents could choose more than one answer alternative given that the percentile distribution of answers is based on a unique number of answers, rather than the total number of respondents. These cases have been pointed out below. Additionally, as discussed in §3.2, the respondents could answer 'other' to some of the questions and if preferred, specify their answer. However, the number of respondents who first, choose the answer option 'other' and second, choose to specify a unique answer accounted for less than 5% of the answers for any given question except for one of the questions for which 17% of the respondents choose this option. The arguably low frequencies are unlikely to form the basis of calculations which may lead to statistically viable analysis and, therefore, the qualitative data provided by respondents have not been further analyzed.

4.1.1 Cybersex data results

Out of the 240 survey respondents who had been in a LDRR, 67,5% (162 respondents) had engaged in cybersex with their partner, and 32,5% (78 respondents) had not done so. 69% (115 respondents) of the females and 62% (42 respondents) of the males reported engaging in cybersex in their LDRR. The remaining answers presented in this subsection represent the 162 respondents who had engaged in cybersex with their partner during times of geographical separation. The age distribution of these respondents was as follows; 36% (59 respondents) between ‘18-24 years old’, 45% (73 respondents) between ‘25-30 years old’ and the other 19% (30 respondents) were above 31 years old. The most common sexual orientation was heterosexuality - 74% (120 respondents) - followed by bisexuality - 14% (23 respondents). 28% (45 respondents) had been in a relationship for less than a year, 32% (52 respondents) had been in the relationship for 1-2 years, 28% (45 respondents) had been in it for 3-5 years, and 12% (20 respondents) had been in a relationship for more than 5 years. Last, the amount of time spent geographically separated over the last year was reasonable equally distributed between the answer alternatives; 27% (44 respondents) for 1-3 months, 30% (48 respondents) for 4-6 months, 23% (38 respondents) for 7-9 months and the remaining 20% (32 respondents) for more than 9 months.

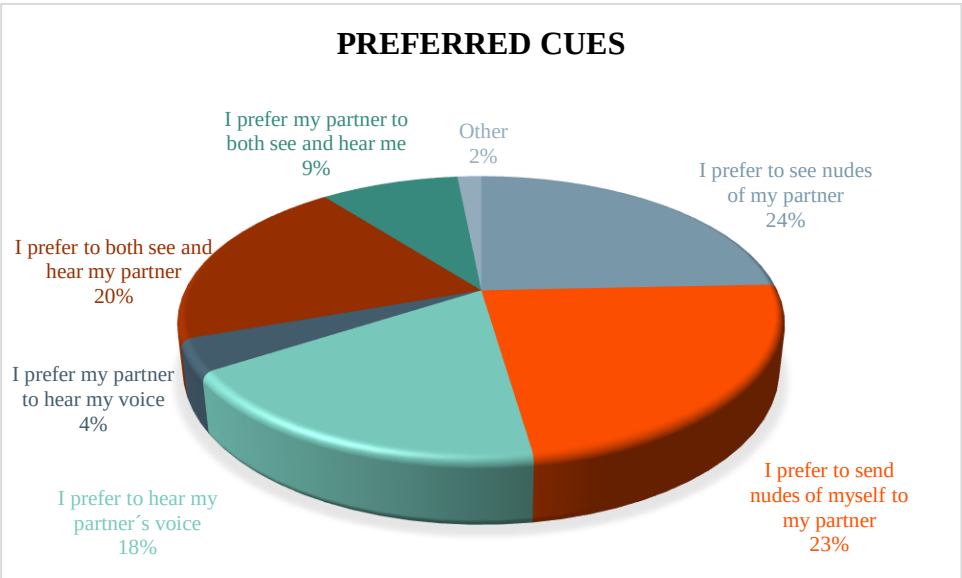
The most common frequency to engage in cybersex with one’s partner was ‘1-5 times a month’, see Figure 1.



(Source: Own depiction)

Figure 1: Cybersex Frequency

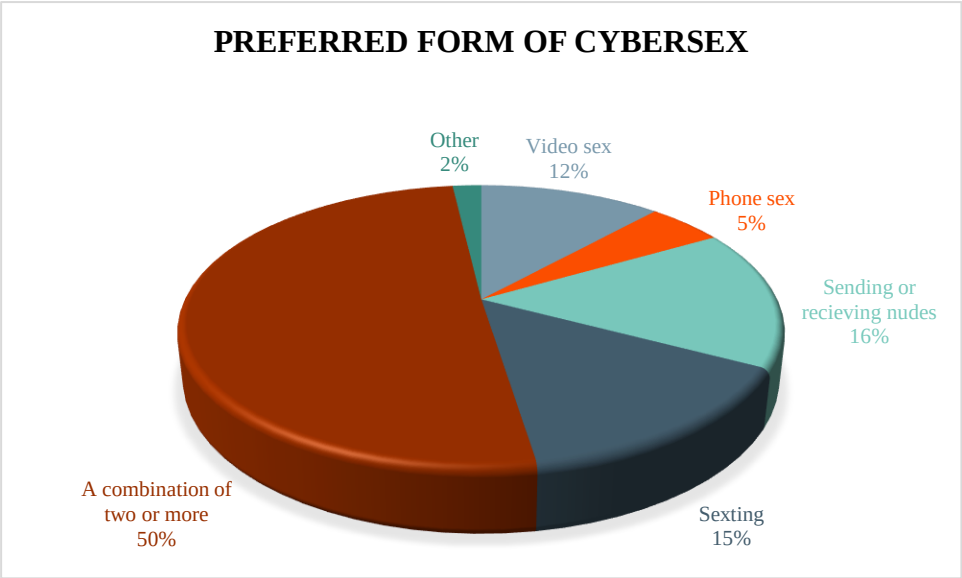
The respondents were asked to state how they preferred to engage in cybersex with their partner concerning the number of cues available, and each respondent could choose up to three answer options. It resulted in a total of 325 answers. The two most preferred answer options are notably related. Namely, it was 'to receive nudes of my partner' - 24% (79 responses) - and ‘to send nudes of myself to my partner’ - 23% (75 responses), see Figure 2 below. Additionally, a majority of the respondents, 94,4% (153 respondents) had never used any form of phatic technologies in their LDRR, with 5,6% (9 respondents) reported having used it.



(Source: Own depiction)

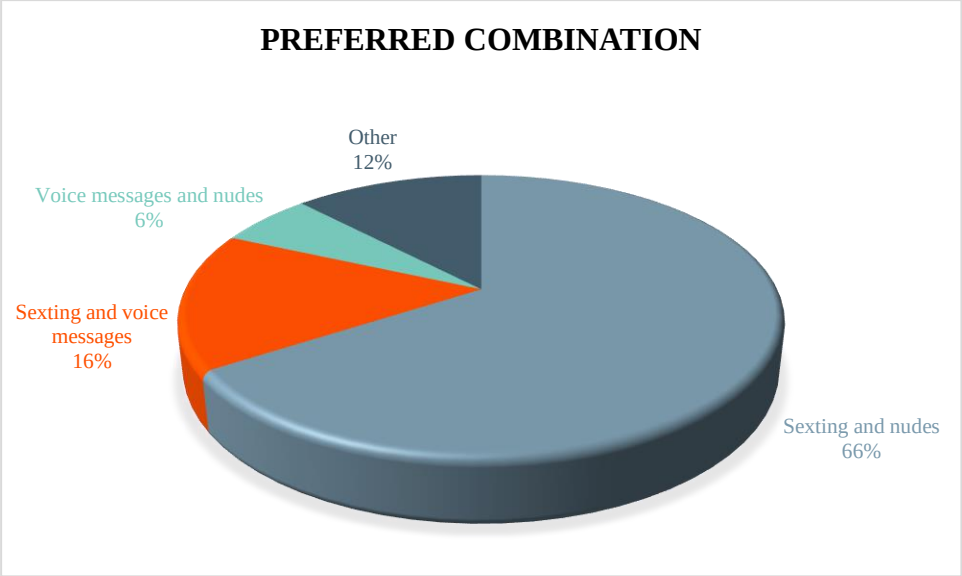
Figure 2: Preferred Cues

50% (82 respondents) preferred to engage in cybersex with their partner through a 'combination of two or more', see Figure 3 below. The most preferred combination was ‘sexting and nudes’: 66% (54 respondents), see Figure 4 below.



(Source: Own depiction)

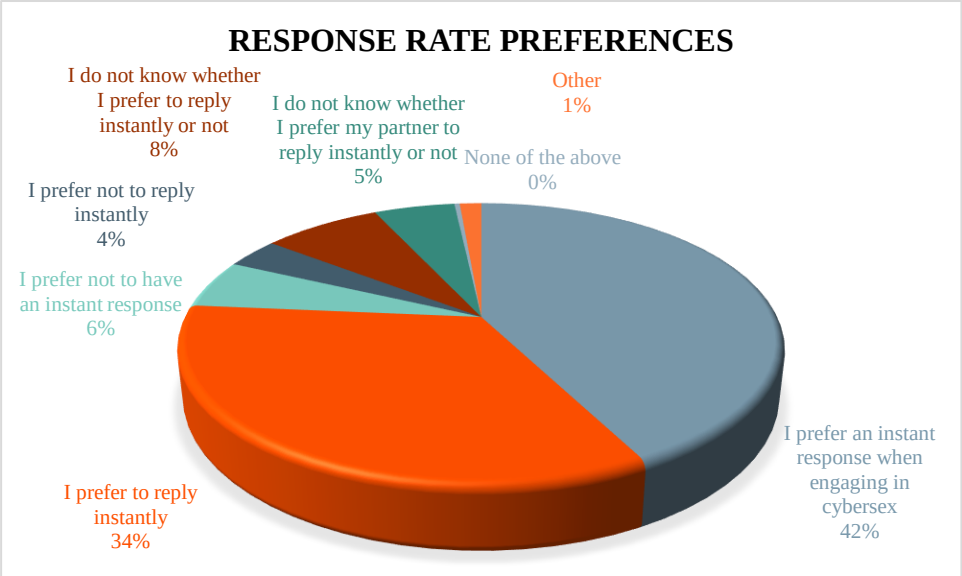
Figure 3: Preferred Form of Cybersex



(Source: Own depiction)

Figure 4: Preferred Combination

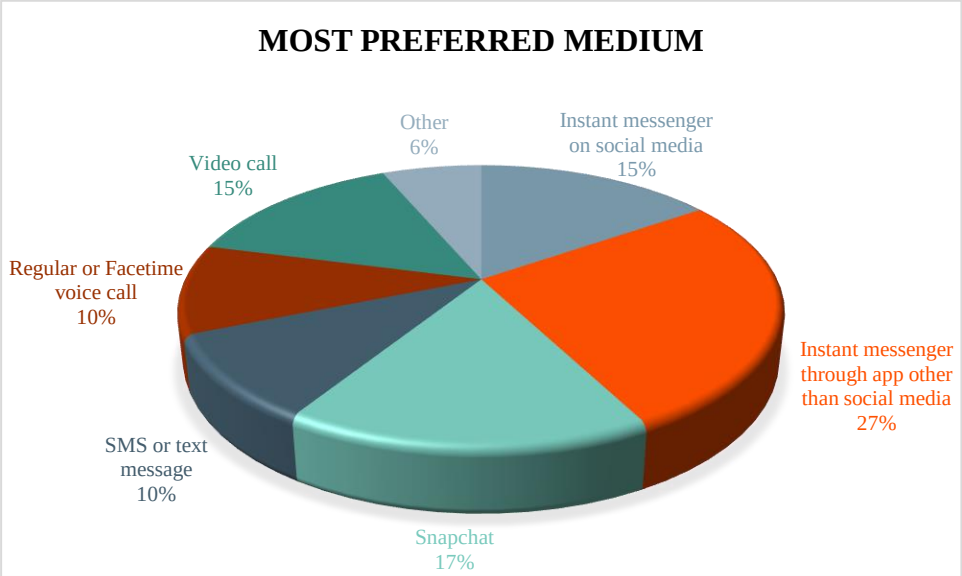
78,4 % (127 respondents) reported considering the response rate when engaging in cybersex with their partner and 21,6% (35 respondents) did not. The survey question concerning respondents' response rate preferences was yet another question where respondents were able to choose several answers for the same question, giving a total of 288 answers. 'To receive an instant response' (42%, 122 respondents) and 'to reply instantly' (34%, 98 respondents) were the two most preferred answer options among the respondents, see Figure 5 below. On the basis of answers to this question, seemingly, the respondents prefer rather synchronous responses when engaging in cybersex.



(Source: Own depiction)

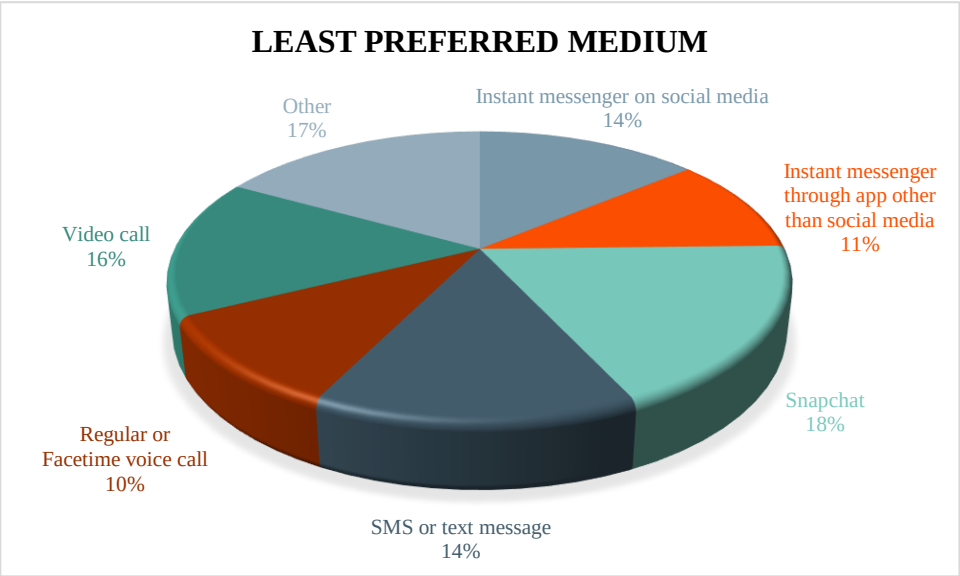
Figure 5: Response Rate Preferences

Respondents were then asked to rank their preferred use of each medium between one (1) as 'most preferred' and five (5) as 'least preferred'. Given that the respondents could give various medium the same ranking, it resulted in a total of 234 answers for the most preferred medium and 272 answers for the least preferred medium. Figure 6 below presents the respondents' most preferred medium, i.e. ranked one (1). 'Instant messenger through an app other than social media' was the most preferred medium among the answer alternatives, 27% (63 respondents). Figure 7 below presents the respondents' least preferred medium, i.e. ranked five (5). 'Snapchat' was the least preferred medium among the answer alternatives, 18% (50 respondents). Despite the preferences for rather synchronous responses - see Figure 5 above - the respondents' answers to this question suggest a preference for rather asynchronous media.



(Source: Own depiction)

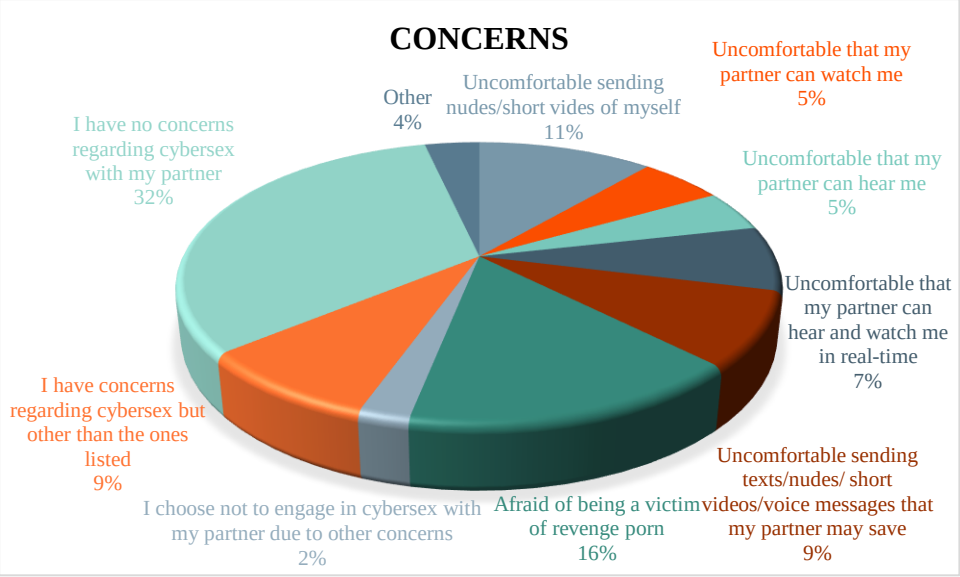
Figure 6: Most Preferred Medium



(Source: Own depiction)

Figure 7: Least Preferred Medium

On the last question of the survey regarding respondents' concerns about cybersex with their partner, a total of 256 answers were generated, given that the respondents were asked to choose 'all that apply'. A majority of respondents reported ‘I have no concerns regarding cybersex with my partner’: 32% (83 respondents). However, a substantial number of respondents indicated to be ‘afraid of being a victim of revenge porn’ (16%, 40 respondents) and ‘I feel uncomfortable sending nudes or short videos of myself’ (11%, 29 respondents), see Figure 8 below.



(Source: Own depiction)

Figure 8: Concerns

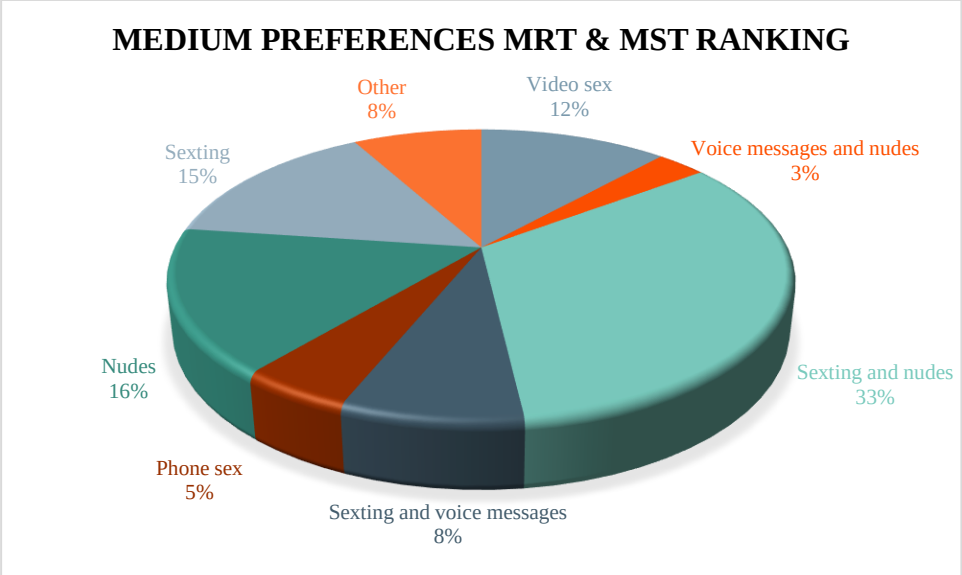
4.2 Inferential statistical calculations

In order to answer RQ2 and RQ3 of this project (see §1.1), four groups of inferential statistical calculations were run, differentiated by the type of test and the various datasets: the dataset representing the 240 respondents having experienced a LDRR (henceforth all LDRR respondents dataset), the dataset representing the 162 respondents having experienced cybersex (henceforth only cybersex respondents dataset (unmerged)), and the dataset representing the 162 respondents having experienced cybersex - with merged variables (henceforth only cybersex respondents dataset (merged)). This section has been structured based on the tests' importance in answering RQ2, concerning whether medium preferences when in engaging in cybersex in LDRRs are predicted by MRT or MST, and RQ3, concerning whether medium choice preferences vary based on demographic or relationship factors (see §1.1).

The correlation tests presented in §4.2.1 are crucial in answering RQ2. These tests were run on the dataset representing the 162 respondents having experienced cybersex - with merged variables investigating whether MRT respective MST can predict the respondents' media preferences**.** Second, correlation tests focused on the variable 'Cybersex engagement', and each of the demographic and relationship variables individually is presented in §4.2.2. These tests inquired whether it was possible to characterize the respondents who did engage in cybersex with their partner in a LDRR, and the respondents who did not, based on the demographic and relationship variables collected in this study, contributing to answering RQ3. Once the respondents' who choose to engage in cybersex have been characterized, the third set of correlation tests were run on the dataset representing the 162 respondents having experienced cybersex and focused on variables included in the cybersex data section of the survey on which the respondents only could choose one answer option (see §4.2.3). These tests were run to investigate any correlations between various characteristics of the respondents' - the demographic and relationship data - and the respondents' preferences regarding cybersex engagement, the cybersex data. Lastly, correlation tests were run on the dataset representing the 162 respondents having engaged in cybersex, though focusing on the variables for which respondents could choose more than one answer option (see §4.2.4). The aim of these tests was equal to that of the penultimate test, and together these tests could offer a deeper understanding of possible factors influencing the respondents' media preferences to engage in cybersex with their partner in a LDRR.

4.2.1 One sample t-test and Kruskal-Wallis test on only cybersex respondents dataset (merged)

T-tests were run on only cybersex respondents dataset (merged). Figure 9 below represents the answer distribution of preferences ranked according to MRT and MST respectively; i.e. cue availability and synchronicity. Independent of whether the answers are ranked according to MRT or MST respectively, the answer frequencies for respective answer options do not differ; i.e. independent of ranking according to MRT or MST the same amount of responses for a specific preference have been collected. Indifferent of ranking the answer options according to MRT respective MST, 'sexting and nudes' was the most preferred way to engage in cybersex. This is further discussed in §5.1. Therefore, Figure 9 below visualizes the merged answers as presented in Figure 3 and Figure 4 above.



(Source: Own depiction)

Figure 9: Medium Preferences MRT and MST Ranking

A one-sample t-test was run on the new variables respectively; preferences according to MRT ranking and preferences according to MST ranking. By ranking the answer options according to MRT and MST respectively, the data was ranked according to an ordinal scale (§3.5). The test value, the hypothesized mean for the given variable (One-Sample T-Test using SPSS Statistics, 2020) was set to 3 for the respective tests. MRT's and MST's theoretical statements would predict survey respondents to answer '1', as 'video sex' (1) is the richest and most synchronous medium according to the theories. Selecting '3' as a conservative mean, e.g. allowing for some personal variation amongst respondents, rather than '1' as a strict MRT and MST mean is a more cautious operationalization of MRT's and MST's predictive strengths.

Even despite the conservative mean, the t-statistic for these results was judged to be significant at $p<0,05$. As is generally the case in statistical work in the social sciences, a t-score is considered significant if the probability *(*the *p* value) is below 0,05. The two t-tests; 'MRT Ranking' and 'MST Ranking' respectively, showed that the data was highly significant given that the answers reflected a particular choice of media preferences that deviate statistically significant from what was predicted according to MRT and MST respectively. See Table 1 and Table 2 below. Seemingly, other factors than media richness and synchronicity are important deciding factors in people's medium choice preferences when engaging in cybersex.

One-Sample T-Test Test Value = 3						
MRT Ranking			**N**	**Mean**	**Std. Deviation**	**Std. Error Mean**
			162	4,39	2,168	0,170
					95% Confidence Interval of the Difference	
	t	**df**	**Sig. Level (*p* value)**	**Mean Difference**	**Lower**	**Upper**
	8,155	161	,000	1,389	1,05	1,73

(Source: Own depiction)

Table 1: One-Sample T-Test MRT Ranking

One-Sample T-Test Test Value = 3						
MST Ranking			**N**	**Mean**	**Std. Deviation**	**Std. Error Mean**
			162	4,69	2,044	0,161
					95% Confidence Interval of the Difference	
	t	**df**	**Sig. Level (*p* value)**	**Mean Difference**	**Lower**	**Upper**
	10,491	161	,000	1,685	1,37	2,00

(Source: Own depiction)

Table 2: One-Sample T-Test MST Ranking

In turn, this made it possible to run Kruskal-Wallis tests on the merged answers; ‘MRT Ranking’ and ‘MST Ranking’ respectively, against, first, each one of the demographic variables ('Age', 'Gender', 'Sexual Orientation') and second, against each of the relationship variables ('Initial Meeting', 'Real-life Meeting', 'Relationship Length', 'Geographic Proximity', 'Geographic Separation', 'Reunion') individually. These tests were run to identify potential correlations between any of the variables and the respondents' media preferences. The Kruskal-Wallis tests on 'MRT Ranking' and 'MST Ranking' respectively and the respective variables did not show any significant results, given that reported medium preferences in regards to cue richness or synchronicity do not behave significantly different between any of the groups within any of these variables. This is further discussed in §5.1. For these non-significant correlation results, see Appendix 4.

4.2.2 Spearman correlation test on all LDRR respondents dataset

Correlation tests were computed on the dataset representing all respondents who had been involved in a LDRR. Given primarily nominal variables (see §3.5; i.e. 'Gender', 'Sexual Orientation', 'Initial Meeting', 'Real-life Meeting', 'Geographic Proximity', and 'Reunion'), a bivariate, two-tailed Spearman correlation test was run between the variable 'Cybersex' and, first, each one of the demographic variables ('Age', 'Gender', 'Sexual Orientation') and second, against each of the relationship variables ('Initial Meeting', 'Real-life Meeting', 'Relationship Length', 'Geographic Proximity', 'Geographic Separation', 'Reunion') individually. These tests were run to identify any correlation between any of the variables and the respondents' cybersex engagement to potentially characterize the respondents who choose to engage in cybersex as different from the ones who choose not to. A nonparametric, bivariate two-tailed Spearman correlation test was run as this allowed for the inclusion of the nominal variables (IBM SPSS Statistics: Features and Modules, n.d.). As explained above, a significant correlation is one where the significance level (i.e. the *p* value) is below 0,05. Moreover, the closer the Spearman's Rho score is to 0, the weaker the association between the variables tested, and the closer the Spearman's Rho score is to 1 or -1, the stronger the association between the variables (Spearman's Rank-Order Correlation, 2020).

The Spearman correlation test showed no significant correlations between 'Cybersex' and the variables except 'Sexual Orientation'. The significance level for this correlation was 0,019, and the Spearman's Rho score was -0,151 indicating a slight association between the variables, yet reasonable low, see Appendix 5. Seemingly, among the demographic and relationship history factors investigated in this study, respondents who choose to engage in cybersex with their partner in a LDRR can only be characterized based on their sexual orientation.

A post-hoc descriptive crosstab test was run on the variables 'Cybersex' and 'Sexual Orientation', to identify which groups therein that were significantly different, see Table 3 below. These results need to be interpreted with caution given that 3 respondents represent 100% of the respondents who identified as 'I´d rather not say' and 4 respondents represents 100% of the respondents identifying as 'other'. However, 92% of 'bisexual' (23 respondents) could potentially be significant given that respondents who identified as bisexual were more likely to engage in cybersex with their partner in a LDRR than respondents of other sexual orientations.

			Sexual Orientation				
			Homo-sexual	Hetero-sexual	Bisexual	I´d rather not say	Other
Cybersex	Yes	Count	12	120	23	3	4
		% within Sexual Orientation	75%	63%	92%	100%	100%
	No	Count	4	72	2	0	0
		% within Sexual Orientation	25%	37%	8%	0%	0%

(Source: Own depiction)

Table 3: Crosstab Test Cybersex and Sexual Orientation

4.2.3 Spearman correlation test on only cybersex respondents dataset (unmerged)

Correlation tests were run on the dataset representing all respondents who had engaged in cybersex with their partner in a LDRR. A nonparametric, bivariate two-tailed Spearman correlation test was run on the variables ‘Frequency’, ‘Response Rate’, and ‘Phatic’ against, first, each one of the demographic variables (‘Age’, ‘Gender’, ‘Sexual Orientation’) and second, between each of the relationship variables (‘Initial Meeting’, ‘Real-life Meeting’, ‘Relationship Length’, ‘Geographic Proximity’, ‘Geographic Separation’, ‘Reunion') individually. The tests were not run on the variables ‘Medium’ and 'Combination' despite that the respondents could only choose one answer alternative, given that the same correlation tests were run previously on the variables ‘MRT Ranking’ and ‘MST Ranking', which included the variables ‘Medium’ and 'Combination'. Given the relevance and importance of the variables 'MRT Ranking' and 'MST Ranking' in answering the research questions, these have been prioritized and presented above (see §4.2.1).

The tests below were run to identify if cybersex preferences significantly differed in relation to the various variables. If a result showed a significance level below *p*. 0,05, a post-hoc descriptive crosstab test was run on these variables, to identify which answer options that likely caused the significant correlation. Results that have been assessed as potentially significant, and that contribute to answering the research questions, or have been assessed as interesting in relation to findings in previous studies - see §2.2.2 - are presented below.

The results suggested no correlation between ‘Frequency’ and the variables, except for ‘Geographic Proximity’. The significance level for 'Geographic Proximity' was 0,030, and the Spearman's Rho score was 0,171 suggesting an arguably weak relationship between the variables 'Frequency' and 'Geographic Proximity', see Appendix 6. A post-hoc descriptive crosstab test showed that respondents who had been geographically close to their partner for more than three months were more likely to engage in cybersex 1-5 times per month than respondents who had not been living geographically close to their partner for three months. Moreover, the frequency ‘more than 15 times’ was more common among respondents who had not lived geographically close to their partner for three months than among the respondents who had done so. Despite ‘other’, this is the only frequency which is more common among partners who had not lived geographically close, than among the partners who did so, see Table 4 below.

Crosstab Test				
			Geographic Proximity	
			Yes	No
Frequency	Less than 1 time	Count	16	6
		% within Geographic Proximity	16,2%	9,5%
	1-5 times	Count	45	23
		% within Geographic Proximity	45,5%	36,5%
	6-10 times	Count	20	16
		% within Geographic Proximity	20,2%	25,4%
	11-15 times	Count	8	5
		% within Geographic Proximity	8,1%	7,9%
	More than 15 times	Count	9	11
		% within Geographic Proximity	9,1%	17,5%
	Other	Count	1	2
		% within Geographic Proximity	1,0%	3,2%

(Source: Own depiction)

Table 4: Crosstab Test Frequency and Geographic Proximity

Testing 'Response Rate' against the demographic and relationship variables, there were no significant results given that response rate preferences did not differentiate significantly between respondents of various demographic backgrounds or relationship history, see Appendix 7. Similarly, Spearman's Rho scores were closer to 0 than -1/1 for all of the variables tested. However, given the relevance of the variables 'MRT Ranking' and 'MST Ranking' for this study and the correlation between 'Response Rate' and MRT and MST (see §2.1), a Spearman Test was run on 'Response Rate' and these two variables. These tests showed no significant results. Concerning RQ3, this means that media preferences among the respondents are not significantly correlated to the consideration of response rate.

Moreover, there was no correlation between 'Phatic Technologies' and any of the demographic or relationship variables. The Spearman's Rho scores suggest weak, or close to no, association between any of the variables and the use of phatic technologies (see Appendix 8).

4.2.4 Post-hoc descriptive crosstab tests on only cybersex respondents dataset (unmerged)

Finally, correlation tests were run on the dataset representing all respondents who had engaged in cybersex with their partner in a LDRR. Post-hoc descriptive crosstab tests were run to cross-classify the variables 'Media Preferences Rank One,' i.e. most preferred medium, 'Media Preferences Rank Five,' i.e. least preferred medium, 'Cues', 'Response Rate Preferences' and 'Concerns' against, first, each one of the demographic variables ('Age', 'Gender', 'Sexual Orientation') and second, between each of the relationship variables ('Initial Meeting', 'Real-life Meeting', 'Relationship Length', 'Geographic Proximity', 'Geographic Separation', 'Reunion') individually.

The post-hoc descriptive crosstab tests were run to identify if any answer combinations potentially could be causing a significant correlation. Even if the post-hoc descriptive crosstab tests did not specify whether any correlation was significantly different, some instances where a reasonable proportion of the respondents indicated a certain answer or a unique pattern has been noted are highlighted below and further discussed in §5.3. Primarily, results that contribute to answering the research questions or have been assessed as of potential interest, i.e. that is confirming or challenging results in previous studies, are summarized below. The full tables can be found in Appendix 9.

It was seemingly common among the younger respondents, age 18 to 30 years old, to prefer rather synchronous responses, i.e. ‘prefer receiving an instant response’ and ‘prefer to reply instantly’, see Table 5 below.

Crosstab Test Response Rate Preferences and Age			
		18-24 years old	**25-30 years old**
Prefer receiving an instant response	Count	41	59
	% within Age	69,5%	80,8%
Prefer to reply instantly	Count	30	49
	% within Age	50,8%	67,1%

(Source: Own depiction)

Table 5: Crosstab Test Response Rate Preferences and Age

It was seemingly common among both males and females to not have any concerns regarding cybersex with their partner in a LDRR, see Table 6 below. Notably, it was slightly more common for the female respondents to report ‘I am afraid to be a victim of revenge porn’ than for the male respondents.

Crosstab Test Concerns and Gender			
		Male	**Female**
I have no concerns regarding cybersex with my partner	Count	25	56
	% within Gender	59,5%	48,7%
I am afraid to be a victim of revenge porn	Count	8	31
	% within Gender	19%	27%

(Source: Own depiction)

Table 6: Crosstab Test Concerns and Gender

The percentage of respondents choosing ‘I am afraid to be a victim of revenge porn’ decreases over time for relationships between one month and ten years. Meanwhile, the percentage of respondents reporting ‘I have no concerns regarding cybersex with my partner’ increases over time for

relationships between one month and five years. It was especially common for partners who had been in a relationship for 3-5 years to report 'I have no concerns regarding cybersex with my partner', see Table 7 below.

Crosstab Test Concerns and Relationship Length								
		1-3 months	**4-6 months**	**7-11 months**	**1-2 years**	**3-5 years**	**6-10 years**	**More than 10 years**
I have no concerns regarding cybersex with my partner	Count	2	8	8	25	29	7	4
	% within Relationship Length	28,6%	38,1%	47,1%	48,1%	64,4%	50,0%	66,7%
I am afraid of being a victim of revenge porn	Count	3	4	6	16	8	2	1
	% within Relationship Length	42,9%	19,0%	35,3%	30,8%	17,8%	14,3%	16,7%

(Source: Own depiction)

Table 7: Crosstab Test Concerns and Relationship Length

Seemingly, the percentage of respondents that reported 'I have no concerns regarding cybersex with my partner' was steadily above 50% for couples that were geographically separated between one and nine months, see Table 8 below. That said, it decreased dramatically among partners who were separated for more than nine months last year.

Crosstab Test Concerns and Geographic Separation					
		1-3 months	**4-6 months**	**7-9 months**	**More than 9 months**
I have no concerns regarding cybersex with my partner	Count	22	26	23	12
	% within Geographic Separation	50,0%	54,2%	60,5%	37,5%

(Source: Own depiction)

Table 8: Crosstab Test Concerns and Geographic Separation

Similarly, there was a tendency among the respondents that always know when they will be reunited with their partner next time in real-life not to have any concerns regarding cybersex with their partner, see Table 9 below.

Crosstab Test Concerns and Reunion		
		Always known
I have no concerns regarding cybersex with my partner	Count	44
	% within Reunion	63,8%

(Source: Own depiction)

Table 9: Crosstab Test Concerns and Reunion

Moreover, it is seemingly preferred among the males to receive nudes and to listen and watch their partner engage in cybersex with them. On the other hand, the females seem rather to prefer to send nudes, see Table 10 below.

Crosstab Test Cues and Gender			
		Male	**Female**
Receive nudes	Count	27	48
	% within Gender	64,3%	41,7%
Send nudes	Count	12	62
	% within Gender	28,6%	53,9%
Listen to and watch my partner engage in cybersex with me	Count	23	42
	% within Gender	54,8%	36,5%

(Source: Own depiction)

Table 10: Crosstab Test Cue Preferences and Gender

Notably, among the partners separated 1-3 months last year it is seemingly favourable to send and receive nudes. Meanwhile, for partners geographically separated 7-9 months it is seemingly more preferred to engage in synchronous cybersex that allows one to watch and hear their partner in real-time, see Table 11 below.

Crosstab Test Cues and Geographic Separation			
		1-3 months	**7-9 months**
Receive nudes	Count	26	19
	% within Geographic Separation	59,1%	50,0%
Send nudes	Count	23	17
	% within Geographic Separation	52,3%	44,7%
Watch and hear my partner in real-time engaging in cybersex with me	Count	9	22
	% within Geographic Separation	20,5%	57,9%

(Source: Own depiction)

Table 11: Crosstab Test Cue Preferences and Geographic Separation

The inferential statistical calculations above provided the necessary information to answering RQ2 and RQ3, investigating MRT's and MST's ability to predict respondents' media preferences to engage in cybersex in their LDRR. These results will be further discussed in the following chapter.

5. Discussion

In this chapter, the data analysis findings presented in the previous chapter will be considered in terms of their implications for MRT and MST respectively, and in relation to the current state of knowledge concerning communication technology choices regarding sexual intimacy in LDRRs. Generally, the focus of this chapter is on data analysis findings crucial to answer the research questions posited in §1.1 above, and it discusses to what extent the results of this study confirm, complement, or challenge those of previous studies. The discussion is structured into three sections; the first section (§5.1) focuses on the results relevant to answering RQ1 and RQ2 concerning respondents' medium preferences to engage in cybersex with their partner in a LDRR; and whether MRT and MST accurately predict these preferences. The second section (§5.2) focuses on the results related to findings in previous studies and discusses whether the results confirm, complement, or challenge the findings of previous studies. Last, the third section (§5.3) focuses on RQ3 and the correlations between different variables and discusses these in relation to findings in previous studies.

5.1 Media preferences for cybersex engagement

In the section below, the vital results which offer answers to RQ1 and RQ2 concerning medium preferences to engage in cybersex with a partner in LDRR and whether these preferences can be accurately predicted by MRT or MST are further analyzed. Moreover, these findings are discussed in relation to the theoretical frameworks presented in §2.1. Non-significant and potentially significant results will be discussed in this section, as the non-significant results may imply that the theories applied in answering the research questions are not supported. Non-significant results also call for a need for further research in the field.

As mentioned in §4.2.1, the one-sample T-tests for ‘MRT Ranking’ and ‘MST Ranking’ respectively showed highly significant results given that the respondents’ media preferences deviate from what have been predicted by MRT as well as MST. The most preferred medium to engage in cybersex among the respondents was 'a combination of two or more' of the listed options, with 'sexting and nudes' being the most preferred combination, indifferent of ranking according to MRT or MST. According to MRT, the most preferred medium should rather be the medium that provides the greatest number of various cues, mimicking face-to-face communication (Daft & Lengel, 1986), e.g. video sex. The combination of 'sexting and nudes' are assessed as less rich than ‘video sex’ or ‘phone sex’, yet richer than ‘sexting’ or ‘nudes’ individually. ‘Video sex’ and ‘phone sex’ allow for multiple cues simultaneous and in real-time, therefore, assessed as a rich media. Meanwhile, ‘sexting and nudes’ allow for less cues due to the exclusion of sound and the fact that the combination does not allow for real-time conversations, therefore, assessed as less rich media. MST proposes that synchronous media allows for immediate feedback and symbol variety while limiting the ability to edit, store and personalize messages (Dennis & Valacich, 1999). 'Sexting and nudes' are assessed as rather asynchronous media primarily given the abilities to edit, store and personalize messages while the opportunities for immediate feedback is restricted. This combination is assessed as less synchronous than ‘video sex’ or ‘phone sex’. Similarly, the most common preferences in terms of cues availability was ‘to send and receive nudes’; i.e. pictures or short movies of oneself or one's partner. This further supports the tendency to prefer a rather asynchronous medium with a restricted number of cues available; i.e. oral communication. For romantic partners in LDRRs, this implies that taking a sexually stimulating picture may serve another purpose than video sex in creating and maintaining sexual intimacy. In other words, richness may be about personality; a decisive factor for some partners in LDRRs and of less importance to others. It could also suggest that cultural norms or preferences impacts the individual’s choice significantly (Janning et al., 2018). Therefore, these results challenge the application of MRT and MST to predict media preferences to engage in cybersex among partners in LDRRs.

Moreover, 'instant messenger through an app other than social media' was the most preferred platform reported by respondents. If MRT or MST had accurately predicted this choice, the most preferred option would have been to engage in cybersex through a video call since it offers more exceptional ability to guarantee richer and synchronous communication than other forms of

communication, e.g. text message or photos. No previous study has been found to differentiate between instant messenger on social media or instant messenger through an app other than social media. Therefore, the results of this study call for further research on the importance of platform preferences and the importance of such platform providers for partners in LDRRs to engage in cybersex. Richer descriptions are needed to explore the underlying motives for platform preferences and the impact of certain factors when choosing platform.

Moreover, 'to receive an instant response' and 'to reply instantly' were the two most preferred options among the respondents when it comes to the response rate. This suggests that immediacy of feedback is preferred among the respondents, yet not guaranteed given the preferences for rather asynchronous media. 'Sexting and nudes' may be experienced as somewhat synchronous media by the respondents given the possibilities of direct sexting back and forth between the partners, disregarding the time spent on composing a message or taking a picture. However, it is often categorized as asynchronous media since immediate feedback is restricted according to MRT´s and MST´s definitions. What MRT and MST define as synchronous media may differ from what the respondents define and experience as synchronous media, primarily given the communication technology available in today´s society which were not available at the time of the development of the theories. Anyhow, these results challenge the application of MRT and MST to predict media preferences to engage in cybersex among partners in LDRRs. Nevertheless, given that there was a tendency among the respondents 'to receive an instant reply' and 'to reply instantly' these support MST's predictions of synchronicity to some extent. It can be argued that indifferent of other factors the respondents do prefer rather synchronous response patterns when engaging in cybersex with their partner in a LDRR but not to the degree that MST would predict.

There were no significant differences in either medium preferences; i.e. cue richness preferences, nor response rate preferences; i.e. synchronicity preferences, when tested against either of the demographic or relationship variables. Therefore, the characteristics of the respondents, such as demographic and relationship factors, did not predict any given preferences in terms of medium or response rate when engaging in cybersex with one's partner in a LDRR, challenging the results of previous studies (e.g. Cooper et al., 2003; Daneback et al., 2005; Shaughnessy et al., 2011). Furthermore, the lack of non-significant results is a particularly valuable finding. The reported medium preference choices when engaging in cybersex are a phenomenon common to all respondents, rather than specific to some subset correlation to, e.g. age, gender or sexual orientation. The latter scenario would potentially be a confounding variable which, without it (had it been the case) might have meant that MRT and MST are still predictively strong. However, although medium preference choices reported being reasonably steady across variable groups, e.g. age, gender, and sexual orientation, MRT and MST do not succeed in predicting these choices accurately. Therefore, MRT and MST are seemingly weaker than expected in predicting media preference choices in such situations. Further research is needed to assess whether this points at a weakness of MRT and MST and their ability to predict medium preferences in such situations accurately, primarily concerning the communication technology available in today's society or whether the results of this study highlights a possible difference between the phenomena of general intimacy and the phenomena of sexual intimacy. It may be likely that the two types of intimacy behave differently and are maintained differently, and therefore, that MRT and MST do not equally accurately predict the media preferences to maintain each one of them respectively. The data analysis findings of this study beg the need for new theories or theoretically predictive statements about media choice preferences in LDRRs, for sexual intimacy maintenance and cybersex activities specifically.

5.2 Findings in relation to previous studies

The section below discusses the results of this study which, to some degree, complement findings in previous studies but also challenge other findings in previous studies, investigating cybersex engagement and sexual intimacy maintenance behaviours in LDRRs.

The results of this study complement at least two previous studies in which sexting was the most preferred way to engage in cybersex among partners in LDRRs (Neustaedter & Greenberg, 2011; Gereis, 2018). Gereis (2018) found that sexting was the most preferred form of cybersex, followed

by video sex and phone sex. The results of this study; i.e. 'sexting and nudes' as a combination, complements Gereis' (2018) findings, supporting the tendencies that rather asynchronous forms of communication with limited cues available are preferred when creating or maintaining sexual intimacy between partners in LDRRs, and thereby challenging the application of MRT and MST to predict media preferences in such situation. Further, these findings also confirm Joinson (2001) in the suggestion that using less rich medium; i.e. more restraining forms of media such as text messages encourages self-disclosure. However, the same findings contradict other previous research. Face-to-face communication is often restricted in LDRRs, and therefore, video chatting tends to be regarded as the most favourable form of communication given that it is assumed to be the medium that mimics face-to-face communication the most (Mickus & Luz, 2002). This claim is supported by Janning et al. (2018); a study that found audio-visual communication formats to be the most preferred among their 262 respondents in LDRRs. Harwood (2002) and MRT argue that richer forms of media, which allow for more social cues, help the creation and maintenance of intimacy. The social cues, e.g. sound, facial expression and body language, are primarily accessible through video calls and phone calls. These forms of synchronous media increase the sense of social presence, arguably also resulting in a more excellent feeling of intimacy between interlocutors (ibid.). Nevertheless, the results of this study challenge the notion of MRT's and MST's ability to predict media choice when engaging in cybersex with a partner in a LDRR through presenting a sample in which a rather asynchronous medium with restricted cues was preferred. Again, the differentiating findings of this study suggest a difference between the phenomena of general intimacy as discussed by, e.g. Harwood (2002) and that of sexual intimacy as investigated by, e.g. Gereis (2018).

Moreover, this study found that 'sexting and nudes' was the most preferred way to engage in cybersex with one's partner in a LDRR among both females and males. Therefore, this study challenges the claims that women prefer synchronous forms of communication when engaging in cybersex with their partner, e.g. video and phone calls (Cooper et al., 2003) while supporting the claim that men tend to prefer asynchronous forms of media, e.g. nudes and shorter recordings (ibid.). However, more generally, there is not a notable gender difference in terms of these preferences as opposed to Cooper et al. (2003).

Ruppel (2015) highlights that studies of relationship development and communication technology tend to be inconsistent in their results, suggesting a need for further research. The ambiguous results, e.g. the application of asynchronous and less rich media to maintain sexual intimacy as discussed above, are a confirmation of this and call for more research.

5.3 Correlations in the results

In the section below, correlations between cybersex preferences and different demographic and relationship variables (see §3.2 for an overview) are discussed. These results contribute to answering RQ3 whether demographic factors or relationship history influenced medium preferences to engage in cybersex with one's partner in a LDRR. The focus is on non-significant and potentially significant correlations that confirm, complement or challenge correlations found in previous research. Non-significant correlations will be discussed as they provide an implication of the theories' applicability in the particular field as well as the potential need for further research.

5.3.1 Cybersex engagement

69% of the female respondents and 62% of the male respondents reported engaging in cybersex with their partner in a LDRR. This is somewhat similar to the findings by Daneback et al. (2005), a study in which 34% of the women reported having engaged in cybersex and 30% of the men, pointing in the direction of only slight gender differences regarding engagement in cybersex between females and males. Moreover, engagement in cybersex reported by respondents was not found to have any correlation to demographic or relationship variables despite that of sexual orientation. Excluding the possibly skewed results as discussed in §4.2.2, the results suggested that respondents who identified as bisexual tend to engage in cybersex in their LDRRs to a greater extent than respondents who identified as other sexual orientations. This supports previous findings by Daneback et al. (2005) who found that

it was more common for homosexual and bisexual men to engage in cybersex than for heterosexual men while no such differences were identified among their female respondents (ibid.).

5.3.2 Age-related correlations

Regarding correlations between age and response rate preferences, two answer options were primarily prevalent; 'I prefer to receive an instant reply' and 'I prefer to reply instantly' among respondents in the age group '18-24 years old' respectively '25-30 years old'. Therefore, age might be a decisive factor based on which response rate preferences differentiate. However, no previous studies have been found to investigate these factors, calling for future research to either corroborate or challenge these findings. Moreover, Daneback et al. (2005) found that younger respondents reported greater engagement in cybersex than the older respondents. The importance of age has been highlighted in previous research (Stafford, 2005; Shwayder, 2012; Rainie, 2013; Janning et al., 2018) primarily concerning the sample selection for studies investigating cybersex engagement as these tend to include younger subjects between 18 and 25 years old, presumably due to their reasonable familiarity with and usage of technology.

5.3.3 Gender-related correlations

Regarding gender differences, there were a few potentially significant correlations to be further discussed. Specific trends were noticed between concerns regarding cybersex with one's partner and gender. Despite that 'I have no concerns regarding cybersex with my partner' was the most common answer, it was slightly more reported among men than among women. Meanwhile, it was more common for women to report 'I am afraid of being a victim of revenge porn' than for men. This complements the findings by Neustaedter and Greenberg (2011) whose two respondents reported being afraid of revenge porn as well as Associated Press and MTV (2009) who found that women often feel pressured to engage in cybersex while also being more likely to be victims of revenge porn. Meanwhile, the possible underlying reasons for such correlations is in dire need of future research though as Lenhart (2009) suggests; the reason might be that women are more likely to get slut-shamed - publicly shamed and labelled a slut.

Moreover, there were potential correlations between gender and cue preferences. It seemed to be more likely for men to 'prefer to receive nudes' as well as 'to listen and watch my partner engage in cybersex with me in real-time', while it seemed to be more common among women to 'prefer to send nudes'. Given that 74,1% of the respondents who reported to have engaged in cybersex were heterosexual, these preferences may primarily say something about cybersex preferences among heterosexual partners than partners of other sexual orientations. Meanwhile, these results further challenge Cooper et al.'s (2003) findings that women prefer synchronous medium but support the claim that males prefer visual, rather asynchronous medium when engaging in cybersex. Nevertheless, preferences concerning gender differences and their implications for what one prefers to receive in relation to what one prefers to send in cybersex engagement require future research.

5.3.4 Relationship length related correlations

There was a prevalent tendency among the respondents who reported to have been in a relationship for '3-5 years' to prefer the answer option 'I have no concerns regarding cybersex with my partner'. Generally speaking, among the respondents whose relationship had lasted for 3 years or longer, more than 50% answered 'I have no concerns regarding cybersex with my partner'. In contrast, the same answer option was only chosen by less than 50% among respondents whose relationship had lasted less than 3 years. Meanwhile, the percentage of respondents reporting ‘I am afraid of becoming a victim of revenge porn’ decreases over time for relationships between one month and ten years. The potential correlations here suggest that concerns regarding cybersex with a partner in a LDRR decrease over time.

5.3.5 Geographic separation related correlations

Similar to the results discussed in §5.3.4 above, potential correlations between the time spent geographically separated and other variables are in dire need of future research. This is examined below.

First, ‘I have no concerns regarding cybersex with my partner’ was chosen by more than 50% of the respondents who reported to be geographically separated up to 9 months during the last year. Meanwhile, this was only chosen by 37,5% among the respondents who were geographically separated for more than 9 months last year. These results complement the findings by Dainton and Aylor (2001); who found that time spent together; i.e. geographic proximity was positively related to relationship trust. The other way around, the findings in this study might support this claim by telling something about the fact that time spent apart may increase concerns. Additionally, partners who reported that the amount of time spent apart was always certain tend to report ‘I have no concerns regarding cybersex with my partner’. This may complement the findings by Dargie et al. (2015), which argue that relationship outcomes are negatively influenced by uncertainty regarding the future of the relationship in the sense that certainty about time spent geographically separated decreases concerns.

Moreover, there were prevalent trends among the respondents who reported to have been geographically separated for '1-3 months' during their most recent year and the preferences 'to send nudes' respectively 'to receive nudes'. Meanwhile, it was notably more common among respondents who have been geographically separated for '7-9 months' to 'prefer to watch and hear my partner in real-time engaging in cybersex with me'. These potential correlations call for further research between the time spent apart and cybersex preferences among partners in LDRRs. Potentially, these results point in the direction that the more time spent geographically separated, the greater the preferences for synchronous media offering numerous cues to maintain sexual intimacy in LDRRs. This suggests that Dargie et al.'s (2015) argument that time spent geographically separated is crucial in the characterization of LDRRs. If so, media preferences to engage in cybersex with one's partner in a LDRR may differ based on time spent geographically separated; the more time spent geographically separated, the greater likelihood of MST and MRT to accurately predict media preferences, though this is in dire need of further research.

6. Limitations

The findings of this study presented an understudied phenomenon fundamental to the understanding of communication in LDRRs; it challenges the application of MRT and MST to predict media preferences in such situations. The chapter below is primarily focusing on the limitations concerning the research method applied. The limitations concerning the present study fundamentally group into three types as follows: limitations of the research method and limitations imposed by the scope of the study; possible contaminations of the results; and validity and reliability. In this chapter, each of these will briefly be explained and the likelihood of their potential impact on the conducted study evaluated.

A mixed-method design, such as a combination of survey and in-depth interviews would allow for a fundamental understanding of the behaviour and allow researchers to ask more complex research questions (Saunders et al., 2016). However, this was not deemed suitable due to the limited resources of this project. Due to the same restrictions, negative aspects, and various concerns regarding cybersex in LDRRs were only briefly touched upon in the last survey question regarding respondents' concerns (see §3.2.3) but not further investigated. However, the researchers acknowledge that this is an important aspect to investigate further. Similarly, the demographic and relationship data collected was restricted in order to reduce the time spent by the respondents - to increase the possibility of participation. This was also done to aid the ease of processing the collected data, while also ensuring a sufficient number of demographic and relationship variables were available for analysis given the scope of this study. However, the limited demographic and relationship data contributed to a rather unrestricted sample which strictly limited the possibilities to make generalizations about the wider population. Given that responses were collected from individual respondents rather than from couples and that media preferences within a LDRR may differ between partners, such differences, and the possible impacts of these were not investigated. Moreover, given that answers were collected at a single point in time, changes in preferences over time have not been assessed. By studying media preferences over time, such changes, and the impacts of them could be captured. Similarly, questions that are outside the scope of this study such as the total amount of time of the relationship spent in a LDRR, reasons for geographical separation, and distance apart, are potentially relevant factors which may explain patterns in the results of this study and, then, require further investigation in future research.

There is no guaranteed response rate when using Internet surveys, given that the researchers cannot be confident enough respondents will participate in the survey (Saunders et al., 2016). Yet, a reasonable amount of responses was collected. Contamination of the results is likely in various ways. First, there is no opportunity to ensure that the respondents were faithful when responding (ibid.). Second, if the respondents lacked information or knowledge to answer any of the questions appropriate, it may have led to uninformed responses (ibid.). However, using a survey allowed the researchers to reach an increased number of respondents which in turn made it possible to exclude any instances of expected falsified answers. As discussed in §3.3, it may be an increased risk that the respondents of this survey are likely to be people that tend to be more open to talking about sexual topics, which may be assessed as more sensitive to some people than to others and that, therefore, the results of the study do not capture the tendencies of the latter group.

As the survey was anonymous and taken online, it was impossible to reach the respondents afterwards, and it was, therefore, crucial to ensure the development of the survey was successful before distributing it (Saunders et al., 2016). As discussed in §3.3, the validity and reliability were supported by the creation of a data requirement table as well as pilot testing. However, due to the rapid growth and development of communication technology, reliability is likely to decrease rapidly over time as communication behaviour changes (Janning et al., 2018). Reliability was primarily assessed through a comparison of the results with findings in previous research. The chosen survey distribution methods allowed the researchers to be rather detached from the data collection though complete objectivity was not achieved as the researchers subjectively developed the survey.

7. Implications and conclusion

The results of this study give rise to implications for future studies. Future research is needed to explore the underlying reasons for various media preferences and if various forms of cybersex meet different needs of partners in LDRRs. Some of this work will need to attend to detailed descriptions; e.g. interviews to complement the broad, rather general sketch of the current situation that this study presents. Despite a few potentially significant correlations between cybersex preferences, and the various demographic and relationship variables tested, the relatively high number of non-significant results requires further investigations, some including far bigger numbers of respondents than the present study, to assess whether there simply is no correlation or whether the correlation deviates from what is proposed by theories or challenges findings in previous studies.

The question remains of which communication technology factors that are taken into consideration by users when engaging in cybersex with one's partner. This study's findings suggest that richness of medium and synchronicity, although reflected upon by interlocutors, are not the primary factors in deciding how to engage in cybersex. There is a possible difference between the phenomena of general intimacy and the phenomena of sexual intimacy. It may be likely that the two types of intimacy behave differently and therefore, that MRT and MST do not equally accurately predict the media preferences to maintain each one of them respectively. Future research should be of a positivist nature to develop hypotheses to test an existing theory in a defined area of research; i.e. media preferences for sexual intimacy maintenance in LDRRs. Arguably, preferences could be connected to cultural factors such as willingness to talk and express sexual needs and desires in one's community or individual preferences. In terms of cue richness and synchronicity, this contradicts what is proposed by MRT and MST, suggesting that these theories are not applicable to the specific subject of sexual intimacy. This could mean that sexual intimacy is maintained differently than other forms of intimacy and could, therefore, result in need of a separate categorization in academia.

As society grows to be more connected and the Internet makes it possible to fall in love across national borders, communication technology plays a crucial role in an increasing number of relationships. To conclude, the study of media preferences to maintain sexual intimacy among partners in LDRRs is in dire need of future research. The underlying motivations for preferences, as well as opportunities and challenges that particular preferences impose, requires further investigation. These results are not only relevant for academia, but more so given the rapid increase in mobility and the development of communication technology, for relationship consultancies to understand the challenges this implies and for developers of communication technology to understand the needs of their users.

This study investigated media preference choices to engage in cybersex among partners in LDRRs. Contradictory to some of the previous research, the findings showed that the rather asynchronous combination of 'sexting and nudes', through 'instant messenger using an app other than social media' was the most preferred way to engage in cybersex in LDRRs. Moreover, in this study, sexual orientation was the most prevalent factor impacting whether partners in LDRRs choose to engage in cybersex with each other. Meanwhile, various cybersex preferences were influenced by factors such as age, gender, relationship length and time spent geographically separated.

The findings of this study call for further theoretical statements as MRT and MST do not predict media preferences accurately when engaging in cybersex. Given the rapid evolution of communication technology and the development of new patterns of communication, MRT and MST may not be as applicable to the modern forms of digital communication as they once were. The need for further research in the field of media preference choices for engagement in cybersex is a clear and exciting one and should be encouraging for future researchers.

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Appendix 1: Survey

Sexual intimacy between partners in long-distance romantic relationships

Hi there,

We are two students at the University of Gothenburg enrolled in the Master in Communication program at the Department of Applied IT conducting this survey as part of our master thesis research. We are grateful that you´re willing to check it out and we do appreciate your participation.

The aim of our research is to assess the preferences of various communication media by partners in long-distance romantic relationships to engage in cybersex to maintain intimacy. Because we realize that the topic may be sensitive the survey is anonymous given that your responses will not in any way be traceable to your identity. And don´t you worry, as we know your time is precious we will kindly ask for only five minutes of it.

As a respondent, you are able to quit the survey or withdraw your answers at any point in time. You´re welcome to reach us at gusqnomqli@student.gu.se regarding an eventual withdrawal of your submitted answers, any questions or concerns, or if you´re curious about the results.

This survey will primarily be used for the purposes of assessment in the Master of Communication program at the University of Gothenburg, and so primarily made available to staff and students of this program. By taking part in the survey, you give the researchers consent to use and analyze your anonymous answers in this research project.

Thanks a lot!

Cheers,
Anastasia and Linnea

*Obligatorisk

How old are you? *

- ○ 17 years or younger
- ○ 18-24 years old
- ○ 25-30 years old
- ○ 31-35 years old
- ○ 36-40 years old
- ○ 41 years or older

Long-distance romantic relationships

A relationship is considered long distance when the partners involved are geographically separated for at least one month but still have expectations of a continued close connection. Further, the geographical distance makes it difficult or even impossible to see each other in person for that entire time.

At any point in the last three years, have you been in a long-distance romantic relationship? Whether this relationship is present or past (happened within the last three years), please consider this specific relationship for the rest of this survey. If you have had more than one long-distance romantic relationship within this time frame, please consider the most recent one. *

- ○ Yes
- ○ No

What gender do you define yourself as? *

- ○ Female
- ○ Male
- ○ Non-binary
- ○ I´d rather not say
- ○ Övrigt: _____

What is your sexual orientation? *

- ○ Homosexual
- ○ Heterosexual
- ○ Bisexual
- ○ I´d rather not say
- ○ Övrigt: _____

Did you and your partner initially meet each other online or offline, regardless of whether you met as friends or partners initially? *

- ○ Online
- ○ Offline

Have you ever met your partner in person? Either before or after you became romantic partners.

- ○ Yes
- ○ No

How long have you and your partner been in a romantic relationship in total? *

- ○ 1 - 3 months
- ○ 4 - 6 months
- ○ 7 - 11 months
- ○ 1-2 years
- ○ 3-5 years
- ○ 6-10 years
- ○ More than 10 years

Did you and your partner live geographically close to each other for more than 3 months during your relationship? *

- ○ Yes
- ○ No

Consider the last year of your relationship, how much time did you and your partner spend geographically separated? If your relationship has lasted less than a year, please still specify the time spent geographically separated. *

- ○ 1-3 months
- ○ 4-6 months
- ○ 7-9 months
- ○ More than 9 months

During times of geographical separation, do you and your partner know when you will see each other in real-life next? *

- ○ Yes, the amount of time spent geographically separated is always certain
- ○ Yes, but only in less than half of the cases
- ○ Yes, in more than half of the cases
- ○ No, the amount of time spent geographically separated is always uncertain

Cybersex in long-distance romantic relationships

Cybersex is any form of sexual behavior that is communicated through a computer or cellular device. It includes pictures, movies, sounds, text messages, and real-time conversations. In this research, cybersex exclusively refers to sexual behavior communicated through a computer or cellular between romantic partners in long-distance relationships.

Have you and your partner engaged in cybersex during times of geographic separation? *

- ○ Yes
- ○ No

How many times do you and your partner mutually engage in cybersex on a monthly basis while geographically separated? *

- ○ Less than 1 time
- ○ 1-5 times
- ○ 6-10 times
- ○ 11-15 times
- ○ More than 15 times
- ○ Övrigt: _____

How do you prefer to engage in cybersex with your partner? Please only choose 1 option. *

- ○ Video sex (only video calls)
- ○ Phone sex (only voice call)
- ○ Sending or receiving nudes (i.e. images and short videos of yourself or your partner)
- ○ Sexting (sending or receiving sexual text messages)
- ○ Voice messages (only voice messages)
- ○ A combination of two or more of the above (i.e. combining text, nudes, and voice messages)
- ○ Övrigt: _____

Please specify what combination you prefer. *

- ○ Sexting and nudes
- ○ Sexting and voice messages
- ○ Voice messages and nudes
- ○ Övrigt: _____

What is most important to you when engaging in cybersex with your partner? Choose up to 3 alternatives. *

- [ ] I prefer to see nudes of my partner (nudes taken the moment they are sent or previous to that moment)
- [ ] I prefer to send nudes of myself to my partner (nudes taken the moment they are sent or previous to that moment)
- [ ] I prefer to hear my partner´s voice
- [ ] I prefer my partner to hear my voice
- [ ] I prefer to both see and hear my partner simultaneous in real-time
- [ ] I prefer my partner to both see and hear me simultaneous in real-time
- [ ] Övrigt: _____

When you engage in cybersex with your partner, which of the following do you prefer to use? Please rank the following options. 1 is the MOST preferred and 5 is the LEAST preferred option.

	Instant messenger on social media. For example: Facebook messenger, Instagram direct message etc. Including text messaging, short videos, images or video call.	Instant messenger through an app other than social media. For example: Skype, WhatsApp, Telegram etc. Including text messaging, short videos, images or video call.	Snapchat	SMS or text messaging via any app	Regular voice call or Facetime voice call	Facetime video call	Other
1	☐	☐	☐	☐	☐	☐	☐
2	☐	☐	☐	☐	☐	☐	☐
3	☐	☐	☐	☐	☐	☐	☐
4	☐	☐	☐	☐	☐	☐	☐
5	☐	☐	☐	☐	☐	☐	☐

What is most important to you when engaging in cybersex with your partner? Choose up to 3 alternatives. *

- [ ] I prefer to see nudes of my partner (nudes taken the moment they are sent or previous to that moment)
- [ ] I prefer to send nudes of myself to my partner (nudes taken the moment they are sent or previous to that moment)
- [ ] I prefer to hear my partner´s voice
- [ ] I prefer my partner to hear my voice
- [ ] I prefer to both see and hear my partner simultaneous in real-time
- [ ] I prefer my partner to both see and hear me simultaneous in real-time
- [ ] Övrigt: _____

Do you consider how fast you can get an answer when you choose to engage in cybersex with your partner? *

- ○ Yes
- ○ No

Please select all that are relevant. *

- [ ] I prefer an instant response when engaging in cybersex with my partner
- [ ] I prefer to reply instantly when engaging in cybersex with my partner
- [ ] I prefer not to have an instant response (my partner can read, listen to, or watch what I sent at a later point in time)
- [ ] I prefer not to reply instantly (I can read, listen to, or watch what my partner sent at a later point in time)
- [ ] I do not know whether I prefer to reply instantly or not
- [ ] I do not know whether I prefer my partner to reply instantly or not
- [ ] None of the above
- [ ] Övrigt: _____

Have you ever used any phatic technologies when engaging in cybersex with your partner? Phatic technologies recreate physical touch (i.e. a robot recreating the way your partner use to kiss you). *

- ( ) Yes
- ( ) No

Do you agree with any of the following statements at some point in time during the relationship? Please select all that are relevant. *

- [ ] I feel uncomfortable sending nudes/short videos of myself to my partner
- [ ] I feel uncomfortable that my partner can watch me as I engage in cybersex
- [ ] I feel uncomfortable that my partner can hear me as I engage in cybersex
- [ ] I feel uncomfortable that my partner can hear and watch me in real-time as I engage in cybersex
- [ ] I feel uncomfortable sending texts/nudes/short videos/voice messages that my partner may save
- [ ] I am afraid of being a victim of revenge porn
- [ ] I choose not to engage in cybersex with my partner due to other concerns
- [ ] I have concerns regarding cybersex but other than the ones that are listed above
- [ ] I have no concerns regarding cybersex with my partner
- [ ] Övrigt: _____

Appendix 2: Data Requirement Table

Variable	Definition	Theory	Survey question	Motivations
Demographic: Age	To ensure respondents are of legal age to collect data from	Respondent information	How old are you?	To ensure respondents are of legal age to collect data from
Demographic: Relationship status	To ensure respondents are relevant for the study	Respondent information	At any point in the last three years, have you been in a long-distance romantic relationship? Whether this relationship is present or past (happened within the last three years), please consider this specific relationship for the rest of this survey. If you have had more than one long-distance romantic relationship within this time frame, please consider the most recent one.	To ensure respondents are relevant for the study and can support the characterization of people engaging and not engaging in cybersex
Demographic: Gender	Demographic characterization	Respondent information	What gender do you define yourself as?	To characterize differences in preferences based on gender
Demographic: Sexual Orientation	Demographic characterization	Respondent information	What is your sexual orientation?	To characterize differences in preferences based on sexual orientation

Variable	Definition	Theory	Survey question	Motivations
Relationship: Relationship history	Relationship characterization	Respondent information	Did you and your partner initially meet each other online or offline, regardless of whether you met as friends or partners initially?	To characterize differences in preferences based on how the partners initially met
Relationship: Relationship history	Relationship characterization	Respondent information	Have you ever met your partner in person? Either before or after you became romantic partners.	To characterize differences in preferences based on if the partners have ever met in real life
Relationship: Relationship history	Relationship characterization	Respondent information	How long have you and your partner been in a romantic relationship in total?	To characterize differences in preferences based on relationship length
Relationship: Relationship history	Relationship characterization	Respondent information	Did you and your partner live geographically close to each other for more than 3 months during your relationship?	To characterize differences in preferences based on geographic proximity
Relationship: Relationship history	Relationship characterization	Respondent information	Consider the last year of your relationship, how much time did you and your partner spend geographically separated? If your relationship has lasted less than a year, please still specify the time spent geographically separated.	To characterize differences in preferences based on time spent apart last year

Variable	Definition	Theory	Survey question	Motivations
Relationship: Relationship history	Relationship characterization	Respondent information	During times of geographical separation, do you and your partner know when you will see each other in real-life next?	To characterize differences in preferences based on if time of reunion is known
Cybersex: Cybersex	To ensure respondents are relevant for the study	Respondent information	Have you and your partner engaged in cybersex during times of geographic separation?	To ensure the respondents have enough experiences to continue the survey
Cybersex: Frequency	To assess the frequency of cybersex engagement	Respondent information	How many times do you and your partner mutually engage in cybersex on a monthly basis while geographically separated?	To assess preferences and whether it is possibly correlated to any demographic or relationship variable
Cybersex: Media preferences	To assess if MRT and MST can predict media choice for cybersex in LDRR	Media Richness Theory and Media Synchronicity Theory	How do you prefer to engage in cybersex with your partner? Please only choose 1 option.	To assess preferences and whether it can be predicted by MRT and/or MST
Cybersex: Media preferences	To assess if MRT can predict media choice for cybersex in LDRR	Media Richness Theory	Please rank the following options. 1 is most preferred, 5 is the least preferred. When you engage in cybersex with your partner, which platform do you prefer to use?	To assess preferences and whether it can be predicted by MRT

Variable	Definition	Theory	Survey question	Motivations
Cybersex: Media preferences	To assess if MRT can predict media choice for cybersex in LDRR	Media Richness Theory	Please specify what combination you prefer.	To assess preferences and whether it can be predicted by MRT
Cybersex: Media preferences	To assess if MRT and MST can predict media choice for cybersex in LDRR	Media Richness Theory and Media Synchronicity Theory	When you engage in cybersex with your partner, which of the following do you prefer to use? Please rank the following options. 1 is the MOST preferred and 5 is the LEAST preferred option.	To assess preferences and whether it can be predicted by MRT and/or MST
Cybersex: Cue availability	To assess if MRT can predict media choice for cybersex in LDRR	Media Richness Theory	What is most important to you when engaging in cybersex with your partner? Choose up to 3 alternatives.	To assess preferences and whether it can be predicted by MRT
Cybersex: Response rate	To assess if MST can predict media choice for cybersex in LDRR	Media Synchronicity Theory	Do you consider how fast you can get an answer when you choose to engage in cybersex with your partner?	To assess preferences and whether it can be predicted by MST
Cybersex: Response rate preferences	To assess if MST can predict media choice for cybersex in LDRR	Media Synchronicity Theory	Please select all that are relevant.	To assess preferences and whether it can be predicted by MST

Variable	Definition	Theory	Survey question	Motivations
Cybersex: Phatic technologies	To assess if MRT can predict media choice for cybersex in LDRR	Media Richness Theory	Have you ever used any phatic technologies when engaging in cybersex with your partner? Phatic technologies recreate physical touch (i.e. a robot recreating the way your partner use to kiss you).	To assess preferences and whether it can be predicted by MRT
Cybersex: Concerns	To assess potential concerns in relation to media preferences	Respondents information	Do you agree with any of the following statements at some point in time during the relationship? Please select all that are relevant.	To capture negative aspects or concerns regarding cybersex with one's partner in LDRR

Appendix 3: Survey Answers

The data collected can be accessed through the following link:

https://docs.google.com/spreadsheets/d/1REdHN_5GYD_TnWtJZWjjXHtIxNIAIFyCw2xcZQAbyss/edit?usp=sharing

The first sheet ‘Raw Data’ presents the collected survey responses. The answers collected from one unique respondent is presented per row.

The second sheet ‘SPSS Coded Data’ presents the coded answer options. Here, every unique answer option has been coded with a unique number according to the third sheet ‘Codebook’.

In the last sheet ‘MRT and MST Ranking’, the answer options for the variables ‘Medium’ and ‘Combination’ have been merged together, ranked according to MRT and MST respectively and re-coded accordingly.

Appendix 4: Kruskal-Wallis Tests

MRT Ranking	
Variable	**Sig. Level (*p* value)**
Age	0,942
Gender	0,242
Sexual Orientation	0,868
Initial Meeting	0,996
Real-life Meeting	0,970
Relationship Length	0,384
Geographic Proximity	0,605
Geographic Separation	0,574
Reunion	0,487

MST Ranking	
Variable	**Sig. Level (*p* value)**
Age	0,935
Gender	0,261
Sexual Orientation	0,552
Initial Meeting	0,660
Real-life Meeting	0,911
Relationship Length	0,498
Geographic Proximity	0,852
Geographic Separation	0,596
Reunion	0,610

Appendix 5: Spearman Correlation Test Cybersex Engagement

Cybersex		
Variable	**Sig. Level (*p* value)**	**Spearman's Rho**
Age	0,938	-0,005
Gender	0,607	0,033
Sexual Orientation	0,019	-0,151
Initial Meeting	0,200	0,083
Real-life Meeting	0,539	-0,064
Relationship Length	0,426	0,052
Geographic Proximity	0,222	-0,079
Geographic Separation	0,158	-0,091
Reunion	0,808	0,016

Appendix 6: Spearman Correlation Test Frequency

Frequency		
Variable	**Sig. Level (*p* value)**	**Spearman's Rho**
Age	0,910	0,009
Gender	0,574	-0,045
Sexual Orientation	0,695	0,031
Initial Meeting	0,399	-0,067
Real-life Meeting	0,658	-0,055
Relationship Length	0,065	-0,145
Geographic Proximity	0,030	0,171
Geographic Separation	0,926	-0,007
Reunion	0,812	0,019

Appendix 7: Spearman Correlation Test Response Rate

Response Rate		
Variable	**Sig. Level (*p* value)**	**Spearman's Rho**
Age	0,253	0,090
Gender	0,965	0,003
Sexual Orientation	0,341	0,075
Initial Meeting	0,615	-0,040
Real-life Meeting	0,203	-0,156
Relationship Length	0,641	0,037
Geographic Proximity	0,589	0,043
Geographic Separation	0,645	0,037
Reunion	0,902	0,010
MRT Ranking	0,442	0,061
MST Ranking	0,693	-0,031

Appendix 8: Spearman Correlation Test Phatic Technologies

Phatic Technologies		
Variable	**Sig. Level (*p* value)**	**Spearman's Rho**
Age	0,944	0,006
Gender	0,056	-0,151
Sexual Orientation	0,507	0,053
Initial Meeting	0,399	0,067
Real-life Meeting	0,520	0,079
Relationship Length	0,699	0,031
Geographic Proximity	0,727	0,028
Geographic Separation	0,946	-0,005
Reunion	0,563	-0,046

Appendix 9: Post-hoc Descriptive Crosstab Tests on Multiple Answer Questions

Response Rate Preferences and Age Crosstabulation								
			Age					Total
			18-24 years old	25-30 years old	31-35 years old	36-40 years old	41 or older	
Response Rate Preferences	Prefer recieving instant response	Count	41	59	14	6	2	122
		% within Age	69,5%	80,8%	77,8%	75,0%	50,0%	
	Prefer replying instantly	Count	30	49	14	5	0	98
		% within Age	50,8%	67,1%	77,8%	62,5%	0,0%	
	Prefer not to receive an instant reply	Count	8	5	2	0	1	16
		% within Age	13,6%	6,8%	11,1%	0,0%	25,0%	
	Prefer not to reply instantly	Count	3	7	0	0	0	10
		% within Age	5,1%	9,6%	0,0%	0,0%	0,0%	
	Do not know whether I prefer to reply instantly or not	Count	9	11	1	0	1	22
		% within Age	15,3%	15,1%	5,6%	0,0%	25,0%	
	Do not know whether I prefer my partner to reply instantly or not	Count	6	8	1	0	0	15
		% within Age	10,2%	11,0%	5,6%	0,0%	0,0%	
	None of the above	Count	1	0	0	0	0	1
		% within Age	1,7%	0,0%	0,0%	0,0%	0,0%	
	Other	Count	2	1	0	1	0	4
		% within Age	3,4%	1,4%	0,0%	12,5%	0,0%	
Total		Count	59	73	18	8	4	162

Concerns and Gender Crosstabulation							
			Gender				Total
			Female	Male	I´d rather not say	Other	
Concerns	Uncomfortable sending nudes/short videos of myself	Count	18	10	1	0	29
		% within Gender	15,7%	23,8%	25,0%	0,0%	
	Uncomfortable that my partner can watch me as I engage in cybersex	Count	12	1	1	0	14
		% within Gender	10,4%	2,4%	25,0%	0,0%	
	Uncomfortable that my partner can hear me as I engage in cybersex	Count	10	2	0	0	12
		% within Gender	8,7%	4,8%	0,0%	0,0%	
	Uncomfortable that my partner can hear and watch me in real-time as I engage in cybersex	Count	16	3	0	0	19
		% within Gender	13,9%	7,1%	0,0%	0,0%	
	Uncomfortable sending texts/nudes/ short videos/voice messages that my partner may save	Count	18	3	1	0	22
		% within Gender	15,7%	7,1%	25,0%	0,0%	
	I am afraid of being a victim of revenge porn	Count	31	8	1	0	40
		% within Gender	27,0%	19,0%	25,0%	0,0%	
	I choose not to engage in cybersex with my partner due to other concerns	Count	4	2	0	0	6
		% within Gender	3,5%	4,8%	0,0%	0,0%	
	I have concerns regarding cybersex but other than the ones listed above	Count	16	4	2	0	22
		% within Gender	13,9%	9,5%	50,0%	0,0%	
	I have no concerns regarding cybersex with my partner	Count	56	25	1	1	83
		% within Gender	48,7%	59,5%	25,0%	100,0%	
	Other	Count	8	1	0	0	9
		% within Gender	7,0%	2,4%	0,0%	0,0%	
Total		Count	115	42	4	1	162

Concerns and Relationship Length Crosstabulation										
			Relationship Length							Total
			1-3 months	4-6 months	7-11 months	1-2 years	3-5 years	6-10 years	More than 10 years	
Concerns	Uncomfortable sending nudes/short videos of myself	Count	0	6	4	10	7	1	1	29
		% within Relationship Length	0,0%	28,6%	23,5%	19,2%	15,6%	7,1%	16,7%	
	Uncomfortable that my partner can watch me as I engage in cybersex	Count	1	2	2	4	3	2	0	14
		% within Relationship Length	14,3%	9,5%	11,8%	7,7%	6,7%	14,3%	0,0%	
	Uncomfortable that my partner can hear me as I engage in cybersex	Count	3	0	1	5	1	2	0	12
		% within Relationship Length	42,9%	0,0%	5,9%	9,6%	2,2%	14,3%	0,0%	
	Uncomfortable that my partner can hear and watch me in real-time as I engage in cybersex	Count	3	2	1	9	3	1	0	19
		% within Relationship Length	42,9%	9,5%	5,9%	17,3%	6,7%	7,1%	0,0%	
	Uncomfortable sending texts/nudes/ short videos/voice messages that my partner may save	Count	0	2	3	10	6	0	1	22
		% within Relationship Length	0,0%	9,5%	17,6%	19,2%	13,3%	0,0%	16,7%	
	I am afraid of being a victim of revenge porn	Count	3	4	6	16	8	2	1	40
		% within Relationship Length	42,9%	19,0%	35,3%	30,8%	17,8%	14,3%	16,7%	
	I choose not to engage in cybersex with my partner due to other concerns	Count	0	3	2	1	0	0	0	6
		% within Relationship Length	0,0%	14,3%	11,8%	1,9%	0,0%	0,0%	0,0%	
	I have concerns regarding cybersex but other than the ones listed above	Count	1	3	1	7	4	4	2	22
		% within Relationship Length	14,3%	14,3%	5,9%	13,5%	8,9%	28,6%	33,3%	
	I have no concerns regarding cybersex with my partner	Count	2	8	8	25	29	7	4	83
		% within Relationship Length	28,6%	38,1%	47,1%	48,1%	64,4%	50,0%	66,7%	
	Other	Count	0	0	1	4	1	2	1	9
		% within Relationship Length	0,0%	0,0%	5,9%	7,7%	2,2%	14,3%	16,7%	
Total		Count	7	21	17	52	45	14	6	162

Concerns and Geographic Separation Crosstabulation							
			GS				Total
			1-3 months	4-6 months	7-9 months	More than 9 months	
Concerns	Uncomfortable sending nudes/short videos of myself	Count	8	7	4	10	29
		% within Geographic Separation	18,2%	14,6%	10,5%	31,3%	
	Uncomfortable that my partner can watch me as I engage in cybersex	Count	3	3	4	4	14
		% within Geographic Separation	6,8%	6,3%	10,5%	12,5%	
	Uncomfortable that my partner can hear me as I engage in cybersex	Count	5	3	3	1	12
		% within Geographic Separation	11,4%	6,3%	7,9%	3,1%	
	Uncomfortable that my partner can hear and watch me in real-time as I engage in cybersex	Count	6	5	5	3	19
		% within Geographic Separation	13,6%	10,4%	13,2%	9,4%	
	Uncomfortable sending texts/nudes/ short videos/voice messages that my partner may save	Count	6	3	8	5	22
		% within Geographic Separation	13,6%	6,3%	21,1%	15,6%	
	I am afraid of being a victim of revenge porn	Count	9	12	8	11	40
		% within Geographic Separation	20,5%	25,0%	21,1%	34,4%	
	I choose not to engage in cybersex with my partner due to other concerns	Count	0	3	2	1	6
		% within Geographic Separation	0,0%	6,3%	5,3%	3,1%	
	I have concerns regarding cybersex but other than the ones listed above	Count	1	9	4	8	22
		% within Geographic Separation	2,3%	18,8%	10,5%	25,0%	
	I have no concerns regarding cybersex with my partner	Count	22	26	23	12	83
		% within Geographic Separation	50,0%	54,2%	60,5%	37,5%	
	Other	Count	1	3	1	4	9
		% within Geographic Separation	2,3%	6,3%	2,6%	12,5%	
Total		Count	44	48	38	32	162

Concerns and Reunion Crosstabulation							
			Reunion				Total
			Always known	Known in less than half of the cases	Known in more than half of the cases	Never known	
Concerns	Uncomfortable sending nudes/short videos of myself	Count	12	4	5	8	29
		% within Reunion	17,4%	14,3%	15,2%	25,0%	
	Uncomfortable that my partner can watch me as I engage in cybersex	Count	3	4	3	4	14
		% within Reunion	4,3%	14,3%	9,1%	12,5%	
	Uncomfortable that my partner can hear me as I engage in cybersex	Count	4	5	0	3	12
		% within Reunion	5,8%	17,9%	0,0%	9,4%	
	Uncomfortable that my partner can hear and watch me in real-time as I engage in cybersex	Count	4	7	3	5	19
		% within Reunion	5,8%	25,0%	9,1%	15,6%	
	Uncomfortable sending texts/nudes/ short videos/voice messages that my partner may save	Count	6	4	9	3	22
		% within Reunion	8,7%	14,3%	27,3%	9,4%	
	I am afraid of being a victim of revenge porn	Count	10	10	12	8	40
		% within Reunion	14,5%	35,7%	36,4%	25,0%	
	I choose not to engage in cybersex with my partner due to other concerns	Count	2	2	0	2	6
		% within Reunion	2,9%	7,1%	0,0%	6,3%	
	I have concerns regarding cybersex but other than the ones listed above	Count	7	4	5	6	22
		% within Reunion	10,1%	14,3%	15,2%	18,8%	
	I have no concerns regarding cybersex with my partner	Count	44	13	14	12	83
		% within Reunion	63,8%	46,4%	42,4%	37,5%	
	Other	Count	3	1	3	2	9
		% within Reunion	4,3%	3,6%	9,1%	6,3%	
Total		Count	69	28	33	32	162

Preferred Cues and Gender Crosstabulation							
			Gender				Total
			Female	Male	I´d rather not say	Other	
Preferred Cues	Prefer to recieve nudes	Count	48	27	3	1	79
		% within Gender	41,7%	64,3%	75,0%	100,0%	
	Prefer to send nudes	Count	62	12	1	1	76
		% within Gender	53,9%	28,6%	25,0%	100,0%	
	Prefer to listen to partner	Count	46	12	1	0	59
		% within Gender	40,0%	28,6%	25,0%	0,0%	
	Prefer partner to listen	Count	10	2	0	0	12
		% within Gender	8,7%	4,8%	0,0%	0,0%	
	Prefer to listen and watch partner	Count	42	23	0	0	65
		% within Gender	36,5%	54,8%	0,0%	0,0%	
	Prefer partner to listen and watch	Count	23	6	0	0	29
		% within Gender	20,0%	14,3%	0,0%	0,0%	
	Other	Count	3	2	0	0	5
		% within Gender	2,6%	4,8%	0,0%	0,0%	
Total		Count	115	42	4	1	162

Preferred Cues and Geographic Separation Crosstabulation							
			Geographic Separation				Total
			1-3 months	4-6 months	7-9 months	More than 9 months	
Preferred Cues	Prefer to recieve nudes	Count	26	20	19	14	79
		% within Geographic Separation	59,1%	41,7%	50,0%	43,8%	
	Prefer to send nudes	Count	23	21	17	15	76
		% within Geographic Separation	52,3%	43,8%	44,7%	46,9%	
	Prefer to listen to partner	Count	17	17	14	11	59
		% within Geographic Separation	38,6%	35,4%	36,8%	34,4%	
	Prefer partner to listen	Count	3	6	2	1	12
		% within Geographic Separation	6,8%	12,5%	5,3%	3,1%	
	Prefer to listen and watch partner	Count	9	20	22	14	65
		% within Geographic Separation	20,5%	41,7%	57,9%	43,8%	
	Prefer partner to listen and watch	Count	4	10	7	8	29
		% within Geographic Separation	9,1%	20,8%	18,4%	25,0%	
	Other	Count	3	0	1	1	5
		% within Geographic Separation	6,8%	0,0%	2,6%	3,1%	
Total		Count	44	48	38	32	162

Division of work

Abstract
1. First draft: Anastasia
2. First edit: Linnea
3. Final edit: Anastasia

Introduction
1. First draft: Anastasia
2. First edit: Linnea
3. Second edit: Anastasia
4. Final edit: Linnea

Literature Review
1. First draft: Linnea and Anastasia
2. First edit: Linnea
3. Second edit: Anastasia
4. Final edit: Anastasia

Methodology
1. First draft: Linnea
2. First edit: Anastasia
3. Final edit: Linnea

Results
1. First draft: Linnea
2. First edit: Anastasia
3. Second edit: Linnea and Anastasia
4. Final edit: Linnea

Discussion
1. First draft: Anastasia
2. First edit: Linnea
3. Second edit: Anastasia
4. Final edit: Linnea

Limitations
1. First draft: Linnea
2. First edit: Anastasia
3. Final edit: Linnea

Implications and Conclusion
1. First draft: Anastasia
2. First edit: Linnea
3. Final edit: Anastasia