More Than Disclosure: Examining the Impact of the Process of Sexual Communication on Intimate Relationships Over Time

by

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Author's Declaration

This thesis consists of material all of which I authored or co-authored: see *Statement of Contributions* included in the thesis. This is a true copy of the thesis, including any required final revisions, as accepted by my examiners.

I understand that my thesis may be made electronically available to the public.

Statement of Contributions

Kendra Wasson was the sole author for the General Introduction, Study 2, and the General Discussion, which were written under the supervision of Dr. Uzma Rehman and were not written for publication.

This thesis consists in part of one manuscript written for publication. Exceptions to sole authorship of material are as follows:

Research presented in Study 1:

This research was conducted at the University of Waterloo by Kendra Wasson under the supervision of Dr. Uzma Rehman. Kendra Wasson developed the research questions, hypotheses, and measures with the support of Dr. Uzma Rehman. Kendra Wasson was responsible for data collection, creating the data analytic plan, and drafting the full manuscript, which was co-authored by Dr. Uzma Rehman. Dr. Beáta Bőthe provided guidance and reviewed the data analyses, which Kendra Wasson completed solely. All co-authors contributed feedback and revisions to the final versions of the measures and the manuscript.

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Abstract

Sexual communication is a critical interpersonal process that contributes to sexual health and wellbeing within intimate relationships (Byers & Demmons, 1999; Rancourt et al., 2016; Rehman et al., 2011). Despite its recognized importance, understanding of sexual communication remains constrained by conceptual and measurement limitations, particularly regarding how it develops and changes over time. Building on this literature, this program of research developed and validated multidimensional measures of sexual communication and examined factors associated with sexual communication and sexual wellbeing across a six-month period. In Study 1, I developed and validated two questionnaires: the Multidimensional Sexual Communication Questionnaire-Sexual Preferences (MSC-SP) and the Multidimensional Sexual Communication Questionnaire-Safer Sex (MSC-SS), which assess perceived consequences and depth of disclosure across distinct sexual content domains. Findings supported a multidimensional conceptualization of sexual communication, demonstrated strong psychometric properties in two independent samples, and established measurement invariance across diverse genders, sexualities, ages, and racial groups. In Study 2, I tested key pathways of the Process Model of Sexual Communication (PMSC) across a six-month prospective longitudinal study of individuals in romantic relationships, examining how individual (avoidant attachment) and relational (perceived partner responsiveness) factors shape sexual communication and sexual wellbeing. Longitudinal models identified between-person differences in sexual communication processes but provided insufficient evidence to draw firm conclusions about within-person change. Exploratory cross-sectional analyses showed that, after accounting for the cognitive and motivational variables included in the PMSC, disclosure depth retained a unique association with perceived partner understanding, whereas its association with sexual wellbeing was statistically

accounted for by variance shared with these variables. Together, these findings advance a multidimensional understanding of sexual communication and provide validated and inclusive tools for its assessment. This work provides a foundation for further testing and refining the PMSC to clarify how individual factors and broader relationship dynamics shape sexual communication over time and how these processes jointly contribute to sexual and relational wellbeing.

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I leave this chapter deeply grateful for all it gave me, for everyone who helped me reach its end, and for the person I became along the way. I will carry it all with me into opportunities and experiences that lie ahead.

AI Disclosure Statement

Artificial Intelligence Tool: ChatGPT, versions GPT-4, GPT-4o, GPT-4.1, GPT-5.1, GPT 5.3, and GPT 5.5 (OpenAI) used; *Programming Assistance:* Used to assist with writing and troubleshooting R code for statistical analyses; *Formatting:* Used to assist with formatting references and tables; *Figure Creation:* Used to assist in creating Figure 7; *Writing - Review & Editing*: ChatGPT was used to proofread sections for consistency and continuity following revisions. Grammarly was used for grammar, spelling, and proofreading throughout the dissertation. Artificial intelligence was not used to generate original scholarly arguments, interpretations, or substantive thesis content.

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Land Acknowledgement

I am deeply grateful to have lived, studied, and conducted this research as a visitor on the traditional territory of the Neutral, Anishinaabeg, and Haudenosaunee Peoples. The University of Waterloo is situated on the Haldimand Tract, land granted to the Six Nations extending six miles on either side of the Grand River. I hold immense gratitude for my time on these beautiful lands alongside sorrow for the historic and ongoing impacts of colonization.

I came to Waterloo from Saint John, New Brunswick, the unceded and unsurrendered territory of the Wəlastəkwiyik (Wolastoqey, Maliseet), the people of the bountiful river. I feel honoured to come to know another region shaped by a great river. Throughout this work, I have reflected on my Indigenous ancestors and the ways they observed, questioned, learned, taught, and shared knowledge. I have sought to carry that legacy with me by approaching my research with intention, thoughtfulness, and care, mindful of my relationships with the places and people that have made it possible. I also recognize my settler ancestry and the responsibilities I carry in relation to the ongoing impacts of colonization.

This acknowledgement is also a reminder to look beyond the work itself: to recognize whose lands sustain our lives and learning, to honour the knowledge that has always existed here, and to consider the responsibilities we carry in the places we visit, inhabit, and call home.

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General Introduction

Successful and fulfilling intimate relationships are an integral part of overall wellbeing and life satisfaction in adulthood (e.g., Schmiedeberg et al., 2017), and their success and meaning are determined by many factors, including sexual communication within the relationship (Byers & Demmons, 1999; Rehman et al., 2011). When individuals can communicate openly with their partner about their sexual relationship, including their own sexual preferences, they express more sexual and relationship satisfaction (Jones et al., 2018; Rehman et al., 2013). Communicating about sexual topics is related to greater sexual satisfaction in long-term relationships, even above and beyond the effects of nonsexual disclosure (MacNeil & Byers, 2009; Mark & Jozkowski, 2013; Rehman et al., 2013), which has notable implications for relationship functioning given that sexual satisfaction is among the strongest longitudinal predictors of relationship quality (Joel et al., 2020).

Achieving mutually satisfying sexual experiences requires partners to communicate about whether, when, and how sexual activity will occur, allowing them to negotiate needs, preferences, and boundaries while developing mutually pleasurable sexual repertoires that can adapt to changing circumstances over time (Coffelt & Hess, 2014; MacNeil & Byers, 2009). Beyond facilitating the exchange of information, open communication about sexual topics can foster intimacy and strengthen relationship satisfaction by promoting feelings of understanding, connection, and responsiveness between partners (Byers, 2005; Cupach & Comstock, 1990; Mallory, 2022). Sexual communication may also support couples in adapting their sexual relationship over time by enabling exploration of new sexual experiences and collaboratively addressing emerging concerns or challenges (Kohut et al., 2023; Merwin et al., 2017; Raposo et al., 2020; Rehman et al., 2011). When communication about sexual topics is limited or ineffective, partners may have an incomplete understanding of each other's needs and

experiences, which can contribute to dissatisfaction and relational strain (Fallis et al., 2016; MacNeil & Byers, 2009). Difficulties with sexual communication can have meaningful implications for both sexual and relationship functioning. Deficits in sexual communication have also been linked to poorer sexual functioning across multiple domains, including lower sexual desire, sexual pain, orgasm-related concerns, and broader sexual dissatisfaction (Amidu et al., 2010; Kelly et al., 2004; Mallory et al., 2019; Mark & Lasslo, 2018; Smith & Pukall, 2014). Although sexual communication is only one factor contributing to sexual and relational wellbeing, it appears to play a pivotal role in how couples navigate sexual concerns and maintain satisfying intimate relationships over time (Coffelt & Hess, 2014; Jones et al., 2018; Knowles & Hammond, 2026; Rehman et al., 2013).

Despite its importance to intimate relationships, the extant literature has lacked conceptual clarity regarding sexual communication. The literature variably refers to this process as sexual communication or sexual self-disclosure, with substantial conceptual overlap between the two. Throughout this program of research, I use sexual communication as a broader umbrella term, while drawing on and integrating empirical work from all bodies of literature that examine the discussion of sexual topics. Early reviews of sexuality research identified multiple dimensions of communication within couples' sexual relationships, including the frequency with which partners discussed sexual topics, the quality or effectiveness of those discussions, and the extent to which individuals disclosed personal sexual information to one another (Metts & Cupach, 1989). Although these dimensions were all described as aspects of sexual communication, they reflect conceptually distinct processes and the amount and frequency of disclosure have received the most attention in the literature (Knowles & Hammond, 2026; Mallory et al., 2019; Mallory, 2022). Consequently, many researchers have conceptualized and

operationalized sexual communication differently, leading to inconsistency in how the construct is measured across studies. As a result, measures that ostensibly assess the same construct often contain substantially different item content despite being described using the same terminology (Mallory et al., 2019).

The primary aim of this dissertation is to advance the understanding of sexual communication as a multidimensional process and how it unfolds within intimate relationships. By clarifying the precursors, components, and outcomes of sexual communication within the broader individual and relational context, this work seeks to provide both researchers and clinicians with a more nuanced and comprehensive framework for studying and addressing sexual communication. This includes creating and validating measures with greater specificity for measuring multiple components of sexual communication simultaneously, which will facilitate a deeper understanding of the intricate ways in which sexual communication influences and is influenced by the broader relational context. Additionally, this dissertation aims to explore how sexual communication relates to individual and relationship factors, contributing to the broader understanding of intimate relational dynamics. In the following sections, I will outline the theoretical framework guiding my work, including the foundational work from my master's thesis. I will begin by outlining relevant theories related to concerns and proposed research regarding the conceptualization and measurement of sexual communication. Then, I will describe how these components of sexual communication relate more broadly to individual and relational constructs with a proposed model.

Relevant Theories

The present program of research is guided primarily by three theoretical orientations: the Interpersonal Exchange Model of Sexual Satisfaction (IEMSS; Byers & MacNeil, 2006;

Lawrance & Byers, 1995; MacNeil & Byers, 2005, 2009) alongside a two-pathway approach to understanding sexual communication and the Sexual Script Theory (SST; Simon & Gagnon, 1986). The IEMSS is one of the most extensively supported theories of sexual satisfaction and proposes that sexual satisfaction is determined by individuals' evaluations of the balance of sexual rewards and costs within their relationship, the extent to which this balance meets their own expectations, perceptions of equity between partners regarding the balance of sexual rewards and costs, and satisfaction with the broader, nonsexual aspects of the relationship (MacNeil & Byers, 2005, 2009). From this perspective, sexual satisfaction is not determined by isolated sexual encounters but rather by the accumulation of sexual and relational experiences over time.

Although the IEMSS identifies the factors that contribute to sexual satisfaction, it does not specify the interpersonal processes through which partners come to establish rewarding sexual experiences, negotiate costs, align expectations, or maintain perceptions of equity (MacNeil & Byers, 2009). Interpersonal theories of sexual communication have attempted to address this gap. The earliest influential work in this area was conceptualized by Metts and Cupach (1989, 1991, 1996), which integrated Luft's (1969) Johari Window framework, sexual communication has been conceptualized as a mechanism through which partners reduce uncertainty and develop mutual knowledge regarding each other's desires, preferences, boundaries, and expectations. Greater sexual knowledge is thought to facilitate more responsive and mutually satisfying sexual interactions, thereby contributing to sexual and relationship satisfaction. MacNeil and Byers (2005) further clarified these ideas by formally conceptualizing two pathways through which sexual communication may influence sexual satisfaction. Although these mechanisms were reflected in the earlier work of Metts and Cupach (1991), MacNeil and

Byers explicitly distinguished between communication that improves partners' understanding of one another and communication that enhances the quality of the relationship itself. First, the instrumental pathway emphasizes the informational function of sexual communication, proposing that discussing sexual preferences, desires, boundaries, concerns, and needs increases partners' knowledge and understanding of one another. This enhanced understanding allows couples to adapt and coordinate their sexual interactions more effectively, navigate differences in preferences or expectations, and respond more accurately to one another's needs. As a result, communication increases the likelihood of rewarding sexual experiences while reducing misunderstandings, unmet needs, and other interpersonal costs, ultimately contributing to greater sexual satisfaction. Second, the expressive pathway suggests that communicating about sexual topics fosters emotional intimacy, trust, closeness, and feelings of connection, which in turn support relationship and sexual wellbeing.

The SST provides a complementary framework for understanding why sexual communication may be necessary, as well as why it is often challenging. Initially developed by Simon and Gagnon (1986), SST proposes that individuals learn how to understand and express sexuality through broader cultural influences, interpersonal experiences, and internalized beliefs. Because partners often enter relationships with different expectations about sexuality, they may not share the same assumptions regarding sexual behaviour, preferences, or relationship norms. Communication therefore serves as a mechanism through which these understandings can be negotiated and reshaped, allowing partners to develop shared meanings around sexuality within their relationship. However, because sexual topics are often intertwined with individuals' identities and perceptions of relational compatibility, discussing them can involve considerable vulnerability and interpersonal risk.

Despite providing important frameworks for understanding sexual satisfaction and sexual communication, these theories leave several questions unanswered. The IEMSS primarily focuses on interpersonal and relational determinants of sexual satisfaction, emphasizing the balance of sexual rewards and costs, expectations, equity, and relationship satisfaction (MacNeil & Byers, 2009). Although the model acknowledges that individuals differ in what they perceive as rewarding or costly, it does not explicitly account for the psychological characteristics that shape these perceptions. As noted in later work by one of the developers of the IEMSS, individual characteristics such as attachment style, cognitions, motivations, affective tendencies, and body image likely shape how people interpret sexual experiences, whether those experiences are perceived as rewarding or costly, and how they compare them to their expectations (Byers & Rehman, 2013). However, these factors remain largely external to the model itself. Similarly, theories emphasizing the instrumental and expressive functions of sexual communication describe why communication is beneficial for relationships and sexuality but provide less insight into why some individuals engage in sexual communication more readily than others. These perspectives explain how communication may facilitate sexual satisfaction through increased understanding, intimacy, and responsiveness, yet they offer limited guidance regarding the cognitive and interpersonal processes that precede communication. As a result, they do not fully explain how individual differences shape willingness to communicate, what influences the depth and quality of disclosure, or why communication is perceived as beneficial in some contexts by some individuals but threatening in others.

Relatedly, existing theories provide only a partial account of the mechanisms linking communication to sexual outcomes. Although communication has been associated with greater relationship satisfaction, sexual rewards, intimacy, and sexual satisfaction, the processes through

which these effects occur remain incompletely understood (Mallory et al., 2019). Byers and Rehman (2013) also specifically identified the need to investigate cognitive mechanisms, including expectations regarding how sexual interactions will unfold, anticipated partner responses, and interpretations of partners' sexual behaviour, as well as dyadic interaction processes through which couples negotiate differences in desires, preferences, and sexual scripts. These calls are echoed more broadly in sexual communication research, where communication is often conceptualized as a relatively global construct despite likely involving multiple cognitive, emotional, behavioural, and interpersonal processes (Mallory et al., 2019; Mallory, 2022).

Importantly, the content of sexual communication extends beyond discussions of specific sexual behaviours. Research on sexual self-disclosure suggests that partners communicate about a broad range of sexual topics, including sexual attitudes and values, sexual difficulties, sexual history, sexual preferences, and solo sexual behaviours (Knowles & Hammond, 2026). These topics differ in their stability across time, with some reflecting relatively enduring aspects of individuals' sexual selves (e.g., sexual functioning and frequency of sexual activity; Hensel & Fortenberry, 2014; Lindau & Gavrilova, 2010) and others being more responsive to relationship circumstances and social contexts (e.g., sexual preferences). From the perspective of SST (Simon & Gagnon, 1986) and the instrumental pathway (MacNeil & Byers, 2009), communication about these diverse domains allows partners to disclose, negotiate, and revise their understandings of sexuality, facilitating the development of shared sexual scripts that can adapt to changing relational and individual needs over time.

Sexual and Nonsexual Communication

Sexual and nonsexual communication share many core interpersonal features and are both strongly associated with relationship and sexual satisfaction (Byers & Demmons, 1999).

Both can occur verbally or nonverbally across a variety of relational contexts and involve self-disclosure of thoughts, feelings, and needs to one another (Babin, 2013; Derlega et al., 2008). These processes are influenced by both individual and relational factors, including communication skills, attachment-related tendencies, and broader relationship dynamics (Givertz & Safford, 2011; Mark & Jozkowski, 2013; McNeil et al., 2018). Similar to nonsexual disclosure, sexual communication is a multidimensional interpersonal process through which partners exchange personal information and negotiate intimacy within the context of their relationship (Brown & Weigel, 2018; Derlega et al., 2008). More broadly, communication requires vulnerability, interpersonal coordination, and the capacity to navigate uncertainty, as others' responses and reactions are outside one's control (De Freitas et al., 2019), which can lead to barriers in communicating about more vulnerable topics based on perceived threat to self, the relationship, and the person with whom the person is speaking (e.g., Rehman et al., 2019). Despite these similarities, communicating about sexual topics also involves distinct challenges that differentiate it from nonsexual communication, particularly as sexual communication is often experienced as more vulnerable and threatening to one's sense of self because sexual preferences, concerns, and experiences are closely tied to identity and relational compatibility (Rehman et al., 2017, 2019). These unique emotional and interpersonal complexities highlight the importance of examining sexual communication as a distinct relational process rather than assuming it functions identically to other forms of interpersonal communication.

Barriers to Effective Sexual Communication

Although researchers, clinicians, and individuals generally recognize sexual communication as an important component of healthy and satisfying intimate relationships, many sexual topics remain difficult to discuss within romantic partnerships (Byers, 2011; Metts

& Spitzberg, 1996; Rehman et al., 2019), including sexual history (Anderson et al., 2011; Lucchetti, 1999), sexual difficulties (Kelly et al., 2004, 2006), and sexual preferences (MacNeil & Byers, 2009). Existing theoretical perspectives suggest that these conversations involve an inherent tension between the desire to share important information with a partner and the desire to protect oneself from potential interpersonal risks. Individuals may want their thoughts, experiences, and needs to be understood by their partners while also worrying about the possible consequences of disclosure for themselves, their partner, or the relationship. This perspective aligns with the notion of anticipated rewards and costs captured in the IEMSS, with communication being more likely when expected benefits outweigh perceived risks (MacNeil & Byers, 2005). More recently, this tension has been conceptualized as a simultaneous desire for connection and understanding while maintaining appropriate boundaries of privacy (Knowles & Hammond, 2026). More broadly, and consistent with clinical literature, these competing motivations may reflect efforts to preserve individual and relational safety while managing the vulnerability inherent in sexual disclosure (Rehman et al., 2019).

The heightened vulnerability associated with sexual communication may stem from the fact that sexual topics are closely tied to individuals' identities and perceptions of relational compatibility, making actual or anticipated rejection during these conversations particularly personal and potentially threatening (Rehman et al., 2019). These concerns may include fears of emotional rejection, harming one's partner, creating conflict, or disrupting the perceived stability of the relationship (Anderson et al., 2011; Cupach & Metts, 1991; Metts & Cupach, 1989). Individuals may also fear that discussing sexual concerns or preferences will reveal incompatibilities that threaten relationship stability (Afifi & Guerrero, 2000), particularly within monogamous relationship structures where unmet sexual needs may feel especially consequential

(Moors et al., 2023). Consequently, sexual communication can evoke strong emotional experiences such as shame, embarrassment, guilt, or fears of inadequacy, and individuals may anticipate negative relational outcomes such as disagreement or breaches of trust (Anderson et al., 2011; Rehman et al., 2017, 2019).

Consistent with these concerns, individuals report greater anxiety and more cautious communication patterns when discussing sexual topics compared to nonsexual relationship issues (Rehman et al., 2017). Rehman and colleagues (2019) further conceptualized barriers to sexual conflict communication as threats to the self, partner, or relationship, finding that threats to the self appeared especially heightened during sexual discussions relative to nonsexual conversations. Additional evidence suggests that relational concerns may also play an important role in shaping sexual communication. For example, a recent meta-analysis found that anticipated threats to the partner (e.g., making a partner feel guilty or inadequate) and threats to the relationship (e.g., creating conflict or revealing incompatibilities) were associated with lower levels of sexual self-disclosure (Knowles & Hammond, 2026). However, comparatively little research has examined how different forms of perceived threat influence sexual communication, and additional work is needed to clarify the relative contributions of self-, partner-, and relationship-focused concerns. Previous research also suggests that "taboo" sexual topics, defined as sexual interests, behaviours, or fantasies perceived as abnormal, immoral, or inappropriate according to cultural, religious, and social norms (Anderson et al., 2011), may be especially difficult to discuss with a partner. The stigma surrounding these topics can heighten perceived risks to both the self and the relationship, increasing hesitation around disclosure, although what is considered "taboo" varies across individuals and contexts (Anderson et al., 2011). Collectively, these barriers suggest that engaging in sexual communication involves

navigating multiple cognitive, emotional, and relational considerations, underscoring the importance of conceptualizing sexual communication as a multidimensional process.

Conceptualizing Sexual Communication as a Multidimensional Construct

I propose that sexual communication should be conceptualized and assessed as a multidimensional construct, rather than a unidimensional one. Most research on sexual communication has traditionally employed a unidimensional approach, often focusing on constructs such as barriers to or frequency of communication (Mallory et al., 2019); however, this perspective overlooks the inherent complexity of communicative processes. Specifically, approaches that focus on isolated aspects such as frequency or perceived barriers fail to capture the nuanced interplay between what is discussed (e.g., sexual preferences, safer sex practices, sexual consent) and how it is discussed (e.g., depth of disclosure, perceived consequences). Although there are existing validated measures assessing both how sexual communication occurs (e.g., verbal versus nonverbal communication; Santos-Iglesias & Byers, 2020) and specific content domains of sexual communication (e.g., sexual self-disclosure; Snell et al., 1989; sexual assertiveness; Nagy et al., 2025; sexual consent; Humphreys & Brousseau, 2010), these dimensions are often examined in isolation. As a result, there is limited understanding of how communication processes and content domains interact within sexual communication more broadly.

Taken together and consistent with extant support for the multidimensional nature of sexual communication (e.g., Brown & Weigel, 2018), a unidimensional conceptualization does not appear adequate for generating findings that meaningfully capture the complexity of sexual communication processes. This perspective aligns with theoretical work conceptualizing sexual communication as a complex process situated within and informed by the broader relationship

context (Cupach & Metts, 1991), as well as more recent empirical developments that incorporate contextual variables into the assessment of sexual communication (Brown & Weigel, 2018; Wasson, 2023). In my master's work, I found significant differences among several process dimensions of sexual communication, including perceived consequences, perceived importance, and actual depth of disclosure of sexual topics (Wasson, 2023), underscoring the importance of understanding how different process and contextual components interact and uniquely contribute to relationship outcomes. Building on this literature, I contend that particular attention must be paid to two fundamental aspects of sexual communication: (1) the content of the communication (i.e., what information is being exchanged) and (2) the process through which the communication unfolds (i.e., how it is conveyed and experienced). Relatedly, sexual communication involves additional factors such as individuals' comfort with sexuality and related topics, understanding of their own sexual preferences, and degree of acceptance of themselves as sexual beings (Metts & Cupach, 1991), all of which are shaped in part by broader sociocultural influences (e.g., gendered socialization; Bennett-Brown & Denes, 2022; Rubinsky, 2022). This distinction between content and process is especially relevant for sexual communication, given its more vulnerable nature (Rehman et al., 2019).

Methodological Considerations for Assessing Sexual Communication

Sexual communication has been studied using a variety of methodological approaches, including observational studies, interviews, and self-report questionnaires, each providing unique insights into the communication process. Observational methods allow researchers to examine communication as it unfolds in real time, capturing interaction patterns, behavioural responses, and reciprocal influences between partners that may not be accessible through self-report alone (e.g., Rehman et al., 2017). These approaches have contributed important insights into the

dynamic and interpersonal nature of sexual communication by illustrating how partners respond to, shape, and influence one another during difficult conversations. Similarly, qualitative interview methods can provide rich accounts of individuals' experiences, allowing researchers to explore the meanings people attach to communication and identify processes that existing measures may not capture (e.g., Allen, 2023).

Despite these strengths, self-report questionnaires remain the dominant method in sexual communication research (e.g., Bennett-Brown & Denes, 2022; Merwin & Rosen, 2020), owing to their ability to efficiently assess subjective experiences and communication processes across large, diverse samples. Many of the constructs theorized to influence sexual communication are inherently subjective and are therefore difficult, if not impossible, to assess through observation alone. For example, individuals' perceptions of the potential consequences of disclosure, the importance they attach to a topic, their motivations for communicating, their confidence in their ability to communicate effectively, and their perceptions of being understood by a partner are internal experiences that are most directly assessed through self-report. Self-report questionnaire methods also enable researchers to efficiently examine these constructs in larger, more diverse samples, facilitating theory testing, longitudinal research, and comparisons across populations.

At the same time, the widespread reliance on questionnaire methods places considerable importance on the quality of the measures being used. Existing self-report measures of sexual communication often vary substantially in their conceptualization and operationalization of the construct, limiting comparability across studies and hindering cumulative theory development. Many measures have also received limited psychometric evaluation, rarely examine measurement invariance across diverse genders and sexualities, and frequently rely on unidimensional conceptualizations that overlook the complexity of sexual communication

processes. Consequently, improving self-report assessment remains an important priority for advancing the field. Developing multidimensional, psychometrically rigorous, and inclusive measures has the potential to improve the consistency of findings, strengthen theoretical models of sexual communication, and provide clinicians with more precise tools for identifying communication difficulties and tailoring interventions. Importantly, these measures are not intended to replace observational or qualitative approaches but rather to complement them. Strong self-report measures can be integrated into mixed-methods, observational, and dyadic research designs, allowing researchers to combine the strengths of multiple methodological traditions in the study of sexual communication.

Multidimensional Measurement of Sexual Communication

Though there are many well-validated measures of sexual communication, prior research has primarily emphasized isolated components of communication, such as verbal frequency in specific domains like consent (Humphreys, 2007) or safer sex disclosure (Widman et al., 2013), without simultaneously attending to both content and process dimensions. More broadly, existing self-report measures tend to assess a single outcome or process component of sexual communication, such as satisfaction with sexual communication (e.g., Catania et al., 1989), barriers to communication (e.g., Rehman et al., 2019), or sexual communication during sexual activity (e.g., Moazami et al., 2023). Given the breadth of the construct, the specificity of these measures is a notable strength; however, without a broader theoretical or conceptual framework linking these dimensions together, it becomes difficult to understand how the different aspects of sexual communication relate to one another. Most studies rely on only one measure of sexual communication, limiting comparisons across different methods and dimensions and constraining broader understanding of sexual communication as a multidimensional construct.

One of the most frequently used measures is the Dyadic Sexual Communication Scale (DSC; Catania, 1986, 2019a), which assesses perceptions of sexual communication as a largely unidimensional process, with items spanning domains such as partner responsiveness and communication effectiveness. There is ample evidence that the DSC is positively associated with sexual satisfaction and functioning (e.g., Rancourt et al., 2016). However, it combines items assessing both process and content and shifts between highly specific topics and broader domains (e.g., *"our sex life"*), which may introduce variability in interpretation. A few existing measures examine multiple aspects of the same construct, such as the Sexual Patterns Communication Scale, which assesses both constructive and negative communication patterns related to sexual problems (Rancourt et al., 2017), and the Barriers to Communication Questionnaire, which measures perceived barriers to discussing sexual likes and dislikes (Rehman et al., 2019). While these measures capture multiple dimensions within specific domains of sexual communication, they remain focused on relatively narrow content areas. As a result, different dimensions of sexual communication are rarely assessed simultaneously within the same study, limiting the ability to compare process components across content domains and potentially leading to an incomplete understanding of the communicative process. The scope of the current project is therefore broader, aiming to develop a generalizable framework that distinguishes between content and process dimensions across varied sexual communication topics.

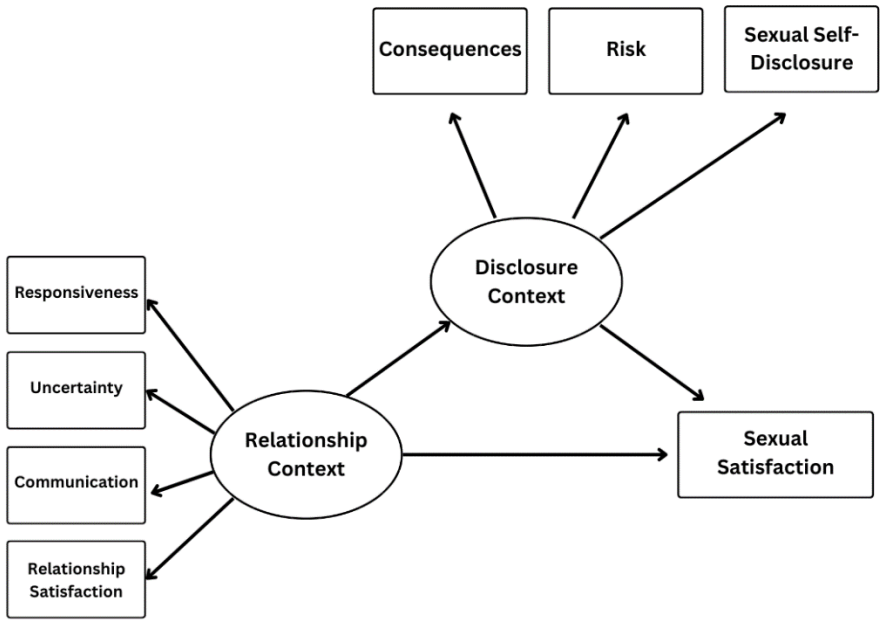
Multidimensional Models of Sexual Communication

Few conceptual models have attempted to integrate sexual communication with broader relational and interpersonal processes. One notable exception is the Contextual Model of Sexual Self-Disclosure (CMSSD) developed by Brown and Weigel (2018), which served as the

conceptual foundation for my master's work (See Figure 1). The CMSSD represented an important advancement in the literature by conceptualizing sexual communication as a multidimensional, contextually embedded process rather than a single communicative behaviour. Specifically, they proposed that sexual self-disclosure is shaped by both broader relationship-context factors and immediate contextual factors surrounding a given disclosure interaction. The CMSSD describes relationship factors such as responsiveness, uncertainty, general communication quality, and relationship satisfaction as variables that "set the stage" for sexual communication by influencing how safe, supported, and secure individuals feel within their relationship context (Brown & Weigel, 2018, p. 203). The model also incorporated proximal, process-oriented variables related to the disclosure interaction itself, including perceived consequences, perceived risks, and depth of disclosure, which were theorized to operate together to shape whether sexual disclosure occurs (Brown & Weigel, 2018). Importantly, this work provided early empirical support for understanding sexual communication as a multidimensional process influenced by both relational context and individuals' perceptions of the interpersonal risks and outcomes associated with discussing sexual topics.

Figure 1

Brown and Weigel's (2018) Contextual Model of Sexual Self-Disclosure



Although the CMSSD represented an important conceptual advancement, several aspects suggested opportunities for further theoretical expansion and refinement. First, some of the process variables appeared conceptually overlapping. For example, perceived consequences and perceived risks both reflected individuals' appraisals of the potential interpersonal outcomes associated with disclosure, particularly the extent to which discussing sexual topics was perceived as threatening or potentially harmful to the self, partner, or relationship. While these constructs differ in emphasis, they both broadly capture anticipated interpersonal costs of disclosure, suggesting potential redundancy within the model. Additionally, the model did not fully account for the extent to which the personal relevance or importance of a sexual topic may shape disclosure processes. The perceived importance of a topic may influence whether individuals view disclosure as necessary or worthwhile, particularly when weighed against

anticipated interpersonal risks or negative consequences (Hullman et al., 2022). For instance, low disclosure in the context of perceived negative consequences may not necessarily reflect avoidance driven by fear or threat; it may instead reflect that the topic itself is of relatively low importance to the individual. Considering topic importance, therefore, may help clarify why individuals choose to engage in or avoid sexual communication and provide greater specificity regarding the underlying processes contributing to disclosure decisions.

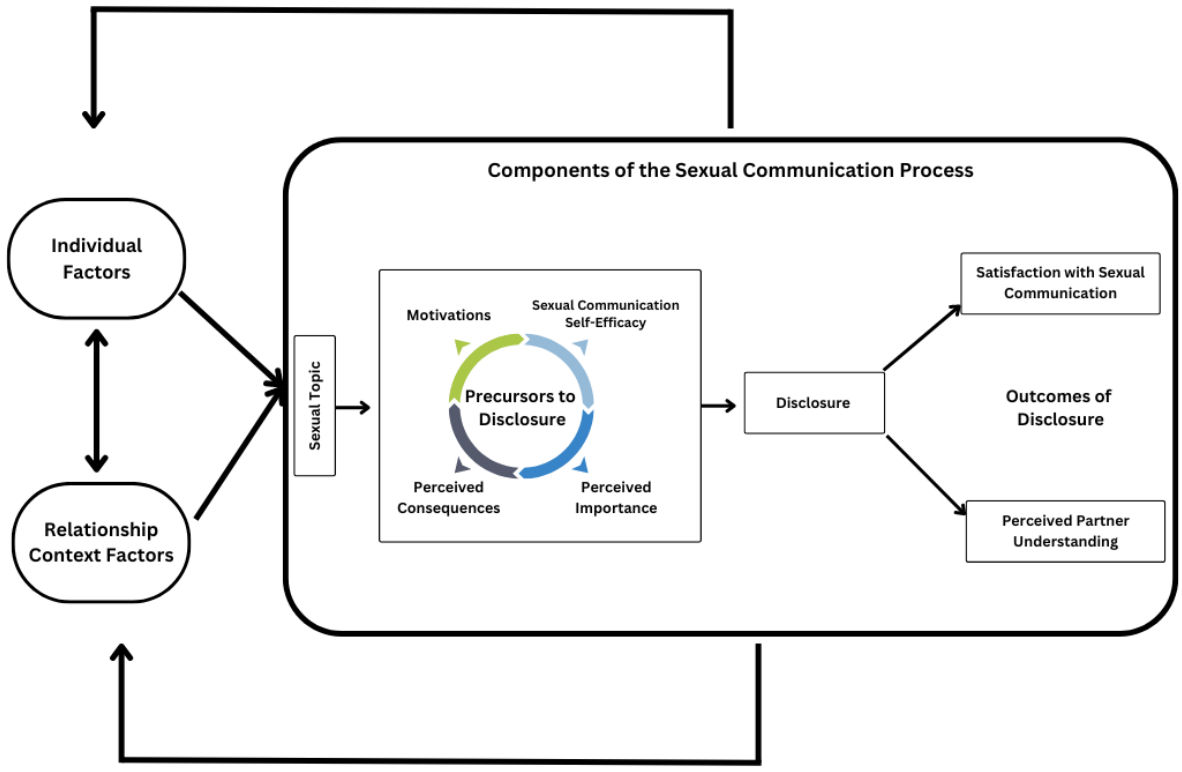
Taken together, this literature suggests that some relational factors included in the CMSSD, particularly relationship uncertainty, may partially reflect broader individual difference tendencies, such as attachment-related orientations, that influence how individuals perceive and navigate interpersonal vulnerability within relationships (Mikulincer & Shaver, 2013). Accordingly, expanding the model to more explicitly incorporate individual-level factors may provide a more comprehensive understanding of how sexual communication unfolds within relational contexts. Finally, although Brown and Weigel (2018) conceptualized the CMSSD as reflecting factors that facilitate or inhibit disclosure, it did not directly incorporate the motivational processes underlying decisions to engage in sexual communication. This omission is notable given the extensive literature demonstrating the importance of motivations in shaping sexual behaviour more broadly (Meston & Buss, 2007; Thompson et al., 2019). Similarly, individuals' perception of their ability to successfully engage in sexual communication (i.e., sexual communication self-efficacy) may play an important role in whether and how disclosure occurs. These considerations led me to develop a refined and expanded model of sexual communication that built upon Brown and Weigel's foundational work while incorporating additional process dimensions and individual factors relevant to understanding how sexual communication unfolds within intimate relationships.

Process Model of Sexual Communication

I integrated the findings from these studies to create a new model, the Process Model of Sexual Communication (PMSC), which was developed during my Master's research (Wasson, 2023) and depicts how individual, relationship, and sexual communicative factors interact to impact intimate relationships overall (See Figure 2).

Figure 2

Process Model of Sexual Communication



This model has many components, and the goal was to create a more comprehensive model that also accounted for multiple components of the process of sexual communication itself as well as individual (e.g., attachment security) and relational (e.g., partner responsiveness)

contributions. In my Master's work, I found that individual factors, particularly attachment security, and additional aspects of sexual communication, notably motivations for sexual communication and the perceived importance of the topic, were also important conceptual factors (Wasson, 2023). To describe this model in action, consider the example of sexual communication within a romantic relationship. According to the PMSC, the models of intimacy that each partner brings to the relationship will serve as an individual factor that influences their motivation to engage in sexual communication as well as how they approach such discussions. The model posits these individual factors as having an influence on an episode of sexual communication. It considers each episode or communicative exchange about any given sexual aspect of sexual communication discussed (i.e., sexual topic) to have the following precursors to any actual disclosure: motivations (i.e., why the individual is raising the topic or responding), the perceived importance of discussing that sexual topic, the perceived consequences of the disclosure to the relationship (e.g., whether they are anticipating a positive, neutral, or negative impact), and the self-efficacy they feel to engage in that discussion (e.g., how confident they feel in their ability to engage in the discussion). The model shows how those four precursors to the discussion are interrelated and can influence each other, either increasing or decreasing the likelihood that disclosure will occur, as well as the openness with which a topic is actually discussed. The output of the exchange is conceptualized as the disclosure (i.e., whether they were able to talk about the topic), as well as their satisfaction with the communication and how clearly they perceive their partner to understand their position on what was discussed. Lastly, the model posits that these communicative exchanges play a role in each individual's overall satisfaction with their intimate relationship.

Research Goals

My dissertation research program sought to advance the understanding of sexual communication by developing multidimensional measures and using them to examine the processes through which sexual communication influences relational and sexual wellbeing over time. Collectively, the studies address two important limitations in the literature. First, sexual communication has often been assessed using unidimensional approaches that overlook the distinction between what partners communicate about and how those conversations unfold. Second, despite theoretical models proposing that sexual communication operates through multiple interpersonal processes, little research has examined these processes longitudinally or considered the simultaneous influence of individual and relational factors. By addressing both measurement and theory, this dissertation aimed to provide a stronger empirical foundation for understanding sexual communication as a dynamic interpersonal process. Study 1 established the measurement foundation necessary to assess key communication processes, whereas Study 2 built on this foundation to examine how those processes interact with individual and relationship factors to shape sexual and relational wellbeing over time. Together, these studies contribute to a more nuanced understanding of sexual communication as a multidimensional phenomenon rather than a single behaviour or outcome.

Study 1 focused on developing and validating two Multidimensional Sexual Communication Questionnaires (MSCs), one assessing communication about sexual preferences and the other assessing safer sex communication. Beyond providing psychometrically sound measures, this study examined whether key communication processes, specifically perceived consequences of disclosure and depth of disclosure, operate similarly across distinct sexual communication topics and across diverse genders and sexualities. The study therefore contributes

to the literature by moving beyond topic-specific or unidimensional assessments of sexual communication and establishing a flexible framework for measuring communication processes across sexual domains. Demonstrating measurement invariance across diverse groups provides confidence that these constructs can be meaningfully compared across populations, addressing a longstanding limitation in sexuality research.

Building on this measurement foundation, Study 2 examined how different aspects of sexual communication contribute to sexual and relational wellbeing over time. Using a prospective, multi-wave longitudinal design, this study tested key pathways of the Process Model of Sexual Communication (PMSC) by examining the roles of communication processes, individual characteristics, and relationship context factors in shaping communication and downstream outcomes. In doing so, Study 2 extends the literature beyond cross-sectional associations by investigating how sexual communication functions within broader interpersonal systems and how these processes unfold over time. Together, these studies contribute to a broader vision of sexual communication as a multidimensional process that is shaped by individual and relational contexts and that plays an important role in the development and maintenance of healthy intimate relationships.

Study 1

Validation of the Multidimensional Sexual Communication Questionnaires: A Framework for Assessing Content and Process Domains

Sexual communication is a critical process within intimate relationships, playing a key role in achieving sexual satisfaction, safety, and overall wellbeing (Byers & Demmons, 1999; Rancourt et al., 2016; Rehman et al., 2011). Open communication about sexual topics enables partners to establish boundaries, express preferences, and negotiate mutually pleasurable sexual repertoires (Coffelt & Hess, 2014). It is also a mediator of change in sex and couples therapy, especially for individuals with sexual difficulties (Rancourt et al., 2022). Despite its recognized importance and significant impact on relational and sexual functioning, research on sexual communication remains fragmented and limited, which is, in part, due to inconsistent conceptualizations and challenges in developing comprehensive, multidimensional measures that fully capture its complex nature and processes. While no single measure can address every research need, and adaptation to specific contexts is often necessary, this flexibility comes at the cost of limiting the comparability of findings and hindering cumulative progress in the field.

Multidimensional Measurement of Sexual Communication

The work of Brown and Weigel (2018) represents an important step toward the multidimensional assessment of sexual communication. Their Sexual Disclosure Scale (SDS) assesses perceived consequences and depth of disclosure across 18 sexual topics, moving beyond unidimensional conceptualizations of sexual communication. However, the SDS focuses primarily on topics that previous research identified as commonly avoided (Anderson et al., 2011; Herold & Way, 1998; Knobloch & Carpenter-Theune, 2004), which may limit its ecological validity and applicability beyond undergraduate samples. In addition, the measure

does not capture other potentially important communication processes, such as topic importance or perceived partner understanding, and its validation did not include key psychometric procedures such as testing measurement invariance across relevant demographic groups (Milfont & Fischer, 2010).

Building on this foundation, the present study introduces a multidimensional measurement framework that separates the content of sexual communication from the processes through which communication occurs. This distinction allows researchers to examine whether particular communication processes function similarly across different sexual topics, while also providing flexibility to adapt the framework to emerging areas of interest. In the current study, we focus on two process dimensions with theoretical and empirical support in the literature: perceived consequences of disclosure and depth of communication. Consistent with prior work, perceived consequences capture anticipated relational outcomes associated with discussing a topic, whereas depth reflects the extent to which individuals communicate openly and personally about that topic. Although the present study focuses on these dimensions, the framework can be expanded to incorporate other communication processes, such as communication anxiety, timing of disclosure, or perceived partner understanding. The study also focuses exclusively on verbal sexual communication. While nonverbal communication plays an important role in sexual interactions (Babin, 2013), verbal communication often requires greater vulnerability and may be accompanied by fears of rejection, embarrassment, or relational conflict (Rehman et al., 2019), making it particularly important to understand.

To evaluate this framework, we examine two content domains that are highly relevant to both relationship functioning and sexual health: sexual preferences and safer sex communication. Communication about sexual preferences is associated with greater sexual and relationship

satisfaction, enhanced intimacy, and a better understanding of partners' needs and desires (Coffelt & Hess, 2014; MacNeil & Byers, 2005, 2009; Mallory, 2019). In contrast, safer sex communication focuses on discussions related to sexual health and risk reduction, including barrier method use, contraception, sexual health history, testing, and prevention strategies. Effective communication in this domain is critical for promoting sexual health, preventing sexually transmitted and blood-borne infections, and fostering trust within intimate relationships (Noar et al., 2006; Quinn-Nilas et al., 2016; Widman et al., 2013). Examining these distinct content areas provides an opportunity to determine whether communication processes operate similarly across topics that differ substantially in their purpose, perceived risks, and interpersonal implications.

Additionally, the current study addresses a notable limitation within the sexual communication literature by examining whether these communication processes function similarly across diverse genders and sexualities. Most existing research has relied heavily on samples of heterosexual and cisgender participants, and studies examining group differences have largely focused on comparisons between cisgender men and cisgender women (e.g., Mallory, 2022). Although research examining broader relationship processes across sexual orientations generally suggests more similarities than differences (e.g., Holmberg & Blair, 2009), substantially less is known about whether sexual communication processes are conceptualized and experienced similarly across diverse groups (e.g., Gauvin & Merwin, 2022). Establishing measurement equivalence across these populations is necessary before meaningful comparisons can be made and represents an important step toward developing more inclusive models of sexual communication.

This approach offers several key advantages over existing measurement approaches. First, it enhances the comparability of findings across studies, enabling researchers to draw stronger conclusions about how sexual communication functions across different populations, relationships, and sexual topics. Second, it facilitates greater precision in identifying the active ingredients of sexual communication, both in terms of the process (e.g., comfort, depth) and content (e.g., topic specificity). Third, it carries clinical implications, as practitioners may be better equipped to distinguish whether a couple's sexual communication difficulties arise from discomfort with the topic itself or from relational dynamics in how communication occurs.

Assessed Content Domains

Sexual preferences have been well established as important to communicate to sexual partners, as well as the enhanced individual and relationship benefits when they are shared openly and subsequent negative impacts to satisfaction and wellbeing when they are not (Coffelt & Hess, 2014; MacNeil & Byers, 2005, 2009; Mallory, 2019; Rehman et al., 2013), even above and beyond the effects of nonsexual disclosure (MacNeil & Byers, 2009; Mark & Jozkowski, 2013). Sexual communication enables ongoing negotiation within relationships, helping partners navigate differences in preferences, maximize sexual rewards, and minimize costs; in its absence, understanding of one another's preferences is limited (MacNeil & Byers, 2009). For example, one study found that individuals recognized only 62% of their partners' sexual likes and 26% of their dislikes, which impacts the pleasure experienced by one or both partners (MacNeil & Byers, 2009). Given their close connection to self-identity and enduring aspects of the self, discussions of sexual preferences may evoke fears of misunderstanding or revealing incompatibilities, as any perceived or actual rejection can be experienced as a rejection of the self, eliciting heightened feelings of shame, guilt, embarrassment, or rejection (Rehman et al.,

2019). There may also be fears of disclosing preferences that reveal fundamental incompatibilities and threaten relationship stability, particularly within monogamous structures that predominate in many cultures (Moors et al., 2023). Unlike non-monogamous relationships, where divergent sexual preferences may be fulfilled with other partners, monogamous relationships offer limited or no alternatives for addressing such discrepancies in sexual preferences.

Safer sex communication is an integral component of overall sexual health (Sheeran et al., 1999) as it is the mechanism through which individuals share sexual health history, communicate contraception preferences, if applicable, and negotiate the use of barrier methods to prevent sexually transmitted and blood-borne infections (STBBIs; Abrams et al., 2025; Catania et al., 1989; MacNeil & Byers, 2005, 2009; Perkins et al., 2024; Walsh et al., 2022; Wesche et al., 2024; Widman et al., 2013; Wu & Zheng, 2022). These conversations also allow partners to communicate boundaries and collaboratively navigate sexual aspects of their relationship, fostering both personal safety and mutual satisfaction (Harris et al., 2014). However, sexual and gender diverse individuals may face additional barriers to safer sex communication, including limited access to inclusive health information and experiences of stigma (Kromojahjo et al., 2025; Worsdale & Kosenko, 2024). More communication may also be required for these individuals to overcome barriers in the lack of applicable sexual health information (Wesche et al., 2024), much of which still centers on preventing unintended pregnancies (Emetu et al., 2023). Notably, existing measures of safer sex communication (e.g., Health Protective Sexual Communication Scale; Catania, 2019b) are often grounded in heteronormative assumptions, limiting their applicability to sexually diverse individuals (Emetu et al., 2023; Wesche et al., 2024).

Importance of Reliable Measurement Across Groups

To support the framework's broader applicability and to further substantiate its validity, I examined its structural consistency across diverse groups, particularly in terms of gender and sexual identities, using measurement invariance testing. This step is critical in scale development, as it determines whether the same construct is being measured in the same way across groups (Milfont & Fischer, 2010; Putnick & Bornstein, 2016). Without establishing invariance, any comparisons across identity groups may be misleading or biased, as observed differences may reflect variations in interpretation rather than true differences in sexual communication. This is particularly important in the domain of sexuality, where identity-related stigma, cultural norms, and relational scripts can shape how individuals understand and respond to items related to sexual topics (Bhugra et al., 2007; Heinemann et al., 2016; Metts & Spitzberg, 1996). Past research assessing differences in sexuality-relevant constructs across groups has primarily examined differences between cisgender men and women, generally finding similar types and frequencies of communication across genders (Holmberg & Blair, 2009; MacNeil & Byers, 2005, 2009). Some studies have identified distinctions in frequency and type of sexual communication (e.g., verbal vs. nonverbal; Blunt-Vinti et al., 2019) and associated outcomes (e.g., association with greater orgasm frequency in women but not men; Jones et al., 2018). Two recent literature reviews examined differences in sexual and gender diverse individuals in general sexual communication (Gauvin & Merwin, 2022) and safer sex communication (Parrillo & Brown, 2021). These reviews noted initial evidence of group differences in communication types, barriers, and links to outcomes like sexual satisfaction. However, they emphasize the need for further research to explore if, and how, sexual communication varies across and within diverse groups. Existing literature on sexual preference and safer sex communication has

primarily focused on White, North American, younger adults, resulting in limited understanding of individuals from other backgrounds (e.g., Lee & Knippen, 2019; Mallory et al., 2022; Santos-Iglesias et al., 2016). Given documented differences in sexual constructs by age and ethnicity (e.g., Heinemann et al., 2016; Mallory et al., 2022), I also assessed measurement invariance across these groups, though this was not included in my pre-registered data analytic plan. I expected that both questionnaires would exhibit invariance across all tested groups.

Overview of the Current Study

My overall research goals were to: (1) build upon the work of Brown and Weigel (2018) by developing and validating two questionnaires reflecting distinct sexual content areas, one for the communication of sexual preferences and one for safer sex communication, that reflect a multidimensional structure including both content and process dimensions; and (2) examine whether these measures function similarly across groups (i.e., gender identity, sexual identity, age, race Sample 1 and 2, and ethnicity Sample 2 only), using tests of measurement invariance.

The present study included two samples. In Sample 1, I conducted exploratory and confirmatory factor analyses and evaluated measurement invariance across gender and sexual orientation groups. In Sample 2, I used an independent sample to replicate findings and further corroborate measurement invariance results, given that replicating findings in a separate sample is one of the best means of demonstrating their generalizability (DeVellis & Thorpe, 2022). Together, these studies involve the development and validation of an empirically grounded and flexible tool, the Multidimensional Sexual Communication Questionnaire, for measuring sexual communication multidimensionally. I used this framework to develop two separate questionnaires, the Multidimensional Sexual Communication Questionnaire-Sexual Preferences (MSC-SP) and the Multidimensional Sexual Communication Questionnaire-Safer Sex (MSC-

SS). Item development for both questionnaires was grounded in existing literature and informed by constructs identified as essential to sexual wellbeing and safety. These domains reflect key aspects of sexual health as defined by the World Health Organization (WHO), which emphasizes not just the absence of dysfunction, but also the importance of respectful, consensual, pleasurable, and safe sexual experiences (WHO, 2006). Although some of these aspects of sexual health already have validated unidimensional tools, I identified two critical content areas, namely communication about sexual preferences and safer sex communication, that would benefit from an expanded, multidimensional approach to measurement.

To develop the item sets for the MSC-SP and MSC-SS, I consulted the empirical literature and engaged in iterative consultation with a team of researchers and clinicians with expertise in sexuality, scale development, and validation. I consulted the extant literature for integral topics related to sexual preferences (Brogan et al., 2009; Brown & Weigel, 2018; Snell et al., 1989) and safer sex communication (Brown & Weigel, 2018; Catania, 2019a; Catania, 2019b; Dilorio et al., 1992; Loshek & Terrell, 2015; Perkins et al., 2024; Snell et al., 1989; Walsh et al., 2022). I then refined the item list in consultation with my team of experts. I expected that both measures would demonstrate adequate reliability and both convergent (Dyadic Sexual Communication Scale, Sexual Communication Patterns Scale, Sexual Assertiveness Questionnaire) and divergent validity (Sleep Quality Scale). The existing validated measures selected for convergent validity have strong psychometric properties and positive associations with sexual and relationship outcomes (e.g., Nagy et al., 2025; Rancourt et al., 2016, 2017).

Study 1 Method

Participants and Procedures

This study's analytic plan was preregistered

(https://osf.io/kgz86/?view_only=9d82f1b3971b43c688fd6dfade75ed64). I received approval from the University of Waterloo's Research Ethics Board. Participants, who were required to be over 18 years old, living in Canada or the United States, and in a relationship, completed an online survey and were recruited from Prolific (Douglas et al., 2023) to generate the two samples. Sample 1 data collection occurred in February 2024 to determine and test the initial factor structure of the questionnaires (60-minute survey, which also included additional measures on sexuality and relationships that were not analyzed in the current study) and Sample 2 data collection was to corroborate the factor structures by replicating the Sample 1 results (December 2024; 20-minute survey). For both surveys, participants provided informed consent before completing the surveys, which were hosted on Qualtrics. Participants were provided approximately 12 CAD/hour (paid as £6.50/hour using the default currency on Prolific), in line with suggested rates of remuneration on Prolific. Given that a goal was to conduct measurement invariance testing by gender and sexual identity, my goal was to oversample gender and sexually diverse participants such that they comprised at least 30% of both samples. I met this goal for sexually diverse individuals in both samples, though I had more difficulty recruiting gender diverse individuals and had 17.8% of participants in Study 1 and 29.5% in Study 2 in the final samples. I did not oversample for race and age, given that these were exploratory invariance analyses I planned to conduct should there be adequate sample distribution across groups. Data were thoroughly checked for duplicate and inattentive responders (e.g., completing the 60-minute survey in less than 20 minutes or inaccurately responding to two or more of the five attention checks), and details of data cleaning procedures are available in the preregistration. All participants who met the screening criteria participated in the study. Full participant demographic information is outlined in Table 1.

Table 1

Study 1 Demographic Information Across Both Samples

Demographic Category	Sample 1 *n* (% total)	Sample 2 *n* (% total)
Gender identity (original answer options in the survey)[1]		
Men	120(36)	114(32)
Women	175(53)	163(46)
Trans*	31(9)	32(9)
Nonbinary	35(11)	68(19)
Gender neutral	4(1)	8(2)
Gender queer	7(2)	26(7)
Pangender	0(0)	0(0)
Two-spirit	3(1)	3(1)
Agender	-	15(4)
Another gender	6(2)	13(4)
Multiple responses	38(11)	49(14)
Sexual identity (original answer options in the survey)		
Heterosexual	218(66)	204(58)
Gay	11(3)	5(1)
Lesbian	9(3)	15(4)
Bisexual	54(16)	72(20)
Pansexual	25(8)	29(8)
Queer	27(8)	51(14)
Questioning or unsure	5(2)	8(2)
Fluid	1(<1)	7(2)
Asexual	11(3)	22(6)
Demisexual	-	25(7)
Prefer not to disclose	1(<1)	1(<1)
Another sexual identity	7	7
Multiple responses	30	60
Ethnicity (original answer options in the survey)[2]		
Black or African American	54(16)	-
East Asian	39(12)	-
Hispanic or Latino	23(7)	-

[1] Note that participants were able to select as many options as they wanted to describe their gender and sexual identity, including an open-response option. As such, the totals in the original answers will not equal the values in the categories used in the analyses, nor the total *N* for participants. We made decisions regarding the final category for each participant who indicated multiple selections as a research team, considering their open-ended responses, if any, and relevant theoretical literature on similarities across gender and sexual identities.
[2] The response options for ethnicity were expanded for Sample 2.

Indigenous	10(3)	-
South Asian	24(7)	-
White	193(58)	-
Asian – East (e.g. Chinese, Japanese, Korean)	-	17(5)
Asian – South (e.g. Indian, Pakistani, Sri Lankan)	-	7(2)
Asian – South East (e.g. Malaysian, Filipino, Vietnamese)	-	11(3)
Black – North American (e.g. Canadian, American)	-	31(9)
Black – African (e.g. Ghanian, Kenyan, Somali)	-	25(7)
Black – Caribbean (e.g. Barbadian, Jamaican)	-	4(1)
Indian – Caribbean (e.g. Guyanese with Indian origins)	-	2(<1)
Indigenous - First Nations	-	2(<1)
Indigenous - Inuit	-	0(0)
Indigenous - Métis	-	6(2)
Indigenous - Native American Tribes	-	12(3)
Indigenous/Aboriginal not included elsewhere	-	1(<1)
Latin American (e.g. Argentinean, Chilean, Salvadorian)	-	17(5)
Middle Eastern (e.g. Egyptian, Iranian, Lebanese)	-	2(<1)
White – North American (e.g. Canadian, American)	-	194(55)
White – European (e.g. UK, Italian, Russian)	-	68(19)
Mixed Heritage (e.g. Black-African and White North American)	-	11(3)
Relationship Status (original answer options in the survey)		
In a new/casual relationship with one person exclusively	6(2)	-
Dating one person exclusively	39(12)	-
Dating more than one person	2(0.6)	6(2)
In a committed relationship with one person exclusively	258(78)	146(41)
In multiple committed relationships	16(5)	11(3)
In an open relationship	10(3)	-
Married or common-law with one partner	-	182(52)
Married or common-law with multiple partners	-	6(2)
Relationship Structure (original answer options in the survey) [3]		

[3] We did not assess relationship structure in Sample 1 aside from asking if individuals were in an open relationship. These questions were only asked in Sample 2.

Fully monogamous (exclusively with one partner)	-	302(86)
Monogamous with occasional consensual non-monogamy (e.g., swinging, occasional external partners)	-	16(5)
Primary partnership with additional casual sexual partners (open relationship)	-	6(2)
Kitchen table polyamory (all partners know each other and are comfortable spending time together)	-	12(3)
Parallel polyamory (multiple partners who may not interact or know each other well)	-	8(2)
Fully open relationship (multiple partners with no restrictions)	-	2(0.6)
Relationship anarchist (no defined structure, open to various forms of relationships)	-	2(0.6)
Other	-	5(1)
Employment Status (original answer options in the survey to the question "Are you currently employed?")		
No, I am currently unemployed	56(17)	67(19)
No, I am a temporary/seasonal worker	6(2)	6(2)
No, I am retired	4(1)	10(3)
Yes, full time	180(54)	193(55)
Yes, part-time	85(26)	77(22)
Approximate annual household income (original answer options in the survey to the question, not specified whether in CAD or USD)		
Less than $4999	9(3)	18(5)
$5000-$19,999	19(6)	20(6)
$20,000-$39,999	42(13)	40(11)
$40,000-$59,999	48(15)	52(15)
$60,000-$79,999	38(12)	45(13)
$80,000-$99,999	51(15)	48(14)
More than $100,000	124(38)	-
$100,000-$119,999	-	48(14)
$120,000-$139,999	-	24(7)
$140,000-$159,999	-	30(9)
$160,000-$179,999	-	6(2)
$180,000-$200,000	-	10(3)
Greater than $200,000	-	11(3)
Years of education (asked as an open-ended response, grouped into the categories below)		
0-12 years	10(3)	11(3)
13-15 years	83(25)	110(31)
15-17 years	101(31)	123(35)
17-20 years	99(30)	73(35)
20-25 years	33(10)	28(8)
25+ years	4(1)	6(1)

Note. Sample 1 $n = 331$ and Sample 2 $n = 353$.

In Sample 1, I collected 411 responses and excluded 80 participants (n = 3 indicated their responses should not be used; n = 44 participants had duplicate IP addresses; n = 33 participants finished in less than 20 minutes), resulting in a final sample of 331 participants (ages ranging from 18-73, M = 36.80, SD = 12.81). Most participants were cis women (n = 162, 48.9%), followed by cis men (n = 110, 33.2%), and gender diverse people (n = 59, 17.8%). In terms of sexual identity, participants were predominantly heterosexual (n = 217, 65.6%), with 114 (34.4%) being sexually diverse participants. About half the participants were White (n = 176, 53.2%), followed by other races.

In Sample 2, I collected 373 responses and excluded 20 participants (n = 7 failed two or more attention checks; n = 8 indicated their responses should not be used; n = 5 participants had duplicate IP addresses), resulting in a final sample of 353 participants (ages ranging from 18-63, M = 34.58, SD = 10.78). Most participants were cis women (n = 148, 41.9%), followed by cis men (n = 103, 29.2%), and gender diverse people (n = 102, 29.5%). In terms of sexual identity, participants were predominantly heterosexual (n = 196, 55.5%), with 155 (43.9%) being sexually diverse participants. About half the participants were White (n = 202, 57.2%), followed by other races.

Sample 1 Measures

Background Questionnaire. This questionnaire was designed to collect background information specific to the current study. It included questions about the participants' demographic information (e.g., age, gender, race, education and employment history) and the history of their current relationship (e.g., type of relationship, relationship length). Regarding gender, I asked *"To which gender identity do you most identify"* with the following response option where they could select as many as applied to them: man, woman, trans*, nonbinary,

gender neutral, genderqueer, pangender, and two spirit, along with an open response option for individuals to indicate another gender. Regarding sexuality, I asked "What best describes your sexual identity" with the following response option where they could select as many as applied to them: asexual, bisexual, demisexual, heterosexual, fluid, gay, lesbian, pansexual, queer, and questioning or unsure, as well as an open response option for individuals to indicate another sexual identity. I asked a question that had a mix of racial and ethnic identities (i.e., *"To which ethnic group(s) do you belong?"*) with the following response options where they could select as many as applied to them: Black or African American, East Asian, Hispanic or Latino, Indigenous, Native Hawaiian or Other Pacific Islander, South Asian, and White, as well as an open response option for individuals to indicate another ethnic group. These responses were used to create the groups for the invariance tests, described below.

I had a detailed process to determine the best categorical fit for demographic variables that allowed participants to indicate multiple responses (e.g., gender, sexuality, and race/ethnicity). First, I identified participants who only indicated one response and coded them accordingly. This was the majority of responses in all three variables: gender (n = 293), sexuality (n = 301), and race/ethnicity (n = 297). Then, I reviewed participants with multiple responses with a trained lab member to determine which category best aligned with all participants' responses. For the context of this study, establishing binary invariance tests was the ultimate goal for having clear categories of these demographic variables and I kept this in mind throughout this process. The rationale for these decisions was based on identifying similarities between different item categories, primarily if someone was part of a minority compared to majority identity group, which aligned best with my goals for the invariance tests. Those in majority groups for sexuality (i.e., heterosexual) and gender (cisman and ciswoman) almost never indicated multiple

responses (gender $n = 0$, sexuality $n = 1$). Participants who endorsed both heterosexual and sexually diverse identities were classified in the sexually diverse binary group, as their responses indicated at least partial alignment with this group beyond those who identified exclusively as heterosexual. All cases involving multiple or ambiguous responses were reviewed through team discussion until consensus was reached, with a third lab member consulted when necessary.

Dyadic Sexual Communication. I used the Dyadic Sexual Communication Scale (DSC; Catania, 1986, 2019a), which is a well-validated measure of dyadic sexual communication that, as described above, assesses perceptions of communication. Participants rated their level of agreement or disagreement with each statement using a six-point Likert scale, ranging from 1 (strongly disagree) to 6 (strongly agree), on 13 items. The DSC was validated as a one-dimensional scale and includes items related to the effectiveness of communication (e.g., *"my partner and I never seem to resolve my disagreements about sexual issues"*; reverse scored), partner responsiveness (e.g., *"my partner rarely responds when I want to talk about my sex life"*; reverse scored), avoidance of communication (e.g., *"some sexual matters are too upsetting to discuss with my partner"*; reverse scored), emotions evoked (e.g., *"I seldom feel embarrassed when talking about the details of my sex life with my partner"*), and the satisfaction with communication (e.g., *"talking about sex is a satisfying experience for both of us"*). Higher total scores indicate better perceived dyadic communication. The scale's internal consistency in the present sample was good ($\alpha = 0.86$, $\omega = 0.87$).

Sexual Communication Patterns. The Sexual Communication Patterns Questionnaire (SCP) assesses collaborative and negative patterns in sexual communication when faced with sexual problems in a relationship (Rancourt et al., 2017). The scale examines patterns that discuss the initiation (e.g., *"both members try to discuss the sexual problem"*; collaborative

subscale) as well as aspects during (e.g., *"both members blame, accuse, or criticize each other"*; negative subscale) and after (e.g., *"after the discussion of the sexual problem, both partners try to be especially nice to each other"*; collaborative subscale) discussions about sexual problems. Response options range from 1 (very unlikely) to 9 (very likely). There are eight items on the collaborative subscale and 15 on the negative subscale, with higher total scores indicating more of those communication patterns. The scale's internal consistency in the present sample was good for both the collaborative ($\alpha = 0.84$, $\omega = 0.85$) and negative ($\alpha = 0.91$, $\omega = 0.92$) subscales.

Sexual Assertiveness. The Sexual Assertiveness Questionnaire (SAQ-9) is a brief nine-item scale examining sexual assertiveness (Nagy et al., 2025). The scale assesses three components of sexual assertiveness across nine items: initiation of desired sex and communicating sexual satisfaction (e.g., *"I am open with my partner about my sexual needs"*), refusal of unwanted sex (e.g., *"I refuse to have sex if I don't want to"*), and sexual risk communication (e.g., *"I ask my partners if they have practiced safe sex with other partners"*). Response options range from 1 (strongly disagree) to 7 (strongly agree). The full scale was used for the analyses, and the internal consistency in the present sample was good ($\alpha = 0.79$, $\omega = 0.80$).

Communicating Sexual Preferences. The Multidimensional Sexual Communication Questionnaire-Sexual Preferences (MSC-SP) was developed by the authors, based on previously validated scales including the Sexual Disclosure Scales (SDS; Brown & Weigel, 2018). This questionnaire included 24 items that assessed two dimensions: the perceived consequences to the relationship and the actual depth of disclosure. Participants responded to items for each of the two dimensions across 12 items, six items related to self-preferences (e.g., *"the sexual positions I don't like," "how frequently I want to engage in sexual activity"*) and six corresponding items

related to partner preferences (e.g., *"the sexual positions my partner doesn't like," "how frequently my partner wants to engage in sexual activity"*). Each item was rated on a sliding scale from 0 to 100 for both dimensions, resulting in a possible range of scores from 0 to 2400. The question wording for the perceived consequences was *"What would happen if you were to talk about this with your current primary romantic partner?",* with responses ranging from 0 (very negative effect on the relationship) to 50 (neither negative nor positive effect) to 100 (very positive effect on the relationship). The question wording for depth of disclosure was *"To what extent have you talked about this topic with your current primary romantic partner?",* with responses ranging from 0 (I have not talked about this topic at all) to 100 (I have talked about this topic completely). Scores for each of the two subscales were summed, with higher scores on the perceived consequences subscale indicating greater perceived positive consequences of disclosure and higher scores on the depth of disclosure subscale indicating greater depth of disclosure.

Communicating Safer Sex Topics. The Multidimensional Sexual Communication Questionnaire-Safer Sex (MSC-SS) was also developed by the authors using the same two dimensions (i.e., perceived consequences and depth of disclosure) and response style. The questionnaire included 24 items pertaining to 12 items that participants answered regarding both dimensions. The items related to disclosing sexual health history (e.g., *"My previous sexual partners [e.g., if anonymous or not, number of partners, STBBI status]"*) and current sexual health planning and behaviors (e.g., *"Using barrier methods [e.g., condoms, dental dams] when genitals are touching [e.g., penetrative sex, tribbing]"*). One item related to contraceptive use (i.e., *"Use of contraception, including birth control pills, intrauterine devices [IUD]"*), though since this does not apply to all types of sex, participants were given the following instructions:

"If becoming pregnant is not relevant to your intimate relationship (meaning you could not get pregnant through sex with your current primary partner), select the "1" response option." This was the only item that was not applicable to all types of sex, as the authors prioritized items that meaningfully capture the sex acts of diverse groups of individuals. Since some of the questions asked about STBBIs, the following definition was provided to participants in the scale instructions: *Important note: STBBI refers to Sexually Transmitted and Blood Borne Infections, previously called STIs or STDs, including things like chlamydia, gonorrhea, HIV, Human Papillomavirus (HPV), and herpes.*

Similar to the MSC-SP, each item was rated on a sliding scale from 0 to 100 for both dimensions, resulting in a possible range of scores from 0 to 2400. The question wording and response anchors for both dimensions were identical to those of the MSC-SP. The question wording for the perceived consequences was *"What would happen if you were to talk about this with your current primary romantic partner?",* with responses ranging from 0 (very negative effect on the relationship) to 50 (neither negative nor positive effect) to 100 (very positive effect on the relationship). The question wording for depth of disclosure was *"To what extent have you talked about this topic with your current primary romantic partner?",* with responses ranging from 0 (I have not talked about this topic at all) to 100 (I have talked about this topic completely). Similar to the MSC-SP, scores for each of the two subscales were summed, with higher scores on the perceived consequences subscale indicating greater perceived positive consequences of disclosure and higher scores on the depth of disclosure subscale indicating greater depth of disclosure.

Sample 2 Measures

The background questionnaire, DSC, SCP, MSC-SP, and MSC-SS were all administered again in Sample 2. The SAQ-9 was not re-administered. One scale related to sleep quality was added to test divergent validity. All measures demonstrated good reliability (α = 0.86-0.92, ω = 0.87-0.92; See Table 2).

Table 2

Study 1 Reliability Estimates for All Measures Across Both Samples

Scale Dimension	Sample 1		Sample 2	
	α	ω	α	ω
MSC-SP-Consequences	0.95	0.95	0.94	0.94
MSC-SP-Depth	0.94	0.94	0.93	0.93
MSC-SS-PC	0.88	0.91	0.90	0.92
MSC-SS-PC	0.89	0.91	0.88	0.92
MSC-SS-CC	0.87	0.91	0.86	0.90
MSC-SS-CD	0.85	0.89	0.82	0.87
SCP-Collaborative	0.84	0.85	0.84	0.85
SCP-Negative	0.91	0.92	0.90	0.87
SAQ-9	0.79	0.80	–	–
Sleep Quality Scale (SQS)	–	–	0.92	0.92

Note : MSC-SP-Consequences Multidimensional Sexual Communication Questionnaire – Sexual Preferences, Consequences; MSC-SP-Depth = Multidimensional Sexual Communication Questionnaire – Sexual Preferences, Depth. MSC-SS = Multidimensional Sexual Communication Questionnaire-Safer Sex -PC = past sexual experiences perceived consequences; -PD = past sexual experiences depth of disclosure; -CC = current planning perceived consequences; -CD = current planning depth of disclosure; -C = perceived consequences; -D = depth of disclosure. SCP-Collaborative: Sexual Communication Patterns Scale - Collaborative (SCP-C). SCP-Negative: Sexual Communication Patterns Scale – Negative ; SAQ-9 = Sexual Assertiveness Questionnaire.

Background questionnaire. Based on participant feedback from Sample 1 and current best practices, I refined the background questionnaire for Sample 2. Regarding gender, I included the same question as Sample 1, though I added the response option of agender, given it was included as an open-ended response on multiple participants' answers in Sample 1. I also included two questions to allow participants to choose which category, cisgender or trans, they would like to be included in for analyses. Given the final decisions in Sample 1 were made by the research team when there were multiple options selected, I felt these better enabled participants to more clearly indicate what groups fit best for them. Specifically, participants were asked the following questions in the background questionnaire: *"When I describe who participated in my study, which of these categories would you like us to include you in? 1) A trans/transgender category (usually refers to people who were given a sex and/or gender label at birth that does not accurately represent them) or 2) A cisgender category (usually refers to people who are the same sex and/or gender they were assigned at birth)"* and, separately: *"1) Binary (someone who identifies exclusively as a man/male or woman/female) or 2) Nonbinary (someone who has an identity other than exclusively man/male or woman/female)".* Though these descriptions include both sex and gender, which are different (e.g., van Anders, 2015), I included both as some individuals label these experiences scientifically inaccurately as either sex or gender, though they do not align with the categories that align with the current literature on the differences between sex and gender. Including both was an attempt to capture the experiences of a broader range of participants and convey understanding of what I was asking in the questions, namely, whether they identified as cisgender or not and, similarly, whether they were within or outside the gender binary. I felt it was important to include these questions so participants could choose the group that best represented their gender. I based these additions on

current best practices in the field and relevant literature on gender to create identities that move beyond conceptualizing gender as a static, binary construct (e.g., Beischel et al., 2023). Both questions had the option of indicating "neither" or "unsure" with open-ended options to explain their responses.

Regarding the question about ethnic identity, I made a notable change in this question, recognizing that the related demographic questions in Sample 1 were capturing race (with conflation of race and ethnicity in the Hispanic/Latino response option). There is limited existing research in this area; however, the existing information suggests that communication differs based on differences in socialization and expectations for communicative practices (Mallory et al., 2022). I implemented a suggested ethnicity demographic question that emerged from the Department of Psychology's Equity, Diversity, and Inclusivity (EDI) working group (University of Waterloo, 2023). The question used in Sample 2 was *"Please indicate your ethnicity(ies) Select all that apply: Peoples' ethnicity describes their feeling of belonging and attachment to a distinct group of a larger population that shares their ancestry, racial background language or religion"* with the 16 ethno-cultural/geographic response options along with a "do not know" and two open-ended responses (specifying if mixed heritage and to indicate another ethnicity) are outlined in Table 1.

Regarding sexuality, I used the same question as Sample 1 in developing the survey for Sample 2, I realized that sexual and romantic identities had been conflated in Sample 1 (e.g., including aromantic). For Sample 2, I separated these into a question about sexual identity, along with a separate question about romantic orientation (i.e., *"What best describes your romantic orientation (who you feel romantically attracted to or would want a romantic relationship with, regardless of sexual attraction)? Select all that apply.*). I also added the response option of

demisexual based on the response options that participants wrote into the open-ended response option in Sample 1. These responses were used to create the groups for the invariance tests, described below.

I used the same detailed process as Study 1 to determine the best categorical fit for demographic variables that allowed participants to indicate multiple responses (e.g., gender, sexuality, and race/ethnicity). The majority of participants, again, indicated only one selection for these variables: gender (n = 304), sexuality (n = 293), and race/ethnicity (n = 302). Again, those in majority groups for sexuality (i.e., heterosexual) and gender (cisman and ciswoman) almost never indicated multiple responses (gender n = 0, sexuality n = 8). Participants who endorsed both heterosexual and sexually diverse identities were classified in the sexually diverse binary group, as their responses indicated at least partial alignment with this group beyond those who identified exclusively as heterosexual. All cases involving multiple or ambiguous responses were reviewed through team discussion until consensus was reached, with a third lab member consulted when necessary.

Sleep Quality. The Sleep Quality Scale (SQS) assesses different aspects of sleep quality (Yi et al., 2006). Participants rated how frequently they experienced each item with each statement using a four-point Likert scale (1=Rarely, 4=Almost Always) on 28 items including "*I have difficulty falling asleep"* and *"I feel refreshed after sleep"* (reverse scored). Higher scores indicate more sleep difficulties. The scale's internal consistency was excellent ($\alpha = 0.92$, $\omega = 0.92$).

Statistical Analyses

I pre-registered my analysis plan and used RStudio 2024.12.0 to conduct all analyses, using the following packages: psych (Revelle, 2025), lavaan (Rosseel, 2012), semTools

(Jorgensen et al., 2025), and MVN (Korkmaz et al., 2014). In Sample 1, missing responses ranged between 0-0.6% on the MSC-SP and 0-1.81% on the MSC-SS, showing very low missingness. Little's missing completely at random (MCAR) test indicated that the responses were not MCAR for both the MSC-SP (χ^2 = 312.16, *df* = 217, $p < .001$) and MSC-SS (χ^2 = 520.00, *df* = 445, p = 008) and were missing at random (MAR). Although missingness was very low, it is plausible that responses were MAR rather than MCAR, given that on the MSC-SS, there is some content that may not have applied equally to all participants given I wanted to illustrate safer sex practices that would apply to all types of sex (e.g., sexually diverse individuals may not require discussing contraception and heterosexual individuals may not as often discuss medical options for safer sex such as pre-exposure prophylaxis), and responses could vary by sexual experience, relationship context, or comfort with disclosure. In Sample 2, there was no missing data on the MSC-SP and 0-0.57% on the MSC-SS, again, showing very low missingness. The MCAR test indicated that the responses were MCAR for the MSC-SS (χ^2 = 62.67, *df* = 56, p = 252). Given the very low level of missingness, the exploratory factor analyses (EFAs) were based on pairwise-complete correlation matrices, allowing each correlation to be estimated using all participants with available data on the relevant item pair. Missing data were handled using full information maximum likelihood (FIML) for confirmatory factor analyses (CFAs), an approach that yields unbiased parameter estimates under the assumption that data are MAR (Newman, 2014).

Procedure for Assessing Quality of Measure Dimensions and Items

Two refinement steps were conducted before finalizing the measurement models with Sample 1. First, the MSC was originally developed to assess three theoretically derived dimensions of sexual communication: perceived consequences, depth of disclosure, and

perceived importance. The perceived importance question was *"How important do you think it is to talk about this with your current primary romantic partner?"* Prior to conducting the factor analyses, item-level descriptive statistics were examined to evaluate the suitability of each item set for latent variable modelling. Inspection of the perceived importance items revealed substantial ceiling effects across the MSC-SP. Item means were consistently high, ranging from 67.54 to 87.67 on the 0-100 response scale, with most items averaging approximately 80 or higher. The mode was 100 for every item, and for 19 of the 26 items, more than one-third of participants selected the maximum response option. Although the full response range was observed for most items, distributions were uniformly negatively skewed (skewness range: -1.90 to -0.71), indicating a concentration of responses near the upper end of the scale. Many items also exhibited elevated kurtosis values (range: -0.33 to 3.77), indicating clustering near the upper boundary. Collectively, these findings suggested that participants generally viewed nearly all sexual preference topics as highly important to discuss with their romantic partner, resulting in limited discrimination between topics and restricted meaningful variability across items.

These response patterns suggested that the perceived importance items provided limited variability for distinguishing between participants. Because factor analytic techniques rely on sufficient variance and covariance among items to identify underlying latent structures, restricted variability can attenuate correlations and hinder the recovery of meaningful factors (DeVellis & Thorpe, 2022). Given these concerns, I reviewed the item distributions and, after consultation, I decided that the perceived importance items were unlikely to provide meaningful information about individual differences in sexual communication processes and could adversely affect model estimation and fit. Accordingly, the perceived importance items were excluded from the EFA and CFA, and subsequent analyses focused on the remaining theoretically derived

dimensions of perceived consequences and depth of disclosure, which were also not included in Sample 2.

Second, I assessed and, subsequently, changed the items included in the final models. The MSC-SP was initially developed with 26 items designed to capture a broad range of sexual preference topics. These items intentionally included both relatively concrete topics, such as preferred types of touch, sexual positions, and frequency, as well as more nuanced or potentially heterogeneous topics, such as fantasies, turn-offs, and situations in which one may feel distracted or disengaged during sex. Items were also written to reflect both self-oriented communication and partner-oriented communication, given that sexual communication may involve disclosing one's own preferences as well as asking about or responding to a partner's preferences. As an initial step, the full 26-item pool was evaluated within the factor-analytic models. However, models using the full item set demonstrated poor fit, suggesting that the original item pool introduced more complexity than the proposed latent structure could adequately represent. This was consistent with participant feedback indicating that some items felt repetitive, raising concerns about respondent burden, item redundancy, and the scale's usability. Because one goal of scale development was to produce a psychometrically sound measure that was also feasible for use in research and applied settings, the full item pool was reviewed for potential reduction rather than retaining all items solely for content breadth.

The decision to reduce the item pool was made systematically and in consultation with lab members. First, the performance of the full item pool was reviewed, including evidence of poor model fit and of the larger item set potentially introducing excessive item-specific variance. Second, participant feedback regarding repetitiveness was considered as evidence that the scale could be shortened without necessarily sacrificing conceptual coverage. Third, the item content

was re-examined to identify overlap in wording, structure, and meaning across items. This review focused on retaining items that were concrete, consistently interpretable across participants, and central to the construct of sexual preference communication, while removing items that were more conceptually heterogeneous or likely to vary substantially in meaning across individuals. During this process, priority was given to preserving the measure's theoretical structure rather than simply selecting the statistically strongest-performing items. In particular, it was important to retain both self-oriented and partner-oriented items, as the MSC-SP was intended to assess communication about one's own sexual preferences as well as communication about a partner's sexual preferences. Accordingly, the shortened item set retained parallel self- and partner-oriented content. Items were also selected to represent concrete domains of sexual preference communication that were likely to be broadly relevant and interpretable, such as preferred touch, sexual positions, sexual frequency, and ways of initiating sexual activity. More nuanced items, including items related to fantasies, turn-offs, or disengagement during sex, were removed because these topics may involve greater conceptual variability across participants and were less consistently represented within the emerging factor structure.

This reduction resulted in a final 12-item MSC-SP item set. The shortened scale was then carried forward into the psychometric analyses reported in the dissertation. Importantly, this item reduction was not intended to narrow the theoretical definition of sexual preference communication, but rather to improve the measurement of the construct by reducing redundancy, increasing parsimony, enhancing interpretability, and improving model fit.

Analytic Process for Scale Validation

EFA and subsequent CFA were both conducted on Sample 1 to refine and preliminarily test the latent structure of the MSC-SP and MSC-SS questionnaires. EFA was conducted to

examine the dimensionality of the newly developed MSC-SP and MSC-SS items, to identify factors aligned with the literature-grounded framework, and to interpret the structure within this framework. A preliminary CFA was then used to evaluate the model fit of the EFA and literature-derived structure. Although conducting both EFA and CFA within the same sample can lead to inflated model fit estimates, the CFA was conducted to test the model, which was based on the EFA results and additional constraints derived from the underlying conceptual framework. Though it is more common to have separate or split samples, this approach has been used in previous scale development (e.g., Rehman et al., 2019). Given the adequate model fit observed in the first sample, I collected an independent second sample to strengthen rigor through replication of the CFA models in Sample 2. Using an independent sample provides a rigorous test of the factor structure's replicability and generalizability, helping to mitigate concerns about overfitting and sample-specific bias. This approach aligns with best practices in scale development, which emphasize the importance of replicating model structures to establish generalizability (DeVellis & Thorpe, 2022).

For all models, I evaluated the model's fit using several goodness-of-fit indices (Brown, 2015; Marsh et al., 2004): the robust Comparative Fit Index (CFI; values ≥ 0.95 good, ≥ 0.90 acceptable fit), the robust Tucker-Lewis Index (TLI; values ≥ 0.95 good, ≥ 0.90 acceptable fit), the Robust Root Mean Square Error of Approximation (RMSEA), including its 90% confidence interval (CI; ≤ .06 good, ≤. 08 acceptable fit) with values ≤ 0.10 considered acceptable, and, specific to the EFA models, and Standardized Root Mean Square Residual (SRMR). For the CFA and measurement-invariance models, I used the robust maximum likelihood (MLR) estimator, which is appropriate for continuous data using the FIML approach for missing data (Newman, 2014), allowing for the use of all available data while providing robust parameter estimates

(using robust CFI and TLI). For the EFA models, principal axis factoring (PAF) was selected as the extraction method due to its robustness to non-normal distributions using a promax rotation to account for potential correlations among factors, aligning with theoretical expectations (Cureton & Mulaik, 1975). This method is robust to non-normal data distributions and suitable for identifying correlated latent constructs (de Winter & Dodou, 2012). Prior to conducting the EFA, the suitability of the data for factor analysis was evaluated by inspecting the correlation matrix, its determinant, the Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy, and Bartlett's test of sphericity. Following confirmation that the data were appropriate for factor analysis, parallel analysis and visual inspection of the scree plot were used to identify plausible factor solutions. Rather than relying exclusively on a single statistical criterion, multiple competing factor structures were estimated and compared. Specifically, solutions suggested by the parallel analysis were first examined and then compared with more parsimonious alternatives to determine whether fewer factors could adequately represent the data.

The final factor structure was selected based on a combination of statistical and theoretical considerations. For each solution, factor loadings, cross-loadings, communalities, and the overall pattern of item-factor relationships were examined. Items were evaluated with respect to the strength and clarity of their primary loadings, the presence of substantial cross-loadings, and their consistency with the emerging conceptual structure. Following the recommendations of Tabachnick and Fidell (2013), items were evaluated based on the strength and clarity of their factor loadings. Items were retained when they demonstrated a meaningful primary loading ($\geq$ .45) on a single factor and minimal cross-loadings ($<$ .30) on other factors. I paid particular attention to items with substantial cross-loadings, as strong associations with multiple factors can reduce the interpretability and distinctiveness of the factor structure. I also evaluated factors

based on their theoretical coherence, interpretability, and conceptual distinctiveness. When competing solutions demonstrated similar statistical performance, preference was given to the more parsimonious structure that provided clearer theoretical interpretation and stronger conceptual alignment with the proposed dimensions of sexual communication. Thus, factor retention decisions were informed by (a) evidence from parallel analysis, (b) inspection of the scree plot, (c) comparison of alternative factor solutions, (d) examination of factor loadings and cross-loadings, and (e) theoretical interpretability and conceptual coherence of the resulting factors.

To evaluate whether the questionnaire has possible measurement biases that would lead to invalid comparisons across groups, I conducted a series of measurement invariance tests following the outlined guidelines for CFA (Millsap, 2011), testing and comparing six levels of invariance using increasingly constrained parameters, following the approaches of previous studies (e.g., Bőthe et al., 2023). The initial four steps of invariance testing (configural, metric, scalar, and residual) assess the presence of potential measurement-related differences and biases across groups, whereas the final two steps evaluate equivalence in latent variances and means and therefore pertain to structural rather than measurement invariance. Although assessment of structural invariance is not required, it can yield informative insights into group-level differences in latent constructs across the groups examined (Milfont & Fischer, 2010; Vandenberg & Lance, 2000). I assessed model fit for each level of invariance following established guidelines of RMSEA ($\Delta RMSEA \leq 0.015$; Chen, 2007; Cheung & Rensvold, 2002) and a significant decrease in CFI ($\Delta CFI \leq 0.01$ as acceptable).

To create the groups for the measurement invariance tests, I created sets of binary categories based on their responses to questions about their identity on the background

questionnaire (See Table 3). My focus was on evaluating possible gender and sexual identity-based differences by assessing differences between 1) cisgender and gender diverse and 2) heterosexual compared to sexually diverse participants based on their responses to the background questionnaire, despite unbalanced sample sizes across groups (Yoon & Lai, 2018). Though some previous work has highlighted the importance of examining differences across sexually diverse and gender diverse groups, given unique differences for individuals with different (e.g., Borgogna et al., 2019; Feinstein et al., 2021) as well as intersecting (Warner & Shields, 2013) identities, I did not have adequately powered groups to examine differences beyond these grouped dyad comparisons. I included two other exploratory invariance tests based on previous studies that have reported differences in sexual functioning based on age and race/ethnicity. I assessed invariance across younger compared to older adults based on the age distribution of my sample (e.g., younger 18-34, encompassing both emergent and young adult groups, and older 35+; Park et al., 2006). I also assessed invariance across race by comparing White participants to a group of all other racial groups in both samples, and across origin in Sample 2 by comparing White-North American participants to all other race/ethnicity with origin descriptor categories, to test whether a measure developed in a North American context functioned equivalently for those with and without North American origin. Although *origin* was not explicitly assessed in the demographic questions, this term was subsequently used as a descriptor when constructing the invariance groups to distinguish participants who identified as White and North American from those who identified as White and European (hereafter referred to as race/ethnicity-origin). These binary categories were, again, due to power limitations for assessing differences across groups. I evaluated mean-level comparisons across groups if

measurement invariance was achieved using pairwise comparison tests of the groups outlined in Table 3.

For all measures, I assessed reliability using both Cronbach's Alpha and McDonald's Omega (McNeish, 2018), with values between 0.7 and 0.8 considered acceptable and values ≥ 0.8 considered good (Goodboy & Martin, 2020; Nunnally, 1978). To assess the convergent validity of the MSC-SP and MSC-SS questionnaires, I examined correlations with other theoretically relevant correlates, including DSC, SCP, and SAQ-9. In Sample 2, I also assessed divergent validity by comparing the scores to sleep quality (i.e., SQS), which has no previous demonstrated associations with sexual communication. I will discuss all results across both samples for the MSC-SP and then for the MSC-SS.

Table 3

Study 1 Compiled Groups for Invariance Tests

Group Description	Sample 1 *n* (% total)	Sample 2 *n* (% total)
Group 1: Gender identity (grouped categories by cisgender compared to sexually diverse)[5]		
Cismen	111(34)	103(29)
Ciswomen	162(49)	148(42)
Gender diverse	58(18)	102(29)
Group 2: Sexual identity (grouped categories by heterosexual compared to sexually diverse)[5]		
Heterosexual	217(66)	196(56)
Sexually diverse	114(34)	155(44)
Group 3: Ethnicity groups for invariance tests		
White	176(53)	202(57)
All other ethnicities	155(47)	151(43)
Group 4: Age (grouped by younger and older adults)		
Younger (18-34)	173(52)	205(58)
Older (35+)	157(47)	148(42)

Note. Sample 1 $n = 331$ and Sample 2 $n = 353$.

Study 1 Results

MSC-SP Results

Sample 1: MSC-SP Exploratory Factor Analysis

An EFA was conducted to examine the latent structure of the questionnaire and assess its dimensionality (See Table 3). The EFA was performed on Sample 1 data from 331 participants, exceeding the recommended sample size for stable factor analysis results (Sakaluk & Short, 2017). Sampling adequacy was confirmed using the Kaiser-Meyer-Olkin (KMO) Measure of Sampling Adequacy, which yielded an overall value of 0.95, indicating excellent suitability for factor analysis. Bartlett's Test of Sphericity was significant ($x^2 = 6178.09$, $p < .001$), supporting the presence of sufficient inter-item correlations. Given evidence of moderate deviation from normality in the data, based on Henze-Zirkler tests (all items, $p < .001$), PAF with promax rotation was employed.

Parallel analysis suggested a three-factor solution; however, I opted for a two-factor model based on several considerations. First, the two-factor solution accounted for 59% of the variance, with Factors 1 and 2 explaining 28% and 25%, respectively. In contrast, Factor 3 contributed only an additional 3% of variance combined, suggesting a limited substantive contribution. Only two factors had factor loadings greater than .45 on Factor 3, both of which strongly cross-loaded on another factor. Second, the scree plot demonstrated a clear inflection point after the second factor, supporting the two-factor solution. Third, the two retained factors aligned with the theoretical constructs of the perceived consequences and depth of disclosing sexual dislikes, ensuring greater interpretability and coherence with the conceptual framework. Finally, the two-factor solution was more parsimonious, offering a more straightforward yet sufficient model, as indicated by acceptable fit indices, described below. Retaining three factors

would have introduced unnecessary complexity without substantive gains in theoretical or practical utility.

The two-factor solution explained 59% of the total variance, with Factor 1 accounting for 31% and Factor 2 accounting for 28%. Standardized loadings ranged from 0.66 to 0.86, with minimal cross-loadings (< 0.30). Factor 1 included items primarily related to the questions about the perceived consequences of disclosure to the relationship (i.e., *perceived consequences*), while Factor 2 encompassed items reflecting the actual depth of disclosure (i.e., *depth of disclosure*). The factors were strongly correlated ($r = 0.68$), justifying the use of an oblique rotation. Communalities (h^2) ranged from 0.47 to 0.69, indicating that a substantial portion of the variance in individual items was explained by the factors. The mean item complexity was 1.0, demonstrating that items primarily loaded on a single factor.

Indices of model fit support that the model is a reasonable representation of the data, including SRMR of 0.05 (indicating good fit), TLI of 0.846 (indicating acceptable but borderline fit), and RMSEA of 0.10 (90% CI 0.09 - 0.11; borderline acceptable model fit; Kenny et al., 2015). Although the RMSEA point estimate exceeded conventional guidelines, Quintana and Maxwell (1999) argued that confidence intervals provide a more informative basis for evaluating RMSEA because they reflect the precision of the estimate rather than relying solely on a single cutoff value. Additionally, RMSEA has been shown to perform poorly in models with relatively few degrees of freedom, often indicating a worse fit than warranted (Kenny et al., 2015). Accordingly, the fit statistics were interpreted collectively rather than relying on any single index. Given the strong SRMR, the borderline TLI, and the exploratory nature of this phase of analysis, the factor solution was retained for further evaluation in a confirmatory factor analysis, depicted in Figure 3.

Table 4

Study 1 Sample 1 Standardized factor loadings, reliability indices, and descriptive statistics of the Multidimensional Sexual Communication Questionnaire – Sexual Preferences (MSC-SP).

	Sample 1 (N = 331) Factor Loadings	
	Factor 1	Factor 2
C 1.1 Where I like to be touched	.84	
D 1.2 Where I like to be touched		.72
C 2.1 Where I do not like to be touched	.76	
D 2.2 Where I do not like to be touched		.66
C 3.1 The sexual positions I like	.79	
D 3.2 The sexual positions I like		.70
C 4.1 The sexual positions I don't like	.69	
D 4.2 The sexual positions I don't like		.69
C 5.1 How frequently I want to engage in sexual activity	.84	
D 5.2 How frequently I want to engage in sexual activity		.73
C 6.1 How I like my partner to initiate sex	.70	
D 6.2 How I like my partner to initiate sex		.76
C 7.1 Where my partner likes to be touched	.83	
D 7.2 Where my partner likes to be touched		.58
C 8.1 Where my partner does not like to be touched	.80	
D 8.2 Where my partner does not like to be touched		.84
C 9.1 The sexual positions my partner likes	.73	
D 9.2 The sexual positions my partner likes		.74
C 10.1 The sexual positions my partner doesn't like	.67	
D 10.2 The sexual positions my partner doesn't like		.86
C 11.1 How frequently my partner wants to engage in sexual activity	.73	
D 11.2 How frequently my partner wants to engage in sexual activity		.69
C 12.1 How my partner likes me to initiate sex	.75	

D 12.2 How frequently my partner wants to engage in sexual activity			.73
	Descriptive Statistics		
	Mean (SD)	Skewness (SE)	Kurtosis (SE)
C Total Score	911.26 (211.11)	-0.37 (0.14)	-0.75 (0.27)
D Total Score	813.11 (278.46)	-0.59 (0.14)	-0.36 (0.27)
Item 1.1 C	79.53 (20.77)	-0.81 (0.13)	-0.18 (0.27)
Item 1.2 D	70.55 (28.34)	-0.90 (0.13)	-0.17 (0.27)
Item 2.1 C	73.71 (23.47)	-0.51 (0.13)	-0.62 (0.27)
Item 2.2 D	67.85 (32.04)	-0.74 (0.13)	-0.75 (0.27)
Item 3.1 C	78.62 (21.27)	-0.81 (0.13)	-0.11 (0.27)
Item 3.2 D	70.91 (28.31)	-0.92 (0.13)	-0.16 (0.27)
Item 4.1 C	71.36 (23.57)	-0.44 (0.13)	-0.39 (0.27)
Item 4.2 D	61.27 (33.03)	-0.49 (0.13)	-1.09 (0.27)
Item 5.1 C	69.76 (25.58)	-0.52 (0.13)	-0.62 (0.27)
Item 5.2 D	68.87 (29.34)	-0.71 (0.13)	-0.66 (0.27)
Item 6.1 C	74.22 (22.99)	-0.75 (0.13)	-0.02 (0.27)
Item 6.2 D	61.91 (31.13)	-0.53 (0.13)	-0.95 (0.27)
Item 7.1 C	81.33 (20.57)	-1.01 (0.13)	0.38 (0.27)
Item 7.2 D	73.06 (26.58)	-1.02 (0.13)	0.36 (0.27)
Item 8.1 C	77.80 (21.99)	-0.73 (0.13)	-0.37 (0.27)
Item 8.2 D	68.32 (30.73)	-0.75 (0.13)	-0.65 (0.27)
Item 9.1 C	80.46 (20.08)	-0.78 (0.13)	-0.44 (0.27)
Item 9.2 D	74.28 (26.33)	-1.09 (0.13)	0.41 (0.27)
Item 10.1 C	75.63 (21.79)	-0.56 (0.13)	-0.41 (0.27)
Item 10.2 D	62.84 (31.90)	-0.50 (0.13)	-0.98 (0.27)
Item 11.1 C	72.38 (22.82)	-0.49 (0.13)	-0.48 (0.27)
Item 11.2 D	69.92 (29.26)	-0.78 (0.13)	-0.51 (0.27)
Item 12.1 C	76.12 (21.87)	-0.81 (0.13)	0.33 (0.27)
Item 12.2 D	61.92 (31.53)	-0.50 (0.13)	-1.01 (0.27)

Note: Sample 1 $N = 331$. Only factor loadings ≥ .4 are included. C = question about perceived consequences to the relationship of communicating the topic. D = questions about actual depth of disclosure of communicating the topic. SD = standard deviation. SE = standard error.

Figure 3

Study 1 Sample 1 Final Exploratory Factor Analysis Factor Structure for the Multidimensional Sexual Communication Questionnaire – Sexual Preferences



Sample 1: MSC-SP Confirmatory Factor Analyses

Using the EFA results, I conducted CFA to examine the questionnaire's structural validity. I specified a model that included the two factors identified in the EFA, with a correlation between them to account for their observed relationship. Because the same items were asked across two dimensions (perceived consequences and depth of disclosure), I accounted for wording effects by correlating the residuals of corresponding items across these dimensions. As each item was assessed for both self- and partner-related contexts, I correlated residuals for self- and partner-related items within and across the two dimensions as well. For instance, the residuals for a self-related item in the consequences dimension were correlated with the corresponding partner-related item for both consequences and depth. This approach was applied consistently across all items. In total, the model included 12 items for consequences, 12 items for depth, the correlation between the two factors, 12 correlations to account for wording effects, and 12 correlations for self- and partner-related items. This comprehensive approach ensured the model captured the unique measurement properties of the items while aligning with the literature-grounded framework guiding the study.

The model demonstrated good fit to the data, with a robust CFI of 0.971, a robust TLI of 0.963, and a robust RMSEA of 0.049 (90% CI = 0.038-0.059). These results suggest that the model appropriately represents the observed data. Internal consistency was excellent across both factors (α = 0.93-0.95, ω = 0.94-0.95; see Table 2). Measurement invariance was established across all groups up to the level of latent means, the highest level tested, and the fit indices are depicted in Tables 7-11. When comparing observed group means, there was only one significant finding: younger adults (18-34) perceived more positive consequences of disclosure (n^2 = 0.03; p = .004) than older adults (35+; See Table 17).

Convergent validity for the MSC-SP was assessed through correlations with established measures of sexual communication (i.e., DSC, SCP, and SAQ-9). All correlations were significant at the $p < .01$ level and in the expected directions. The MSC-SP subscales were positively associated with dyadic sexual communication, collaborative sexual communication patterns, and sexual assertiveness and negatively associated with negative sexual communication patterns. The associations were moderate in magnitude, ranging from $|r| = .31$ to .58 (See Table 5). Taken together, these findings provide support for the convergent validity of the MSC-SP, suggesting that the measure assesses constructs that are theoretically consistent with established measures of sexual communication while contributing a distinct conceptualization of sexual communication processes.

Table 5

Study 1 Sample 1 and Sample 2 Correlations to Assess Convergent and Divergent Validity

Measured Construct	MSC-SP-C	MSC-SP-D	MSC-SS-PC	MSC-SS-PD	MSC-SS-CC	MSC-SS-CD	DSC	SCP Col	SCP Neg	SAQ-9
MSC-SP Cons	–	.68**	.53**	.38**	.56**	.41**	.58**	.54**	-.45**	.47**
MSC-SP Dep	.56**	–	.50**	.52**	.36**	.09	.53**	.50**	–.31**	.53**
MSC-SS-PC	.46**	.38**	–	.68**	.69**	.54**	.36**	.33**	–.25**	.44**
MSC-SS-PD	.26**	.41**	.69**	–	.46**	.60**	.34**	.32**	–.20**	.47**
MSC-SS-CC	.61**	.44**	.66**	.41**	–	.74**	.29**	.28**	–.15*	.41**
MSC-SS-CD	.36**	.56**	.51**	.59**	.66**	–	.24**	.31**	–.04	.51**
DSC	.61**	.55**	.32**	.30**	.40**	.34**	–	.62**	–.68**	.48**
SCP Col	.56**	.52**	.30**	.27**	.39**	.36**	.64**	–	–.42**	.47**
SCP Neg	–.48**	–.36**	–.23**	–.18**	–.25**	–.17**	–.70**	–.46**	–	–.31**
SQS	–.09	–.09	–.03	.05	–.03	.00	–.13*	–.14**	.20**	–

Note: Sample 1 upper right section of the table. Sample 2 lower left section of the table. SAQ-9 was only assessed in Sample 1 and SQS was only assessed in Sample 2. MSC-SP = Multidimensional Sexual Communication Questionnaire-Sexual Preferences -C = perceived consequences; D = depth of disclosure. MSC-SS = Multidimensional Sexual Communication Questionnaire-Safer Sex -PC = past sexual experiences perceived consequences; -PD = past sexual experiences depth of disclosure; -CC = current planning perceived consequences; -CD = current planning depth of disclosure. DSC = Dyadic Sexual Communication Scale. SCP = Sexual Communication Patterns Questionnaire, Collaborative Patterns Subscale (Col) and Negative Patterns Subscale (Neg). SAQ-9 = Sexual Assertiveness Questionnaire. ** $p < .001$

Sample 2: MSC-SP Confirmatory Factor Analyses

Using the second independent sample, the same CFA model was replicated. The model, again, demonstrated an excellent fit to the data, with a robust CFI of 0.962, a robust TLI of 0.951, and a robust RMSEA of 0.053 (90% CI = 0.043-0.063). Latent mean invariance was established for all analyses and the fit indices are depicted in Tables 7-11. Internal consistency was high across both factors (α = 0.93-0.94, ω = 0.93-0.94; see Table 2). When comparing observed group means, there was only one significant finding: sexually diverse individuals perceived more positive consequences of disclosure (n^2 = 0.01; p = .049) and engaged in more depth of disclosure (n^2 = 0.01; p = .038) than heterosexual individuals (See Table 17).

Convergent validity for the MSC-SP was, again, assessed through correlations with established measures of sexual communication (i.e., DSC and SCP). All correlations were statistically significant and in the expected directions. The MSC-SP subscales were positively associated with dyadic sexual communication and collaborative sexual communication patterns and negatively associated with negative sexual communication patterns. Associations were moderate in magnitude, ranging from |r| = .36 to .61. Divergent validity was also assessed using sleep quality (i.e., SQS), which has not been previously linked to sexual communication, and did not significantly correlate with either subscale, though did have small significant correlations with the DSC (r = 0.13; p < .05) and SCP subscales (r = 0.14 collaborative patterns; r = 0.20 negative patterns; ps < .01). See Table 5 for all correlations. Consistent with Sample 1, these findings provide support for the convergent and divergent validity of the MSC-SP, suggesting that the measure assesses constructs that are theoretically consistent with established measures of sexual communication while remaining distinct from unrelated constructs.

Table 6

Study 1 Sample 1 and Sample 2 Sexual Identity-based Confirmatory Factor Analyses and Tests of Invariance on the Multidimensional Sexual Communication Questionnaire – Sexual Preferences (MSC-SP)

Model	MLR χ^2	df	Robust CFI	Robust TLI	Robust RMSEA	90% CI	Comp.	Δdf	ΔCFI	ΔTLI	ΔRMSEA
S1. Full Model	339.98*	215	0.971	0.963	0.049	0.038-0.059					
S1. Heterosexual Only	*307.33**	*215*	*0.970*	*0.962*	*0.051*	*0.036-0.064*					
S1. Sexually Diverse Only	*358.74**	*215*	*0.921*	*0.899*	*0.081*	*0.064-0.098*					
S2. Full Model	365.05*	215	0.962	0.951	0.053	0.043-0.063					
S2. Heterosexual Only	*393.71**	*215*	*0.937*	*0.896*	*0.071*	*0.058-0.083*					
S2. Sexually Diverse Only	*366.63**	*215*	*0.925*	*0.904*	*0.075*	*0.059-0.089*					
Sexuality-based invariance											
M1. Configural S1.	663.45*	430	0.954	0.941	0.063	0.052-0.073	—	—	—	—	—
M2. Metric S1.	689.98*	452	0.953	0.943	0.062	0.051-0.072	M2-M1	22	-0.001	+0.002	-0.001
M3. Scalar S1.	715.02*	474	0.953	0.945	0.060	0.050-0.070	M3-M2	22	+0.000	+0.002	-0.002
M4. Residual S1.	723.66*	498	0.955	0.950	0.058	0.048-0.068	M4-M3	24	+0.002	+0.005	-0.002
M5. Latent variance-covariance S1.	732.53*	501	0.954	0.949	0.058	0.048-0.068	M5-M4	3	-0.001	-0.001	+0.000
M6. Latent mean S1.	736.04*	503	0.954	0.949	0.048	0.048-0.068	M6-M5	2	0.000	0.000	-0.010
M1. Configural S2.	759.90*	430	0.932	0.913	0.073	0.063-0.082	—	—	—	—	—

M2. Metric S2.	782.44*	452	0.932	0.917	0.071	0.061-0.080	M2-M1	22	0.000	+0.004	-0.002
M3. Scalar S2.	814.98*	474	0.931	0.919	0.070	0.060-0.079	M3-M2	22	-0.001	+0.002	-0.001
M4. Residual S2.	835.96*	498	0.929	0.921	0.069	0.060-0.078	M4-M3	24	-0.002	+0.002	-0.001
M5. Latent variance-covariance S2.	837.61*	501	0.929	0.921	0.069	0.060-0.078	M5-M4	3	0.000	0.000	0.000
M6. Latent mean S2.	842.99*	503	0.928	0.921	0.069	0.060-0.078	M6-M5	2	-0.001	0.000	0.000

Note. S1 = Sample 1; S2 = Sample 2; MLR = maximum likelihood with robust standard errors (scaled); χ^2 = Chi-square; df = degrees of freedom; CFI = comparative fit index (robust); TLI = Tucker-Lewis Index (robust); RMSEA = root-mean-square error of approximation (robust); 90% CI = 90% confidence interval of the RMSEA; Comp. = Comparison; ΔCFI = change in CFI value compared to the preceding model; ΔTLI = change in the TLI value compared to the preceding model; ΔRMSEA = change in the RMSEA value compared to the preceding model. Bolded rows indicate the final level of invariance that was achieved. * $p < .001$.

Table 7

Study 1 Sample 1 and Sample 2 Gender-based (cisgender compared to sexually diverse) Confirmatory Factor Analyses and Tests of Invariance on the Multidimensional Sexual Communication Questionnaire – Sexual Preferences (MSC-SP)

Model	MLR χ^2	df	Robust CFI	Robust TLI	Robust RMSEA	90% CI	Comp.	Δdf	ΔCFI	ΔTLI	ΔRMSEA
S1. Full Model	339.98*	215	0.971	0.963	0.049	0.038-0.059					
S1. Cisgender only	*313.45**	*215*	*0.974*	*0.967*	*0.046*	*0.033-0.058*					
S1. Sexually diverse only	*550.82**	*215*	*0.765*	*0.698*	*0.163*	*0.144-0.182*					
S2. Full Model	365.05*	215	0.962	0.951	0.053	0.043-0.063					
S2. Cisgender only	*336.91**	*215*	*0.962*	*0.951*	*0.054*	*0.041-0.066*					
S2. Sexually diverse only	*412.30**	*215*	*0.878*	*0.843*	*0.097*	*0.080-0.114*					
Gender-based invariance											
M1. Configural S1.	834.12*	430	0.926	0.905	0.081	0.071-0.090	—	—	—	—	—
M2. Metric S1.	847.34*	452	0.927	0.911	0.078	0.069-0.087	M2-M1	22	+0.001	+0.006	-0.003
M3. Scalar S1.	879.56*	474	0.926	0.913	0.077	0.068-0.086	M3-M2	22	-0.001	+0.002	-0.001
M4. Residual S1.	903.04*	498	0.924	0.916	0.076	0.067-0.085	M4-M3	24	-0.002	+0.003	-0.001
M5. Latent variance-covariance S1.	910.99*	501	0.923	0.916	0.076	0.067-0.085	M5-M4	3	-0.001	0.000	0.000
M6. Latent mean S1.	913.53*	503	0.923	0.916	0.076	0.067-0.085	M6-M5	2	0.000	0.000	0.000
M1. Configural S2.	741.52*	430	0.938	0.920	0.069	0.059-0.079	—	—	—	—	—

M2. Metric S2.	776.07*	452	0.935	0.921	0.069	0.059-0.078	M2-M1	22	-0.003	+0.001	0.000
M3. Scalar S2.	809.39*	474	0.934	0.923	0.068	0.059-0.077	M3-M2	22	-0.001	+0.002	-0.001
M4. Residual S2.	828.09*	498	0.933	0.926	0.067	0.058-0.076	M4-M3	24	-0.001	+0.003	-0.001
M5. Latent variance-covariance S2.	831.01*	501	0.933	0.926	0.067	0.057-0.076	M5-M4	3	0.000	0.000	0.000
M6. Latent mean S2.	833.96*	503	0.933	0.926	0.067	0.057-0.076	M6-M5	2	0.000	0.000	0.000

Note. MLR = maximum likelihood with robust standard errors (scaled); χ^2 = Chi-square; df = degrees of freedom; CFI = comparative fit index (robust); TLI = Tucker-Lewis Index (robust); RMSEA = root-mean-square error of approximation (robust); 90% CI = 90% confidence interval of the RMSEA; Comp. = Comparison; ΔCFI = change in CFI value compared to the preceding model; ΔTLI = change in the TLI value compared to the preceding model; ΔRMSEA = change in the RMSEA value compared to the preceding model. Bolded rows indicate the final level of invariance that was achieved. * $p < .001$.

Table 8

Study 1 Sample 1 and Sample 2 Age-based (Younger adults 18-34/Older adults 35+) Confirmatory Factor Analyses and Tests of Invariance on the Multidimensional Sexual Communication Questionnaire – Sexual Preferences (MSC-SP)

Model	MLR χ^2	df	Robust CFI	Robust TLI	Robust RMSEA	90% CI	Comp.	Δdf	ΔCFI	ΔTLI	ΔRMSEA
S1. Full Model	339.98*	215	0.971	0.963	0.049	0.038-0.059					
S1. Younger only	*319.31**	*215*	*0.955*	*0.943*	*0.058*	*0.043-0.072*					
S1. Older only	*339.98**	*215*	*0.968*	*0.959*	*0.055*	*0.035-0.072*					
S2. Full Model	365.05*	215	0.962	0.951	0.053	0.043-0.063					
S2. Younger only	*336.51**	*215*	*0.953*	*0.940*	*0.059*	*0.045-0.072*					
S2. Older only	*365.05**	*215*	*0.910*	*0.884*	*0.086*	*0.072-0.100*					
Age-based invariance											
M1. Configural S1.	620.98*	430	0.962	0.951	0.057	0.045-0.067	—	—	—	—	—
M2. Metric S1.	641.42*	452	0.963	0.954	0.055	0.043-0.065	M2-M1	22	+0.001	+0.003	-0.002
M3. Scalar S1.	668.14*	474	0.962	0.956	0.054	0.042-0.064	M3-M2	22	-0.001	+0.002	-0.001
M4. Residual S1.	686.24*	498	0.963	0.959	0.052	0.040-0.062	M4-M3	24	+0.001	+0.003	-0.002
M5. Latent variance-covariance S1.	689.96*	501	0.963	0.959	0.052	0.040-0.062	M5-M4	3	0.000	0.000	0.000
M6. Latent mean S1.	701.06*	503	0.961	0.957	0.053	0.042-0.063	M6-M5	2	-0.002	-0.002	+0.001
M1. Configural S2.	753.60*	430	0.934	0.915	0.072	0.062-0.081	—	—	—	—	—

M2. Metric S2.	780.27*	452	0.933	0.919	0.070	0.061-0.080	M2-M1	22	+0.001	+0.003	-0.002
M3. Scalar S2.	811.83*	474	0.932	0.921	0.069	0.060-0.078	M3-M2	22	-0.001	+0.002	-0.001
M4. Residual S2.	830.66*	498	0.931	0.923	0.068	0.059-0.077	M4-M3	24	+0.001	+0.003	-0.002
M5. Latent variance-covariance S2.	833.10*	501	0.931	0.924	0.068	0.059-0.077	M5-M4	3	0.000	0.000	0.000
M6. Latent mean S2.	835.55*	503	0.931	0.924	0.068	0.059-0.077	M6-M5	2	-0.002	-0.002	+0.001

Note. MLR = maximum likelihood with robust standard errors (scaled); χ^2 = Chi-square; df = degrees of freedom; CFI = comparative fit index (robust); TLI = Tucker-Lewis Index (robust); RMSEA = root-mean-square error of approximation (robust); 90% CI = 90% confidence interval of the RMSEA; Comp. = Comparison; ΔCFI = change in CFI value compared to the preceding model; ΔTLI = change in the TLI value compared to the preceding model; ΔRMSEA = change in the RMSEA value compared to the preceding model. Bolded rows indicate the final level of invariance that was achieved. * $p < .001$.

Table 9

Study 1 Sample 1 and Sample 2 Race-based (White and all other races) Confirmatory Factor Analyses and Tests of Invariance on the Multidimensional Sexual Communication Questionnaire – Sexual Preferences (MSC-SP)

Model	MLR χ^2	df	Robust CFI	Robust TLI	Robust RMSEA	90% CI	Comp.	Δdf	ΔCFI	ΔTLI	ΔRMSEA
S1. Full Model	339.98*	215	0.971	0.963	0.049	0.038-0.059					
S1. White only	*304.86**	*215*	*0.967*	*0.958*	*0.053*	*0.035-0.068*					
S1. Other races	*349.78**	*215*	*0.946*	*0.931*	*0.068*	*0.052-0.082*					
S2. Full Model	365.05*	215	0.962	0.951	0.053	0.043-0.063					
S2. White only	*365.05**	*215*	*0.968*	*0.959*	*0.049*	*0.032-0.063*					
S2. Other races	*420.38**	*215*	*0.939*	*0.922*	*0.049*	*0.032-0.063*					
Race-based invariance											
M1. Configural S1.	652.94*	430	0.958	0.946	0.060	0.049–0.071	—	—	—	—	—
M2. Metric S1.	676.54*	452	0.957	0.948	0.059	0.048–0.069	M2-M1	22	-0.001	+0.002	-0.001
M3. Scalar S1.	701.15*	474	0.957	0.950	0.058	0.047–0.068	M2-M1	22	0.000	+0.002	+0.001
M4. Residual S1.	706.21*	498	0.960	0.956	0.054	0.043–0.065	M4-M3	24	+0.003	+0.006	-0.004
M5. Latent variance-covariance S1.	710.05*	501	0.960	0.956	0.054	0.043–0.064	M5-M4	3	0.000	0.000	0.000
M6. Latent mean S1.	711.51*	503	0.960	0.956	0.054	0.043–0.064	M6-M5	2	0.000	0.000	0.000
M1. Configural S2.	644.22*	430	0.956	0.944	0.058	0.046–0.068	—	—	—	—	—

M2. Metric S2.	674.74*	452	0.955	0.945	0.057	0.046–0.067	M2-M1	22	-0.001	+0.001	-0.001
M3. Scalar S2.	705.47*	474	0.954	0.946	0.057	0.046–0.067	M3-M2	22	-0.001	-0.001	0.000
M4. Residual S2.	716.37*	498	0.955	0.950	0.055	0.044–0.065	M4-M3	24	+0.001	+0.004	-0.002
M5. Latent variance-covariance S2.	721.21*	501	0.954	0.950	0.055	0.044–0.065	M5-M4	3	-0.001	0.000	0.000
M6. Latent mean S2.	722.40*	503	0.954	0.950	0.054	0.044–0.064	M6-M5	2	0.000	0.000	-0.001

Note. MLR = maximum likelihood with robust standard errors (scaled); χ^2 = Chi-square; df = degrees of freedom; CFI = comparative fit index (robust); TLI = Tucker-Lewis Index (robust); RMSEA = root-mean-square error of approximation (robust); 90% CI = 90% confidence interval of the RMSEA; Comp. = Comparison; ΔCFI = change in CFI value compared to the preceding model; ΔTLI = change in the TLI value compared to the preceding model; ΔRMSEA = change in the RMSEA value compared to the preceding model. Bolded rows indicate the final level of invariance that was achieved. * $p < .001$.

Table 10

Study 1 Sample 2 Race/Ethnicity-origin-based (White North American and all other race/ethnicity-origins) Confirmatory Factor Analyses and Tests of Invariance on the Multidimensional Sexual Communication Questionnaire – Sexual Preferences (MSC-SP)

Model	MLR χ^2	df	Robust CFI	Robust TLI	Robust RMSEA	90% CI	Comp.	Δdf	ΔCFI	ΔTLI	ΔRMSEA
S2. Full Model	365.05*	215	0.962	0.951	0.053	0.043-0.063					
S2. White North American only	*365.05**	*215*	*0.959*	*0.947*	*0.055*	*0.040-0.069*					
S2. All other race/ ethnicities-origins only	*365.05**	*215*	*0.928*	*0.908*	*0.077*	*0.062-0.092*					
Ethnicity-based invariance											
M1. Configural S2.	644.22*	430	0.956	0.944	0.058	0.046–0.068	—	—	—	—	—
M2. Metric S2.	674.74*	452	0.955	0.945	0.057	0.046–0.067	M2-M1	22	-0.001	+0.001	-0.001
M3. Scalar S2.	705.47*	474	0.954	0.946	0.057	0.046–0.067	M2-M1	22	-0.001	+0.001	0.000
M4. Residual S2.	716.37*	498	0.955	0.950	0.055	0.044–0.065	M4-M3	24	+0.001	+0.004	-0.002
M5. Latent variance-covariance S2.	721.21*	501	0.954	0.950	0.055	0.044–0.065	M5-M4	3	-0.001	0.000	0.000
M6. Latent mean S2.	722.40*	503	0.954	0.950	0.054	0.044–0.064	M6-M5	2	0.000	0.000	-0.001

Note. MLR = maximum likelihood with robust standard errors (scaled); χ^2 = Chi-square; df = degrees of freedom; CFI = comparative fit index (robust); TLI = Tucker-Lewis Index (robust); RMSEA = root-mean-square error of approximation (robust); 90% CI = 90% confidence interval of the RMSEA; Comp. = Comparison; ΔCFI = change in CFI value compared to the preceding model; ΔTLI = change in the TLI value compared to the preceding model; ΔRMSEA = change in the RMSEA value compared to the preceding model. Bolded rows indicate the final level of invariance that was achieved. * $p < .001$

Table 11

Study 1 Pairwise Comparisons from Samples 1 and 2 for the MSC-SP

Group Comparison	Group Label					
Sexual Identity	**Sample 1**	*N*	*M*	*SD*		
	Heterosexual S1	212	895.79	210.78		
	Nonheterosexual S1	113	940.29	209.58		
		MS	*F*	*p*	n^2	*95% CI*
	Pairwise S1	145993.96	3.299	0.070	0.010	0.000-0.042
	Sample 2	N	M	SD		
	Heterosexual S2	196	904.96	221.21		
	Nonheterosexual S2	155	949.99	200.41		
		MS	*F*	*p*	n^2	*95% CI*
	Pairwise S2	175537.03	3.895	0.049	0.011	0.000-0.042
Cisgender and Gender Diverse	**Sample 1**	N	M	SD		
	Cisgender S1	266	902.78	205.77		
	Gender Diverse S1	59	949.49	231.70		
		MS	*F*	*p*	n^2	*95% CI*
	Pairwise S1	105356.67	2.374	0.124	0.007	0.000-0.036
	Sample 2	N	M	SD		
	Cisgender S2	251	914.09	217.15		
	Gender Diverse S2	102	948.53	201.64		
		MS	*F*	*p*	n^2	*95% CI*
	Pairwise S2	86033.96	1.900	0.169	0.005	0.000-0.031
Age	**Sample 1**	N	M	SD		
	Younger S1	173	942.1561	173		
	Older S1	151	874.2185	151		
		MS	*F*	*p*	n^2	*95% CI*
	Pairwise S1	372132.41	8.556	0.004	0.026	0.003-0.069
	Sample 2	N	M	SD		
	Younger S2	205	938.60	196.86		
	Older S2	148	903.86	232.86		
		MS	*F*	*p*	n^2	*95% CI*
	Pairwise S2	103729.152	2.293	0.131	0.006	0.000-0.033
Race	**Sample 1**	N	M	SD		

	White S1	172	911.15	208.62		
	All other races S1	153	911.39	214.55		
		MS	*F*	*p*	n^2	*95% CI*
	Pairwise S1	4.932	0.000	0.992	0.000	0.000-0.000
	Sample 2	N	M	SD		
	White S2	202	930.09	221.25		
	All other races S2	151	915.94	202.05		
		MS	*F*	*p*	n^2	*95% CI*
	Pairwise S2	17309.77	0.381	0.538	0.001	0.000-0.018
Race/Ethnicity-Origins	Sample 2	N	M	SD		
	White North American S2	194	924.01	223.67		
	All other race/ethnicity-origins S2	159	924.08	200.08		
		MS	*F*	*p*	n^2	*95% CI*
	Pairwise S2	45529.60	0.000	0.997	0.000	0.000-0.000

Notes: *M* = mean; *SD* = standard deviation; MS = mean square; *F* = F value; n^2 = eta squared as an indicator of effect size; 95% CI = 95% confidence interval for the eta squared effect size.

MSC-SS Results

The same approach to scale validation was implemented for the MSC-SS (EFA and CFA models with Sample 1 data, replicating the CFA model with Sample 2 data).

Sample 1: MSC-SS Exploratory Factor Analysis

The EFA was performed on the Sample 1 data (n = 331; See Table 5). Sampling adequacy was assessed using the KMO Measure of Sampling Adequacy, which yielded an overall value of 0.91, indicating excellent suitability for factor analysis. Bartlett's Test of Sphericity was significant, χ^2 (231) = 4821.23, $p < 0.001$, supporting the presence of sufficient inter-item correlations for factor extraction. Given evidence of moderate deviation from normality in the data, based on Henze-Zirkler tests (all items, $p < .001$), PAF with promax rotation was employed.

Parallel analysis yielded a six-factor solution. The preregistered two-factor model is described in Appendix A. The first four factors accounted for the most variance (22%, 22%, 19%, and 17%, respectively) and the final two factors accounted for less variance (12% and 8%, respectively). Item 12 (i.e., *Use of STBBI medical prevention methods*) did not have factor loadings greater than 0.45 for the perceived consequences or depth items. This item was retained due to its theoretical importance and its low factor loadings are understood as not being a newer construct for safer sex practices and something that not every participant had experienced; therefore, it may not relevant to the safer sex of all individuals or groups of individuals, though it may be a critical aspect for others. Item 4 for perceived consequences (*Use of drugs and/or alcohol before or during sexual activity*) had cross-loadings on Factor 1 (.53) and Factor 6 (.47), the latter of which only had the perceived consequence and depth items, suggesting differences emerged for this concept. The item was retained due to its theoretical importance and assigned to Factor 6. Item 10, perceived consequences (*If either of us has a current STBBI*), had cross-

loadings on Factor 3 (.58) and Factor 1 (.41). The item was retained due to its theoretical importance and assigned to Factor 3 for its theoretical links to that factor. Overall, the factors reflect the possible construct-irrelevant variance due to the items being theoretically and medically essential for safer sex, though they may not be universally applicable across all participants[4].

Factor 1 captured items related to the perceived consequences of communicating past experiences (i.e., items 7.1, 8.1, 5.1, and 6.1). Factor 2 items related to the depth of disclosure of communicating past experiences (i.e., items 6.2, 7.2, 5.2, 8.2). Factor 3 items related to the perceived consequences and depth of disclosure of creating plans for safer sex (i.e., items 9.1, 9.2, 11.1, 11.2, 10.1, 10.2). Factor 4 items related to the items on barrier use methods (e.g., 1.1, 1.2, 2.1, 2.2). Factor 5 captured the perceived consequences and depth of disclosure of the contraception items (e.g., 3.1, 3.2). Factor 6 captured items related to the perceived consequences and depth of disclosure of substance use related to sexual activity (i.e., 4.1, 4.2). I opted for a four-factor final structure, aggregating Factors 4-6 from the EFA model as they all related to current planning for safer sex. These decisions prioritized conceptual coherence and ensured that the factors retained practical relevance while maintaining the psychometric integrity of the MSC-SS. Theoretically, the items related to communicating past experiences meaningfully differ from those related to planning current sexual experiences. As such, the four-factor CFA model included communicating the (1) perceived consequences and (2) depth of disclosure of *past*

[4] To test this on an exploratory basis, I conducted separate EFAs with the data split by sexual identity (heterosexual compared to sexually diverse participants), though these analyses, especially for sexually diverse participants (n = 114), were underpowered (See Tables 7-16). There were only small differences in model fit indices, though the number of factors and pattern of factor loadings shifted between the models, especially on items that theoretically may be more relevant for sexually diverse participants (e.g., Item 12, which had factor loadings of .71 for perceived consequences and .62 for depth of disclosure).

sexual experiences, as well as communicating related to the (3) perceived consequences and (4) depth of disclosure of the *current planning of sexual experiences*.

The model fit indices, including the SRMR (.03), TLI (.847), and the RMSEA (.09), suggested most fit indices were adequate. The standardized factor loadings in the pattern matrix ranged from -0.28 to 0.97. The factors were moderately correlated, with inter-factor correlations ranging from 0.23 to 0.68, supporting the use of an oblique rotation. Communalities (h^2) ranged from 0.43 to 0.88, indicating that the extracted factors explained a substantial portion of the variance in individual items. The mean item complexity was 1.8, demonstrating that most items mostly load on one factor but may show some moderate cross-loadings, as outlined above. The main inflection point of the scree plot was two factors, which is consistent with the factor structure of the MSC-SP. The factor structure is depicted in Figure 4.

Table 12

Study 1 Sample 1 Standardized factor loadings, reliability indices, and descriptive statistics of the Multidimensional Sexual Communication Questionnaire – Safer Sex (MSC-SS)

	Factor Loadings					
	Factor 1 (PC)	Factor 2 (PD)	Factor 3 (CC)	Factor 4 (CD)	Factor 5 (CD)	Factor 6 (CD)
C 1.1 Using barrier methods (e.g., condoms, dental dams) for oral sex				**0.85**		
D 1.2 Using barrier methods (e.g., condoms, dental dams) for oral sex				**0.79**		
C 2.1 Using barrier methods (e.g., condoms, dental dams) when genitals are touching (e.g., penetrative sex, tribbing)				**0.51**		
D 2.2 Using barrier methods (e.g., condoms, dental dams) when genitals are touching (e.g., penetrative sex, tribbing)				**0.43**		
C 3.1 Use of contraception (e.g., birth control pills, intrauterine devices ([IUD]) *					**0.85**	
D 3.2 Use of contraception (e.g., birth control pills, intrauterine devices ([IUD]) *					**0.97**	
C 4.1 Use of drugs and/or alcohol before or during sexual activity	0.53					**0.47**
D 4.2 Use of drugs and/or alcohol before or during sexual activity						**0.76**
C 5.1 My previous sexual partners (e.g., if anonymous or not, number of partners, STBBI status)	**0.60**					
D 5.2 My previous sexual partners (e.g., if anonymous or not, number of partners, STBBI status)		**0.78**				
C 6.1 My previous sexual experiences (e.g., individual or group sex, protected or unprotected sexual activity)	**0.59**					
D 6.2 My previous sexual experiences (e.g., individual or group sex, protected or unprotected sexual activity)		**0.82**				
C 7.1 My partner's previous sexual partners (e.g., if anonymous or not, number of partners, STBBI status)	**0.68**					
D 7.2 My partner's previous sexual partners (e.g., if anonymous or not, number of partners, STBBI status)		**0.81**				
C 8.1 My partner's previous sexual experiences (e.g., individual or group sex experiences, protected or unprotected sexual activity)	**0.61**					

D 8.2 My partner's previous sexual experiences (e.g., individual or group sex experiences, protected or unprotected sexual activity)		**0.70**	
C 9.1 Creating a plan for safer sex practices with my partner prior to sexual activity			**0.65**
D 9.2 Creating a plan for safer sex practices with my partner prior to sexual activity			**0.50**
C 10.1 If either of us has a current STBBI (e.g., current status)	0.41		**0.58**
D 10.2 If either of us has a current STBBI (e.g., current status)			**0.49**
C 11.1 Any difficulties I have with talking about safer sex practices (e.g., feeling awkward)			**0.60**
D 11.2 Any difficulties I have with talking about safer sex practices (e.g., feeling awkward)			**0.51**
C 12.1 Use of STBBI medical prevention methods (e.g., Gardasil vaccine [HPV], HIV PrEP, doxyPEP [STBBI])	*0.36*		
D 12.2 Use of STBBI medical prevention methods (e.g., Gardasil vaccine [HPV], HIV PrEP, doxyPEP [STBBI])		*0.23*	*0.23*

	Descriptive Statistics		
	Total Mean (SD)	Skewness (SE)	Kurtosis (SE)
PC Total Score	225.87 (90.29)	0.23 (0.13)	-0.40 (0.26)
PD Total Score	230.92 (122.56)	-0.23 (0.13)	-1.17 (0.26)
CC Total Score	495.41 (164.37)	-0.00 (0.13)	-0.38 (0.26)
CD Total Score	430.48 (217.45)	-0.19 (0.13)	-0.95 (0.26)
Item 1.1 C	60.01 (27.27)	-0.11 (0.13)	-0.57 (0.26)
Item 1.2 D	47.31 (40.30)	0.11 (0.13)	-1.67 (0.26)
Item 2.1 C	63.33 (26.47)	-0.24 (0.13)	-0.45 (0.26)
Item 2.2 D	60.64 (37.99)	-0.45 (0.13)	-1.36 (0.26)
Item 3.1 C	57.19 (36.44)	-0.36 (0.13)	-1.21 (0.26)
Item 3.2 D	61.29 (40.63)	-0.53 (0.13)	-1.41 (0.26)
Item 4.1 C	61.09 (25.55)	-0.12 (0.13)	-0.29 (0.26)
Item 4.2 D	49.89 (37.07)	0.02 (0.13)	-1.54 (0.26)
Item 5.1 C	56.47 (26.14)	0.03 (0.13)	-0.50 (0.26)

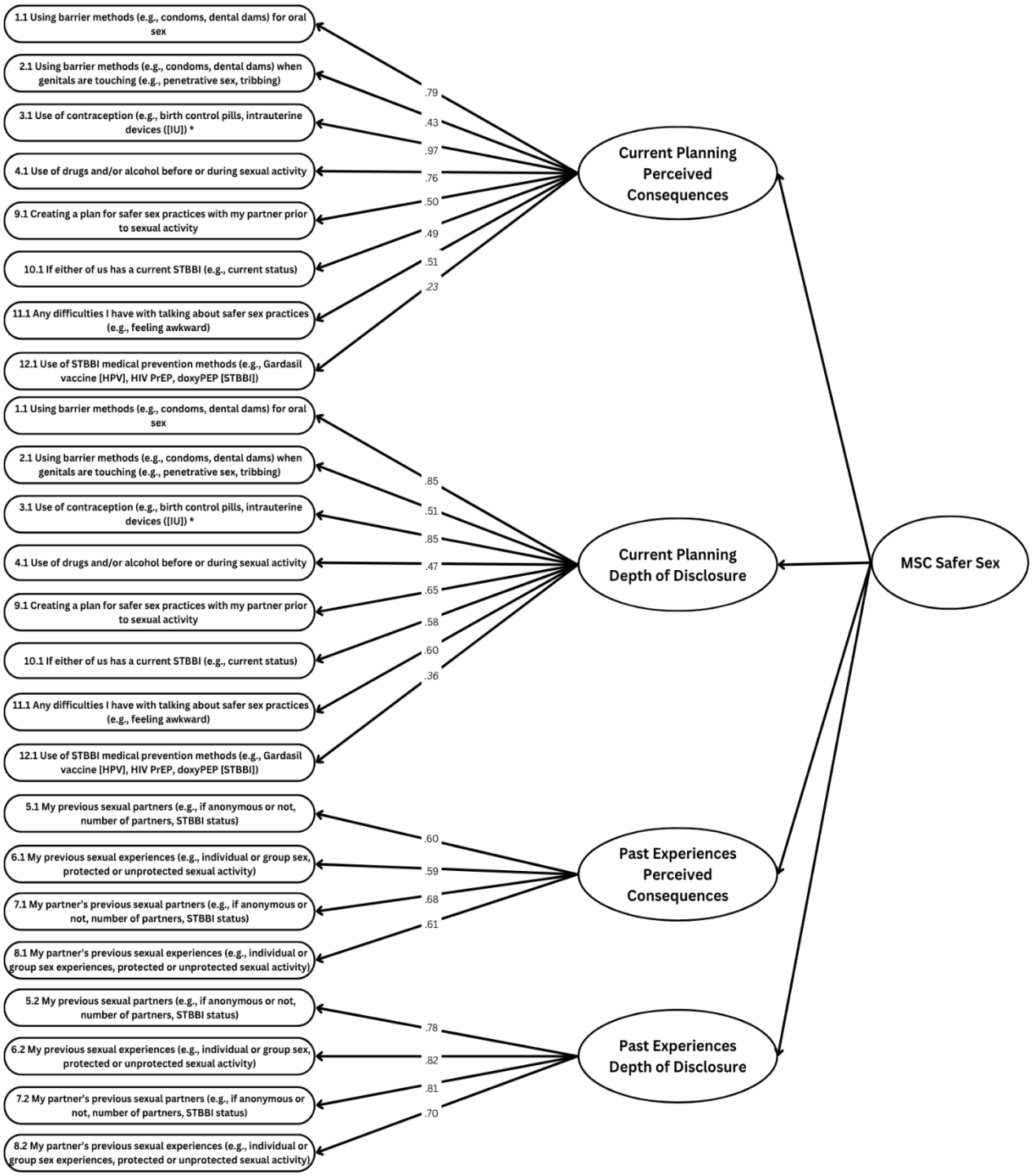
Item 5.2 D	58.91 (34.53)	-0.31 (0.13)	-1.29 (0.26)
Item 6.1 C	54.79 (26.26)	0.08 (0.13)	-0.51 (0.26)
Item 6.2 D	56.23 (35.03)	-0.22 (0.13)	-1.36 (0.27)
Item 7.1 C	57.40 (26.16)	0.03 (0.13)	-0.53 (0.26)
Item 7.2 D	59.58 (35.64)	-0.34 (0.13)	-1.37 (0.26)
Item 8.1 C	57.89 (26.72)	-0.03 (0.13)	-0.54 (0.26)
Item 8.2 D	58.31 (35.20)	-0.28 (0.13)	-1.39 (0.26)
Item 9.1 C	67.42 (26.15)	-0.45 (0.13)	-0.25 (0.26)
Item 9.2 D	60.93 (36.85)	-0.45 (0.13)	-1.29 (0.26)
Item 10.1 C	59.78 (29.64)	-0.25 (0.13)	-0.76 (0.26)
Item 10.2 D	56.33 (40.37)	-0.24 (0.13)	-1.61 (0.26)
Item 11.1 C	66.44 (25.71)	-0.31 (0.13)	-0.46 (0.26)
Item 11.2 D	56.18 (37.11)	-0.23 (0.13)	-1.47 (0.26)
Item 12.1 C	61.49 (26.52)	-0.13 (0.13)	-0.40 (0.26)
Item 12.2 D	42.47 (38.90)	0.31 (0.13)	-1.52 (0.27)

* Note the following was included as instructions for this item: *if becoming pregnant is not relevant in your intimate relationship, select the "1" response option*

Note : Sample 1 $N = 331$. Bold items indicate the assigned factors. Only factor loadings ≥ .4 are included, aside from italicized values for Item 12.1 and 12.2. -PC = past sexual experiences perceived consequences; -PD = past sexual experiences depth of disclosure; -CC = current planning perceived consequences; -CD = current planning depth of disclosure; -C = perceived consequences; -D = depth of disclosure. SD = standard deviation. SE = standard error.

Figure 4

Study 1 Sample 1 Final Exploratory Factor Analysis Factor Structure for the Multidimensional Sexual Communication Questionnaire – Safer Sex



Sample 1: MSC-SS Confirmatory Factor Analyses

Using an integrated approach with the EFA findings and theoretical understanding, I conducted CFA to corroborate the structural validity of the measures. I specified a model that included the four aggregated factors from the EFA, with a correlation between them to account for their observed relationship. Because the same items were asked across two dimensions (perceived consequences and depth of disclosure), I accounted for wording effects by correlating the residuals of corresponding items across these dimensions. Similar to the validation of the MSC-SP, since four items (Items 5-8) were assessed for both self- and partner-related contexts, I correlated residuals for self- and partner-related items within and across the two dimensions.

In total, the model included the 24-items related to the four factors (four items for past consequences, four items for past depth, eight items for current planning consequences, and eight items for current planning depth), six correlations between the four factors, and four correlations to account for wording effects, and 12 correlations for self- and partner-related items. This comprehensive approach ensured the model captured the unique measurement properties of the items while aligning with the literature-grounded framework guiding the study.

The model demonstrated an excellent fit to the data, with a robust CFI of 0.985, a robust TLI of 0.982, and a robust RMSEA of 0.032 (90% CI = 0.020-0.043). These results suggest that the model appropriately represents the observed data. Internal consistency was adequate across all four factors (α = 0.85-0.89, ω = 0.89-0.91; see Table 2). Measurement invariance was established across all groups up to the level of latent means, the highest level tested. A few findings emerged when comparing observed group means on the MSC-SS. Sexually diverse individuals reported more positive consequences to their relationship from disclosing past experiences (n^2 = 0.02; p = .022) and current planning (n^2 = 0.02; p = .009) than heterosexual participants. Gender diverse individuals reported greater depth of disclosure of past experiences

(n^2 = 0.05; p < .001) than cisgender women. White individuals reported more negative consequences of disclosing (n^2 = 0.02; p = .015) and more depth of disclosure (n^2 = 0.02; p = .021) of current planning than all other races. Younger adults reported more positive consequences (n^2 = 0.03; p < .001) and depth (n^2 = 0.01; p = .036) of disclosing current topics than older adults. See Table 18 for all MSC-SS pairwise tests.

Convergent validity for the MSC-SS was assessed through correlations with established measures of sexual communication (i.e., DSC, SCP, and SAQ-9). The MSC-SS subscales were positively associated with dyadic sexual communication and collaborative sexual communication patterns and were generally negatively associated with negative sexual communication patterns. All but one correlation was statistically significant at the p < .01 level and in the expected directions, with significant associations ranging from $|r|$ = .15 to .47. The exception was the association between current-planning depth and negative sexual communication patterns, which was negligible and nonsignificant, r = −.04, p = .505. Taken together, these findings provide support for the convergent validity of the MSC-SS, suggesting that the measure assesses constructs that are theoretically consistent with established measures of sexual communication while remaining distinct from unrelated constructs.

Sample 2: MSC-SS Confirmatory Factor Analyses

Using the second independent sample, the same two CFA models were replicated. The four-factor model, again, demonstrated an excellent fit to the data, with a robust CFI of 0.966, a robust TLI of 0.959, and a robust RMSEA of 0.047 (90% CI = 0.039-0.056). Internal consistency ranged from good to excellent across all four factors (α = 0.86-0.90, ω = 0.87-0.92; see Table 2). Measurement invariance was also established across all groups up to the level of latent means, the highest level tested and the fit indices are depicted in Tables 12-16. There were, again,

findings when comparing observed group means on the MSC-SS. Sexually diverse individuals reported more positive consequences to relationship disclosure of past experiences ($n^2 = 0.06$; $p < .001$) and current planning ($n^2 = 0.05$; $p < .001$) as well as more depth of disclosure of past experiences ($n^2 = 0.06$; $p < .001$) and current planning ($n^2 = 0.04$; $p < .001$) than heterosexual participants. Gender diverse individuals reported more positive consequences to relationship disclosure of past experiences ($n^2 = 0.03$; $p = .012$) than cisgender men and women and current planning ($n^2 = 0.02$; $p = .020$) than cisgender men, as well as more depth of disclosure of past experiences ($n^2 = 0.05$; $p < .001$) than cisgender men. Younger adults perceived more positive consequences of current planning disclosure ($n^2 = 0.02$; $p = .009$) than older adults. See Table 18 for all MSC-SS pairwise tests.

Convergent validity for the MSC-SS was, again, assessed through correlations with established measures of sexual communication (i.e., DSC and SCP). All correlations were statistically significant and in the expected directions. The MSC-SS subscales were positively associated with dyadic sexual communication and collaborative sexual communication patterns and negatively associated with negative sexual communication patterns. The associations were small to moderate in magnitude, ranging from $|r|$=.17 to .40. Divergent validity was also assessed using sleep quality (i.e., SQS), which has not been previously linked to sexual communication, and did not significantly correlate with any subscales, though, as noted above, did have small significant correlations with the DSC ($r = 0.13$; $p < .05$) and SCP subscales ($r = 0.14$ collaborative patterns; $r = 0.20$ negative patterns; ps < .01). See Table 5. Consistent with Sample 1 findings, these results support the convergent and divergent validity of the MSC-SP, suggesting that the measure assesses constructs theoretically consistent with established measures of sexual communication while remaining distinct from unrelated constructs.

Table 12

Study 1 Sample 1 and Sample 2 Sexual Identity-based Confirmatory Factor Analyses and Tests of Invariance on the Multidimensional Sexual Communication Questionnaire – Safer Sex (MSC-SS)

Model	MLR χ^2	df	Robust CFI	Robust TLI	Robust RMSEA	90% CI	Comp.	Δdf	ΔCFI	ΔTLI	ΔRMSEA
S1. Full Model	292.14*	226	0.985	0.982	0.032	0.020-0.043					
S1. Heterosexual Only	*292.01**	*226*	*0.978*	*0.973*	*0.040*	*0.024-0.053*					
S1. Sexually Diverse Only	*327.81**	*226*	*0.947*	*0.935*	*0.061*	*0.043-0.076*					
S2. Full Model	376.30*	226	0.966	0.959	0.047	0.039-0.056					
S2. Heterosexual Only	*334.28**	*226*	*0.957*	*0.947*	*0.053*	*0.040-0.065*					
S2. Sexually Diverse Only	*357.18**	*226*	*0.940*	*0.927*	*0.063*	*0.049-0.075*					
Sexuality-based invariance											
M1. Configural S1.	617.59*	452	0.968	0.961	0.048	0.037-0.058	—	—	—	—	—
M2. Metric S1.	653.53*	472	0.964	0.958	0.049	0.039-0.059	M2-M1	20	-0.004	-0.003	+0.001
M3. Scalar S1.	714.29*	492	0.956	0.951	0.054	0.044-0.063	M3-M2	20	-0.008	-0.007	+0.005
M4. Residual S1.	751.98*	516	0.952	0.949	0.055	0.045-0.063	M4-M3	24	-0.004	-0.002	+0.001
M5. Latent variance-covariance S1.	766.31*	526	0.951	0.949	0.055	0.046-0.063	M5-M4	10	-0.001	0.000	0.000
M6. Latent mean S1.	775.37*	530	0.950	0.948	0.055	0.046-0.064	M6-M5	4	-0.001	-0.001	0.000
M1. Configural S2.	690.97*	452	0.949	0.938	0.057	0.048-0.066	—	—	—	—	—
M2. Metric S2.	706.42*	472	0.950	0.942	0.055	0.046-0.064	M2-M1	20	-0.001	+0.004	-0.002
M3. Scalar S2.	745.59*	492	0.947	0.940	0.056	0.047-0.065	M3-M2	20	-0.003	-0.002	+0.001
M4. Residual S2.	793.69*	516	0.940	0.936	0.058	0.050-0.066	M4-M3	24	-0.007	-0.004	+0.002
M5. Latent variance-covariance S2.	806.90*	526	0.940	0.937	0.058	0.050-0.066	M5-M4	10	0.000	+0.001	0.000
M6. Latent mean S2.	834.74*	530	0.934	0.932	0.060	0.052-0.068	M6-M5	4	-0.006	-0.005	+0.002

Note. S1 = Sample 1; S2 = Sample 2; MLR = maximum likelihood with robust standard errors (scaled); χ^2 = Chi-square; df = degrees of freedom; CFI = comparative fit index (robust); TLI = Tucker-Lewis Index (robust); RMSEA = root-mean-square error of approximation (robust); 90% CI = 90% confidence interval of the RMSEA; Comp. = Comparison; ΔCFI = change in CFI value

compared to the preceding model; ΔTLI = change in the TLI value compared to the preceding model; ΔRMSEA = change in the RMSEA value compared to the preceding model. Bolded rows indicate the final level of invariance that was achieved. * $p < .001$.

Table 14

Study 1 Sample 1 and Sample 2 Gender-based (cis-gender compared to sexually diverse) Confirmatory Factor Analyses and Tests of Invariance on the Multidimensional Sexual Communication Questionnaire – Safer Sex (MSC-SS)

Model	MLR χ^2	df	Robust CFI	Robust TLI	Robust RMSEA	90% CI	Comp.	Δdf	ΔCFI	ΔTLI	ΔRMSEA
S1. Full Model	292.14*	226	0.985	0.982	0.032	0.020-0.043					
S1. Cisgender Only	*288.51**	*226*	*0.983*	*0.979*	*0.032*	*0.021-0.042*					
S1. Gender Diverse Only	*404.86**	*226*	*0.823*	*0.784*	*0.108*	*0.089-0.127*					
S2. Full Model	376.30*	226	0.966	0.959	0.047	0.039-0.056					
S2. Cisgender Only	*341.75**	*226*	*0.965*	*0.958*	*0.049*	*0.037-0.059*					
S2. Gender Diverse Only	*390.77**	*226*	*0.888*	*0.863*	*0.084*	*0.069-0.099*					
Gender-based invariance											
M1. Configural S1.	681.09*	430	0.957	0.948	0.055	0.046-0.064	—	—	—	—	—
M2. Metric S1.	709.34*	452	0.956	0.948	0.055	0.047-0.063	M2-M1	20	-0.001	0.000	0.000
M3. Scalar S1.	745.95*	474	0.953	0.947	0.056	0.047-0.064	M3-M2	20	-0.003	-0.001	+0.001
M4. Residual S1.	793.02*	474	0.947	0.944	0.058	0.049-0.066	M4-M3	24	-0.006	-0.003	+0.002
M5. Latent variance-covariance S1.	809.00*	498	0.946	0.943	0.058	0.049-0.066	M5-M4	10	-0.001	-0.001	0.000
M6. Latent mean S1.	817.74*	501	0.945	0.943	0.058	0.049-0.066	M6-M5	4	-0.001	0.000	0.000
M1. Configural S2.	728.82*	430	0.944	0.932	0.061	0.052-0.070	—	—	—	—	—
M2. Metric S2.	754.26*	452	0.943	0.933	0.061	0.052-0.069	M2-M1	20	-0.001	+0.001	0.000
M3. Scalar S2.	798.31*	474	0.938	0.931	0.062	0.053-0.070	M3-M2	20	-0.005	-0.002	+0.001
M4. Residual S2.	847.77*	474	0.932	0.927	0.063	0.055-0.071	M4-M3	24	-0.006	-0.004	+0.001
M5. Latent variance-covariance S2.	861.38*	498	0.931	0.927	0.063	0.055-0.071	M5-M4	10	-0.001	0.000	0.000
M6. Latent mean S2.	878.64*	501	0.928	0.925	0.064	0.056-0.072	M6-M5	4	-0.003	-0.002	+0.001

Note. MLR = maximum likelihood with robust standard errors (scaled); χ^2 = Chi-square; df = degrees of freedom; CFI = comparative fit index (robust); TLI = Tucker-Lewis Index (robust); RMSEA = root-mean-square error of approximation (robust); 90% CI = 90% confidence interval of the RMSEA; Comp. = Comparison; ΔCFI = change in CFI value compared to the preceding model; ΔTLI =

change in the TLI value compared to the preceding model; ΔRMSEA = change in the RMSEA value compared to the preceding model. Bolded rows indicate the final level of invariance that was achieved. * $p < .001$.

Table 15

Study 1 Sample 1 and Sample 2 Age-based (Younger adults 18-34/Older adults 35+) Confirmatory Factor Analyses and Tests of Invariance on the Multidimensional Sexual Communication Questionnaire – Safer Sex (MSC-SS)

Model	MLR χ^2	df	Robust CFI	Robust TLI	Robust RMSEA	90% CI	Comp.	Δdf	ΔCFI	ΔTLI	ΔRMSEA
S1. Full Model	292.14*	226	0.983	0.982	0.032	0.020-0.043					
S1. Younger Only	*254.73**	*226*	*0.989*	*0.987*	*0.027*	*0.000-0.045*					
S1. Older Only	*298.51**	*226*	*0.971*	*0.965*	*0.046*	*0.028-0.061*					
S2. Full Model	376.30*	226	0.966	0.959	0.047	0.039-0.056					
S2. Younger Only	*327.76**	*226*	*0.961*	*0.952*	*0.050*	*0.037-0.062*					
S2. Older Only	*346.47**	*226*	*0.947*	*0.936*	*0.061*	*0.047-0.075*					
Age-based invariance											
M1. Configural S1.	553.17*	430	0.980	0.976	0.037	0.023-0.049	—	—	—	—	—
M2. Metric S1.	569.36*	452	0.981	0.978	0.036	0.021-0.047	M2-M1	20	+0.001	+0.002	-0.001
M3. Scalar S1.	603.58*	474	0.978	0.975	0.038	0.024-0.048	M3-M2	20	-0.003	-0.003	+0.002
M4. Residual S1.	638.81*	498	0.975	0.973	0.039	0.027-0.050	M4-M3	24	-0.003	-0.002	+0.001
M5. Latent variance-covariance S1.	649.61*	501	0.974	0.973	0.039	0.027-0.049	M5-M4	10	-0.001	0.000	0.000
M6. Latent mean S1.	663.90*	503	0.972	0.971	0.041	0.029-0.051	M6-M5	4	-0.002	-0.002	+0.002
M1. Configural S2.	674.01*	430	0.955	0.945	0.055	0.045-0.064	—	—	—	—	—
M2. Metric S2.	689.28*	452	0.956	0.949	0.053	0.044-0.062	M2-M1	20	+0.001	+0.004	-0.002
M3. Scalar S2.	712.00*	474	0.956	0.950	0.052	0.043-0.061	M3-M2	20	0.000	+0.001	-0.001
M4. Residual S2.	737.26*	498	0.955	0.952	0.051	0.042-0.060	M4-M3	24	-0.001	+0.002	-0.001
M5. Latent variance-covariance S2.	741.36*	501	0.956	0.954	0.050	0.041-0.059	M5-M4	10	+0.001	+0.002	-0.001
M6. Latent mean S2.	749.68*	503	0.955	0.953	0.050	0.041-0.059	M6-M5	4	-0.001	-0.001	0.000

Note. MLR = maximum likelihood with robust standard errors (scaled); χ^2 = Chi-square; df = degrees of freedom; CFI = comparative fit index (robust); TLI = Tucker-Lewis Index (robust); RMSEA = root-mean-square error of approximation (robust); 90% CI = 90% confidence interval of the RMSEA; Comp. = Comparison; ΔCFI = change in CFI value compared to the preceding model; ΔTLI =

change in the TLI value compared to the preceding model; ΔRMSEA = change in the RMSEA value compared to the preceding model. Bolded rows indicate the final level of invariance that was achieved. * $p < .001$.

Table 16

Study 1 Sample 1 and Sample 2 Race-based (White and all other ethnicities) Confirmatory Factor Analyses and Tests of Invariance on the Multidimensional Sexual Communication Questionnaire – Safer Sex (MSC-SS)

Model	MLR χ^2	df	Robust CFI	Robust TLI	Robust RMSEA	90% CI	Comp.	Δdf	ΔCFI	ΔTLI	ΔRMSEA
S1. Full Model	292.14*	226	0.983	0.982	0.032	0.020-0.043					
S1. White Only	*288.07**	*226*	*0.975*	*0.970*	*0.042*	*0.021-0.058*					
S1. Other Ethnicities Only	*290.61**	*226*	*0.974*	*0.969*	*0.042*	*0.025-0.057*					
S2. Full Model	376.30*	226	0.966	0.959	0.047	0.039-0.056					
S2. White Only	*297.65**	*226*	*0.963*	*0.954*	*0.050*	*0.032-0.066*					
S2. Other Ethnicities Only	*343.60**	*226*	*0.956*	*0.946*	*0.055*	*0.042-0.067*					
Race-based invariance											
M1. Configural S1.	578.75*	430	0.975	0.969	0.042	0.030–0.053	—	—	—	—	—
M2. Metric S1.	604.53*	452	0.973	0.969	0.043	0.030–0.053	M2-M1	20	-0.002	0.000	+0.001
M3. Scalar S1.	638.97*	474	0.971	0.967	0.044	0.032–0.054	M3-M2	20	-0.002	-0.002	+0.001
M4. Residual S1.	688.32*	498	0.965	0.962	0.047	0.036–0.056	M4-M3	24	-0.006	-0.005	+0.003
M5. Latent variance-covariance S1.	708.63*	501	0.962	0.960	0.048	0.038–0.057	M5-M4	10	-0.003	-0.002	+0.001
M6. Latent mean S1.	715.52*	503	0.962	0.960	0.048	0.038–0.057	M6-M5	4	0.000	0.000	0.000
M1. Configural S2.	640.78*	430	0.959	0.950	0.053	0.042–0.062	—	—	—	—	—
M2. Metric S2.	657.16*	452	0.960	0.953	0.051	0.041–0.061	M2-M1	20	+0.001	+0.003	-0.002
M3. Scalar S2.	676.96*	474	0.960	0.955	0.050	0.040–0.059	M3-M2	20	0.000	+0.002	-0.001
M4. Residual S2.	728.65*	498	0.954	0.950	0.053	0.043–0.062	M4-M3	24	-0.006	-0.005	+0.003
M5. Latent variance-covariance S2.	739.76*	501	0.953	0.951	0.052	0.043–0.061	M5-M4	10	-0.001	+0.001	-0.001
M6. Latent mean S2.	750.09*	503	0.952	0.950	0.053	0.043–0.062	M6-M5	4	-0.001	-0.001	+0.001

Note. MLR = maximum likelihood with robust standard errors (scaled); χ^2 = Chi-square; df = degrees of freedom; CFI = comparative fit index (robust); TLI = Tucker-Lewis Index (robust); RMSEA = root-mean-square error of approximation (robust); 90% CI = 90% confidence interval of the RMSEA; Comp. = Comparison; ΔCFI = change in CFI value compared to the preceding model; ΔTLI =

change in the TLI value compared to the preceding model; ΔRMSEA = change in the RMSEA value compared to the preceding model. Bolded rows indicate the final level of invariance that was achieved. * $p < .001$.

Table 17

Study 1 Sample 2 Race/Ethnicity-Origin-based (White North American and all other race/ethnicity-origins) Confirmatory Factor Analyses and Tests of Invariance on the Multidimensional Sexual Communication Questionnaire – Sexual Preferences (MSC-SS)

Model	MLR χ^2	df	Robust CFI	Robust TLI	Robust RMSEA	90% CI	Comp.	Δdf	ΔCFI	ΔTLI	ΔRMSEA
S2. Full Model	376.30*	226	0.966	0.959	0.047	0.039-0.056					
S2. White North American only	*359.20**	*226*	*0.950*	*0.939*	*0.058*	*0.045-0.069*					
S2. All other race/ ethnicity-origins only	*346.67**	*226*	*0.946*	*0.935*	*0.061*	*0.047-0.075*					
Ethnicity-based invariance											
M1. Configural S2.	705.68*	430	0.949	0.937	0.059	0.050–0.068	—	—	—	—	—
M2. Metric S2.	724.58*	452	0.949	0.940	0.058	0.049–0.066	M2-M1	20	0.000	+0.003	-0.001
M3. Scalar S2.	761.55*	474	0.946	0.939	0.058	0.050–0.067	M3-M2	20	-0.003	-0.001	0.000
M4. Residual S2.	800.08*	498	0.942	0.938	0.059	0.050–0.067	M4-M3	24	-0.004	-0.001	+0.001
M5. Latent variance-covariance S2.	822.34*	501	0.939	0.936	0.060	0.051–0.068	M5-M4	10	-0.003	-0.002	+0.001
M6. Latent mean S2.	842.59*	452	0.936	0.933	0.061	0.053–0.069	M2-M1	20	-0.003	-0.003	+0.001

Note. MLR = maximum likelihood with robust standard errors (scaled); χ^2 = Chi-square; df = degrees of freedom; CFI = comparative fit index (robust); TLI = Tucker-Lewis Index (robust); RMSEA = root-mean-square error of approximation (robust); 90% CI = 90% confidence interval of the RMSEA; Comp. = Comparison; ΔCFI = change in CFI value compared to the preceding model; ΔTLI = change in the TLI value compared to the preceding model; ΔRMSEA = change in the RMSEA value compared to the preceding model. Bolded rows indicate the final level of invariance that was achieved. * $p < .001$.

Table 18

Study 1 Pairwise Comparisons from Samples 1 and 2 for the MSC-SS

Group Comparison	Group Label					
Sexual Identity	**Sample 1**	*N*	*M*	*SD*		
	Heterosexual S1	215	217.57	90.24		
	Nonheterosexual S1	114	241.53	88.68		
		MS	*F*	*p*	n^2	*95% CI*
	Pairwise S1	42764.19	5.314	0.022	0.016	0.000-0.053
	Sample 2	N	M	SD		
	Heterosexual S2	196	198.66	95.51		
	Nonheterosexual S2	155	246.08	90.91		
		MS	*F*	*p*	n^2	*95% CI*
	Pairwise S2	194674.15	22.265	0.000	0.060	0.021-0.114
Cisgender and Gender Diverse	**Sample 1**	N	M	SD		
	Cisgender S1	270	220.74	89.99		
	Gender Diverse S1	59	249.36	88.69		
		MS	*F*	*p*	n^2	*95% CI*
	Pairwise S1	39657.53	4.923	0.027	0.015	0.000-0.051
	Sample 2	N	M	SD		
	Cisgender S2	251	210.40	98.26		
	Gender Diverse S2	102	243.60	87.31		
		MS	*F*	*p*	n^2	*95% CI*
	Pairwise S2	79940.30	8.814	0.003	0.024	0.003-0.065
Age	**Sample 1**	N	M	SD		
	Younger S1	171	229.15	91.22		
	Older S1	157	222.46	89.69		
		MS	*F*	*p*	n^2	*95% CI*
	Pairwise S1	3667.091	0.448	0.504	0.001	0.000-0.021
	Sample 2	N	M	SD		
	Younger S2	205	223.50	94.53		
	Older S2	148	215.13	98.78		
		MS	*F*	*p*	n^2	*95% CI*
	Pairwise S2	6027.17	0.649	0.421	0.002	0.000-0.021

Race	**Sample 1**	N	M	SD		
	White S1	175	219.91	88.85		
	All other races S1	154	232.64	91.72		
		MS	*F*	*p*	n^2	*95% CI*
	Pairwise S1	13258.03	1.629	0.203	0.005	0.000-0.031
	Sample 2	N	M	SD		
	White S2	202	223.7871	95.35114		
	All other races S2	151	214.9139	97.61120		
		MS	*F*	*p*	n^2	*95% CI*
	Pairwise S2	6803.25	0.733	0.392	0.002	0.000-0.022
Race/Ethnicity-Origins	Sample 2	N	M	SD		
	White North American S2	194	486.51	162.46		
	All other race/ethnicity-origins S2	159	512.72	156.92		
		MS	*F*	*p*	n^2	*95% CI*
	Pairwise S2	60042.16	2.346	0.127	0.007	0.000-0.033

Notes: *M* = mean; *SD* = standard deviation; MS = mean square; *F* = F value; n^2 = eta squared as an indicator of effect size; 95% CI = 95% confidence interval for the eta squared effect size.

Study 1 Discussion

The development and validation of the MSC questionnaires aimed to address the limitations of predominantly unidimensional measures of sexual communication, which overlook the inherent complexity of communicative processes. These traditional approaches fail to capture the crucial interplay between *what* is discussed and *how* it is discussed. As demonstrated in my results from both samples, the MSC-SP and the MSC-SS had good factor structure, reliability, and both convergent and divergent validity, with CFA models that replicated in an independent sample and demonstrated invariance across groups. Though the RMSEA values are elevated in some models, it is important to consider these findings in the context of the model's characteristics that may impact these values (e.g., limited degrees of freedom, complex inter-item correlations, potential sample-size constraints; Kenny et al., 2015). The convergence of support from multiple fit indices and successful replication of the model structure in subsequent CFA analyses underscores that the models provide a reasonable and robust representation of the data. Both questionnaires demonstrated good reliability across both samples. Convergent validity (Samples 1 and 2) was supported by expected correlations with established sexual communication measures, while divergent validity (Sample 2) was evidenced by nonsignificant associations with an unrelated construct (i.e., sleep quality).

Across both samples, the analyses supported the proposed multidimensional structure of the MSC-SP and MSC-SS while also revealing interesting variation in how items clustered. Specifically, the items of the MSC-SP were clustered by dimension (i.e., perceived consequences of disclosure and depth of disclosure), while the MSC-SS showed content-driven groupings (i.e., past experiences and current planning) in addition to groupings within each dimension (i.e., perceived consequences and depth of disclosure). This pattern suggests that while process

dimensions such as depth and consequences are consistently important, topic-specific item groupings can influence how these process dimensions are expressed and organized.

Importantly, both MSC questionnaires demonstrated measurement invariance across a range of identity-based groups (cisgender/gender diverse, heterosexual/sexually diverse, younger/older, White/other races, and North American/other ethnicities in Sample 2 only), providing foundational support for the stability of the factor structure across groups and its suitability for comparative research. Across both samples, increasingly restrictive invariance models produced negligible changes in model fit, supporting configural, metric, scalar, residual, latent variance-covariance, and latent mean invariance (see Tables 7-16). Establishing latent mean invariance is particularly important because it indicates that observed differences between groups can be interpreted as reflecting meaningful differences in the underlying constructs rather than differences in how the constructs are measured. Although some subgroup-specific models demonstrated lower absolute fit than others, particularly among sexually diverse and gender-diverse participants in Sample 1, these differences did not meaningfully degrade the multigroup invariance models. This pattern suggests that although there may be greater heterogeneity in sexual communication experiences within some minority groups, the underlying measurement structure remained consistent across groups. Notably, these findings were replicated across two independent samples, strengthening confidence in the robustness of the questionnaires.

Pairwise tests revealed few significant differences in observed group means. For the MSC-SP, no between-group differences were consistently replicated across samples. However, some consistent patterns emerged for the MSC-SS. Sexually diverse individuals reported perceiving more positive consequences of disclosing both past experiences and current sexual planning. Gender diverse individuals reported greater depth of disclosure regarding past

experiences, and younger adults perceived more benefits in disclosing current sexual topics compared to older adults. These findings offer preliminary support that gender and sexuality minority individuals may engage in more sexual communication than other individuals. The variability in group differences observed in the present study is consistent with the broader sexual communication literature, in which demographic group differences have been mixed and difficult to interpret due, in part, to variability in how both demographic characteristics and sexual communication have been operationalized and measured (Gauvin & Merwin, 2022). However, given the inconsistent mean differences, further research is needed to determine whether between-group differences in sexual communication are robust and replicable.

There are clear implications of having multidimensional measurement tools for both communicating sexual preferences and engaging in safer sex communication, given the well-established impact of these content domains on sexual health and wellbeing (e.g., Mallory et al., 2019; Perkins et al., 2024; Worsdale & Kosenko, 2024). The MSC-SP and MSC-SS are reliable instruments that can help researchers and clinicians identify specific gaps in communication and inform the development of targeted interventions to address barriers that influence interpersonal dynamics. More in-depth measurement of sexual preferences in the MSC-SP allows for more effective investigation of critical questions, such as the link between sexual communication and sexual self-identity, emotional experiences, and relationship outcomes, contributing to both theoretical advancement and practical application in clinical contexts. Additionally, the MSC-SS allows for inclusive measurement of safer sex communication that encompasses a broader range of sexual experiences beyond heterosexual contexts, enhancing the inclusivity and relevance of these measures. This is particularly important given that traditional sexual scripts have largely been constructed around heterosexual and binary understandings of gender and sexuality and are

less applicable to sexually and gender-diverse individuals (e.g., Gauvin & Merwin, 2022), who are less likely to adhere to these traditional sexual scripts and instead adapt or develop scripts that better reflect their identities, partners, and sexual practices (Frederick et al., 2021a; Frederick et al., 2021b; Harowitz et al., 2013; Patterson et al., 2013). Although this flexibility can facilitate more individualized understandings of sex and sexuality, the absence of widely shared scripts for sexually and gender diverse individuals creates ambiguity regarding expectations for safer sex practices and communication (Parillo & Brown, 2021). This may be particularly relevant when sexual activities, anatomy, and associated safer-sex considerations differ from those assumed within dominant heterosexual scripts, requiring partners to more explicitly negotiate what safer sex means and which practices are appropriate within a particular sexual interaction. Accordingly, measures of safer sex communication that assume heterosexual sexual practices or binary gendered roles may fail to capture important aspects of communication among sexually and gender-diverse individuals. The broader framing of the MSC-SS may help address this gap and support efforts to assess and promote safer sexual practices across diverse identities.

There are also potential applications specific to clinical contexts. However, the measures require further validation in clinical samples, including evaluation of their suitability for clinical assessment and sensitivity to meaningful therapeutic change, before these applications can be established. Given that individuals in clinical populations frequently struggle with sexual concerns and encounter heightened barriers to sexual communication, such as shame and guilt (e.g., Merwin et al., 2017), which has most commonly been studied in the context of sexual pain (e.g., Bois et al., 2013; Pazmany et al., 2015; Rancourt et al., 2017), and thoroughly understanding these challenges is critical for effective clinical intervention. Sexual topics pose

unique disclosure barriers beyond those of other sensitive issues, and when perceived as threatening, individuals are more likely to avoid them, leading to poorer overall communication (Rehman et al., 2017, 2019; Theiss & Estlein, 2014). People have also been observed to be more cautious, express higher anxiety levels, and share the balance of control within a conversation less effectively when conversing about sexual topics compared to nonsexual topics (Rehman et al., 2017). Reliable measurement tools that implement a multidimensional approach for sexual communication can help clinicians identify the specific sources of difficulty, such as whether stemming from perceived negative consequences, lack of comfort, or low depth of disclosure, and tailor interventions accordingly. For example, therapists working with sexually distressed couples could use the MSC questionnaires to assess each partner's depth of communication across key sexual preferences or safer sex-related topics alongside their perceived relational consequences. Comparing partners' responses may allow the clinician to identify discrepancies in openness or perceived risks, enabling therapists to tailor interventions that address specific barriers contributing to the communication gaps and foster more open and constructive dialogue.

Based on these results, I propose that the multidimensional framework used in the MSC-SP and MSC-SS can be a usable and adaptable template for future research across diverse sexual communication topics. Its structured assessment of perceived consequences and depth of disclosure provides a consistent foundation for future scale development (Brogan et al., 2009; Brown & Weigel, 2018; Catania, 2019b; Loshek & Terrell, 2015; Perkins et al., 2024; Snell et al., 1989; Walsh et al., 2022), which enables both within-topic depth and cross-topic comparability. Importantly, adaptability in this context does not imply uniform dimensionality across communication topics. Instead, this approach is intended to serve as a template for rigorously developing and validating topic-specific measures that assess common process-level

dimensions (e.g., perceived consequences, depth of disclosure), while allowing content and subdimensions to vary as theoretically and empirically warranted. This replicable framework also creates opportunities for empirically informing and refining new and existing theoretical models of sexual communication. This approach addresses a barrier in the field of sexual communication, given the inconsistent conceptualizations and measurement of this construct that potentially limit comparability across studies. Researchers can contribute to a growing body of work with greater methodological consistency by applying a standardized structure across diverse communication domains, facilitating more clarity and consistency in the theoretical understanding of the role and application of sexual communication to sexual wellbeing and functioning.

Strengths, Limitations, and Future Directions

This study offers several notable strengths and contributions to the field of sexual communication. First, the development and validation of the MSC-SP and MSC-SS provide two literature-grounded questionnaires with good psychometric validity, following rigorous analytic processes that included model replication in an independent sample. I also included measurement invariance tests across a range of identity-based groups, addressing a common limitation in sexuality research: the reliance on measures normed on majority populations that may not generalize to diverse groups (Gauvin & Merwin, 2022; Parrillo & Brown, 2021).

Second, the specificity of the MSC questionnaires may reduce cognitive biases, such as the tendency for individuals to let their overall relationship satisfaction influence their ratings of communication quality (sentiment override; Story et al., 2007; Waldinger & Schulz, 2006). General items often conflate sexual communication with broader relational attitudes (Fincham, 2001), whereas the targeted content and process dimensions in the current measures offer a more

precise evaluation. For instance, *"I have good sexual communication with my partner"* may reflect overall satisfaction, while *"I have fully talked about how I like my partner to initiate sex"* encourages focus on specific interactions, minimizing potential bias.

Third, it underscores the importance of conceptualizing sexual communication as a multidimensional construct. By assessing two key process dimensions (i.e., perceived consequences and depth of disclosure) across distinct sexual communication topics (i.e., sexual preferences and safer sex), this research demonstrates their broader relevance across content areas, a pattern now replicated across three item sets, including the SDS (Brown & Weigel, 2018). I see this as a viable framework for future multidimensional measures of sexual communication. By assessing both what partners talk about (content) and how they engage in those conversations (process), the MSC framework advances a more nuanced understanding of communication within intimate relationships. This framework better captures the complexity of sexual communication, which is often shaped by emotional vulnerability and the relational risks associated with disclosing sensitive information (Rehman et al., 2019). In clinical contexts, this distinction may expand process-oriented discussions by helping clinicians and clients consider not only which sexual topics are difficult to discuss, but also how anticipated consequences, disclosure depth, and other communication processes shape engagement with those topics.

Despite these strengths, several limitations warrant consideration that can inform directions for future research. First, although the MSC questionnaires were informed by existing literature, there was no existing comprehensive model of the sexual communication process upon which to base the questionnaire items. Future work should aim to develop a theoretical model that identifies the interrelated components of how sexual topics are communicated and their impact on relationships. Second, although multiple factor structures were tested and grounded in

the literature, the complexity of the models, particularly the four-factor MSC-SS, may reduce usability for some researchers or clinicians who prefer more streamlined measures. Third, sample size constraints affected the scope of measurement invariance testing. Smaller subgroup sizes necessitated general group comparisons (e.g., over- vs. under-represented populations) rather than detailed between- and within-group analyses. I also lacked sufficient power to test differences by relationship type (e.g., dating vs. committed, monogamous vs. non-monogamous). Ongoing research should continue validating these measures across diverse populations and relational contexts (e.g., casual, long-distance, or polyamorous relationships). Fourth, although gender identity was measured comprehensively and inclusively, I did not assess gender expression, which prevented us from testing measurement invariance across this important dimension. Gender expression is conceptually distinct from gender identity (Davies & Hoskin, 2022), and both may shape individuals' experiences of gender norms and, subsequently, the sexual scripts that inform their sexual interactions. Although less research has specifically examined gender diverse individuals in this context, these processes may also influence how individuals communicate about sexual topics (Gauvin & Merwin, 2022). Consequently, measurement invariance could be examined only across gender identities, not across gender expression, limiting conclusions about whether the measure functions equivalently across individuals with diverse gender presentations. Future research should assess gender expression and evaluate measurement invariance across this dimension to facilitate a more comprehensive understanding of how different dimensions of gender may shape experiences of sexual communication. Fifth, although the MSC follows the dominant use of self-report in sexual communication research, this method has inherent limitations. Future studies should assess how these self-reports align with other methods, such as behavioural observation of sexual

communication. Sixth, these data were only from one person's perspective at one time point. Longitudinal and dyadic studies are also needed to examine how perceived consequences and depth of disclosure change over time and how these dimensions predict downstream outcomes for all members of an intimate relationship. Finally, while the samples were diverse in gender and sexuality, they were just over half White (Sample 1: 53%; Sample 2: 57%) and drawn from North American convenience samples. This may limit generalizability, and future studies should examine the relevance of the MSC measures across cultural and geographic contexts.

Future work may also expand the framework by incorporating additional process dimensions, such as perceived partner understanding, to better capture motivational and relational dynamics. The MSC framework's flexible structure makes it well-suited for adaptation to other underexplored domains of sexual communication and to address specific research questions. I suggest that any future studies maintain the two process dimensions assessed in the MSC framework, given the emerging evidence for their consistent importance across studies (Brown & Weigel, 2018; Wasson, 2023). Researchers can also adopt this structure to evaluate new domains of sexual communication (e.g., kink negotiation, relational agreements in consensual nonmonogamy, barriers to communicating sexual preferences, disclosures of sexual trauma) by identifying relevant item-level content across these and other process dimensions (e.g., perceived partner understanding of your views on a topic, perceived importance). The decision to exclude perceived importance in the current version of the MSC was methodological rather than theoretical, as this construct remains conceptually relevant. However, within the present samples, participants generally viewed discussions of sexual topics as highly important regardless of topic content, resulting in insufficient variability for psychometric evaluation. Future research may benefit from alternative measurement approaches that capture greater

variability in perceived importance or by examining this construct in samples or topics where greater heterogeneity in attitudes toward sexual communication is expected.

Conclusion

The present study provides a significant contribution to the field of sexual communication by introducing and validating two multidimensional, topic-specific measures of communication about sexual preferences and safer sex. By demonstrating strong psychometric properties and cross-group invariance, the MSC-SP and MSC-SS questionnaires offer a reliable and flexible framework for capturing the nuanced processes underlying sexual communication. These tools fill a critical gap in the literature by enabling researchers and clinicians to assess how individuals navigate the perceived consequences and actual depth of disclosure across distinct sexual domains. These findings advance a more nuanced understanding of sexual communication with implications for advancing theory, guiding future research, and informing interventions aimed at enhancing sexual and relational wellbeing.

Study 2

The Process Model of Sexual Communication: Examining Precursors, Disclosure, and Sexual Wellbeing Over Time

Sexual communication is best understood as a complex, dynamic, and multidimensional process situated within the broader relationship (Cupach & Metts, 1991) and other contextual influences (Brown & Weigel, 2018; Wasson, 2023). Given that sexual communication is the mechanism through which mutually satisfying sexual activity occurs (Coffelt & Hess, 2014), even after accounting for nonsexual communication (MacNeil & Byers, 2009; Mark & Jozkowski, 2013), it is important to further understand the complexity of the process of sexual communication itself. Despite the decades of research supporting the importance and complexity of sexual communication (Byers & Demmons, 1999; Mallory et al., 2019), relatively little research has examined the process through which sexual communication unfolds over time or the factors that shape its development, underscoring the need to better understand the mechanisms and contextual influences that drive these communication dynamics. This is especially important given the growing support for assessing sexual communication multidimensionally in the extant literature (e.g., Brown & Weigel, 2018; Wasson, 2023) and the findings from Study 1. These gaps in the literature are, in part, influenced by the lack of comprehensive theoretical models of the process of sexual communication.

Models of Sexual Communication

To address this, I developed the Process Model of Sexual Communication (PMSC; Figure 2) and testing this model is the primary goal of Study 2. The model conceptualizes sexual communication as a dynamic and contextually embedded process. Specifically, for any given sexual topic (process one), there are precursors to disclosure (process two) that make

communication more or less likely. If there is adequate alignment of those precursors and some actual disclosure occurs (process three), then outcomes of the sexual communication follow (process four). I conceptualize these communicative processes as being impacted by interrelated individual and relational factors. Below, I describe the key individual and relational factors incorporated in the model and review the theoretical and empirical basis for their inclusion.

Relationship Context and Individual Factors

Recent evidence further suggests that understanding sexual communication requires attention to both relational and individual influences. This model follows similar patterns to others, in which individual differences and relationship-specific contextual factors inform behaviour and influences relationship and/or sexual wellbeing (e.g., Brown & Weigel; Joel et al., 2020). In a recent meta-analysis of sexual communication, Knowles and Hammond (2025) found that individual-level predictors of disclosure had effect sizes comparable to those of relationship-level predictors, highlighting the importance of considering not only the relational context in which communication occurs but also the characteristics individuals bring into that context. These findings support calls to expand existing models of sexual communication, such as Brown and Weigel's (2018) Contextual Model of Sexual Self-Disclosure (CMSSD; See Figure 1), which primarily emphasizes relational and situational influences while giving comparatively less attention to stable individual characteristics. They described relationship factors as setting the stage for sexual communication (Brown & Weigel, 2018), and there is existing support that the context in which sexual communication occurs has important implications for communication behaviours (Mark & Jozkowski, 2013; Merwin & Rosen, 2020). When the relationship context is open, supportive, and conducive to fostering vulnerability, individuals are more likely to engage in sexual disclosure (Brown & Weigel, 2018). For example, individuals are more willing to share

sexual and relational needs when they perceive their partner as more responsive (Derlega et al., 2008; Reis et al., 2004; Rosen et al., 2014). Sexual disclosures may evoke concerns about embarrassment, shame, rejection, or relational incompatibility in ways that nonsexual disclosures typically do not (Rehman et al., 2019). At the same time, the findings of Knowles and Hammond (2025) suggest that these relational influences operate alongside individual characteristics that shape how people perceive and respond to these communication opportunities. In the present research, I focus on two theoretically and empirically robust contextual factors: avoidant attachment at the individual level (e.g., McNeil et al., 2018) and perceived partner responsiveness at the relational level (e.g., Reis et al., 2004), both of which have been consistently linked to a broad range of sexual wellbeing outcomes.

Attachment Insecurity. Attachment theory (Bowlby, 1969) has been widely applied as a framework for understanding adult romantic relationships (Beaulieu et al., 2022; McNeil et al., 2018), with adult romantic partners being considered the primary attachment relationships in adulthood and follow similar patterns that stem from infant-caregiver bonds (Mikulincer & Shaver, 2013). When attachment is secure, people are open, responsive, and trusting of their partners; however, when attachment is rooted in cycles of avoidance or anxiety, it is considered insecure, with negative consequences for relationships (Mikulincer & Shaver, 2013, 2018, 2020). Those higher in attachment anxiety have a decreased sense of self-worth and concerns about help not being readily accessible when they need it, such as someone abandoning them, leading to increased bids for reassurance from themselves and others within relationships (Mikulincer & Shaver, 2020). Those higher in attachment avoidance tend to view others as unlikely to be readily available or trustworthy, so it feels safer to rely mostly on themselves, especially in situations that evoke significant vulnerability, and they tend to avoid closeness and intimacy in

relationships (Mikulincer & Shaver, 2020). There are consistent associations between greater attachment insecurity and poorer sexual outcomes, such as sexual satisfaction (Rausch & Rettenberger, 2021; Sánchez-Fuentes et al., 2014; Stefanou & McCabe, 2012). Given that sexual communication is a key interpersonal process underlying many sexual and relationship outcomes, researchers have increasingly examined attachment insecurity as an important predictor of how individuals communicate about sexual topics.

Attachment insecurity has also been linked to sexual communication, although the evidence appears stronger and more consistent for attachment avoidance than attachment anxiety. A recent meta-analysis found that both attachment anxiety and attachment avoidance were associated with lower levels of sexual self-disclosure (Knowles & Hammond, 2026). However, the theoretical mechanisms underlying these associations differ. Individuals higher in attachment anxiety may be less likely to communicate openly about sexual needs because concerns about approval, rejection, or relationship security lead them to prioritize their partners' needs over their own (Birnbaum, 2010; Davis et al., 2006). Individuals with avoidant attachment tend to perceive intimacy and emotional expression as threatening (Bowlby, 1982; Mikulincer & Shaver, 2013), suggesting that they may be particularly reluctant to engage in the openness and vulnerability required for sexual communication (Mikulincer & Nachshon, 1991; Rehman et al., 2019). Specifically, individuals higher in attachment avoidance can experience greater discomfort with intimacy and suppression of vulnerability, such that they may be reluctant to engage in emotionally revealing interactions (Bradford et al., 2002; Mikulincer & Shaver, 2003; Simpson & Rholes, 2017). Consistent with this interpretation, avoidant attachment has been associated with more negative and less positive sexual communication (McNeil et al., 2018), predicts negative communication patterns longitudinally (Pedneault et al., 2025), and emerged as one of

the strongest and most consistent individual correlates of poorer sexual communication in my master's research (Wasson, 2023). As such, there is strong theoretical and empirical support for the inclusion of insecure attachment, particularly avoidant attachment, as an important individual factor within models of sexual communication.

Partner Responsiveness. Perceived partner responsiveness (PPR), defined as the extent to which individuals feel understood, validated, and cared for by their partner following a disclosure of personal information, represents a central relational process within the Interpersonal Process Model of Intimacy (Reis & Shaver, 1988). This model conceptualizes intimacy as emerging through a dynamic, transactional process in which self-disclosure elicits partner reactions, and the discloser then interprets the extent to which those reactions communicate understanding, validation, and care from their partner. Clear support for this has emerged in the literature in that PPR is positively associated with an individual's own sexual desire, sexual functioning, and sexual satisfaction and negatively associated with sexual distress (Birnbaum et al. 2016; Bois et al. 2013; Merwin & Rosen 2017, 2020). PPR may also influence how safe individuals feel engaging in sexual disclosure, which is particularly important given that sexual disclosure often carries greater risks to one's sense of self than nonsexual disclosure (Rehman et al., 2019). Risk regulation perspectives suggest that individuals continuously evaluate whether their partner is likely to respond with acceptance, care, and support when deciding whether to engage in vulnerable interpersonal behaviours (Murray et al., 2006). Because perceptions of responsiveness are a primary indicator of relational safety and trust, PPR may be particularly relevant to understanding communication processes that require vulnerability, such as sexual communication.

Sexual Wellbeing. There are many critical components that contribute to sexual wellbeing. One framework that has been integrated into previous literature considers sexual wellbeing to include sexual satisfaction (i.e., the overall appraisal of one's sexual relationship; Lawrance & Byers, 1995; Mallory, 2022), sexual desire (i.e., interest in sexual activity; Prekatsounaki et al., 2022), and sexual distress (i.e., worries or concerns about sexual activity; DeRogatis et al., 2008), whereby those who are more satisfied, have greater desire, and less distress are considered to have higher sexual wellbeing overall (e.g., Wang et al., 2024). This aligns with a broader theoretical perspective that describes psychological wellbeing as a balance of positive and negative affect (as reviewed in Byers & Rehman, 2013). It is important to note that there are many individual and relational factors that may impact how much this conceptualization of sexual wellbeing applies to an individual. For example, someone who is asexual or demisexual can still have high sexual wellbeing, though sexual desire may not be as strong an indicator of their overall wellbeing (Brozowski et al., 2025). Despite these considerations, this three-factor conceptualization of sexual wellbeing comprises many components relevant to most individuals and has been established in prior literature as linked to communication in romantic relationships (Wang et al., 2024).

Most current studies have examined the dyadic associations between sexual communication and the three outcomes described above separately. For example, a recent study found that collaborative patterns of sexual communication predicted greater sexual satisfaction six months later (Pedneault et al., 2025), extending the ample existing cross-sectional support for this association (e.g., Rancourt et al., 2017), including meta-analytic evidence indicating a large positive association between the quality of sexual communication and sexual satisfaction (r = .52; Mallory, 2022). There has been lots of support as well for the positive impact of sexual

desire on sexual communication, including a meta-analysis that showed a strong positive association between the two constructs across 48 studies (Mallory et al., 2019). Finally, sexual distress has been examined largely in the context of sexual disorders, where distress tends to be higher, though sexual communication has consistently been identified as a strategy that can mitigate sexual concerns, decreasing distress (e.g., Rancourt et al., 2017). Overall, the existing literature indicates that sexual communication is consistently linked to multiple components of sexual wellbeing, highlighting its importance as a determinant of healthy sexual functioning within intimate relationships.

Critical Components of Sexual Communication

Although sexual communication is often conceptualized in terms of the disclosure behaviours themselves, prior research suggests that individuals' cognitive appraisals of communication may play an important role in determining whether disclosure occurs. For example, research guided by the Relational Turbulence Model found that greater relational uncertainty was associated with perceiving conversations about sexual topics as more threatening, and that these threat appraisals were subsequently linked to greater sexual topic avoidance and more indirect sexual communication (Theiss & Estlein, 2014). Importantly, these findings suggested that broader relationship characteristics may influence communication through individuals' interpretations and expectations surrounding communication rather than directly shaping disclosure behaviour itself. Such work highlights the importance of examining the cognitive and motivational processes that precede disclosure and provides support for conceptualizing sexual communication as a process that begins before any information is actually shared. The PMSC describes four precursors of sexual disclosure, which are cognitive

and motivational components that impact the likelihood of actual disclosure. I describe each of the components and their relationship with sexual disclosure below.

Motivations for sexual communication. A key contribution of my Master's work was identifying, through mixed-method analyses across two studies, that motivations for sexual communication were an important component of the process of sexual communication (Wasson, 2023). Motivational themes identified through qualitative analyses were consistent with Regulatory Focus Theory (RFT), which differentiates between promotion-focused goals centred on advancement and prevention-focused goals centred on safety and security (Molden et al., 2008). Consistent with this framework, findings from my Master's research demonstrated that individual differences in motivations for engaging in sexual communication can be meaningfully conceptualized through the lens of RFT (Wasson, 2023; Wasson & Rehman, 2024), extending previous applications of RFT to intimate relationships (Hui & Molden, 2014).

I consider the RFT to be a compelling motivational framework for expanding the field of sexual communication by understanding how needs for safety and growth are involved in decisions to disclose or avoid sexual communication. For example, someone who is promotion-focused may perceive a mutually pleasurable sexual repertoire as a positive outcome that they are motivated to achieve and would consider it a missed opportunity if the positive outcome was not achieved. Someone who is prevention-focused may be strongly focused on the potential threat caused by the perceived consequences of sexual communication, especially threat to self (Rehman et al., 2019), and would be motivated to engage in behaviours to avoid the feared negative outcome. In these examples, it is likely that the first individual would be more driven to disclose their sexual preferences, while the second individual would be motivated not to disclose their sexual preferences and avoid the potential threat to self.

Sexual communication self-efficacy. Self-efficacy, defined by Bandura (1994) as beliefs in one's ability to engage in a desired behaviour or achieve a certain level of performance, has been linked to sexual communication. Quinn-Nilas and colleagues (2016) found that greater sexual communication self-efficacy was associated with more effective sexual communication among adolescents assessed across five key sexual topics: contraception communication, condom negotiation, sexual history, positive sexual messages, and negative sexual messages. These findings are consistent with the broader theoretical expectation that confidence in one's ability to communicate about sexual topics influences whether individuals initiate and sustain these conversations. Given the heightened vulnerability often associated with disclosing sexual concerns compared with nonsexual topics (Rehman et al., 2019), individuals with greater confidence in their ability to engage in sexual communication may be more willing to discuss sexual preferences, boundaries, and health, ultimately contributing to more effective communication, safer sexual practices, and experience greater sexual satisfaction (Harris et al., 2014). Conversely, low self-efficacy with sexual communication may contribute to avoidance of these important conversations, increasing the likelihood of misunderstandings and poorer sexual outcomes. Consistent with its broader relevance, sexual communication self-efficacy has also been examined in the context of illness and life transitions, such as following cancer treatment (Arthur et al., 2020).

Perceived consequences to the relationship. This dimension was included in the CMSSD proposed by Brown and Weigel (2018). It highlights the importance of considering the anticipated impact of disclosing a given sexual topic on the relationship, such that perceived positive consequences may facilitate disclosure, whereas perceived negative consequences may function as barriers. This process dimension emerged as a strong predictor of both sexual

communication processes and individual and relationship factors in my master's work (Wasson, 2023) and was therefore integrated into the PMSC.

Perceived importance of the sexual topic. I added the dimension of the perceived importance of the sexual topic to the Brown and Weigel (2018) measures of sexual communication that I used for my master's work (Wasson, 2023). The importance of a sexual topic is an indication of its personal relevance to an individual and could inform how necessary they consider the disclosure for their sexual satisfaction (Hullman et al., 2022). For example, if a participant reports both negative perceived consequences of disclosing a sexual topic and low depth of disclosure, this might be interpreted as avoidance driven by those perceived consequences; however, it is also possible that the topic itself is of low personal importance and disclosure feels unnecessary, particularly if it is not initiated by a partner and is expected to elicit a negative reaction. Accordingly, considering the perceived importance of each topic is conceptually important for clarifying the processes underlying sexual communication.

In summary, I propose that these four precursors (i.e., motivations for disclosure, sexual communication self-efficacy, perceived importance of topic, and perceived consequences of disclosure) to sexual disclosure are important and interrelated determinants of whether individuals communicate and the extent to which they do so. Including these factors in the PMSC allows for a more nuanced understanding of the antecedents of sexual communication, how they are shaped by individual and relationship characteristics, and how they ultimately influence communication and relational outcomes.

Sexual Communication Over the Course of Relationships

A critical limitation of the existing literature on sexual communication is the predominant reliance on cross-sectional designs, which limits the ability to draw conclusions about

directionality and change over time. Romantic relationships are inherently dynamic, and communication processes are likely to evolve as partners gain experience with one another and navigate shifting relational contexts. At the same time, some aspects of these processes may exhibit substantial stability, reflecting enduring individual differences and established interaction patterns. Longitudinal approaches are therefore essential for disentangling stable between-person differences from within-person change and for testing whether communication processes function as dynamic mechanisms or more trait-like characteristics within relationships.

Over the course of their relationship, couples who communicate well about sexual matters are better equipped to navigate challenges, such as changes in sexual desire, sexual health issues, or evolving sexual preferences (MacNeil & Byers, 2005). This ability to adapt and maintain a satisfying sexual connection can buffer against relational distress and conflict (Cupach & Metts, 1991; DeRogatis et al., 2008) and negative mental health symptoms (e.g., Givertz & Safford, 2011). Furthermore, effective sexual communication fosters emotional intimacy, reinforcing the bond between partners and enhancing the overall quality of the relationship (Coffelt & Hess, 2014). In contrast, poor sexual communication can lead to misunderstandings, unmet needs, and growing dissatisfaction, which may erode the relationship over time (Fallis et al., 2016; Mark & Lasslo, 2018).

Despite theoretical reasons to expect change in sexual communication over the course of a relationship, competing perspectives exist regarding the nature of this development. One perspective, informed by models of relationship development and self-disclosure, suggests that sexual communication should gradually increase as partners become more familiar with one another and develop greater trust, intimacy, and confidence discussing vulnerable topics (e.g., Altman & Taylor, 1973). From this view, sexual communication may be relatively limited early

in a relationship and become deeper and more open. An alternative perspective is that many communication patterns are established relatively early and remain fairly stable over time, reflecting enduring individual characteristics, preexisting communication tendencies, and relationship norms that emerge shortly after relationship formation. Existing empirical evidence supports both possibilities. Some studies have found that longer relationship duration is associated with greater sexual self-disclosure, whereas others have reported little or no association between relationship length and disclosure, as summarized in a recent meta-analysis by Knowles and Hammond (2025). Similar inconsistencies have emerged regarding the association between sexual communication and relationship satisfaction, with some findings suggesting reciprocal influences and others indicating that these links may depend on additional contextual factors (Knowles & Hammond, 2026). Collectively, these mixed findings highlight the need for prospective longitudinal research to examine whether sexual communication develops gradually over time, stabilizes early in relationships, or follows more complex trajectories that vary across individuals and relationship contexts. Indeed, Knowles and Hammond (2025) specifically called for greater attention to formative relationships and developmental processes in sexual communication research.

The longitudinal design of this study, with intentional recruitment efforts targeting individuals in new relationships (i.e., relationship duration of six to 12 months), will allow examination of which aspects of sexual communication most strongly shape relationship trajectories as patterns are being established. Early relationships are characterized by variability across key domains, including communication, as partners develop intimacy and learn to navigate each other's needs (Kurdek, 1998; Lavner & Bradbury, 2010). During this period, individuals are still refining how they express desires, negotiate boundaries, and respond to one

another, resulting in fluctuations in the depth, frequency, and effectiveness of communication. These early patterns are shaped by individual differences (e.g., attachment, prior relationship experiences) and relational uncertainty and are critical in setting the stage for longer-term relational functioning (McNulty et al., 2016). Importantly, most research on these dynamics has focused on newly married couples (e.g., Kurdek, 1998; Lavner & Bradbury, 2010; McNulty et al., 2016), who are already in more established relationships than those just beginning to form a romantic relationship. The current study will contribute to our understanding of how these patterns emerge in newly formed relationships and how sexual communication processes shape relationship trajectories over time, specifically, whether theoretically distinct dimensions of the sexual communication process change over time, whether individuals differ in their rates of change, and whether change across these processes is coordinated.

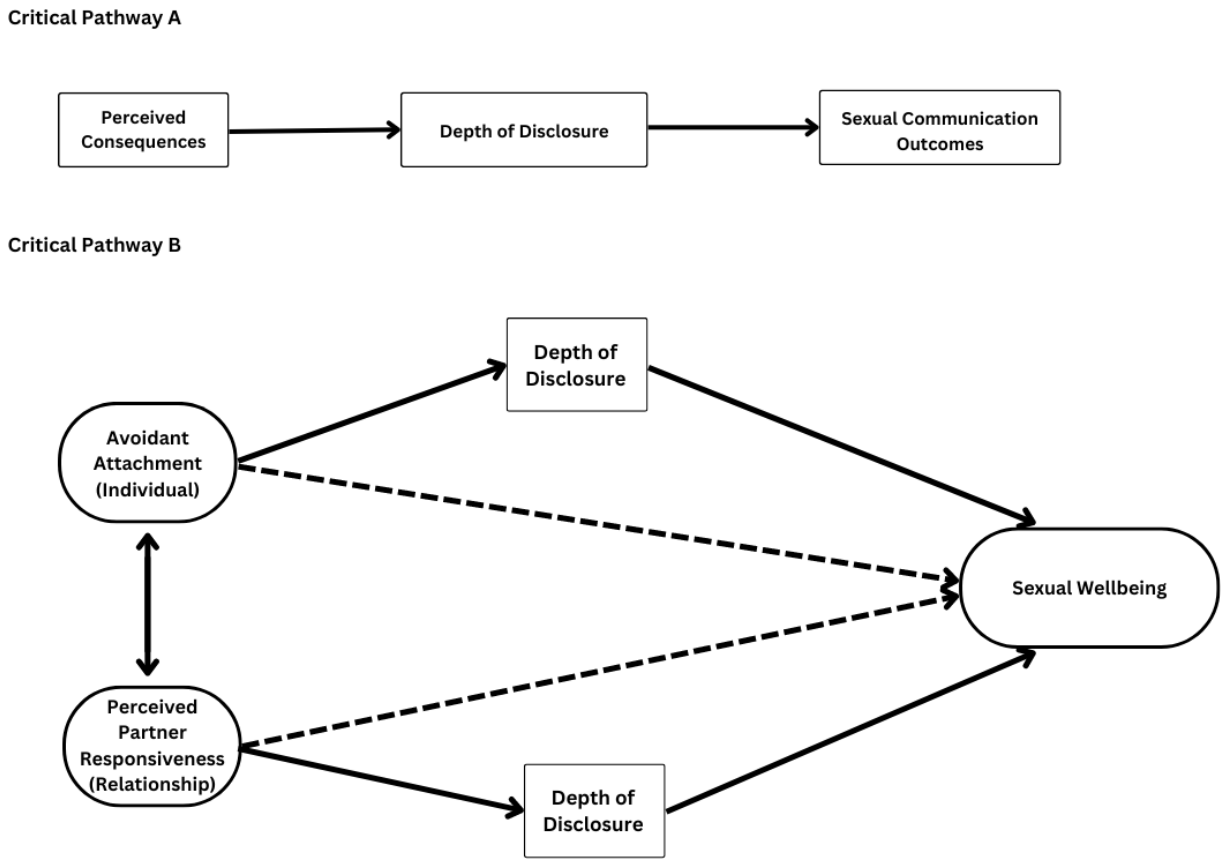
Current Study

The present study addresses these gaps by testing the PMSC using a prospective, multi-wave longitudinal design to address two longitudinal objectives. First, I examined how three dimensions of sexual communication (i.e., perceived consequences, perceived partner understanding, and depth of disclosure) change over the six-month study period and whether their trajectories are related. Second, I examined longitudinal associations within two critical pathways of the PMSC, with particular attention to whether associations among repeatedly measured constructs reflected dynamic within-person processes versus stable between-person differences (See Figure 5). Pathway A examined the dynamic communicative process from specific precursors to disclosure, to the actual disclosure, and to its subsequent outcomes. Pathway B examined how perceived partner responsiveness and avoidant attachment, representing relational and individual factors, respectively, were associated with depth of

disclosure and sexual wellbeing over time. These pathways will be analyzed longitudinally across three-time points: baseline (Timepoint 1), three months later (Timepoint 2), and six months later (Timepoint 3).

Figure 5

Critical Pathways A and B of the Process Model of Sexual Communication



Critical Pathway A. This pathway will explore the communicative process itself over time. Specifically, it will examine how the perceived consequences of disclosure, one of the precursors to disclosure identified in my master's work, predict the depth of disclosure and its subsequent

effects on the communication over time. Sexual communication outcomes will be assessed using dyadic sexual communication.

Critical Pathway B. This pathway will explore how avoidant attachment and perceived partner responsiveness, key variables representing individual and relationship factors, respectively, impact sexual wellbeing over time. This impact is hypothesized to occur through depth of disclosure as a mediating mechanism; that is, avoidant attachment and perceived partner responsiveness are expected to influence sexual wellbeing indirectly by shaping how openly individuals disclose sexual topics over time.

The main research questions are as follows:

Research Question 1: How do perceived consequences of sexual disclosure, perceived partner understanding, and depth of disclosure change over time, and to what extent are their trajectories related? This will provide information about whether theoretically distinct dimensions of the sexual communication process demonstrate systematic change over time and whether changes across these processes are coordinated. I hypothesized that perceived consequences, perceived partner understanding, and depth of disclosure would increase over time and that positive changes in these processes would be associated with one another.

Research Question 2: Do the longitudinal associations among constructs specified in Critical Pathways A and B of the PMSC provide evidence of directional associations over time? This will provide information about whether the theoretically proposed relationships among components of the PMSC unfold prospectively over time. I hypothesized that more positive perceived consequences would predict greater subsequent depth of disclosure and more positive sexual communication outcomes, and that greater perceived partner responsiveness and lower

avoidant attachment would predict greater depth of disclosure and, ultimately, greater sexual wellbeing.

Research Question 3: To what extent do longitudinal associations among PMSC constructs reflect dynamic within-person processes versus stable between-person differences? This question will provide information about whether associations among sexual communication processes primarily reflect relatively stable differences between individuals or whether deviations from individuals' typical levels of one process predict subsequent changes in other processes. I hypothesized that the associations proposed within the PMSC would be evident at both the within-person and between-person levels.

Study 2 Method

Participants and Procedures

This study's analytic plan was preregistered (https://doi.org/10.17605/OSF.IO/KZRD3). I received approval from the University of Waterloo's Research Ethics Board. I conducted recruitment in two phases: the first through social media platforms and the second through Prolific. The recruitment strategy was modified after the initial launch due to a high volume of bot and fraudulent responses during the initial social media recruitment phase, as detailed below.

At baseline, I established six eligibility criteria. Participants had to be between 18 and 64 years old and reside in the United States or Canada. The upper age limit was selected based on previous research identifying age-related differences in sexual communication satisfaction and relationship satisfaction (Lee & Knapp, 2019), allowing for a more demographically comparable sample. As the study aimed to examine how sexual communication shapes trajectories early in relationships, participants were required to be in romantic relationships between six and 12 months in duration. This relationship duration was selected because relationship trajectories are

notably unstable prior to six months (Rosenfeld, 2014) and was capped at 12 months to capture a period of continued variability during which relational and sexual patterns are still being established, an interval that remains relatively underexamined in longitudinal research on the development and stabilization of these processes over time. Neither the participant nor their partner could be pregnant due to the substantial impact that pregnancy and the transition to parenthood can have on intimate relationships (e.g., Tavares et al., 2023). Because of differences between geographically close and long-distance relationships, participants were also required to live within 100 kilometres of their partner (Goldsmith & Byers, 2020). Individuals also had to have only one primary romantic partner. Having multiple committed partners is complex, and previous research has found that each is treated as a distinct and independent relationship (e.g., Moors et al., 2019). There has not been research exploring the implications of multiple partners on sexual communication, which, if individuals had multiple primary partners, could confound the results. I included individuals who identified as having any romantic orientation, including those that sometimes involve multiple partners, as long as they had only one primary romantic partner at baseline. Because verifying these criteria is essential to ensure high-quality data, I implemented a detailed screening procedure, as described below.

Initial Social Media Recruitment

The initial recruitment plan involved advertising the study on social media platforms using recruitment advertisements that clearly listed all eligibility criteria. Interested individuals contacted the research team via email. In response, the research team provided a second list of eligibility criteria and asked potential participants to confirm their eligibility and the Information and Consent Letter was also attached for review. Individuals who confirmed eligibility and remained interested were invited to schedule a 15-minute virtual (video) screening call using

Zoom. Participants were again sent the eligibility criteria and asked to sign up only if they believed they met all of them. All individuals who scheduled the screening call met with a member of the research team.

The primary purpose of the screening call was to confirm eligibility and to verify that participants were genuine respondents rather than bots or fraudulent responders. Participants were informed in advance that their video would need to be on during the call. At the start of the call, the research team member provided a brief overview of the study and answered any questions participants had about the call or participation. Participants were then asked to complete a short Qualtrics screening survey during the call. This survey included the same Information and Consent Letter that had been emailed to them following their initial contact, allowing them to provide informed consent before completing the screening questions. The research team member reviewed the participant's responses during the call to confirm eligibility. This process also allowed the team member to verify that the geocached location embedded in the Qualtrics survey matched the participant's reported location. Participants were also informed about the longitudinal nature of the study and that participation would involve completing five surveys over a 12-month period. Participants were not remunerated for the screening call. However, those who met the eligibility criteria were sent the baseline survey following the call. After completing the baseline survey, participants received a $15 CAD Amazon gift card for either Amazon.ca (Canada) or Amazon.com (United States).

Of the 358 individuals who contacted the research team to express interest and received the initial eligibility email, 36 completed a screening call. Of these, 20 met the eligibility criteria and completed a viable baseline survey, while 16 were deemed ineligible after screening. An additional 30 individuals scheduled a screening call but did not attend. Two individuals who

completed the baseline survey were subsequently removed from the sample after it was determined that their initial participation requests had been sent from the same email address; however, both individuals were still compensated for their participation. A substantial proportion of initial contacts (n = 228) were identified as likely fraudulent or automated responses and were not invited to complete a screening call. The remaining participants did not respond to our email inviting them to complete a video screening call. During recruitment, the research team was receiving approximately 100 participation requests per day, many of which exhibited recurring patterns suggestive of fraudulent responding. These included multiple emails with identical or highly similar wording, unusual sentence structures, and spelling or grammatical errors; email addresses following repeated patterns (e.g., a name followed by a series of six numbers); and multiple screening calls booked under different names using the same email address. Concerns about authenticity and eligibility also arose during some screening calls. As examples, first some individuals were unable to recall information they had provided in the Qualtrics screening survey moments earlier that was interpreted as an indication of lying on the survey questions to attempt to meet the eligibility criteria that were outlined in the Information and Consent Letter. Second, the name associated with the Zoom account differed from that provided in the initial participation request and could not provide an explanation for this difference when asked. Third, and most notably, the geolocation data embedded in the screening survey indicated that the survey had been completed outside Canada or the United States despite the individual reporting residence in one of these countries.

Given that best practices for identifying and excluding fraudulent respondents are still emerging, I consulted with the research team to develop a systematic approach to exclusion. Individuals were excluded when there was either (a) one clear and compelling indicator of

ineligibility or inauthentic responding or (b) at least three converging, but individually less definitive, indicators of potential fraudulent responding. For example, geolocation data that directly contradicted the eligibility requirement of residence in Canada or the United States constituted a clear indicator, whereas characteristics such as a patterned email address, a discrepancy in names, or difficulty recalling recently provided survey responses contributed to exclusion only when multiple indicators converged. This approach reduced reliance on any single ambiguous characteristic while allowing clear evidence of ineligibility or multiple converging indicators of inauthentic responding to inform exclusion decisions.

Because of ongoing data-quality concerns even after implementing this approach, I paused recruitment to determine how best to proceed. After reviewing possible options and consulting with the research team and other colleagues, I concluded that the likelihood of poor-quality responses was too high with a social media-based recruitment approach. As a result, I pivoted to using Prolific for participant recruitment, since it conducts background identity verification for potential participants and more evidence supports the legitimacy of responses obtained through established online research platforms with built-in screening procedures (e.g., Prolific, 2026). As a result, I submitted an ethics amendment to shift recruitment to Prolific.

Prolific Recruitment

To begin recruitment on Prolific, I first used the following of Prolific's preset eligibility filters: current country of residence (Canada or the United States), age (between 18-64), relationship/marital status (filtered out if indicated that they were engaged, married, or in a civil partnership/civil union), fluent languages (English), romantic relationship length (between 4-6 months, between 7-12 months), and approval ratings on prior studies of 100%, meaning that they were never flagged as a faulty responder on prior studies. Additional screening questions were

included at the beginning of the Qualtrics survey to confirm participants' eligibility against the preset eligibility criteria and the study's additional criteria. Participants were compensated at a rate of approximately 11 CAD per hour, which, using Prolific's default currency, corresponds to £6.00 per hour; this rate is consistent with Prolific's recommended compensation guidelines. The study description presented on the Prolific platform clearly outlined the purpose of the study, its longitudinal design, and the eligibility criteria prior to participation. Individuals who began the survey but were determined to be ineligible during the screening questions received £0.10 for their screening attempt (n = 968). Eligible participants continued to complete the full baseline survey (n = 477), which took approximately 60 minutes. Descriptions of data cleaning procedures and the final sample are described below.

Longitudinal Follow-Up Surveys

Participants who completed the baseline survey were invited to complete follow-up surveys at three, six, nine, and 12 months. Two weeks prior to each follow-up survey launch, all participants were sent private messages reminding them of the study opportunity and asking them to confirm that they were still in the same relationship as baseline. Most participants did not respond to these messages. As non-response to these messages could not be interpreted as ineligibility, all participants who had completed the baseline survey were invited to participate at each timepoint unless they informed us that they were ineligible (e.g., relationship dissolution or moved away from Canada or the United States) or had previously been identified as a bot or fraudulent responder in a previous timepoint. Invitations were distributed through Prolific, and participants also received direct messages through the platform, reminding them of the follow-up opportunities. At each time point, participants completed a brief set of screening questions to verify that they were still living in Canada or the United States and still in the same relationship.

Participants remained eligible to continue in the study even if their circumstances had changed, such as if a pregnancy occurred or if their relationship became long-distance. The eligibility criteria were applied at baseline to establish a sample with relatively consistent circumstances at study entry; however, they were not intended to restrict the range of experiences that could naturally emerge over the six-month study period. Relationships and broader life circumstances evolve at different rates, and transitions in factors such as relationship structure, pregnancy, employment, or geographic proximity may themselves alter the context in which sexual communication occurs. Excluding participants following such changes would therefore have systematically removed naturally occurring relationship and life transitions and potentially reduced the ecological validity of the longitudinal sample. Retaining these participants allowed the study to capture sexual communication as relationships and life circumstances evolved over time, while maintaining a common point of comparison at baseline. Most participants did not report changes in any of the demographic information over the course of the survey (See Table 20). Additionally, four participants reported a pregnancy in the relationship at T2 and two participants reported a pregnancy in the relationship at T3. Few participants reported changes in geographic closeness, with some reporting moving in with their partner (T2 = six, T3 = five) and few starting long-distance relationships (T2 = two, T3 = three).

The three and nine-month follow-up surveys were shortened and took approximately 30 minutes to complete, whereas the six and 12-month surveys took approximately 60 minutes. Participants were compensated at the same hourly rate as the baseline survey. In addition, participants received a £0.50 bonus for each additional time point completed. For example, participants who completed three follow-up surveys received a £1.50 bonus when completing the

six-month survey. Due to notable attrition, described below, only the first three timepoints were included in the analyses.

Patterns of Attrition

As is common in longitudinal online studies, attrition occurred across waves. Several factors likely contributed to these patterns of attrition. First, as expected, a subset of participants reported relationship dissolution during the study period (n = 25), which rendered them ineligible for continued participation in a study focused on partnered sexual communication. Once notified, these participants were not invited to subsequent waves, though they were invited to complete a separate 30-minute survey on their experiences with the relationship dissolution and the degree to which communication was a factor. Only 20 participants completed the breakup survey, so these data were not analyzed.

Second, technical and platform-related issues occurred during recruitment and follow-up through Prolific. Some participants reported that follow-up surveys did not reliably appear on their Prolific dashboards, even though they should have appeared automatically when they were invited to complete a survey using their Prolific ID. To mitigate this, the research team sent direct Prolific inbox messages to all eligible participants at each follow-up wave; however, participants may still have missed invitations or been uncertain about their eligibility or the legitimacy of the invitation. There is no way to know how many participants experienced this technical difficulty, as I was unable to verify whether the study was visible and only learned of it when participants messaged us directly.

Third, data quality challenges associated with online recruitment were substantial, even after switching the recruitment approach from social media to Prolific. Despite using a reputable platform commonly used by academic researchers across a variety of methodologies (Stanton et

al., 2022), I detected a high number (n = 102) of scam or fraudulent responses during baseline recruitment, including individuals who used multiple accounts and had inconsistent IP addresses. Extensive screening procedures were implemented, including checks for duplicate IP addresses, inconsistent geolocation, and implausible response patterns. Participants identified as fraudulent or noncompliant at baseline or follow-ups (e.g., duplicate IP addresses, changing countries across waves, inconsistent geocaching locations indicating they were not residing in Canada or the United States as required) were excluded from the analytic sample (n = 12).

Despite these known factors, the largest source of noncompletion remains unknown. Many participants (n = 176, 50.1%) who completed baseline did not respond to later waves despite meeting eligibility criteria (to my knowledge) and receiving both dashboard invitations and direct messages on Prolific.

The proposed study design included primary longitudinal analyses using the first three waves (T1-T3; Baseline, three months, six months), with follow up at nine (T4) and 12 (T5) months that were not included in any analyses[5]. Following the patterns of data compliance and attrition, this decision reflects the portion of the dataset with the strongest longitudinal coverage and stability. Restricting analyses to T1-T3 allowed for more reliable estimation of longitudinal models by maximizing the number of participants contributing repeated measurements and reducing instability associated with sparse later-wave data.

Patterns in Reporting Relationship Length

Although participants were intentionally recruited based on self-reported new relationships (6-12 months at baseline), data from subsequent time points revealed notable inconsistencies in reported relationship length and partner identification. Among participants

[5] Timepoints 4 and 5 were described as additional timepoints in the dissertation proposal. The dissertation committee agreed that three timepoints were sufficient for the purposes of the dissertation study

who completed the Timepoint 3 survey, 77 reported relationship durations inconsistent with their baseline reports (relationship length was not assessed at TP2), suggesting that many participants may have been in longer-term relationships than initially indicated. I followed up through direct message on Prolific to ask about this discrepancy. Of those who responded to the messages (n = 45), all reported lengths were consistent with those reported on the Timepoint 3 survey. Those who did not respond were still compensated, and their data were included in the analyses. Additionally, participants were asked for the initial of their primary partner at all three timepoints. Twenty-eight participants reported different initials across at least two of the three surveys; 19 of them also reported different relationship durations, raising the possibility of partner change or reporting error. Because there were no other indicators of inattentive responding in these survey responses (see below), they were still included in the analyses. These findings indicate that, despite eligibility criteria requiring relationships of 6-12 months at baseline, a substantial portion of the sample later reported being in longer-term relationships or provided inconsistent identifying information. This suggests the final sample may not accurately represent individuals in the early stages of romantic relationships, and interpretations should reflect this limitation.

Data Quality and Cleaning

Data were systematically screened for duplicate and inattentive responders (e.g., completing the 60-minute survey in less than 20 minutes or inaccurately responding to two or more of the attention checks), and details of the data-cleaning procedures are available on the Open Science Framework (OSF; https://osf.io/s5d3n).

Full participant demographic information is presented in Table 19, with changes across timepoints depicted in Table 20. A total of 351 participants provided usable data at Time 1, with

166 participants completing the Time 2 assessment and 142 participants completing the Time 3 assessment. Participants ranged in age from 18 to 64 years (M = 31.30, SD = 9.65). At baseline, participants were almost equally ciswomen (n = 175, 50%), followed by cismen (n = 170, 49%), with the small number of remaining participants identifying as transgender, nonbinary, Two-Spirit, genderqueer, or another gender identity. Most participants identified as heterosexual (n = 247, 71%). The sample was primarily White (n = 106, 59%), including individuals identifying as White North American (n = 133, 38%) and White European (n = 33, 10%), with substantial representation of participants reporting mixed heritage (n = 50, 14%) and smaller proportions identifying as Asian, Black, Indigenous, Latin American, Middle Eastern, or other ethnic backgrounds. Most participants identified as heteroromantic (n = 222, 64%), were employed full-time (n = 239, 69%), had completed between 16 and 18 years of education (n = 175, 50%), and did not have children (n = 255, 73%).

Table 19

Study 2 Demographic Information Across All Timepoints for Individuals Included in Longitudinal Analyses

	Timepoint 1[6] *n* (% total)	Timepoint 2 *n* (% total)	Timepoint 3
Gender identity (original answer options in the survey)[7]			
Men	81(45)		
Women	92(51)	-1	
Trans*	3(2)	+1	
Nonbinary	2(1)		
Gender neutral	0(0)		
Gender queer	2(1)		
Pangender	0(0)		
Two-spirit	3(1)		
Agender	0(0)		
Another gender	0(0)		
Multiple responses	14(8)		
Sexual identity (original answer options in the survey)			
Heterosexual	134(74)	-1	
Gay	7(4)		
Lesbian	6(3)		
Bisexual	18(10)	+1	
Pansexual	10(6)		
Queer	2(1)		
Questioning or unsure	0(0)		
Fluid	0(0)		
Asexual	3(2)		
Demisexual	0(0)		
Prefer not to disclose	0(0)		
Another sexual identity	0(0)		
Multiple responses	14(8)		
Ethnicity (original answer options in the survey)			

[6] Participants were asked all questions at baseline (timepoint 1). At subsequent timepoints, they were asked one question in which they could indicate if any of these domains (i.e., gender identity, sexual identity, ethnicity, relationship status, living status with their partner, relationship structure, employment status, and approximate household income). If they did not indicate there was a change, they did not complete any further information. If they did indicate there was a change, they completed the same question as baseline. Most participants did not indicate changes at subsequent timepoints.

[7] Note that participants were able to select as many options as they wanted to describe their gender and sexual identity, including an open-response option. As such, the totals in the original answers will not equal the values in the categories used in the analyses, nor the total *N* for participants. We made decisions regarding the final category for each participant who indicated multiple selections as a research team, considering their open-ended responses, if any, and relevant theoretical literature on similarities across gender and sexual identities.

Asian – East (e.g. Chinese, Japanese, Korean)	13(7)		
Asian – South (e.g. Indian, Pakistani, Sri Lankan)	8(4)		
Asian – South East (e.g. Malaysian, Filipino, Vietnamese)	5(3)		
Black – North American (e.g. Canadian, American)	8(4)		
Black – African (e.g. Ghanian, Kenyan, Somali)	3(2)		
Black – Caribbean (e.g. Barbadian, Jamaican)	1(1)		
Indian – Caribbean (e.g. Guyanese with Indian origins)	1(1)		
Indigenous - First Nations	0(0)		
Indigenous - Inuit	0(0)		
Indigenous - Métis	0(0)		
Indigenous - Native American Tribes	1(1)		
Indigenous/Aboriginal not included elsewhere	0(0)		
Latin American (e.g. Argentinean, Chilean, Salvadorian)	4(2)		
Middle Eastern (e.g. Egyptian, Iranian, Lebanese)	1(1)		
White – North American (e.g. Canadian, American)	86(48)		
White – European (e.g. UK, Italian, Russian)	20(11)		
Mixed Heritage (e.g. Black-African and White North American)	52(29)		
Romantic Orientation (original answer options in the survey)			
Aromantic (Experiencing little to no romantic attraction toward others)	0(0)		
Biromantic (Experiencing romantic attraction toward two or more genders)	18(10)		
Demiromantic (Experiencing romantic attraction only after forming a strong emotional connection with someone)	43(24)	-1	+1
Greyromantic (Experiencing romantic attraction infrequently or under specific circumstances)	6(3)		
Heteroromantic (Similar to straight, but for romantic feelings. Experiencing romantic attraction	122(68)		-1

primarily toward a different gender)		
Homoromantic (Experiencing romantic attraction primarily toward the same gender)	16(9)	
Panromantic (Experiencing romantic attraction toward people of all genders)	7(4)	
Polyromantic (Experiencing romantic attraction toward multiple, but not necessarily all, genders)	4(2)	+1
Questioning or unsure (Uncertain about or still exploring your romantic orientation)	1(1)	
Prefer not to disclose	2(1)	
Another orientation not listed	0(0)	
Employment Status (original answer options in the survey to the question "Are you currently employed?")		
No, I am currently unemployed	17(9)	
No, I am a temporary/seasonal worker	3(2)	
No, I am retired	2(1)	
Yes, full time	127(71)	
Yes, part-time	31(17)	
Approximate annual household income (original answer options in the survey to the question, not specified whether in CAD or USD)		
Less than $4999	8(4)	
$5000-$19,999	9(5)	
$20,000-$39,999	26(14)	
$40,000-$59,999	34(19)	
$60,000-$79,999	26(14)	
$80,000-$99,999	27(15)	
$100,000-$119,999	18(10)	
$120,000-$139,999	13(7)	
$140,000-$159,999	11(6)	
$160,000-$179,999	1(1)	
$180,000-$200,000	5(3)	
Greater than $200,000	2(1)	
Years of education (asked as an open-ended response, grouped into the categories below)		
0-12 years	30(17)	
13-15 years	44(24)	
16-18 years	88(49)	
19-20 years	15(1)	
21-25 years	3(<1)	
25+ years	0(0)	

Children	
0	133(74)
1	23(13)
2	15(8)
3	6(3)
4	3(2)

Note. N = 180 of participants who completed at least 2 waves of data.

Table 20

Study 2 Changes in Demographic Variables Across Timepoints

Demographic Variable	TP1 → TP2 Changes (*n*)	TP1 → TP3 Changes (*n*)	Description of Change
Living Status	9	8	—
Gender Identity	1	0	Cisgender woman → transgender/nonbinary (TP2)
Employment Status	20	26	—
Income	22	22	—
Sexual Identity	1	0	Heterosexual → bisexual (TP2)
Romantic Orientation	0	2	Demi → polyromantic; heterosexual → demi-grey heterosexual (TP3)

Measures

Full descriptive statistics and internal consistencies are reported in Table 21 for all three timepoints.

Background Questionnaire. This questionnaire was designed to collect background information specific to the current study. It included questions about the participants' demographic information (e.g., age, gender, race, sexual identity, romantic orientation, education and employment history) and the history of their current relationship (e.g., type of relationship, relationship length). Regarding gender, I asked *"To which gender identity do you most identify"* with the following response option where they could select as many as applied to them: man, woman, trans*, nonbinary, gender neutral, genderqueer, pangender, agender, and two spirit, along with an open response option for individuals to indicate another gender. Regarding sexuality, I asked *"What best describes your sexual identity"* with the following response options, where they could select as many as applied to them: asexual, bisexual, demisexual, heterosexual, fluid, gay, lesbian, pansexual, queer, and questioning or unsure, as well as an open response option for individuals to indicate another sexual identity. I asked a question that had a mix of racial and ethnic identities (i.e., *"Please indicate your ethnicity(ies) Select all that apply: Peoples' ethnicity describes their feeling of belonging and attachment to a distinct group of a larger population that shares their ancestry, racial background language or religion")* with the 16 ethno-cultural/geographic response options along with a "do not know" and two open-ended responses (specifying if mixed heritage and to indicate another ethnicity) are outlined in Table 19.

This section also included items on level of education, employment status, approximate household income, and whether they had children. There were also questions regarding their relationship, including their partner's gender, whether becoming pregnant is possible from sex

with their partner, and the number of previous committed romantic relationships. These items were not included in any analyses.

Participants could select multiple responses to the following four demographic questions: sexual identity, gender identity, romantic orientation, and race/ethnicity. I created a clear process to code these responses into groups. First, participants who selected only a single response were coded directly into the corresponding category. For participants who selected multiple responses, those with combinations that were conceptually clear and commonly co-occurring (e.g., "man" and "trans") were coded into a single, interpretable category (e.g., transman) based on established conventions. In cases where participants selected multiple responses that were less straightforward to interpret, two members of the research team independently reviewed and coded these responses. Any discrepancies between coders were resolved through discussion, and when needed, a third lab member was consulted to reach consensus. This process was implemented to ensure that coding decisions were systematic, transparent, and reflective of participants' self-identifications while maintaining analytic clarity. The vast majority of responses were straightforward and did not require the more intensive, multi-coder review process. For race/ethnicity, participants who selected multiple responses were categorized as "mixed heritage." For the remaining domains, only a small number of cases at baseline required additional review (sexual identity $n = 4$; gender identity $n = 2$; romantic orientation $n = 8$).

Across timepoints, a subset of participants reported changes in several demographic variables relative to baseline. From baseline to Timepoint 2, changes were most common in employment ($n = 20$) and income ($n = 22$), with fewer changes in living status ($n = 9$). Only one participant reported a change in gender identity (from cisgender woman to trans/nonbinary), and one participant reported a change in sexual identity (from heterosexual to bisexual). From

Timepoint 2 to Timepoint 3, similar patterns emerged, with the greatest number of changes observed in employment (n = 26) and income (n = 22), followed by living status (n = 8). Two participants reported changes in romantic orientation (demisexual to polyromantic; heterosexual to demi-grey heterosexual). The two individuals who changed their reported gender and sexual identity were appropriately included in the sexual- and gender-diverse groups, respectively, for the invariance analyses to ensure their identities were represented in these models.

Communicating Sexual Preferences. I used the Multidimensional Sexual Communication Questionnaire-Sexual Preferences (MSC-SP) to measure different aspects of the process and content of communicating sexual preferences (Wasson et al., 2026). The version of this questionnaire that was developed and validated in Study 1 assessed 24 items across two subscales: the perceived consequences and depth of disclosure of the participants' sexual preferences. For this study, in addition to these two subscales, I developed and validated a third MSC subscale that measured perceived partner understanding of the items. The validation analyses are described below. This subscale used the following question: *"How much do you think your partner understands you on this topic?"* with response options ranging from 0 (*"my partner does not understand at all"*) to 100 (*"my partner completely understands"*). I added this subscale to have a specific measurement of the degree to which an individual perceives that their partner understands them on a given topic, an important outcome of sexual communication that can, in turn, impact the likelihood of future communication occurring.

Participants responded to items for each of the three dimensions across 12 items, six items related to self-preferences (e.g., *"the sexual positions I don't like," "how frequently I want to engage in sexual activity"*) and six corresponding items related to partner preferences (e.g., *"the sexual positions my partner doesn't like," "how frequently my partner wants to engage in*

sexual activity"). Each item was rated on a sliding scale from 0 to 100 for all three dimensions, yielding a possible score range of 0 to 1200 for each subscale. The question wording for the perceived consequences was, *"What would happen if you were to talk about this with your current primary romantic partner?",* with responses ranging from 0 *("very negative effect on the relationship")* to 50 *("neither negative nor positive effect")* to 100 *("very positive effect on the relationship").* The question wording for depth of disclosure was, *"To what extent have you talked about this topic with your current primary romantic partner?",* with responses ranging from 0 *("I have not talked about this topic at all")* to 100 *("I have talked about this topic completely").*

Across the MSC subscales (consequences, understanding, and depth), internal consistency was consistently excellent across timepoints, with Cronbach's alpha ranging from .92 to .96 and omega values showing an identical pattern (ω = .92-.96). For the consequences subscale, multilevel estimates indicated high between-person reliability (ω = .97) and slightly lower but still strong within-person reliability (ω = .87). A similar pattern was observed for both the understanding and the depth subscales, with between-person reliability remaining very high (approximately ω ≈ .96) and within-person reliability somewhat lower (approximately ω ≈ .85). Overall, these results indicate that all three constructs are highly reliable and largely trait-like, with more consistent differences between individuals than variability within individuals over time.

Dyadic Sexual Communication. I used the Dyadic Sexual Communication Scale (DSC; Catania, 1986, 2019a), which is a well-validated measure of dyadic sexual communication that assesses perceptions of communication. Participants rated their level of agreement or disagreement with each statement using a six-point Likert scale, ranging from 1 (strongly

disagree) to 6 (strongly agree), on 13 items. The DSC was validated as a one-dimensional scale and includes items related to the effectiveness of communication (e.g., *"my partner and I never seem to resolve my disagreements about sexual issues"*; reverse scored), partner responsiveness (e.g., *"my partner rarely responds when I want to talk about my sex life"*; reverse scored), avoidance of communication (e.g., *"some sexual matters are too upsetting to discuss with my partner"*; reverse scored), emotions evoked (e.g., *"I seldom feel embarrassed when talking about the details of my sex life with my partner"*), and the satisfaction with communication (e.g., *"talking about sex is a satisfying experience for both of us"*). Higher total scores indicate better perceived dyadic communication. Internal consistency for the DSC was acceptable to good across timepoints, with Cronbach's alpha ranging from .73 to .90 and omega estimates showing a comparable pattern (ω = .74-.91). Reliability was highest at TP2 and lower at TP3, suggesting some attenuation in internal consistency over time. Multilevel analyses indicated higher between-person reliability (ω = .90) and lower within-person reliability (ω = .74). This pattern suggests that DSC reflects a moderately reliable construct that is more strongly characterized by stable differences between individuals, with comparatively less consistent within-person variability over time.

Sexual Wellbeing. To capture sexual wellbeing as a multidimensional construct, I specified a latent variable indicated by sexual desire, sexual distress, and sexual satisfaction. Conceptualizations of sexual wellbeing emphasize that it reflects not only the presence of positive experiences (e.g., desire and satisfaction) but also the absence of negative experiences (e.g., distress). Accordingly, modelling sexual wellbeing as a latent construct allows for the integration of these complementary dimensions into a single underlying factor, providing a more comprehensive representation than any individual indicator alone. This approach is consistent

with prior research that has operationalized sexual wellbeing using a similar three-component latent structure (e.g., Wang et al., 2024). A latent variable approach also reduces measurement error by isolating shared variance across indicators, yielding a more reliable estimate of the underlying construct. In the present study, sexual desire was indexed using the FSFI desire subscale, which was selected for its suitability for repeated measurement across timepoints. This indicator was modelled alongside sexual distress and sexual satisfaction to capture the common variance across theoretically related but distinct aspects of sexual functioning and experience. As described below, all indicators demonstrated excellent internal consistency across timepoints, supporting their suitability as indicators of a higher-order construct. Thus, the latent sexual wellbeing factor reflects a robust and theoretically grounded composite of individuals' sexual experiences, encompassing both positive and negative dimensions of functioning.

Sexual Desire. I used two measures of sexual desire. First, for the longitudinal analyses, I used the two-item desire subscale of the Female Sexual Function Index (FSFI; Rosen et al., 2000). Items are rated on a 1 to 5 scale and summed to create a total score ranging from 2 to 10, with higher scores indicating greater sexual desire. This measure was included at all three timepoints. Internal consistency was excellent across timepoints (αs = .93-.96, ωs = .93-.96). The two items asked about experiences "over the past 4 weeks": firstly, *"how often did you feel sexual desire or interest?"* with response options ranging from *"almost never or never"* to *"almost always or always"* and secondly, *"how would you rate your level (degree) of sexual desire or interest?"* with response options ranging from *"very low or none at all"* to *"very high."* Though this questionnaire was developed and validated for females, these items are general and do not pertain to gender and were administered to all participants. Second, for the cross-sectional analyses, I used a more comprehensive measure of sexual desire, the 25-item

Hulbert Index of Sexual Desire (HISD; Apt & Hulbert, 1992). Items are rated on a 5-point Likert scale, and total scores range from 0 to 100, with higher scores indicating greater sexual desire. Internal consistency in the present study was also excellent (αs = .91-.94, ωs = .91-.94). Sample items include *"Just thinking about having sex with my partner excites me"* and *"I enjoy thinking about sex."* The use of both a brief repeated measure and a more comprehensive cross-sectional measure allowed for consistency in longitudinal modelling while capturing greater variability in sexual desire in cross-sectional analyses. The HISD was only included in the surveys at Timepoints 1 and 3 and was not included in the shortened version of the survey at Timepoint 2. The FSFI was included at all three timepoints.

Sexual Distress. I used the five-item Sexual Distress Scale-Short Form (SDS-SF; Santos-Iglesias et al., 2018) to measure sexual distress. Items are measured on a 5-point Likert scale from 0 (never) to 4 (always) and summed to yield a total score ranging from 0 to 20, with higher scores indicating greater sexual distress. The SDS-SF has shown reliability and validity in past research (Santos-Iglesias et al., 2018). Internal consistency for the scale was excellent across all timepoints, with Cronbach's alpha ranging from .91 to .94 and omega estimates showing a comparable pattern (ω = .91-.94). Multilevel analyses indicated high between-person reliability (ω = .94) and somewhat lower but still good within-person reliability (ω = .87). This pattern suggests that SDS reflects a reliable and unidimensional construct that is largely trait-like, with stable differences between individuals and moderately consistent within-person variability over time.

Sexual Satisfaction. The five-item Global Measure of Sexual Satisfaction (GMSEX; Lawrance & Byers, 1998) examined sexual satisfaction by asking participants to answer "How would you describe your sexual relationship with your partner?" using five 7-point bipolar

scales: good-bad, pleasant-unpleasant, positive-negative, satisfying-unsatisfying, valuable-worthless. The items are summed with total scores ranging from 5 to 35, with higher scores indicating greater sexual satisfaction. Internal consistency for the scale was excellent across all timepoints, with Cronbach's alpha ranging from .93 to .96 and omega estimates showing a comparable pattern (ω = .93-.96). Multilevel analyses indicated high between-person reliability (ω = .96) and similarly strong within-person reliability (ω = .93). This pattern suggests that GMSex reflects a highly reliable and unidimensional construct with both stable individual differences and well-captured within-person variability over time.

Attachment Security. I used the nine-item Experiences in Close Relationships - Relationship Structures (ECR-RS) to measure attachment insecurity along the two measured dimensions of avoidant attachment (e.g., "I'm afraid that my partner may abandon me") and anxious attachment (e.g., "I don't feel comfortable opening up to my partner") on a 7-point Likert scale ranging from 1 (strongly disagree) to 7 (strongly agree) (Fraley et al., 2011). Higher average scores on both dimensions indicate responses consistent with more insecure attachment. This scale was only included in the surveys at Timepoint 1 and 3 and was not included in the shortened version of the survey at Timepoint 2. Internal consistency for the ECR-RS subscales was acceptable to excellent across timepoints. For avoidant attachment, Cronbach's alpha ranged from .79 to .82, with omega estimates showing a comparable pattern (ω = .80-.83). For attachment anxiety, internal consistency was higher, with alpha ranging from .86 to .90 and omega values similarly strong (ω = .86-.90). Multilevel analyses indicated higher between-person reliability for both avoidance (ω = .85) and anxiety (ω = .89) compared to within-person reliability (avoidance ω = .65; anxiety ω = .79). This pattern suggests that both attachment dimensions are primarily trait-like, with stable individual differences more strongly captured

than within-person fluctuations over time, particularly for avoidance, which showed comparatively lower within-person reliability.

Perceived Partner Responsiveness. I used the 18-item Perceived Partner Responsiveness Scale (PPR; Reis & Carmichael, 2006), which includes items such as *"My partner usually really listens to me"* and *"My partner values my abilities and opinions."* Participants responded to these items using a nine-point Likert scale ranging from 1 ("Not at all true") to 9 ("Completely true"). Scores were totalled and higher scores indicate greater PPR. The scale's internal consistency was good across all three timepoints (αs = .97-.98, ωs = .97-.98).

Additional Exploratory Measures

Sexual Communication Self-Efficacy. I used the Sexual Communication Self-Efficacy Scale (SCSE) to measure this construct (Quinn-Nilas et al., 2016), originally developed to address sexual health concerns in adolescents and validated in this population. There are five subscales (i.e., contraception communication, condom negotiation, sexual history, positive sexual messages, and negative sexual messages), though only two (positive and negative sexual messages were included in this study as being most relevant to the PMSC. Conceptually, the original names of these subscales did not fully capture the strong communication focus of the items or the specific forms of sexual communication they assessed. The labels *positive sexual messages* and *negative sexual messages* also characterize the valence of the topics being communicated rather than the communication processes reflected in the items, potentially implying that some forms of sexual communication are more desirable or important than others despite the importance of both communicating sexual preferences and boundaries. The items comprising the positive sexual messages subscale assess self-efficacy for communicating sexual preferences, including preferred types of sexual activity and desire for sex (i.e., *"tell them that a*

sexual activity feels good," "tell them you like a specific sexual activity," "tell them you want to have sex more often," "suggest a new sexual activity," "tell them you want to have sex," "initiate sex"), so I labelled this subscale *communicating sexual preferences*. Similarly, the *negative sexual messages* subscale assess self-efficacy for communicating sexual boundaries, including expressing discomfort with or lack of desire for particular sexual activities and communicating when sex is unwanted (i.e., *"tell them a certain sexual activity hurts you," "tell them if a certain sexual activity makes you uncomfortable," "tell them that a certain sexual activity is not making you feel good,"* and *"tell them you do not want to have sex"*). As such, I labelled this subscale *communicating sexual boundaries*.

The response format was modified separately to more directly assess self-efficacy and provide greater response differentiation. In the original scale, responses ranged from 1 (very difficult) to 4 (very easy). The current study instead used a seven-point response scale ranging from 1 (not at all confident) to 7 (extremely confident). The response anchors were modified to more directly assess participants' confidence in their ability to perform each communication behaviour, consistent with the conceptualization of self-efficacy. A seven-point scale was selected to provide greater differentiation in participants' responses than the original four-point format, as research suggests that the reliability, validity, and discriminating capacity of rating scales generally improve as the number of response categories increases, with limited additional psychometric gains beyond approximately seven categories (Lozano et al., 2008; Preston & Colman, 2000). Although these modifications were intended to align the response format more closely with the construct of self-efficacy and increase response differentiation, changing the response anchors and number of response options may affect the psychometric properties of the original measure. Accordingly, I evaluated internal consistency in the present study and

compared it with that reported in previous research. Scores were totalled, with higher scores on both subscales indicating greater reported self-efficacy. Internal consistency in the present sample was excellent for both the communicating sexual boundaries (α = .90, ω = .91) and communicating sexual preferences (α = .92, ω = .92) subscales, demonstrating similar (though stronger) consistency compared to its initial validation, α = .87 and α = .88, respectively.

Motivations for Sexual Communication. I created the Regulatory Focus Theory Questionnaire for Sexual Communication (RFQ-SC) to assess motivations for sexual communication. The items for the scale were based on the format of questions from the Regulatory Focus Questionnaire (RFQ) by Higgins and colleagues (2001). The RFQ was designed to assess motivations for general rather than sexuality-specific behaviours and demonstrated poor reliability and predictive ability in my master's research (Wasson, 2023). In addition, its general focus differed from the other measures used in that study, which assessed constructs specifically within sexual and relational contexts. Although, to my knowledge at the time of writing, the RFQ has not been used in sexuality research, RFT has been applied to understanding sexual behaviours (e.g., Molden et al., 2008), including the development of a domain-specific measure of promotion- and prevention-focused motivations for condom use (Rodrigues et al., 2019). However, no comparable measures have been developed to assess regulatory focus in relation to sexual behaviour more broadly or sexual communication specifically. Importantly, the general content of the RFQ may limit its ability to capture motivations within specific domains, such as sexual communication, where relevant goals and anticipated consequences are highly context-dependent. As such, I developed items to assess promotion- and prevention-focused motivations for engaging in sexual communication specifically. Decisions about the content of the scale items were informed by my master's work,

which used a qualitative approach to understand motivations for sexual communication and themes aligned with RFT (Wasson 2023; Wasson & Rehman, 2024). With a lab team, I created a list of 11 items (six prevention-focused and five promotion-focused) for this scale, following the RFQ structure with the same number of items per subscale. I administered this scale only at baseline because of concerns about survey length. I completed comprehensive scale validation steps for this new measure, which are described below in the results section.

The scale includes items such as *"How often do you start conversations about sexual topics to make your sexual experiences better?"* for promotion-focused and "Not being careful enough with my sexual communication has gotten me into trouble at times" for prevention-focused. Participants responded to these items using a seven-point Likert scale ranging from 1 ("Never") to 7 ("Always"). Scores were totalled, and higher scores on both subscales indicate a higher presence of that type of motivation for sexual communication. This scale was only included in the baseline survey. The scale's internal consistency in the present sample was good for both the promotion-focused subscale ($\alpha = .87$, $\omega = .87$) and for the prevention-focused subscale ($\alpha = .83$, $\omega = .83$).

Perceived Importance. A person-specific composite was created to capture the extent to which disclosure depth was concentrated in sexual topics perceived as personally important. Participants were presented with the full set of 26 disclosure topics from the original version of the MSC and were asked to rank the topics they considered most important and least important to disclose to their partner. Participants were instructed to identify and rank at least five topics in each category and were permitted to rank up to ten, though no one included more than eight. Participants were unable to rank an item in both the important and unimportant categories, so the ranked lists were mutually exclusive.

Using these rankings, a weighted index of disclosure depth was computed to reflect the degree to which participants disclosed more deeply about topics they perceived as more personally important. Rank values were recoded so that higher values reflected greater personal importance, whereas topics identified as least important were assigned negative weights. These recoded rank values were then multiplied by the corresponding disclosure depth scores for each topic. The resulting weighted values were averaged across the 26 topics to produce a single composite score.

This approach allowed disclosure depth to be weighted according to each participant's subjective importance rankings while preserving the relative magnitude of those rankings. Conceptually, the resulting index reflects the extent to which deeper disclosure is concentrated in topics that individuals consider more personally salient, rather than treating all disclosure topics as equally meaningful. Topics that were not ranked by participants were treated as missing and did not contribute to the calculation of the composite score.

Table 21

Study 2 Descriptive Statistics and Internal Consistency for Timepoints 1-3

	TP1					TP2					TP3				
Measured Construct	Mean *(SD)*	Skew *(SE)*	Kurtosis *(SE)*	*α*	*ω*	Mean *(SD)*	Skew *(SE)*	Kurtosis *(SE)*	*α*	*ω*	Mean *(SD)*	Skew *(SE)*	Kurtosis *(SE)*	*α*	*ω*
MSC															
Con	958.40 (172.98)	-0.56 (0.18)	-0.33 (0.36)	.93	.93	943.81 (201.63)	-0.55 (0.19)	-0.67 (0.38)	.96	.96	968.00 (198.00)	-0.69 (0.20)	-0.52 (0.40)	.96	.96
Und	914.47 (193.53)	-0.64 (0.18)	-0.02 (0.36)	.92	.92	927.04 (213.28)	-0.95 (0.19)	0.68 (0.38)	.95	.95	949.42 (206.60)	-0.94 (0.20)	0.44 (0.40)	.95	.95
Dep	853.49 (230.68)	-0.68 (0.18)	0.28 (0.36)	.92	.92	896.87 (221.26)	-0.94 (0.19)	1.01 (0.38)	.94	.94	915.36 (229.04)	-1.04 (0.20)	0.84 (0.40)	.95	.95
DSC	63.91 (9.88)	-0.82 (0.18)	0.29 (0.36)	.83	.85	63.23	-0.79 (0.19)	-0.02 (0.38)	.90	.91	63.39 (3.82)	-0.78 (0.20)	-0.28 (0.40)	.74	.74
GMSEX	30.96 (4.79)	-1.54 (0.18)	2.48 (0.36)	.93	.93	30.48	-1.36 (0.19)	2.20 (0.38)	.94	.94	30.49 (5.84)	-1.61 (0.20)	2.45 (0.40)	.96	.96
HISD	72.56 (14.49)	-1.04 (.18)	2.19 (.36)	.91	.91	–	–	–	–	–	71.68 (16.43)	-1.16 (.20)	1.84 (.40)	.94	.94
SDS-SF	3.47 (3.81)	1.28 (.18)	1.24 (.36)	.91	.91	1.29 (2.67)	2.74 (1.9)	8.01 (.38)	.92	.92	0.46 (1.51)	4.08 (.20)	18.16 (.40)	.94	.94
PPR	135.29 (24.05)	-1.58 (0.18)	3.05 (0.36)	.97	.97	133.68	-1.58 (0.19)	3.02 (0.38)	.98	.98	131.92 (28.10)	-1.43 (0.20)	2.35 (0.40)	.98	.98
ECR-RS															
Avoid	2.08 (0.96)	0.60 (0.18)	-0.29 (0.36)	.80	.80	–	–	–	–	–	2.04 (1.05)	0.97 (0.20)	0.15 (0.40)	.83	.83
Anx	2.76 (1.66)	0.72 (0.18)	-0.58 (0.36)	.86	.86	–	–	–	–	–	2.37 (1.71)	1.24 (0.20)	0.45 (0.40)	.86	.86
RFQ-SC-Prom	24.43 (6.03)	-.28 (.18)	-.13 (.36)	.87	.87	–	–	–	–	–	–	–	–	–	–
RFQ-SC-Prev	22.49 (7.32)	-.05 (.18)	-.13 (.36)	.83	.83	–	–	–	–	–	–	–	–	–	–

SCSE-Boun	23.92 (4.82)	-1.4 (.18)	1.81 (.36)	.90	.91	–	–	–	–	–	–	–	–	–	–
SCSE-Sex Pref	36.58 (6.15)	-1.4 (.18)	2.39 (.36)	.92	.92	–	–	–	–	–	–	–	–	–	–

Note. Timepoint 1 n = 180. Timepoint 2 n = 166. Timepoint 3 n = 142. α = Cronbach's alpha. ω = McDonald's omega. Total values were calculated based on total scores for all constructs except for ECR-RS, where averaged scores were used. MSC = Multidimensional Sexual Communication Questionnaire. Con = Perceived consequences subscale of the MSC. Und = Perceived understanding subscale of the MSC. Dep = depth of disclosure subscale of the MSC. CSI-4 = Couples Satisfaction Index. GMSEX = Global Measure of Sexual Satisfaction. DCS = Dyadic Sexual Communication Scale. HISD = Hurlbert Index of Sexual Desire. SDS-SF = Sexual Distress Scale (Short-Form). ECR-RS = Experiences in Close Relationships – Relationship Structures. Avoid = Avoidance subscale of the ECS-RS. Anx = Anxious subscale of the ECR-RS. RFQ-SC = Regulatory Focus Questionnaire – Sexual Communication. Prom = Promotion-focused subscale of the RFQ-SC. Prev = Prevention-focused subscale of the RFQ-SC. SCSE = Sexual Communication Self-Efficacy Scale. Boun = Boundaries subscale of the SCSE. Pref = Sexual preferences subscale of the SCSE.

Statistical Analyses

I pre-registered my analysis plan and used RStudio 2024.12.0 to conduct all analyses, using the following packages: psych (Revelle, 2025), lavaan (Rosseel, 2012), semTools (Jorgensen et al., 2021), and MVN (Korkmaz et al., 2014).

Missing data were minimal at baseline, with item-level missingness ranging from 0.57% to 4.84% (M = 1.23%). Little's MCAR test was non-significant, $\chi^2(79) = 66.40$, $p = .842$, indicating that missingness at TP1 was consistent with a Missing Completely At Random (MCAR) mechanism. At subsequent timepoints, missingness was driven entirely by attrition, with 52.71% and 59.54% of data missing at TP2 and TP3, respectively. Importantly, among participants who completed each follow-up wave, there was no item-level missingness across variables, indicating complete data within waves. MCAR tests for TP2 and TP3 were not interpretable because missingness patterns were uniform and reflected wave-level attrition rather than variable-level missingness.

Given the longitudinal nature of the data, I carefully monitored attrition throughout the study and formally evaluated it after data collection. To assess potential bias from participant dropout across waves, I conducted a series of attrition analyses to examine whether missingness was systematically related to baseline characteristics. Participants were classified as completers at each follow-up time point if they provided data on any primary study variable at that wave. Attrition was examined separately for Timepoint 2 (TP2) and Timepoint 3 (TP3) to assess whether systematic dropout emerged early in the study and whether similar patterns were observed across later waves. For each time point, I compared participants who completed the follow-up with those who did not on baseline (TP1) demographic variables, including sexuality, gender, ethnicity, employment, income, age, and years of education. Comparisons were also

conducted on baseline study variables, including sexual satisfaction (GMSex), sexual desire (FSFI), sexual distress (SDS), perceived partner responsiveness (PPR), dyadic sexual communication (DSC), and the three dimensions of sexual communication (perceived consequences, perceived partner understanding, and depth of disclosure). Avoidant attachment was included in TP3 analyses, as it was assessed at TP1 and TP3. I examined categorical demographic variables using chi-square tests and compared continuous variables using independent-samples t-tests. To further evaluate the extent to which baseline variables uniquely predicted retention, I ran logistic regression models for each follow-up timepoint, with completion status (completed vs. not completed) as the outcome and all baseline demographic and study variables entered simultaneously as predictors. I selected this multi-step approach to provide a comprehensive assessment of attrition, including both bivariate and multivariable associations, and to determine whether observed differences were robust after accounting for shared variance among predictors.

All scale validation and longitudinal analyses were conducted using a structural equation modelling approach. For all models, I evaluated the model's fit using several goodness-of-fit indices (Brown, 2015; Marsh et al., 2004): the Comparative Fit Index (CFI; values ≥ 0.95 good, ≥ 0.90 acceptable fit), the Tucker-Lewis Index (TLI; values ≥ 0.95 good, ≥ 0.90 acceptable fit), the Robust Root Mean Square Error of Approximation (RMSEA), including its 90% confidence interval (CI; ≤ .06 good, ≤. 08 acceptable fit) with values ≤ 0.10 considered acceptable, and, specific to the EFA models, and Standardized Root Mean Square Residual (SRMR). Analyses were conducted using the robust maximum likelihood (MLR) estimator in lavaan, which applies full information maximum likelihood (FIML) to handle missing data. This approach retains all available data and yields unbiased parameter estimates under MCAR and MAR assumptions

(Newman, 2014). Missing data and attrition analyses were conducted to evaluate the extent to which missingness was systematic and to support the use of FIML in the present study.

Methods for Scale Validation

Two measures were evaluated psychometrically using baseline Study 2 data: the MSC-SP, which was extended from the measure validated in Study 1, and the newly developed RFQ-SC. Because the measures differed in their stage of development and degree of prior validation, I used different initial factor-analytic approaches before conducting measurement invariance testing.

Validating the Three-Subscale MSC

Given the extensive scale validation conducted in Study 1, I used confirmatory rather than exploratory factor analysis to evaluate its structure in Study 2. Specifically, I conducted a three-factor CFA that retained the structure of the two-factor MSC-SP validated in Study 1, reflecting perceived consequences of sexual communication and depth of disclosure, and added perceived partner understanding as a third theoretically proposed dimension of the sexual communication process. This analysis therefore examined whether the previously validated MSC-SP structure could be extended to incorporate perceived partner understanding as a distinct but related dimension in the Study 2 sample.

Validating the RFQ-SC

Because the RFQ-SC was newly developed for Study 2 and its underlying factor structure had not previously been established, I first conducted an exploratory factor analysis (EFA), followed by CFA to evaluate the resulting factor structure. Principal axis factoring (PAF) was selected as the extraction method because of its robustness to non-normal distributions, and a promax rotation was used to allow the resulting factors to correlate, consistent with theoretical

expectations (Cureton & Mulaik, 1975; de Winter & Dodou, 2012). Factor retention was determined based on parallel analysis, inspection of the scree plot, and theoretical interpretability of the resulting factors. The factor structure identified through the EFA was subsequently evaluated using CFA with the same baseline Study 2 sample. CFA model fit was evaluated using the thresholds outlined above.

Measurement Invariance

Again, similar to Study 1, to evaluate whether the questionnaire has possible measurement biases that would lead to invalid comparisons across groups, I conducted a series of measurement invariance tests following the outlined guidelines for CFA for both the three-factor MSC-SP and the RFQ-SC (Millsap, 2011), testing and comparing six levels of invariance using increasingly constrained parameters, following the approaches of previous studies (e.g., Bőthe et al., 2023). The first four steps of invariance testing (configural, metric, scalar, and residual) assess potential measurement-related differences and biases across groups, whereas the final two steps evaluate equivalence in latent variances and means and therefore pertain to structural rather than measurement invariance. Although assessment of structural invariance is not required, it can yield informative insights into group-level differences in latent constructs across the groups examined (Milfont & Fischer, 2010; Vandenberg & Lance, 2000). I assessed model fit for each level of invariance following established guidelines of RMSEA (ΔRMSEA $\leq$ 0.015; Chen, 2007; Cheung & Rensvold, 2002) and a significant decrease in CFI (ΔCFI $\leq$ 0.01 as acceptable).

To create the groups for the measurement invariance tests, I created sets of binary categories for both measures based on responses to questions about identity on the background questionnaire (See Table 40). I did not intentionally sample based on demographics in this study

and tested four meaningful binary invariance tests: 1) cismen and ciswomen, 2) heterosexual compared to sexually diverse participants, 3) race/ethnicity, and 4) age, again despite unbalanced sample sizes across groups (Yoon & Lai, 2018). Similar to Study 1, I did not have adequately powered groups to examine differences beyond these grouped dyad comparisons, even though there are theoretical reasons that there are unique differences for individuals with different (e.g., Borgogna et al., 2019; Feinstein et al., 2021) as well as intersecting (Warner & Shields, 2013) identities. I assessed invariance across younger compared to older adults based on the age distribution of my sample, which had a younger median age than Sample 1 (*Mdn* = 29 compared to *Mdn* = 32). As a result, I split the group into those aged 18-29 and those aged 30+ (the older group), rather than 35+ as in Study 1.

Table 22

Study 2 Compiled Groups for Invariance Tests

Group Description	TP1 *n* (% total)
Group 1: Gender identity (grouped categories by cisman and ciswoman)[5]	
Cismen	167(48)
Ciswomen	172(49)
Gender diverse *(not included in invariance analyses)*	10(18)
Group 2: Sexual identity (grouped categories by heterosexual compared to sexually diverse)[5]	
Heterosexual	244(66)
Sexually diverse	105(30)
Group 3: Ethnicity groups for invariance tests (grouped categories by White North American to all others)	
White North American	133(38)
All other ethnicities	216(62)
Group 4: Age (grouped by younger and older adults based on median age)	
Younger (18-35)	249(71)
Older (36+)	100(29)

Note. Timepoint 1 (TP1) $n = 351$.

Methods for Longitudinal Analyses

To evaluate the longitudinal dynamics proposed in the PMSC, I used a series of structural equation modelling (SEM) approaches designed to examine both patterns of change over time and directional associations among key constructs. Analyses proceeded in two stages. First, I examined trajectories of sexual communication processes using growth-based models. Second, I evaluated directional associations between constructs within critical pathways A and B of the PMSC using random-intercept cross-lagged panel models (RI-CLPMs).

Latent Growth Curve Modelling

To examine coordinated change across key sexual communication processes, I estimated a parallel latent growth curve model (LGCM). This approach allows for the simultaneous modelling of multiple developmental processes, capturing both within-construct change over time and associations among trajectories across constructs. The three sexual communication process dimensions of the MSC-SP were included: perceived consequences of disclosure, perceived partner understanding, and depth of disclosure across the three timepoints. The parallel-process LGCM represented the primary growth model used to evaluate trajectories of the core sexual communication processes. After estimating this primary model, I conducted sensitivity analyses in which I separately included avoidant attachment and perceived partner responsiveness as time-invariant covariates. These analyses examined whether individual- and relationship-level contextual factors accounted for variability in initial levels or rates of change and whether their inclusion altered the pattern of findings observed in the primary growth model.

For each construct, I specified a latent growth process with intercept and slope factors. I fixed intercept factor loadings to 1 across all time points, representing stable baseline levels of each construct. Slope factor loadings were fixed to 0, 1, and 2 for Time 1, Time 2, and Time 3,

respectively, reflecting linear change across equally spaced three-month intervals. This specification enabled estimation of both the average level and rate of change for each construct, as well as individual variability around these trajectories.

The model included freely estimated means for all intercept and slope factors, allowing for tests of whether constructs demonstrated significant baseline levels and systematic linear change over time. Variances of the growth factors were also estimated to assess individual differences in initial levels and rates of change. To account for shared measurement context and concurrent associations among constructs, residual covariances were specified among the three constructs within each time point. This allowed for correlations among perceived consequences, perceived understanding, and disclosure depth at each wave, beyond what was explained by the latent growth processes. Finally, I allowed all intercept and slope factors to correlate freely across constructs, capturing both baseline associations (e.g., whether individuals higher on one construct at baseline were also higher on others) and co-development over time (e.g., whether changes in one process were associated with changes in another).

Longitudinal Associations

Following the growth models, I examined directional associations among constructs specified in the PMSC using a series of longitudinal panel models. I used RI-CLPM as the primary analytic approach to examine whether the proposed associations reflected dynamic within-person processes while accounting for stable between-person differences. Traditional CLPMs can conflate stable between-person differences with within-person fluctuations over time, potentially biasing estimates of directional effects. By separating trait-like stability from within-person variability, the RI-CLPM provides a more precise test of whether deviations in one construct from an individual's typical level predict subsequent deviations in another construct

over time (Hamaker et al., 2015). In RI-CLPM, repeated measures of each construct were decomposed into two components (Hamaker et al., 2015). First, random intercept factors captured stable between-person differences across the six-month period. I specified these intercept factors by constraining factor loadings from each repeated measure to one and allowing them to covary. The covariance among these random intercepts represents associations between constructs that are consistent across time and reflect stable differences between individuals. Second, the remaining within-person variance represented time-specific deviations from each individual's typical level. These within-person components were used to estimate three types of parameters: autoregressive paths, within-time covariances, and cross-lagged paths. Autoregressive parameters captured the extent to which deviations from an individual's typical level persisted over time. Within-time covariances represented concurrent associations between constructs at each wave. Cross-lagged paths estimated whether deviations in one construct predicted subsequent deviations in another construct at the next time point, testing directional associations consistent with the theoretical pathways proposed in the PMSC.

To evaluate these hypotheses, I estimated constrained RI-CLPMs as the primary analyses, with autoregressive and cross-lagged parameters constrained to equality across time. I selected this specification to provide a more parsimonious and statistically stable representation of within-person processes given the three-wave design. I then conducted a series of sensitivity analyses to evaluate whether conclusions from the primary RI-CLPMs were robust to alternative model specifications. First, I estimated unconstrained RI-CLPMs in which autoregressive and cross-lagged parameters were freely estimated across the two time intervals, examining whether relaxing the stationarity constraints imposed in the primary models altered the pattern of findings. Second, I estimated traditional CLPMs as sensitivity analyses to examine whether

conclusions differed when stable between-person differences were not separated from within-person fluctuations. Autoregressive and cross-lagged paths were freely estimated across adjacent time intervals (TP1→TP2 and TP2→TP3), allowing longitudinal associations to vary over time without imposing stationarity constraints. Separate models were estimated to examine the two primary pathways specified in the PMSC, both following the steps outlined above. Pathway A focused on communication processes leading to dyadic sexual communication and included perceived consequences of disclosure, depth of disclosure, and dyadic sexual communication. Pathway B focused on downstream relational outcomes and included depth of disclosure, sexual wellbeing, and perceived partner responsiveness and included Time 1 avoidant attachment as a time-invariant covariate.

For all measures, I assessed reliability using both Cronbach's alpha and McDonald's omega (McNeish, 2018), with values between .70 and .80 considered acceptable and values ≥ .80 considered good (Goodboy & Martin, 2020; Nunnally, 1978). I first evaluated reliability separately at each time point to assess the internal consistency of observed scores. In addition, within- and between-person reliability estimates were derived using a decomposition approach across timepoints. Between-person reliability reflects the consistency of stable individual differences by estimating reliability on person-mean item scores across waves, whereas within-person reliability reflects the consistency of fluctuations over time by estimating reliability on deviations from each individual's mean. This approach provides an approximation of multilevel reliability by distinguishing trait-like stability from within-person variability. Given attrition across waves, which resulted in smaller and less balanced samples at later time points, this method was selected as a practical alternative to model-based multilevel reliability estimation, as

it retains all available data while allowing estimation of reliability at both levels. These estimates should therefore be interpreted as approximations rather than latent model-based parameters.

Study 2 Results

Attrition

At TP2, 166 participants (47.29%) completed the follow-up and 185 (52.71%) did not. Comparisons between TP2 completers and non-completers indicated that attrition by the first follow-up was partially systematic. Significant differences were observed for several baseline demographic variables, including sexuality, $\chi^2(7) = 17.60$, $p = .014$, ethnicity, $\chi^2(11) = 58.05$, $p < .001$, and income, $\chi^2(11) = 21.07$, $p = .033$, whereas gender and employment were not significantly associated with TP2 completion (ps $\geq .066$). Participants who completed TP2 were significantly older at baseline ($M = 32.92$, $SD = 9.40$) than those who did not ($M = 29.83$, $SD = 9.66$), $t = -3.03$, $p = .003$, with no difference observed for years of education, $t = 1.10$, $p = .274$. With respect to baseline study variables, TP2 completers reported significantly higher dyadic sexual communication ($M = 63.89$, $SD = 10.04$) than non-completers ($M = 59.13$, $SD = 10.49$), $t = -4.34$, $p < .001$, as well as more positive perceived consequences of sexual disclosure ($M = 956.23$, $SD = 175.94$ vs. $M = 913.16$, $SD = 199.29$), $t = -2.14$, $p = .033$. No significant differences were observed for sexual satisfaction, sexual desire, sexual distress, perceived partner responsiveness, perceived partner understanding, or depth of disclosure (ps $\geq .233$). In the logistic regression model predicting TP2 completion, sexuality, ethnicity, income, age, and dyadic sexual communication emerged as significant unique predictors (ps $\leq .050$), whereas perceived consequences of disclosure was no longer significant.

At TP3, 142 participants (40.46%) completed the final follow-up and 209 (59.54%) did not. The attrition pattern at TP3 was broadly consistent with that observed at TP2. Significant

demographic differences were again observed for sexuality, $\chi^2(7) = 15.25$, $p = .033$, ethnicity, $\chi^2(11) = 48.40$, $p < .001$, and income, $\chi^2(11) = 25.30$, $p = .008$, whereas gender and employment were not significant (ps $\geq .098$). Participants who completed TP3 were significantly older (M = 33.60, SD = 9.80) than non-completers (M = 29.71, SD = 9.24), t = -3.72, $p < .001$, with no difference in education, t = 0.38, $p = .704$. Baseline study variables showed a similar pattern to TP2. TP3 completers reported higher dyadic sexual communication (M = 63.81, SD = 10.00 vs. M = 59.73, SD = 10.60), t = -3.65, $p < .001$, and more positive perceived consequences of sexual disclosure (M = 961.51, SD = 169.95 vs. M = 914.54, SD = 199.99), t = -2.36, $p = .019$. No differences were observed for sexual satisfaction, sexual desire, sexual distress, perceived partner responsiveness, perceived partner understanding, or depth of disclosure (ps $\geq .294$). Avoidant attachment did not significantly differ between groups, although a small trend was observed, t = 1.69, $p = .092$. In the logistic regression model, ethnicity, age, and dyadic sexual communication remained significant predictors of TP3 completion, whereas other variables were not. These results indicate that attrition was partially systematic and emerged early in the study, with similar patterns observed at both follow-up waves. Participants who remained in the study tended to be older and to report higher baseline dyadic sexual communication, and retention was also associated with certain demographic characteristics, particularly ethnicity and income. Importantly, most core study variables, including sexual satisfaction, sexual desire, sexual distress, perceived partner responsiveness, and most dimensions of sexual communication, did not significantly differentiate completers from non-completers at either time point.

Regarding ethnicity, inspection of proportional cell counts in conjunction with baseline group sizes indicated that the significant association between ethnicity and attrition was driven by uneven retention across specific groups. Although the baseline sample was predominantly

White-North American (38.1%), with substantial representation from Black-African (15.5%) and Mixed Heritage (14.3%) participants, retention was comparatively higher among Asian, White, and Mixed Heritage participants, whereas Black-African participants showed markedly elevated dropout across both follow-up waves. Given that Black-African participants comprised a meaningful proportion of the baseline sample, this pattern suggests that they were systematically underrepresented in later waves. In contrast, several smaller groups showed extreme retention values that likely reflect limited sample sizes rather than stable patterns. Accordingly, group-specific findings and the overall association between ethnicity and attrition should be interpreted cautiously because sparse cell counts may have reduced the reliability of the chi-square approximation and produced unstable estimates for some groups. Overall, attrition was not uniform across ethnicity groups. Because retention was associated with observed baseline characteristics, the pattern was inconsistent with a strictly MCAR mechanism and was compatible with a MAR assumption conditional on the observed variables. However, the possibility of Missing Not at Random (MNAR) attrition cannot be ruled out.

Regarding income, inspection of proportional cell counts indicated that attrition varied nonlinearly across income groups. At TP2, participants in several middle- to upper-middle-income brackets (approximately $20,000–$120,000) demonstrated comparatively higher retention, whereas some higher-income categories (≥ $140,000) showed greater dropout. At TP3, elevated dropout was observed in both the lowest-income category (< $5,000) and several of the highest-income categories (≥ $140,000), while retention was comparatively higher across several middle-income categories. This descriptive pattern suggests that the association between income and attrition did not reflect a simple gradient in which participants with lower incomes were consistently more likely to drop out. However, because some of the lowest- and highest-income

categories contained relatively few participants, these category-specific patterns should be interpreted cautiously and may not represent stable differences in retention.

Correlations between all variables measured at each timepoint are depicted in Table 23.

Table 23

Study 2 Pearson's Zero-Order Correlations

Construct	*1*	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*	*11*	*12*	*13*	*14*	*15*	*16*	*17*	*18*	*19*	*20*	*21*	*22*	*23*	*24*	*25*	*26*	*27*	*28*
1. MSC Con T1	—																											
2. MSC Con T2	.72**	—																										
3. MSC Con T3	.63**	.74**	—																									
4. MSC Und T1	.76**	.60**	.59**	—																								
5. MSC Und T2	.61**	.82**	.65**	.71**	—																							
6. MSC Und T3	.49**	.65**	.79**	.64**	.82**	—																						
7. MSC Dep T1	.69**	.52**	.45**	.83**	.60**	.50**	—																					
8. MSC Dep T2	.55**	.72**	.52**	.65**	.85**	.68**	.74**	—																				
9. MSC Dep T3	.45**	.49**	.65**	.60**	.63**	.83**	.64**	.72**	—																			
10. DSC T1	.58**	.55**	.49**	.59**	.60**	.55**	.46**	.48**	.42**	—																		
11. DSC T2	.46**	.61**	.56**	.43**	7**	.56**	.27**	.48**	.38**	.66**	—																	
12. DSC T3	.39**	.54**	.61**	.46**	.61**	.69**	.29**	.44**	.49**	.69**		—																
13. GMSex T1	.46**	.53**	.43**	.49**	.55**	.50**	.42**	.44**	.43**	.56**	.51**	.42**	—															
14. GMSex T2	.46**	.64**	.52**	.51**	.69**	.56**	.35**	.50**	.41**	.54**	.68**	.52**	.72**	—														
15. GMSex T3	.26**	.51**	.55**	.31**	.54**	.61**	.18*	.42**	.45**	.41**	.63**	.66**	.55**	.63**	—													
16. SDS T1	-..37**	-..42**	-..45**	-..50**	-..47**	-..51**	-..41**	-..40**	-..38**	-..62**	-..39**	-..47**	-..66**	-..51**	-..41**	—												
17. SDS T2	-..23**	-..48**	-..40**	-..29**	-..52**	-..45**	-..13	-..30**	-..21*	-..45**	-..59**	-..51**	-..50**	-..65**	-..60**	.51**	—											
18. SDS T3	-..09	-..35**	-..37**	-..21*	-..34**	-..46**	-..16	-..22*	-..29**	-..41**	-..39**	-..61**	-..39**	-..35**	-..51**	.46**	.54**	—										
19. SexWell T1	.45**	.51**	.46**	.53**	.54**	.54**	.46**	.45**	.45**	.62**	.47**	.46**	.93**	.68**	.52**	-..86**	-..53**	-..45**	—									

Construct	*1*	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*	*11*	*12*	*13*	*14*	*15*	*16*	*17*	*18*	*19*	*20*	*21*	*22*	*23*	*24*	*25*	*26*	*27*	*28*
20. SexWell T2	.41**	.64**	.52**	.47**	.69**	.57**	.33**	.48**	.39**	.52**	.69**	.53**	.72**	.94**	.69**	-..54**	-..81**	-..44**	.71**	—								
21. SexWell T3	.26**	.52**	.57**	.33**	.56**	.64**	.23**	.43**	.48**	.44**	.60**	.69**	.59**	.62**	.96**	-..46**	-..63**	-..66**	.59**	.71**	—							
22. PPR T1	.49**	.53**	.52**	.50**	.59**	.59**	.36**	.44**	.42**	.63**	.49**	.58**	.54**	.55**	.43**	-..50**	-..49**	-..39**	.56**	.57**	.47**	—						
23. PPR T2	.42**	.61**	.52**	.41**	.65**	.55**	.25**	.47**	.35**	.52**	.71**	.60**	.52**	.72**	.59**	-..43**	-..64**	-..41**	.51**	.75**	.60**	.69**	—					
24. PPR T3	.33**	.53**	.60**	.35**	.60**	.68**	.20*	.41**	.45**	.56**	.65**	.70**	.49**	.56**	.66**	-..48**	-..57**	-..58**	.52**	.60**	.71**	.73**	.75**	—				
25.ECR-Av T1	-..46**	-..51**	-..33**	-..45**	-..54**	-..42**	-..37**	-..43**	-..35**	-..63**	-..49**	-..53**	-..41**	-..45**	-..32**	.37**	.35**	.33**	-..41**	-..45**	-..36**	-..66**	-..61**	-..56**	—			
26. ECR-Av T3	-..26**	-..42**	-..49**	-..30**	-..49**	-..57**	-..18*	-..37**	-..44**	-..45**	-..51**	-..66**	-..36**	-..43**	-..53**	.34**	.40**	.52**	-..37**	-..44**	-..56**	-..58**	-..58**	-..76**	.57**	—		
27. ECR-Anx T1	-..31**	-..34**	-..30**	-..38**	-..37**	-..37**	-..29**	-..30**	-..33**	-..47**	-..31**	-..33**	-..28**	-..32**	-..15	.39**	.35**	.27**	-..34**	-..34**	-..20*	-..44**	-..38**	-..46**	.56**	.44**	—	
28. ECR-Anx T3	-..20*	-..41**	-..39**	-..29**	-..48**	-..51**	-..19*	-..35**	-..39**	-..41**	-..45**	-..55**	-..29**	-..41**	-..38**	.43**	.40**	.52**	-..35**	-..40**	-..43**	-..46**	-..55**	-..68**	.44**	.65**	.61**	—

Note. TP1 = Timepoint 1. TP2 = Timepoint 2. TP3 = Timepoint 3.

MSC Con = Perceived Consequences of Disclosure (MSC-SP-D). MSC Dep = Depth of Disclosure (MSC-SP-D). DSC = Dyadic Sexual Communication Scale. GMSEX = Global Measure of Sexual. SDS = Sexual Distress Scale (Short-Form). SexWell = Sexual Wellbeing Latent Composite Scores (SDS, HISD, GMSex). PPR = Perceived Partner Responsiveness Scale. ECR-Av = ECR-RS = Experiences in Close Relationships – Relationship Structures (Avoidant Attachment). ECR-Anx = ECR-RS = Experiences in Close Relationships – Relationship Structures (Anxious Attachment).

*p < .05, ** p < .01.

Scale Validation Results for Three-Factor MSC-SP

I first re-tested the model fit of the two-factor MSC model with only perceived consequences and depth of disclosure, which was the final model in Study 1. The model, again, demonstrated an excellent fit to the data, with a robust CFI of 0.965, a robust TLI of 0.955, and a robust RMSEA of 0.051 (90% CI = 0.041-0.061).

I then specified the new model, which included the three factors (i.e., perceived consequences, depth of disclosure, and perceived understanding), with correlations freely estimated among all factors to account for their conceptual and empirical overlap. Because the same items were assessed across the three dimensions (consequences, depth, and understanding), I accounted for wording effects by correlating residuals of corresponding items across all three dimensions. As each item was also assessed in both self- and partner-referenced contexts, residuals were correlated for self- and partner-related items within and across dimensions. For example, residuals for a self-referenced item in the consequences dimension were correlated with the corresponding partner-referenced items in the consequences, depth, and understanding dimensions. I applied this approach consistently across all items. In total, the model included 12 items for consequences, 12 items for depth, 12 correlations to account for wording effects, correlations between the factors, and correlations for wording and self- and partner-related items. This comprehensive approach ensured the model captured the unique measurement properties of the items while aligning with the literature-grounded framework guiding the study.

The three-factor model demonstrated good fit to the data, with a robust CFI of 0.938, a robust TLI of 0.922, and a robust RMSEA of 0.055 (90% CI = 0.048-0.061). Although fit indices were slightly lower than the two-factor model, they remained within acceptable ranges given the increased model complexity and additional construct of perceived partner understanding. As

described above, internal consistency was excellent across all three factors (see Table 21), with αs and ωs remaining high and comparable to the two-factor solution, supporting the reliability of the expanded measure.

Measurement invariance was examined across all grouping variables with adequate group size (e.g., sexuality, gender, age, and race/ethnicity) using a sequential series of increasingly constrained models (See Table 22). The gender variable assessed cismen compared to ciswomen, given the demographic distribution of the current sample. Across all groups, the model demonstrated configural, metric, scalar, and residual invariance, with additional support for invariance of latent variances and means. Changes in fit indices across successive models remained within recommended thresholds, indicating that the three-factor MSC operates equivalently across demographic groups. These findings support the comparability of both observed and latent scores across populations (see Tables 24-27). When comparing observed group means, there was a significant difference in perceived partner understanding across sexuality groups, $F(1, 347) = 4.42$, $p = .036$, $\eta^2 = .013$. Heterosexual participants ($M = 916.30$, $SD = 198.85$) reported higher levels of perceived partner understanding than sexually diverse participants ($M = 867.48$, $SD = 199.24$). However, the effect size was small, indicating that the magnitude of this difference was modest. No significant differences were observed by gender, age, or ethnicity.

Table 24

Study 2 Sexual Identity-based Confirmatory Factor Analyses and Tests of Invariance on the Multidimensional Sexual Communication Questionnaire – Sexual Preferences (MSC-SP)

Model	MLR χ^2	df	Robust CFI	Robust TLI	Robust RMSEA	90% CI	Comp.	Δdf	ΔCFI	ΔTLI	ΔRMSEA
Full Model	890.68*	501	0.948	0.934	0.055	0.048-0.061					
Sexuality-based invariance											
M1. Configural	1689.81*	1002	0.928	0.910	0.065	0.058-0.071	—	—	—	—	—
M2. Metric	1732.64*	1035	0.927	0.911	0.064	0.058-0.067	M2-M1	33	-0.001	+0.001	-0.001
M3. Scalar	1772.52*	1068	0.927	0.914	0.064	0.057-0.066	M3-M2	33	+0.000	+0.003	+0.000
M4. Residual	1785.73*	1104	0.928	0.918	0.062	0.065-0.068	M4-M3	36	+0.001	+0.004	-0.002
M5. Latent variance-covariance	1790.58*	1110	0.928	0.918	0.062	0.056-0.068	M5-M4	6	+0.000	+0.000	+0.000
M6. Latent mean	1797.47*	1260	0.927	0.918	0.062	0.056-0.068	M6-M5	150	-0.001	+0.000	+0.000

Note. S1 = Sample 1; S2 = Sample 2; MLR = maximum likelihood with robust standard errors (scaled); χ^2 = Chi-square; df = degrees of freedom; CFI = comparative fit index (robust); TLI = Tucker-Lewis Index (robust); RMSEA = root-mean-square error of approximation (robust); 90% CI = 90% confidence interval of the RMSEA; Comp. = Comparison; ΔCFI = change in CFI value compared to the preceding model; ΔTLI = change in the TLI value compared to the preceding model; ΔRMSEA = change in the RMSEA value compared to the preceding model. Bolded rows indicate the final level of invariance that was achieved. * $p < .001$.

Table 25

Study 2 Gender-based (cismen compared to ciswomen) Confirmatory Factor Analyses and Tests of Invariance on the Multidimensional Sexual Communication Questionnaire – Sexual Preferences (MSC-SP)

Model	MLR χ^2	df	Robust CFI	Robust TLI	Robust RMSEA	90% CI	Comp.	Δdf	ΔCFI	ΔTLI	ΔRMSEA
Full Model	890.68*	501	0.948	0.934	0.055	0.048-0.061					
Gender-based invariance											
M1. Configural	1761.00*	1002	0.917	0.895	0.071	0.064-0.077	—	—	—	—	—
M2. Metric	1831.87*	1035	0.912	0.893	0.071	0.063-0.072	M2-M1	33	-0.005	+0.002	+0.000
M3. Scalar	1906.49*	1068	0.908	0.892	0.072	0.066-0.078	M3-M2	33	-0.004	-0.001	+0.001
M4. Residual	1954.64*	1104	0.904	0.890	0.072	0.066-0.078	M4-M3	36	-0.004	-0.002	+0.000
M5. Latent variance-covariance	1967.35*	1110	0.903	0.889	0.073	0.067-0.079	M5-M4	6	-0.001	-0.001	+0.001
M6. Latent mean	1972.28*	1260	0.902	0.890	0.073	0.063-0.079	M6-M5	150	-0.001	+0.001	+0.000

Note. MLR = maximum likelihood with robust standard errors (scaled); χ^2 = Chi-square; df = degrees of freedom; CFI = comparative fit index (robust); TLI = Tucker-Lewis Index (robust); RMSEA = root-mean-square error of approximation (robust); 90% CI = 90% confidence interval of the RMSEA; Comp. = Comparison; ΔCFI = change in CFI value compared to the preceding model; ΔTLI = change in the TLI value compared to the preceding model; ΔRMSEA = change in the RMSEA value compared to the preceding model. Bolded rows indicate the final level of invariance that was achieved. * $p < .001$.

Table 26

Study 2 Age-based (Younger adults 18-35/Older adults 36+) Confirmatory Factor Analyses and Tests of Invariance on the Multidimensional Sexual Communication Questionnaire – Sexual Preferences (MSC-SP)

Model	MLR χ^2	df	Robust CFI	Robust TLI	Robust RMSEA	90% CI	Comp.	Δdf	ΔCFI	ΔTLI	ΔRMSEA
Full Model	890.68*	501	0.948	0.934	0.055	0.048-0.061					
Age-based invariance											
M1. Configural	1926.14*	1002	0.912	0.889	0.073	0.067-0.079	—	—	—	—	—
M2. Metric	1954.81*	1035	0.910	0.890	0.073	0.067-0.078	M2-M1	33	-0.002	+0.001	+0.000
M3. Scalar	2008.05*	1068	0.909	0.892	0.072	0.066-0.078	M3-M2	33	-0.001	+0.002	-0.001
M4. Residual	2024.27*	1104	0.908	0.895	0.071	0.065-0.077	M4-M3	36	-0.001	+0.003	-0.001
M5. Latent variance-covariance	2022.18*	1110	0.908	0.895	0.071	0.065-0.077	M5-M4	6	+0.000	+0.000	+0.000
M6. Latent mean	2023.88*	1260	0.908	0.896	0.071	0.065-0.076	M6-M5	150	+0.000	+0.001	+0.000

Note. MLR = maximum likelihood with robust standard errors (scaled); χ^2 = Chi-square; df = degrees of freedom; CFI = comparative fit index (robust); TLI = Tucker-Lewis Index (robust); RMSEA = root-mean-square error of approximation (robust); 90% CI = 90% confidence interval of the RMSEA; Comp. = Comparison; ΔCFI = change in CFI value compared to the preceding model; ΔTLI = change in the TLI value compared to the preceding model; ΔRMSEA = change in the RMSEA value compared to the preceding model. Bolded rows indicate the final level of invariance that was achieved. * $p < .001$.

Table 27

Study 2 Race/Ethnicity-origin-based (White North American and all other race/ethnicity-origins) Confirmatory Factor Analyses and Tests of Invariance on the Multidimensional Sexual Communication Questionnaire – Sexual Preferences (MSC-SP)

Model	MLR χ^2	df	Robust CFI	Robust TLI	Robust RMSEA	90% CI	Comp.	Δdf	ΔCFI	ΔTLI	ΔRMSEA
Full Model	890.68*	501	0.948	0.934	0.055	0.048-0.061					
Ethnicity-based invariance											
M1. Configural	1828.47*	1002	0.914	0.892	0.072	0.066-0.078	—	—	—	—	—
M2. Metric	1880.25*	1035	0.912	0.893	0.072	0.066-0.078	M2-M1	33	-0.002	+0.001	+0.000
M3. Scalar	1917.72*	1068	0.912	0.896	0.070	0.064-0.076	M3-M2	33	+0.000	+0.003	-0.002
M4. Residual	1935.13*	1104	0.912	0.899	0.069	0.063-0.075	M4-M3	36	+0.000	+0.003	-0.001
M5. Latent variance-covariance	1937.50*	1110	0.912	0.900	0.069	0.063-0.075	M5-M4	6	+0.000	+0.001	+0.000
M6. Latent mean	1939.30*	1260	0.912	0.900	0.069	0.063-0.075	M6-M5	150	+0.000	+0.000	+0.000

Note. MLR = maximum likelihood with robust standard errors (scaled); χ^2 = Chi-square; df = degrees of freedom; CFI = comparative fit index (robust); TLI = Tucker-Lewis Index (robust); RMSEA = root-mean-square error of approximation (robust); 90% CI = 90% confidence interval of the RMSEA; Comp. = Comparison; ΔCFI = change in CFI value compared to the preceding model; ΔTLI = change in the TLI value compared to the preceding model; ΔRMSEA = change in the RMSEA value compared to the preceding model. Bolded rows indicate the final level of invariance that was achieved. * $p < .001$.

Scale Validation for the RFQ-SC

Using the same model-fit thresholds as above, I conducted exploratory factor analysis (EFA), followed by CFA and invariance tests. For the EFA models, principal axis factoring (PAF) was selected as the extraction method due to its robustness to non-normal distributions using a promax rotation to account for potential correlations among factors, aligning with theoretical expectations (Cureton & Mulaik, 1975). This method is robust to non-normal data distributions and suitable for identifying correlated latent constructs (de Winter & Dodou, 2012). Factor retention was determined based on (a) parallel analysis, (b) inspection of the scree plot, and (c) theoretical interpretability.

RFQ-SC EFA Results

I conducted an EFA to examine the latent structure and dimensionality of the RFQ-SC (see Table 28 and Figure 6). The EFA was performed on baseline (T1) Study 2 data (n = 349), exceeding recommended sample size guidelines for stable factor analytic results (Sakaluk & Short, 2017). Sampling adequacy was confirmed using the Kaiser-Meyer-Olkin (KMO) Measure of Sampling Adequacy, which yielded an overall value of 0.83, indicating good suitability for factor analysis. Bartlett's Test of Sphericity was significant, $\chi^2(55) = 1455.28$, $p < .001$, supporting the presence of sufficient inter-item correlations.

Given the use of likert-type items and potential deviations from normality, principal axis factoring with promax rotation was employed. Parallel analysis supported a two-factor solution. The two-factor solution accounted for 49% of the total variance, with Factor 1 accounting for 27% and Factor 2 accounting for 22%. Standardized loadings ranged from 0.47 to 0.86. Items loading on Factor 1 (loadings = 0.64-0.86) reflected promotion-focused motivations for sexual communication, including approaching communication to enhance connection, growth, or

positive relational outcomes. Items loading on Factor 2 (loadings = 0.47-0.82) reflected prevention-focused motivations, including communicating to avoid conflict, negative outcomes, or relational disruption. Cross-loadings were minimal overall, with most items demonstrating clear primary loadings and only small secondary loadings (generally < |0.22|). The factors were weakly correlated ($r = 0.14$), supporting the use of an oblique rotation and indicating that promotion and prevention motivations for sexual communication represent related but largely distinct constructs. Communalities (h^2) ranged from 0.22 to 0.72, indicating that the factors accounted for a moderate proportion of the variance in the individual items. The mean item complexity was 1.1, indicating that items primarily loaded on a single factor.

Additional indices provided for the exploratory factor solution were consistent with adequate representation of the observed correlation structure. The RMSR was 0.03 (df-corrected RMSR = 0.04), indicating small residuals between the observed and reproduced correlations. The TLI was 0.953, and the RMSEA was 0.059 (90% CI [0.041, 0.077]), further supporting the adequacy of the two-factor exploratory solution. These indices were considered supplementary to the primary evidence used to determine the factor structure, including the parallel analysis, pattern of factor loadings, cross-loadings, communalities, and interpretability of the resulting factors. See Figure 6.

Table 28

Study 2 Baseline Sample Standardized Factor Loadings, Reliability Indices, and Descriptive Statistics of the Regulatory Focus Questionnaire – Sexual Communication (RFQ-SC).

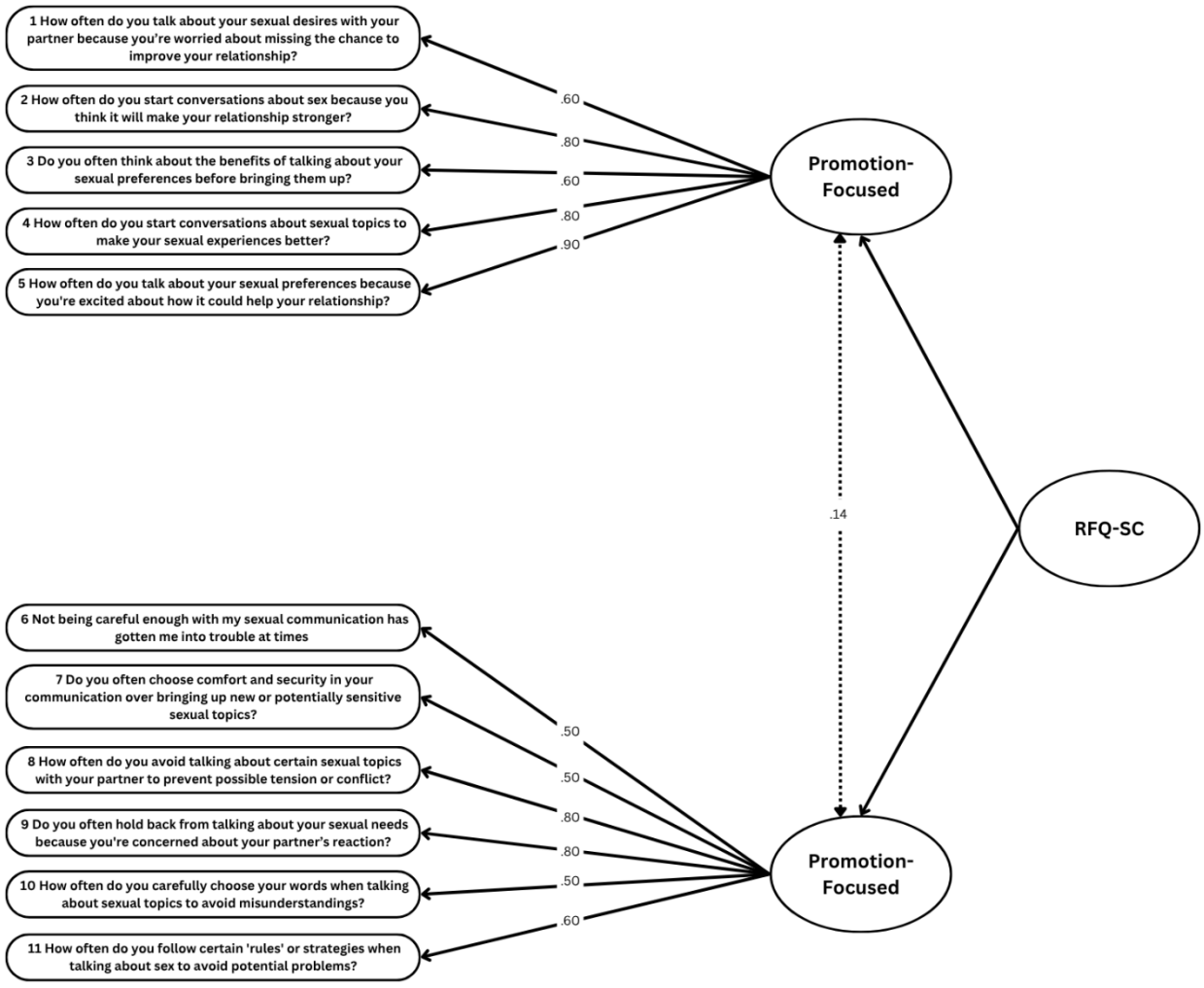
	Factor Loadings	
	Factor 1	Factor 2
1. How often do you talk about your sexual desires with your partner because you're worried about missing the chance to improve your relationship?	.64	
2. How often do you start conversations about sex because you think it will make your relationship stronger?	.79	
3. Do you often think about the benefits of talking about your sexual preferences before bringing them up?	.64	
4. How often do you start conversations about sexual topics to make your sexual experiences better?	.80	
5. How often do you talk about your sexual preferences because you're excited about how it could help your relationship?	.85	
6. Not being careful enough with my sexual communication has gotten me into trouble at times		.47
7. Do you often choose comfort and security in your communication over bringing up new or potentially sensitive sexual topics?		.51
8. How often do you avoid talking about certain sexual topics with your partner to prevent possible tension or conflict?		.82
9. Do you often hold back from talking about your sexual needs because you're concerned about your partner's reaction?		.79
10. How often do you carefully choose your words when talking about sexual topics to avoid misunderstandings?		.52
11. How often do you follow certain 'rules' or strategies when talking about sex to avoid potential problems?		.62

	Descriptive Statistics		
	Mean (SD)	Skewness (SE)	Kurtosis (SE)
Promotion-Focused Total Score	35.00 (24.55)	-0.28 (0.13)	-0.14 (0.26)
Prevention-Focused Total Score	42.00 (23.28)	-0.15 (0.13)	-0.17 (0.26)
Item 1	4.55 (1.47)	-0.20 (0.13)	-0.44 (0.26)
Item 2	4.85 (1.50)	-0.41 (0.13)	-0.32 (0.26)
Item 3	5.00 (1.37)	-0.51 (0.13)	-0.08 (0.26)
Item 4	5.05 (1.57)	-0.57 (0.13)	-0.10 (0.26)
Item 5	5.10 (1.40)	-0.58 (0.13)	-0.18 (0.26)
Item 6	3.13 (1.65)	-0.37 (0.13)	-0.72 (0.26)
Item 7	4.46 (1.54)	-0.33 (0.13)	-0.51 (0.26)
Item 8	3.76 (1.85)	0.01 (0.13)	-1.12 (0.26)
Item 9	3.55 (1.81)	-0.15 (0.13)	-1.05 (0.26)
Item 10	4.57 (1.59)	-0.39 (0.13)	-0.46 (0.26)
Item 11	3.80 (1.73)	-0.38 (0.13)	-0.87 (0.26)

Note: Sample 1 $N = 349$. Only factor loadings ≥ .4 are included. SD = standard deviation. SE = standard error.

Figure 6

Study 2 Final Exploratory Factor Analysis Factor Structure for the Regulatory Focus Questionnaire – Sexual Communication



RFQ-SC CFA Results

Using the EFA results, I conducted a CFA to examine the structural validity of the RFQ-SC using the same Study 2 baseline sample. I specified a two-factor model consisting of promotion-focused motivations (n = 5) and prevention-focused motivations (n = 6). I estimated the model using robust MLR with FIML to account for missing data. The model converged normally after 35 iterations. Fit indices indicated acceptable but not optimal model fit. The

scaled chi-square test was significant, $\chi^2(43) = 143.53$, $p < .001$. Incremental fit indices were in the acceptable range, with a robust CFI of 0.917 and a robust TLI of 0.894. Absolute fit indices indicated borderline fit, with a robust RMSEA of 0.088 (90% CI [0.072, 0.105]) and an SRMR of 0.089. Information criteria were as follows: AIC = 13085.54, BIC = 13216.52, and SABIC = 13108.66. Standardized factor loadings were moderate to strong for the promotion-focused factor (λ = 0.64-0.85) and more variable for the prevention-focused factor (λ = 0.47-0.84). All loadings were statistically significant (*p*s < .001), indicating that items were meaningful indicators of their respective latent constructs. The correlation between the promotion- and prevention-focused factors was small and non-significant ($r = -.03$, $p = .763$), suggesting that these motivational orientations for sexual communication operate largely independently within this sample.

Overall, these findings provide support for a two-factor structure reflecting promotion- and prevention-focused motivations for sexual communication. Although it demonstrated only an acceptable fit, the factor structure was consistent with theoretical expectations and the EFA results, supporting the measure's structural validity. Across sexuality, gender identity, age, and ethnicity/race (See Table 22 for information regarding the groupings), the RFQ-SC demonstrated configural, metric, and scalar measurement invariance. Configural, metric, and scalar invariance were supported across all demographic variables, indicating that the factor structure, loadings, and intercepts were equivalent across groups (See Tables 29-32). Residual invariance was supported for sexuality, gender identity, and age, but was not unequivocally supported for ethnicity/race because the reduction in robust CFI slightly exceeded the specified criterion (ΔCFI = −.013). These findings indicate that the RFQ-SC measures the same underlying constructs sufficiently similarly across the demographic groups examined to support mean comparisons,

although possible differences in item-specific residual variance should be acknowledged for ethnicity/race.

I conducted follow-up mean comparisons across demographic groups after establishing scalar measurement invariance for the RFQ-SC subscales. For promotion-focused sexual communication, there were no significant differences across sexuality, gender, age, or ethnicity (all $ps \geq .140$), with trivial effect sizes ($\eta^2 \leq .006$), indicating highly comparable levels across groups. For prevention-focused sexual communication, no statistically significant differences emerged across any grouping variable (all $ps \geq .097$). A small, non-significant trend suggested that sexually diverse participants reported slightly higher prevention-focused scores than heterosexual participants, though the effect size was small ($\eta^2 = .008$). Overall, these findings indicate that both promotion- and prevention-focused sexual communication processes are largely consistent across demographic groups at the mean level. The ethnicity/race comparisons remain interpretable because scalar invariance was supported, although the absence of strict residual invariance warrants some caution when interpreting observed-score comparisons.

Table 29

Study 2 Sexual Identity-based Confirmatory Factor Analyses and Tests of Invariance on the Regulatory Focus Questionnaire - Sexual Communication (RFQ-SC)

Model	MLR χ^2	df	Robust CFI	Robust TLI	Robust RMSEA	90% CI	Comp.	Δdf	ΔCFI	ΔTLI	ΔRMSEA
Full Model	169.89*	43	0.917	0.894	0.088	0.072-0.105					
Sexuality-based invariance											
M1. Configural	208.27*	86	0.908	0.882	0.093	0.076-0.111	—	—	—	—	—
M2. Metric	212.79*	95	0.910	0.895	0.088	0.071-0.105	M2-M1	9	+0.002	+0.013	-0.005
M3. Scalar	223.03*	104	0.909	0.904	0.084	0.068-0.100	M3-M2	9	-0.001	+0.009	-0.004
M4. Residual	227.13*	115	0.911	0.915	0.079	0.063-0.095	M4-M3	11	+0.002	+0.011	-0.005
M5. Latent variance-covariance	229.99*	118	0.912	0.918	0.078	0.062-0.094	M5-M4	3	+0.001	+0.003	-0.001
M6. Latent mean	233.94*	120	0.910	0.918	0.078	0.062-0.093	M6-M5	2	-0.002	+0.000	+0.000

Note. S1 = Sample 1; S2 = Sample 2; MLR = maximum likelihood with robust standard errors (scaled); χ^2 = Chi-square; df = degrees of freedom; CFI = comparative fit index (robust); TLI = Tucker-Lewis Index (robust); RMSEA = root-mean-square error of approximation (robust); 90% CI = 90% confidence interval of the RMSEA; Comp. = Comparison; ΔCFI = change in CFI value compared to the preceding model; ΔTLI = change in the TLI value compared to the preceding model; ΔRMSEA = change in the RMSEA value compared to the preceding model. Bolded rows indicate the final level of invariance that was achieved. * $p < .001$.

Table 30

Study 2 Gender-based (cismen compared to ciswomen) Confirmatory Factor Analyses and Tests of Invariance on the Regulatory Focus Questionnaire - Sexual Communication (RFQ-SC)

Model	MLR χ^2	df	Robust CFI	Robust TLI	Robust RMSEA	90% CI	Comp.	Δdf	ΔCFI	ΔTLI	ΔRMSEA
Full Model	169.89*	43	0.917	0.894	0.088	0.072-0.105					
Gender-based invariance											
M1. Configural	192.92*	86	0.917	0.894	0.088	0.070-0.106	—	—	—	—	—
M2. Metric	202.87*	95	0.915	0.901	0.085	0.068-0.103	M2-M1	9	-0.002	+0.007	-0.003
M3. Scalar	212.41*	104	0.915	0.910	0.081	0.064-0.098	M3-M2	9	+0.000	+0.009	-0.004
M4. Residual	221.78*	115	0.913	0.916	0.078	0.062-0.094	M4-M3	11	-0.002	+0.006	-0.003
M5. Latent variance-covariance	233.69*	118	0.905	0.912	0.080	0.064-0.096	M5-M4	3	-0.008	-0.004	+0.002
M6. Latent mean	237.88*	120	0.904	0.912	0.080	0.065-0.096	M6-M5	2	-0.001	+0.000	+0.000

Note. MLR = maximum likelihood with robust standard errors (scaled); χ^2 = Chi-square; df = degrees of freedom; CFI = comparative fit index (robust); TLI = Tucker-Lewis Index (robust); RMSEA = root-mean-square error of approximation (robust); 90% CI = 90% confidence interval of the RMSEA; Comp. = Comparison; ΔCFI = change in CFI value compared to the preceding model; ΔTLI = change in the TLI value compared to the preceding model; ΔRMSEA = change in the RMSEA value compared to the preceding model. Bolded rows indicate the final level of invariance that was achieved. * $p < .001$.

Table 31

Study 2 Age-based (Younger adults 18-35/Older adults 36+) Confirmatory Factor Analyses and Tests of Invariance on the Regulatory Focus Questionnaire - Sexual Communication (RFQ-SC)

Model	MLR χ^2	df	Robust CFI	Robust TLI	Robust RMSEA	90% CI	Comp.	Δdf	ΔCFI	ΔTLI	ΔRMSEA
Full Model	169.89*	43	0.917	0.894	0.088	0.072-0.105					
Age-based invariance											
M1. Configural	183.23*	86	0.923	0.902	0.085	0.067-0.103	—	—	—	—	—
M2. Metric	195.53*	95	0.921	0.908	0.082	0.065-0.099	M2-M1	9	-0.002	+0.006	-0.003
M3. Scalar	203.70*	104	0.922	0.918	0.078	0.061-0.094	M3-M2	9	+0.001	+0.010	-0.004
M4. Residual	211.76*	115	0.924	0.928	0.073	0.056-0.089	M4-M3	11	+0.002	+0.010	-0.005
M5. Latent variance-covariance	216.31*	118	0.923	0.929	0.072	0.056-0.088	M5-M4	3	-0.001	+0.001	-0.001
M6. Latent mean	218.90*	120	0.923	0.929	0.072	0.056-0.088	M6-M5	2	+0.000	+0.000	+0.000

Note. MLR = maximum likelihood with robust standard errors (scaled); χ^2 = Chi-square; df = degrees of freedom; CFI = comparative fit index (robust); TLI = Tucker-Lewis Index (robust); RMSEA = root-mean-square error of approximation (robust); 90% CI = 90% confidence interval of the RMSEA; Comp. = Comparison; ΔCFI = change in CFI value compared to the preceding model; ΔTLI = change in the TLI value compared to the preceding model; ΔRMSEA = change in the RMSEA value compared to the preceding model. Bolded rows indicate the final level of invariance that was achieved. * $p < .001$.

Table 32

Study 2 Race/Ethnicity-origin-based (White North American and all other race/ethnicity-origins) Confirmatory Factor Analyses and Tests of Invariance on the Regulatory Focus Questionnaire - Sexual Communication (RFQ-SC)

Model	MLR χ^2	df	Robust CFI	Robust TLI	Robust RMSEA	90% CI	Comp.	Δdf	ΔCFI	ΔTLI	ΔRMSEA
Full Model	169.89*	43	0.917	0.894	0.088	0.072-0.105					
Ethnicity-based invariance											
M1. Configural	191.37*	86	0.921	0.899	0.088	0.070-0.105	—	—	—	—	—
M2. Metric	209.33*	95	0.912	0.898	0.088	0.071-0.105	M2-M1	9	-0.009	-0.001	+0.000
M3. Scalar	220.34*	104	0.911	0.906	0.084	0.068-0.101	M3-M2	9	-0.001	+0.008	-0.004
M4. Residual	246.77*	115	0.898	0.902	0.086	0.071-0.102	M4-M3	11	-0.013	-0.004	+0.002
M5. Latent variance-covariance	253.66*	118	0.895	0.902	0.086	0.071-0.101	M5-M4	3	-0.003	+0.000	+0.000
M6. Latent mean	254.23*	120	0.897	0.905	0.085	0.070-0.100	M6-M5	2	+0.002	+0.003	-0.001

Note. MLR = maximum likelihood with robust standard errors (scaled); χ^2 = Chi-square; df = degrees of freedom; CFI = comparative fit index (robust); TLI = Tucker-Lewis Index (robust); RMSEA = root-mean-square error of approximation (robust); 90% CI = 90% confidence interval of the RMSEA; Comp. = Comparison; ΔCFI = change in CFI value compared to the preceding model; ΔTLI = change in the TLI value compared to the preceding model; ΔRMSEA = change in the RMSEA value compared to the preceding model. Bolded rows indicate the final level of invariance that was achieved. * $p < .001$.

Longitudinal Analyses Results

Trajectories of Sexual Communication Process Variables

The primary parallel-process LGCM examined trajectories of perceived consequences, perceived partner understanding, and disclosure depth across the three timepoints, as well as associations among their trajectories (See Figure 7 and Tables 33-35). The model demonstrated acceptable to good fit to the data. The robust fit indices indicated strong comparative fit (CFI = .992, TLI = .968), and low residual error (SRMR = .042), while the RMSEA suggested marginal fit (robust RMSEA = .095, 90% CI [.030, .156]). The chi-square test was statistically significant, $\chi^2(9) = 20.96$, $p = .013$, though this was a complex model with a marginal sample size. Overall, the pattern of fit indices suggested the model adequately represented the data.

For perceived consequences of communication, the intercept was significant $B = 958.25$, SE = 13.05, $p < .001$, indicating relatively high initial levels. The slope was not statistically significant, $B = 2.84$, SE = 6.73, $p = .673$, suggesting that perceived consequences remained stable over time on average. There was significant variability in initial levels, $\sigma^2 = 22{,}554.40$, SE = 4,316.07, $p < .001$, but not in rates of change, $\sigma^2 = 2{,}315.19$, SE = 2,119.59, $p = .275$. Thus, participants differed meaningfully in their initial levels of perceived consequences, but there was limited evidence of individual differences in change over time. For perceived partner understanding, the intercept was significant, $B = 916.84$, SE = 14.68, $p < .001$, and the slope was also significant, $B = 19.94$, SE = 6.87, $p = .004$, indicating a significant increase over time. There was significant variability in initial levels, $\sigma^2 = 28{,}705.27$, SE = 4,676.35, $p < .001$. Variability in rates of change approached, but did not reach, statistical significance, $\sigma^2 = 4{,}226.78$, SE = 2,442.59, $p = .084$, providing limited evidence of individual differences in change trajectories. For disclosure depth, the intercept was significant, $B = 861.35$, SE = 17.55, $p < .001$, and the

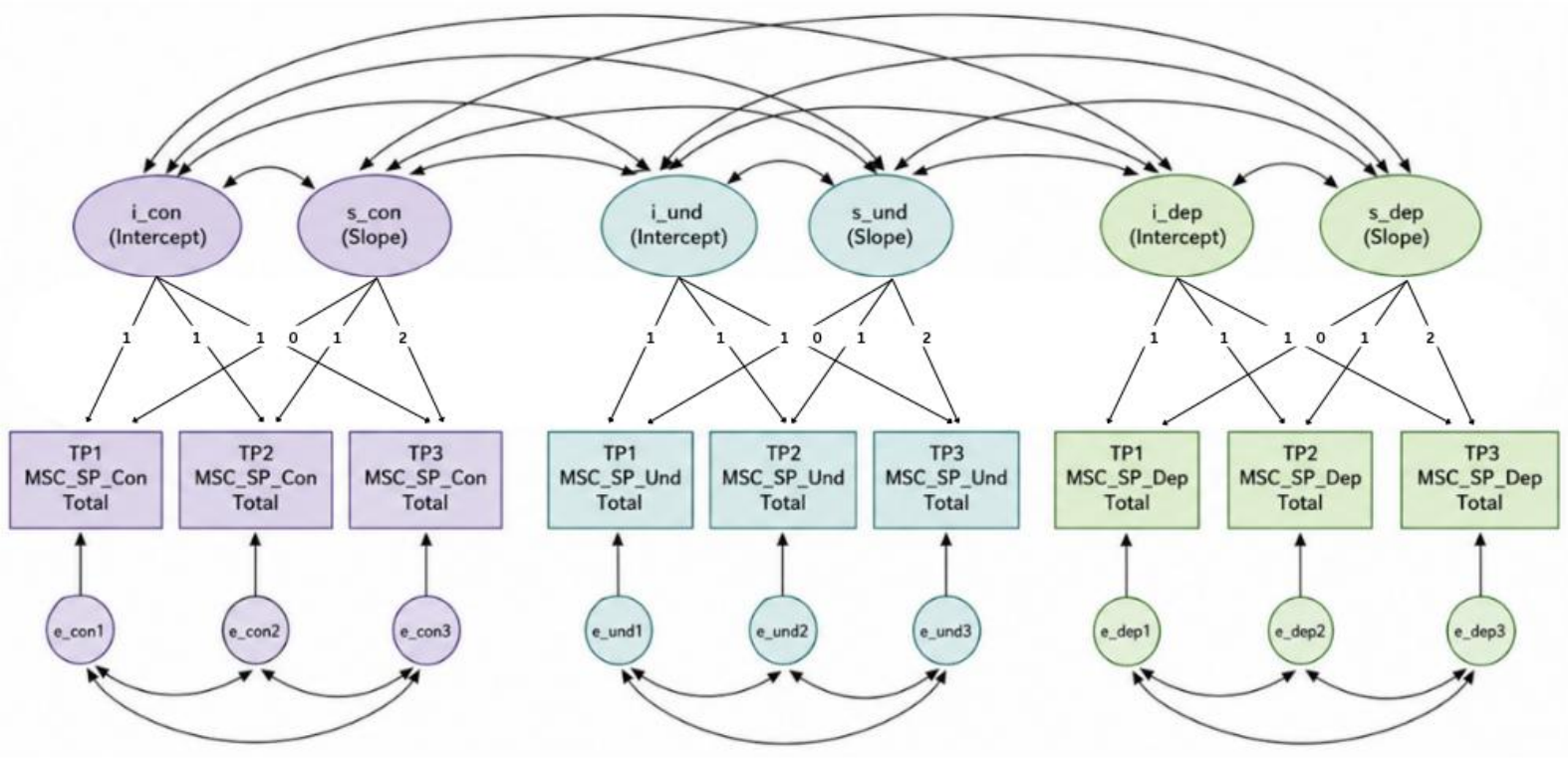
slope was also significant, $B = 34.62$, SE = 8.08, $p < .001$, indicating a significant increase in disclosure depth over time. There was significant variability in initial levels, $\sigma^2 = 31{,}817.54$, SE = 7,272.28, $p < .001$. However, the estimated disclosure-depth slope variance was negative, $\sigma^2 = -1{,}998.49$, SE = 4,008.29, $p = .618$. This inadmissible estimate prevented reliable interpretation of individual differences in disclosure-depth change. Accordingly, covariances involving the disclosure-depth slope should be interpreted cautiously.

At the level of initial status, all three intercept factors were strongly and positively associated. The covariance between initial perceived consequences and perceived partner understanding was significant, $\sigma = 20{,}860.56$, SE = 4,017.20, $p < .001$, with a strong standardized association, $\beta = .82$. Initial perceived consequences also covaried significantly with initial disclosure depth, $\sigma = 18{,}890.97$, SE = 4,452.83, $p < .001$, $\beta = .71$. Similarly, the covariance between initial perceived partner understanding and disclosure depth was significant, $\sigma = 25{,}274.76$, SE = 5,233.16, $p < .001$, $\beta = .84$. These findings indicated substantial correspondence among individuals' initial levels across the three sexual communication constructs.

The covariance between the perceived-consequences and perceived-partner-understanding slopes was positive but not statistically significant. Covariances involving the disclosure-depth slope were also non-significant, although its negative variance estimate precluded reliable interpretation. Intercept–slope associations across constructs were non-significant. Within-time residual covariances were generally positive and were statistically significant in several cases, particularly at later time points.

Figure 7

Primary Parallel-Process Latent Growth Curve Model



Note. CON = perceived consequences of sexual communication; UND = perceived partner understanding; DEP = disclosure depth; *i* = intercept (initial level); *s* = slope (linear rate of change); TP1 = baseline; TP2 = 3-month follow-up; TP3 = 6-month follow-up; e = residual/error term. Intercept factor loadings were fixed at 1, 1, and 1, and slope factor loadings were fixed at 0, 1, and 2 across the three time points.

Sensitivity Analyses. Two sensitivity analyses examined whether the primary growth model findings were robust to including theoretically relevant individual and relational factors.

The first sensitivity model included avoidant attachment as a time-invariant covariate. The model showed an approximate fit broadly comparable to the primary growth model, although its scaled comparative fit was slightly weaker (CFI = .985, RMSEA = .087) than that of the primary model (CFI = .988, RMSEA = .086). Higher avoidant attachment significantly predicted lower initial levels of perceived consequences, $B = -82.88$, SE = 11.76, $\beta = -.59$, $p < .001$; perceived partner understanding, $B = -90.99$, SE = 13.76, $\beta = -.55$, $p < .001$; and disclosure depth, $B = -84.91$, SE = 17.45, $\beta = -.47$, $p < .001$. In contrast, avoidant attachment did not significantly predict change in perceived consequences, $B = 7.17$, SE = 7.37, $\beta = .20$, $p = .331$; perceived partner understanding, $B = 3.41$, SE = 7.82, $\beta = .05$, $p = .663$; or disclosure depth, $B = 3.91$, SE = 8.29, $p = .637$. A standardized coefficient was unavailable for the disclosure-depth slope because its residual variance was negative. Overall, avoidant attachment accounted for meaningful between-person differences in initial communication levels but did not explain change in the communication processes over time.

The second sensitivity model included perceived partner responsiveness as a time-invariant covariate. This model demonstrated a somewhat stronger approximate fit than the primary growth model (CFI = .991, RMSEA = .067). Higher PPR significantly predicted higher initial levels of perceived consequences, $B = 3.58$, SE = 0.51, $\beta = .57$, $p < .001$; perceived partner understanding, $B = 4.14$, SE = 0.54, $\beta = .58$, $p < .001$; and disclosure depth, $B = 3.49$, SE = 0.60, $\beta = .45$, $p < .001$. In contrast, PPR did not significantly predict change in perceived consequences, $B = 0.27$, SE = 0.32, $\beta = .14$, $p = .395$; perceived partner understanding, $B = 0.31$, SE = 0.34, $\beta = .11$, $p = .368$; or disclosure depth, $B = 0.14$, SE = 0.35, $p = .694$. A standardized

coefficient was unavailable for the disclosure-depth slope because its residual variance was negative. Overall, perceived partner responsiveness accounted for substantial between-person differences in initial communication levels but did not explain change in the communication processes over time.

As in the primary model, both sensitivity models produced negative residual variance estimates for the disclosure-depth slope. Consequently, findings involving that slope, including its regression on avoidance or perceived partner responsiveness, should be interpreted cautiously.

Table 33

Study 2 Model Fit Indices for Latent Growth Curve Models for Primary and Sensitivity Analyses

Model	MLR χ^2	df	p	CFI	TLI	RMSEA [90% CI]	SRMR	AIC	BIC
Parallel-process LGCM	20.962	9	0.013	0.992	0.968	0.095 [.030, .156]	0.042	18,201.634	18,345.317
Parallel-process LGCM with Avoidance	28.328	12	0.005	0.990	0.964	0.092 [.038, .144]	0.040	18,151.357	18,314.198
Parallel-process LGCM with PPR	21.672	12	0.041	0.994	0.977	0.073 [.000, .128]	0.037	18,122.229	18,285.070

Note. LGCM = latent growth curve model; MLR = maximum likelihood estimation with robust standard errors; CFI = comparative fit index; TLI = Tucker–Lewis index; RMSEA = root mean square error of approximation; CI = confidence interval; SRMR = standardized root mean square residual; AIC = Akaike information criterion; BIC = Bayesian information criterion; PPR = perceived partner responsiveness; ECR-RS = Experiences in Close Relationships—Relationship Structures questionnaire. Avoidance refers to the avoidance subscale of the ECR-RS. In the sensitivity models, Time 1 avoidance and PPR were separately entered as time-invariant covariates of the intercept and slope factors for each communication process. Scaled MLR χ^2 statistics and robust CFI, TLI, and RMSEA values are reported.

Table 34

Study 2 Growth Parameters for the Primary Parallel-Process Latent Growth Curve Model

Communication process dimension	Intercept, *B (SE)*	95% CI	*p*	Linear slope, *B (SE)*	95% CI	*p*	Slope variance	*p*
Perceived consequences	958.25 (13.05)	[932.67, 983.83]	< .001	2.84 (6.73)	[-10.35, 16.04]	.673	2,315.19	.275
Perceived partner understanding	916.84 (14.68)	[888.07, 945.61]	< .001	19.94 (6.87)	[6.47, 33.41]	.004	4,226.78	.084
Disclosure depth	861.35 (17.55)	[826.94, 895.75]	< .001	34.62 (8.08)	[18.79, 50.45]	< .001	-1,998.49	.618

Note. *B* = unstandardized estimate; *SE* = standard error; CI = confidence interval. Intercepts represent estimated initial levels at baseline. Slopes represent linear change across baseline, 3-month, and 6-month assessments, with slope factor loadings fixed at 0, 1, and 2. Slope variances represent individual variability in rates of change over time. The negative slope variance for disclosure depth is an inadmissible estimate and should not be interpreted as negative variability; it indicates that reliable individual differences in change could not be estimated for this construct.

Table 35

Study 2 Associations of Avoidant Attachment and Perceived Partner Responsiveness with Communication Growth Factors in Sensitivity Analyses

Predictor	Communication process	Growth factor	B (SE)	95% CI	β	p
Avoidant	Perceived consequences	Intercept	-82.88 (11.76)	[-105.92, -59.84]	-.59	< .001
		Slope	7.17 (7.37)	[-7.27, 21.61]	.20	.331
	Perceived partner understanding	Intercept	-90.99 (13.76)	[-117.96, -64.03]	-.55	< .001
		Slope	3.41 (7.82)	[-11.92, 18.73]	.05	.663
	Disclosure depth	Intercept	-84.91 (17.45)	[-119.12, -50.70]	-.47	< .001
		Slope	3.91 (8.29)	[-12.35, 20.17]	—	.637
PPR	Perceived consequences	Intercept	3.58 (0.51)	[2.58, 4.58]	.57	< .001
		Slope	0.27 (0.32)	[-0.35, 0.89]	.14	.395
	Perceived partner understanding	Intercept	4.14 (0.54)	[3.08, 5.20]	.58	< .001
		Slope	0.31 (0.34)	[-0.36, 0.97]	.11	.368
	Disclosure depth	Intercept	3.49 (0.60)	[2.32, 4.66]	.45	< .001
		Slope	0.14 (0.35)	[-0.54, 0.82]	—	.694

Note. B = unstandardized regression coefficient; *SE* = standard error; CI = confidence interval; *β* = standardized regression coefficient; PPR = perceived partner responsiveness; ECR-RS = Experiences in Close Relationships-Relationship Structures questionnaire. Avoidant refers to the avoidance subscale of the ECR-RS. Time 1 avoidant attachment and PPR were entered separately as time-invariant covariates in sensitivity analyses predicting the intercept and slope factors for each communication process. Intercept coefficients represent associations between each predictor and estimated baseline levels of the communication process; slope coefficients represent associations between each predictor and linear change

across baseline, 3-month, and 6-month timepoints. Standardized estimates are not reported for the disclosure-depth slope because its corresponding variance estimate was inadmissible, preventing meaningful standardization.

Directional Longitudinal Associations

See Tables 36 and 37 for results from primary and sensitivity directional longitudinal analyses.

Primary RI-CLPM Analyses.

Pathway A RI-CLPM. To disentangle stable between-person differences from within-person fluctuations over time, I estimated a constrained RI-CLPM for Pathway A (perceived consequences of sexual communication, depth of disclosure, and dyadic sexual communication).[8] This model decomposed each construct into between-person (random intercept) and within-person (time-specific deviation) components, with observed residual variances fixed to zero and within-person latent variables specified at each wave.

The constrained RI-CLPM had autoregressive and cross-lagged paths that were constrained to equality across time, imposing temporal equality constraints on the within-person autoregressive and cross-lagged parameters. This model converged after 1,373 iterations. However, model fit indices indicated poor fit to the data. The scaled chi-square test was significant, $\chi^2(6) = 17.66$, $p = .007$. Incremental fit indices were mixed, with the robust CFI approaching acceptable levels (CFI = .916) but the robust TLI indicating poor fit (TLI = .494). Absolute fit indices further suggested misfit, with an elevated robust RMSEA (RMSEA = .310, 90% CI [.146, .485]) and SRMR = .069. Information criteria were AIC = 16000.30 and BIC = 16153.56. In addition to poor global fit, the model produced an inadmissible solution. Specifically, the estimated variance of the random intercept for perceived consequences was

[8] A simplified two-construct RI-CLPM including only disclosure depth and perceived consequences was also examined as a sensitivity analysis; however, the model again yielded an improper solution with a Heywood case for depth and was therefore not retained for substantive interpretation.

negative, $\sigma^2 = -5{,}463.77$, SE = 0.42. The model also produced an extreme covariance between the random intercepts for perceived consequences and disclosure depth, $\sigma = -14{,}947.35$, SE = 0.31. The corresponding standardized estimate was −2.02, which exceeded the permissible range and provided further evidence of model instability. In addition, the estimated variance of the Time 1 within-person component of dyadic sexual communication was negative, $\sigma^2 = -32{,}621.17$, SE = 5.61. Together, these inadmissible estimates indicated instability in the decomposition of between-person and within-person variance. Consequently, the primary Pathway A RI-CLPM did not provide an admissible solution from which reliable within-person directional associations could be interpreted.

Pathway B RI-CLPM. Similar to the estimated models for Pathway A, I estimated a constrained RI-CLPM in which autoregressive and cross-lagged paths were constrained to equality across time, imposing temporal equality constraints on the within-person autoregressive and cross-lagged parameters for Pathway B (perceived partner responsiveness, depth of disclosure, and sexual wellbeing) with Time 1 attachment avoidance included as a time-invariant covariate. This model converged after 2,977 iterations. Although several global fit indices appeared favourable, the model produced an inadmissible solution. Consequently, its fit indices and parameter estimates could not be interpreted as evidence that the model adequately represented the within-person processes. The scaled chi-square test was non-significant, $\chi^2(6) = 10.65$, $p = .100$, indicating that exact fit was not rejected. Incremental fit indices were strong (robust CFI = .992, robust TLI = .942), and SRMR indicated good fit (SRMR = .035). The robust RMSEA was modestly elevated (RMSEA = .093, 90% CI [.000, .222]), and its wide confidence interval indicated substantial uncertainty in the estimate. Despite these global fit indices, the model produced negative variance estimates for the Time 1 within-person components of

disclosure depth and sexual wellbeing. Specifically, the variance of the Time 1 within-person component of disclosure depth was negative, $\sigma^2 = -0.05$, $SE = 0.11$, and the variance of the Time 1 within-person component of sexual wellbeing was negative, $\sigma^2 = -743.33$, $SE = 4.53$. Consequently, I could not reliably compute standardized estimates involving these components. For example, the covariance between the Time 1 within-person components of disclosure depth and sexual wellbeing had an inadmissible standardized estimate of −1.12. Because the primary constrained RI-CLPM solution was inadmissible, I could not reliably interpret the within-person directional associations or the avoidance coefficients.

Unconstrained RI-CLPM Sensitivity Analyses.

Pathway A Unconstrained RI-CLPM. I estimated an unconstrained RI-CLPM in which the autoregressive and cross-lagged parameters were estimated freely across both lag intervals. This model did not converge after 1,060 iterations, and lavaan issued warnings indicating that the parameter estimates were likely unreliable. Inspection of the output revealed clear signs of estimation problems, including extremely large and unstable parameter estimates, missing standard errors, implausible standardized coefficients (e.g., values substantially exceeding |1|), and negative variance estimates. For example, the residual variance of the Time 2 within-person perceived-consequences component was negative, $\sigma^2 = -2{,}552.99$, *SE* unavailable. Negative residual variances were also obtained for the Time 2 within-person disclosure-depth component, $\sigma^2 = -2{,}583.45$, *SE* unavailable, and the Time 3 within-person disclosure-depth component, $\sigma^2 = -793.77$, SE unavailable. Standard errors were unavailable for all freely estimated parameters, including the autoregressive and cross-lagged coefficients, covariances, intercepts, and variances. Given these indicators of non-admissible solutions, Sensitivity analyses indicated that relaxing stationarity constraints did not resolve these estimation difficulties and I did not interpret the

unconstrained Pathway A RI-CLPM further. The Pathway A analyses did not yield admissible solutions from which within-person cross-lagged associations could be reliably interpreted. Relaxing temporal equality constraints did not resolve these estimation difficulties, as the unconstrained model failed to converge. Consequently, these analyses leave the proposed within-person directional associations unresolved and do not establish either strong temporal stability or the predominance of between-person differences.

Pathway B Unconstrained RI-CLPM. I estimated an unconstrained RI-CLPM in which autoregressive and cross-lagged parameters were freely estimated across both lag intervals. I, again, included Time 1 avoidant attachment as a time-invariant covariate. This model did not converge, and lavaan returned errors indicating that it could not compute parameter estimates. Because no parameter estimates were produced, I could not evaluate variances, covariances, coefficients, or standard errors. The unconstrained Pathway B RI-CLPM was therefore not interpreted further. The Pathway B analyses, like Pathway A, indicate that although the overall model fit was acceptable at the constrained level, inadmissible estimates and convergence failures in more flexible specifications limit confidence in estimating within-person dynamics. Accordingly, sensitivity analyses indicated that relaxing stationarity constraints did not resolve these estimation difficulties and conclusions are restricted to between-person differences, as no reliable inferences can be drawn regarding within-person cross-lagged processes for this pathway in the present data.

CLPM Sensitivity Analyses. As sensitivity analyses, I estimated unconstrained cross-lagged panel models in which autoregressive and cross-lagged paths were freely estimated across the two lag intervals (TP1→TP2 and TP2→TP3).

Pathway A CLPM. This model converged normally after 355 iterations. Model fit indices indicated poor overall fit, with a significant scaled chi-square test, $\chi^2(9) = 36.52$, $p < .001$. Incremental fit indices were mixed, with acceptable robust CFI (CFI = .953) but robust TLI indicates poor fit (TLI = .811). Absolute fit indices further suggested misfit, with an elevated robust RMSEA (RMSEA = .189, 90% CI [.129, .254]), although SRMR was low fit (SRMR = .045). Information criteria were AIC = 15925.64 and BIC = 16069.32.

Pathway B CLPM. This model converged normally after 259 iterations. I, again, included time 1 avoidant attachment as a time-invariant covariate. Model fit indices indicated poor overall fit. The scaled chi-square test was significant, $\chi^2(9) = 39.08$, $p < .001$. Incremental fit indices were mixed, with a robust CFI of .950 and a lower robust TLI of .748. Absolute fit indices further suggested misfit, with an elevated robust RMSEA (RMSEA = .194, 90% CI [.138, .255]), although SRMR indicated good fit (SRMR = .034). Information criteria were AIC = 11418.23 and BIC = 11590.65.

Overall, the traditional CLPM sensitivity analyses yielded estimable models but provided mixed evidence of model fit, with robust CFI and SRMR suggesting comparatively better fit than TLI and RMSEA. These analyses do not separate stable between-person differences from within-person fluctuations and therefore cannot substitute for the primary RI-CLPM tests of within-person processes. Rather, they provide complementary information about longitudinal associations when between- and within-person sources of variance are not distinguished.

Table 36

Study 2 Fit and Estimation Status of Primary and Sensitivity Directional Models

Pathway	Analysis	Specification	χ^2 *(df)*	CFI	TLI	RMSEA [90% CI]	SRMR	Estimation status
A	Primary RI-CLPM	Constrained	17.66 (6)	.916	.494	.310 [.146, .485]	.069	Converged; inadmissible solution
A	RI-CLPM sensitivity	Unconstrained	—	—	—	—	—	Did not converge
A	CLPM sensitivity	Unconstrained	36.52 (9)	.953	.811	.189 [.129, .254]	.045	Converged; poor fit
B	Primary RI-CLPM	Constrained	10.65 (6)	.992	.942	.093 [.000, .222]	.035	Converged; inadmissible solution
B	RI-CLPM sensitivity	Unconstrained	—	—	—	—	—	Did not converge
B	CLPM sensitivity	Unconstrained	39.08 (9)	.950	.748	.194 [.138, .255]	.034	Converged; poor fit

Note. RI-CLPM = random-intercept cross-lagged panel model; CLPM = cross-lagged panel model; χ^2 = chi-square test statistic; df = degrees of freedom; CFI = robust comparative fit index; TLI = robust Tucker–Lewis index; robust RMSEA = root mean square error of approximation; CI = confidence interval; SRMR = standardized root mean square residual. The primary RI-CLPMs imposed equality constraints on autoregressive and cross-lagged paths across adjacent time intervals. Unconstrained sensitivity models allowed these paths to vary across intervals. Robust/scaled fit indices are reported where available. Primary RI-CLPMs were considered inadmissible because of improper parameter estimates and/or unavailable standard errors despite convergence. Parameter estimates from inadmissible or nonconverged models were not substantively interpreted.

Table 37

Study 2 Cross-Lagged Associations from Unconstrained CLPM Sensitivity Analyses

Pathway	Predictor	Outcome	Interval	*B (SE)*	*β*	95% CI	*p*
A	Con	Dep	T1→T2	-.011 (.107)	-.009	[-.221, .199]	.916
A	Con	Dep	T2→T3	-.081 (.131)	-.072	[-.338, .176]	.539
A	Dep	Con	T1→T2	.023 (.058)	.026	[-.091, .137]	.698
A	Dep	Con	T2→T3	-.005 (.064)	-.005	[-.130, .120]	.944
A	Con	DSC	T1→T2	.013 (.006)	.188	[.001, .025]	.030
A	Con	DSC	T2→T3	.005 (.005)	.080	[-.005, .015]	.389
A	Dep	DSC	T1→T2	-.008 (.004)	-.151	[-.016, -.000]	.035
A	Dep	DSC	T2→T3	.005 (.004)	.101	[-.003, .013]	.165
A	DSC	Con	T1→T2	3.880 (1.660)	.190	[.626, 7.134]	.019
A	DSC	Con	T2→T3	2.421 (1.460)	.145	[-.441, 5.283]	.097
A	DSC	Dep	T1→T2	3.953 (1.473)	.177	[1.066, 6.840]	.007
A	DSC	Dep	T2→T3	1.894 (1.808)	.099	[−1.650, 5.438]	.295
B	PPR	Dep	T1→T2	.099 (.071)	.109	[-.040, .238]	.164
B	PPR	Dep	T2→T3	-.036 (.126)	-.041	[-.283, .211]	.774
B	Dep	PPR	T1→T2	-.127 (.070)	-.115	[-.264, .010]	.069
B	Dep	PPR	T2→T3	.073 (.083)	.059	[-.090, .236]	.379
B	PPR	SexWell	T1→T2	.060 (.024)	.182	[.013, .107]	.015
B	PPR	SexWell	T2→T3	.021 (.033)	.071	[-.044, .086]	.528
B	SexWell	PPR	T1→T2	.618 (.215)	.214	[.197, 1.039]	.004
B	SexWell	PPR	T2→T3	.255 (.383)	.074	[-.496, 1.006]	.506
B	Dep	SexWell	T1→T2	-.021 (.024)	-.061	[-.068, .026]	.378
B	Dep	SexWell	T2→T3	.039 (.021)	.114	[-.002, .080]	.063
B	SexWell	Dep	T1→T2	.188 (.173)	.076	[-.151, .527]	.277
B	SexWell	Dep	T2→T3	.289 (.327)	.101	[-.352, .930]	.377

Note. Con = perceived consequences of disclosure; Dep = disclosure depth; DSC = dyadic sexual communication; PPR = perceived partner responsiveness; SexWell = sexual wellbeing; B = unstandardized regression coefficient; SE = standard error; β = standardized regression coefficient; CI = confidence interval; CLPM = cross-lagged panel model. Autoregressive paths are omitted to focus the table on prospective associations among different constructs. Autoregressive and cross-lagged paths were freely estimated across the two lag intervals. Confidence intervals were calculated as B ± 1.96(SE). CLPM findings are sensitivity analyses and do not separate stable between-person differences from within-person fluctuations; accordingly, they do not substitute for the primary RI-CLPM tests of within-person directional processes.

Cross-Sectional Results

Given the limited within-person change and variance observed in the longitudinal analyses, I examined PMSC pathways cross-sectionally using parallel mediation as an exploratory approach. This approach allowed me to examine whether disclosure depth remained associated with each outcome after accounting for these variables, as well as each variable's unique association with the outcome while accounting for the others and their intercorrelations. I also estimated moderated mediation models incorporating avoidant attachment and PPR as moderators. Given the cross-sectional design, I interpreted these analyses in terms of shared variance, adjusted associations, and potential moderation rather than evidence of causal or mediating mechanisms. Below, the terms direct and indirect effects refer to statistical estimates within the specified models, and these estimates do not establish temporal ordering or causal mediation. These analyses were exploratory and were not preregistered. I used data from the first (baseline) timepoint because it was the largest, given the high attrition in the longitudinal study, to maximize power to detect effects.

Parallel Mediation Analyses

Because the PMSC is designed to describe the process of sexual communication and connect it to individual, relationship, and sexual wellbeing factors, I tested two parallel mediation models: one outcome variable related to sexual communication (i.e., perceived understanding) and one related more broadly to non-communicative processes (i.e., sexual wellbeing). I also tested these models as moderated mediations with avoidant attachment and PPR added as moderators. I included depth of disclosure as the predictor variable in both models and the following six mediating variables: a) perceived consequences, b) promotion-focused motivations for sexual communication, c) prevention-focused motivations for sexual

communication, d) self-efficacy with communicating topics related to sexual boundaries, and e) self-efficacy with communicating topics related to sexual preferences, and f) importance-weighted disclosure depth.

Post hoc power analyses evaluated the sensitivity of using only baseline data (n = 349) to detect indirect effects within the parallel and moderated mediation models. Prior simulation work indicates that detecting small-to-moderate indirect effects (e.g., a*b ≈ .02-.26) typically requires sample sizes ranging from approximately 100 to 350, depending on the magnitude of the constituent paths (Fritz & MacKinnon, 2007), suggesting that the present sample was sufficiently powered for the primary mediation analyses. Power is further enhanced using bias-corrected bootstrap confidence intervals based on 5,000 resamples, which do not rely on normality assumptions and improve sensitivity to indirect effects. Accordingly, the present analyses were well-powered to detect indirect effects of meaningful magnitude across the parallel mediation models. However, because moderated mediation models involve additional parameters and interaction terms, power to detect conditional indirect effects is typically lower, particularly for small effects, and these findings should therefore be interpreted with appropriate caution.

I used PROCESS version 4.2 for SPSS (Hayes, 2022), Model 4 (parallel mediation only) and Model 8 (moderated mediation). I estimated indirect effects using bias-corrected bootstrap confidence intervals based on 5,000 resamples, and I considered the indirect effect statistically significant if the 95% bootstrap confidence interval did not include zero. In addition to the primary parallel mediation models, I conducted exploratory moderated mediation analyses to examine whether avoidant attachment and PPR altered the strength of the mediation pathways.

Perceived Understanding Outcome Model

The first parallel mediation analysis estimated the direct and indirect associations between disclosure depth and perceived understanding in a parallel mediation model that included perceived consequences of communication, weighted perceived importance of disclosure topics, promotion-focused motivations, prevention-focused motivations, and self-efficacy for communicating boundaries and sexual preferences.

Disclosure depth was significantly associated with all six variables entered as mediators. Greater disclosure depth was associated with more positive perceived consequences of sexual communication, $b = 0.5723$, $SE = 0.0332$, $t = 17.24$, $p < .001$, 95% CI [0.5069, 0.6376], greater weighted perceived importance, $b = 0.0654$, $SE = 0.0118$, $t = 5.56$, $p < .001$, 95% CI [0.0422, 0.0885], greater promotion-focused motivations, $b = 0.0104$, $SE = 0.0013$, $t = 8.25$, $p < .001$, 95% CI [0.0079, 0.0129], lower prevention-focused motivations, $b = -0.0042$, $SE = 0.0017$, $t = -2.50$, $p = .013$, 95% CI [-0.0076, -0.0009], greater self-efficacy for communicating boundaries, $b = 0.0082$, $SE = 0.0012$, $t = 6.90$, $p < .001$, 95% CI [0.0058, 0.0105], and greater self-efficacy for communicating sexual preferences, $b = 0.0116$, $SE = 0.0015$, $t = 7.75$, $p < .001$, 95% CI [0.0086, 0.0145].

When all mediators were entered simultaneously to predict perceived understanding, the overall model was significant, $R = .8880$, $R^2 = .7886$, $F(7, 317) = 168.88$, $p < .001$. Disclosure depth remained a significant positive predictor of perceived understanding, $b = 0.4541$, $SE = 0.0332$, $t = 13.69$, $p < .001$, 95% CI [0.3888, 0.5193], indicating a significant direct effect. Among the mediators, more positive perceived consequences were associated with greater perceived understanding, $b = 0.3561$, $SE = 0.0428$, $t = 8.32$, $p < .001$, 95% CI [0.2719, 0.4403]. Greater prevention-focused motivations were associated with lower perceived understanding, $b = -3.4562$, $SE = 0.8171$, $t = -4.23$, $p < .001$, 95% CI [-5.0637, -1.8486], and greater self-efficacy

for communicating boundaries was also associated with lower perceived understanding, b = -2.9332, SE = 1.3697, t = -2.14, p = .033, 95% CI [-5.6281, -0.2383]. In contrast, greater self-efficacy for communicating sexual preferences was associated with greater perceived understanding, b = 4.8724, SE = 1.2135, t = 4.02, p < .001, 95% CI [2.4849, 7.2599]. Weighted perceived importance, b = 0.1195, SE = 0.1084, t = 1.10, p = .271, 95% CI [-0.0939, 0.3328], and promotion-focused motivations, b = -0.1986, SE = 1.1092, t = -0.18, p = .858, 95% CI [-2.3810, 1.9837], were not significant unique predictors of perceived understanding.

Bootstrap analyses indicated a significant total indirect effect of disclosure depth on perceived understanding, b = 0.2566, BootSE = 0.0370, 95% Boot CI [0.1882, 0.3341]. Examination of specific indirect effects showed that the association between greater disclosure depth and greater perceived understanding was significantly mediated by more positive perceived consequences of sexual communication, b = 0.2038, BootSE = 0.0377, 95% Boot CI [0.1352, 0.2846], lower prevention-focused motivations, b = 0.0146, BootSE = 0.0071, 95% Boot CI [0.0017, 0.0292], and greater self-efficacy for communicating sexual preferences, b = 0.0564, BootSE = 0.0180, 95% Boot CI [0.0237, 0.0938]. There was also a small but significant negative indirect effect through self-efficacy for communicating boundaries, b = -0.0240, BootSE = 0.0125, 95% Boot CI [-0.0480, -0.0007], indicating that higher disclosure depth was associated with higher self-efficacy for discussing boundaries, which in turn was associated with lower perceived understanding when the other mediators were held constant. The indirect effects through weighted perceived importance, b = 0.0078, BootSE = 0.0069, 95% Boot CI [-0.0052, 0.0226], and promotion-focused motivations, b = -0.0021, BootSE = 0.0113, 95% Boot CI [-0.0240, 0.0207], were not significant.

To explore whether the indirect effects varied by avoidant attachment or perceived partner responsiveness, I estimated separate moderated mediation models (PROCESS Model 8). None of the indices of moderated mediation were statistically significant, and all corresponding 95% bootstrap confidence intervals included zero, indicating that the indirect effects of disclosure depth on perceived understanding were not conditional on these moderators.

Sexual Wellbeing Outcome Model

The second parallel mediation analysis estimated the direct and indirect associations between disclosure depth and sexual wellbeing, including the same variables as in the perceived understanding model (i.e., perceived consequences of communication, weighted perceived importance of disclosure topics, promotion-focused motivations, prevention-focused motivations, and self-efficacy for communicating sexual boundaries and sexual preferences).

Disclosure depth, again, significantly predicted all six proposed mediators. Greater disclosure depth was associated with more positive perceived consequences of sexual communication, $b = 0.5716$, $SE = 0.0334$, $t = 17.12$, $p < .001$, 95% CI [0.5060, 0.6373], greater weighted perceived importance, $b = 0.0654$, $SE = 0.0118$, $t = 5.53$, $p < .001$, 95% CI [0.0421, 0.0887], greater promotion-focused motivations, $b = 0.0105$, $SE = 0.0013$, $t = 8.33$, $p < .001$, 95% CI [0.0081, 0.0130], lower prevention-focused motivations, $b = -0.0041$, $SE = 0.0017$, $t = -2.40$, $p = .017$, 95% CI [-0.0074, -0.0007], greater self-efficacy for communicating boundaries, $b = 0.0082$, $SE = 0.0012$, $t = 6.86$, $p < .001$, 95% CI [0.0058, 0.0105], and greater self-efficacy for communicating sexual preferences, $b = 0.0116$, $SE = 0.0015$, $t = 7.71$, $p < .001$, 95% CI [0.0086, 0.0145].

When all mediators were entered simultaneously predicting sexual wellbeing, the overall model was significant, $R = .6059$, $R^2 = .3671$, $F(7, 315) = 26.10$, $p < .001$. Disclosure depth was

significantly associated with sexual wellbeing after accounting for the other variables in the model, b = -0.0013, SE = 0.0061, t = -0.21, p = .836, 95% CI [-0.0133, 0.0107]. Among the mediators, more positive perceived consequences, b = 0.0337, SE = 0.0079, t = 4.29, p < .001, 95% CI [0.0183, 0.0492], greater promotion-focused motivations b = 0.6585, SE = 0.2040, t = 3.23, p = .001, 95% CI [0.2571, 1.0599], and greater self-efficacy for communicating sexual preferences, b = 0.5703, SE = 0.2229, t = 2.56, p = .011, 95% CI [0.1317, 1.0089] were associated with greater sexual wellbeing, whereas greater prevention-focused motivations were associated with lower sexual wellbeing, b = -0.5629, SE = 0.1502, t = -3.75, p < .001, 95% CI [-0.8585, -0.2674]. Weighted perceived importance, b = 0.0175, SE = 0.0199, t = 0.88, p = .380, 95% CI [-0.0217, 0.0567], and self-efficacy for communicating boundaries, b = -0.0251, SE = 0.2514, t = -0.10, p = .921, 95% CI [-0.5198, 0.4695], were not significant unique predictors of sexual wellbeing.

Bootstrap analyses indicated a significant total indirect effect of disclosure depth on sexual wellbeing, b = 0.0361, BootSE = 0.0063, 95% Boot CI [0.0231, 0.0480]. Examination of specific indirect effects showed that the association between greater disclosure depth and greater sexual wellbeing was significantly mediated by more positive perceived consequences of sexual communication, b = 0.0193, BootSE = 0.0058, 95% Boot CI [0.0070, 0.0298], greater promotion-focused motivations, b = 0.0069, BootSE = 0.0023, 95% Boot CI [0.0024, 0.0115], and lower prevention-focused motivations, b = 0.0023, BootSE = 0.0012, 95% Boot CI [0.0002, 0.0048]. The indirect effects through weighted perceived importance, b = 0.0011, BootSE = 0.0013, 95% Boot CI [-0.0013, 0.0039], self-efficacy for communicating boundaries, b = -0.0002, BootSE = 0.0039, 95% Boot CI [-0.0067, 0.0083], and self-efficacy for communicating

sexual preferences, b = 0.0066, BootSE = 0.0046, 95% Boot CI [-0.0018, 0.0162], were not significant.

I again tested whether the indirect effects varied as a function of avoidant attachment or perceived partner responsiveness in separate moderated mediation models (PROCESS Model 8). Similarly, none of the indices of moderated mediation were statistically significant, and all corresponding 95% bootstrap confidence intervals included zero, indicating that the indirect effects of disclosure depth on sexual wellbeing did not vary by these moderators. Accordingly, the primary results focus on the parallel mediation models.

Study 2 Discussion

The present study evaluated the PMSC using longitudinal modelling alongside exploratory cross-sectional analyses. The longitudinal analyses did not yield conclusive evidence concerning the proposed temporal pathways. The primary growth model estimated different average trajectories across communication dimensions, but an inadmissible disclosure-depth slope variance limited interpretation. The primary RI-CLPMs also produced inadmissible solutions, and relaxing temporal equality constraints did not resolve the estimation difficulties. Consequently, these analyses could not determine whether the proposed within-person directional associations occurred or whether communication was predominantly characterized by stable between-person differences. The cross-sectional analyses identified associations among several proposed model components, providing a basis for further investigation without establishing their temporal ordering or causal roles.

Growth Trajectories and Limits of Longitudinal Inference

The primary growth model estimated no statistically significant average linear change in perceived consequences and significant average increases in perceived partner understanding and

disclosure depth. The model also estimated significant variability in baseline levels and strong positive associations among intercepts, suggesting correspondence among participants' initial levels across the three communication dimensions. However, the disclosure-depth slope variance was negative, rendering the solution inadmissible and limiting confidence in its substantive interpretation. The slope variances for perceived consequences and perceived partner understanding were not statistically significant, but these findings do not rule out individual differences in change. Similarly, nonsignificant slope covariances cannot establish that changes across constructs were unrelated. Sensitivity analyses incorporating avoidant attachment and perceived partner responsiveness estimated associations with baseline communication levels but no statistically significant associations with rates of change. These findings suggest that avoidant attachment and perceived partner responsiveness may serve as context-setting factors that shape individuals' typical communication levels, rather than driving short-term change. These models retained the negative disclosure-depth slope variance and therefore did not resolve the estimation concern. Accordingly, the growth analyses do not provide a sufficient basis for concluding that sexual communication was broadly stable or that these contextual factors were unrelated to change.

The primary RI-CLPMs did not yield admissible solutions from which within-person directional associations could be reliably interpreted. Although the Pathway B model showed comparatively favourable global fit indices, these did not overcome its inadmissible parameter estimates. The Pathway A model showed both poor fit and estimation instability. Relaxing temporal equality constraints did not resolve the difficulties in either model. Traditional unconstrained CLPMs yielded estimable solutions, although model fit remained poor and Pathway B still had additional estimation concerns. Unlike RI-CLPMs, traditional CLPMs do not

separate enduring between-person differences from within-person fluctuations and therefore cannot substitute for the intended tests of within-person directional associations (Hamaker et al., 2015). By separating enduring between-person differences from occasion-specific deviations, RI-CLPMs more directly address whether changes relative to an individual's typical level predict subsequent deviations in another construct. However, estimating this decomposition adds complexity, and the present analyses could not determine whether difficulties arose from limited information in the available data, model specification, or a combination of factors. Taken together, these analyses leave the proposed within-person pathways unresolved and do not establish whether sexual communication is predominantly characterized by enduring between-person differences or dynamic within-person processes over the six-month period examined.

Considerations for Examining Sexual Communication Over Time

The difficulty obtaining interpretable longitudinal models should be interpreted in light of both theoretical and methodological considerations. First, there is relatively little existing research examining trajectories of sexual communication over time, particularly using prospective, multi-wave longitudinal designs. As such, empirical precedent is limited for guiding expectations about the timescale over which meaningful change in these processes occurs. Existing longitudinal work has focused on how sexual communication predicts and is predicted by other variables over time, instead of exploring how sexual communication itself changes. For example, a 12-month longitudinal study found that greater attachment avoidance at baseline predicted more negative sexual communication patterns and, ultimately, poorer sexual satisfaction over time (Pedneault et al., 2025). Consistent with the possibility that communication processes are context-dependent, other longitudinal work has found that sexual communication did not buffer the negative effects of economic pressure on sexual outcomes over

time, whereas financial communication was protective (Wikle et al., 2021), suggesting that the impact of communication may depend on its alignment with the specific challenges couples are navigating rather than reflecting a uniformly beneficial relational process. Additionally, some domains of sexual communication are thought to be inherently more stable than others in established relationships. For instance, sexual preferences are considered to be relatively enduring aspects of individuals' sexual selves that are thought to remain fairly consistent over time (Knowles & Hammond, 2026), potentially reducing the likelihood of substantial change in communication content within established relationships.

The present study could not determine the timescale over which meaningful change in sexual communication occurs, particularly within ongoing, established relationships. Although the study was designed to recruit individuals in relationships lasting six to 12 months, it became evident during data collection that some participants had been in their relationships substantially longer. Despite clearly stated eligibility criteria presented at multiple stages of recruitment, participants' baseline reports of relationship length were sometimes inconsistent with later reports, though these reports tended to stabilize across subsequent waves. This pattern suggests that at least a subset of participants may have misreported their relationship length at baseline in order to meet eligibility criteria and participate in the study. As a result, the analytic sample reflects a broader range of relationship durations, with a substantial proportion of participants in more established relationships. In such contexts, patterns of sexual communication may already be well-established and less susceptible to short-term change.

A further consideration for future designs concerns the temporal scale of change. Sexual communication may shift in response to discrete relational events, such as relationship transition or therapeutic intervention, rather than evolving gradually over relatively short intervals. The

current design, which assessed participants at fixed time points, may not have captured these event-based fluctuations brought on by notable transitions within the relationship. The transition to beginning a relationship is one such point and has been an area identified as important for future research (Knowles & Hammond, 2026), which I attempted, though ultimately did not capture in this study. Evidence across major relationship transitions suggests that these periods are characterized by heightened variability in communication processes, as partners must recalibrate sexual scripts, expectations, and interaction patterns in response to changing relational, emotional, and physical contexts (e.g., Arthur et al., 2020; Merwin et al., 2017; Rancourt et al., 2022). For example, during the transition to parenthood, couples frequently renegotiate what constitutes sexual intimacy, often shifting away from prior routines and requiring more explicit communication to coordinate timing, desire, and definitions of sexual activity (Tavares et al., 2023). More broadly, transition periods introduce uncertainty, stress, and role changes, which can disrupt established communication patterns and increase reliance on deliberate negotiation and responsiveness (e.g., Reis & Shaver, 1988; Rosen et al., 2020; Yurkiw et al., 2021). These disruptions can produce both increased variability and instability in communication, as couples oscillate between avoidance (e.g., protective buffering, uncertainty) and active engagement (e.g., collaborative renegotiation of needs and preferences). This literature suggests that sexual communication is particularly dynamic during transitional periods, reflecting an ongoing process of recalibration in how, when, and why partners engage in sexual interaction, which may not be well captured by evenly spaced longitudinal assessment of people generally in established relationships without specifically having a sample of individuals experiencing one of these transitions.

Third, future work should examine whether score distributions and measurement sensitivity affect the detection of change. The communication variables demonstrated high internal consistency and relatively high mean levels, which may have limited variability in change over time. In addition, the three-wave design constrains the ability to detect complex longitudinal dynamics and reduces the stability of more parameter-intensive models such as the RI-CLPM.

Cross-Sectional Associations Among PMSC Components

The exploratory cross-sectional analyses identified associations among several PMSC components. Disclosure depth retained a unique association with perceived partner understanding after accounting for the other included variables, whereas its association with sexual wellbeing was no longer statistically significant after accounting for these variables. This pattern suggests that the assessed cognitive and motivational variables statistically accounted for the disclosure-depth-sexual-wellbeing association in the specified model. The estimated indirect associations did not vary significantly by avoidant attachment or PPR in either outcome model.

Perceived consequences emerged as a particularly variable consistently associated with both outcomes in the adjusted models, consistently linking greater disclosure depth to both greater perceived partner understanding and greater sexual wellbeing. This finding underscores the central role of individuals' expectations about how communication will impact their relationship. When individuals anticipate positive relational outcomes from communication, they appear more likely to experience beneficial outcomes, consistent with previous findings (Brown & Weigel, 2018; Wasson, 2023).

Motivational processes emerged as a relevant correlate underlying sexual communication, with findings indicating that promotion-focused motivations were associated

with greater sexual wellbeing, whereas prevention-focused motivations were associated with poorer outcomes. These findings align with prior work grounded in RFT, which distinguishes between growth-oriented (promotion) and security-oriented (prevention) goal pursuit (Molden & Winterheld, 2013; Molden et al., 2008). Extending my Master's work (Wasson, 2023; Wasson & Rehman, 2024), the present results suggest that these motivational orientations are not only descriptively meaningful but also differentially associated with sexual wellbeing. This interpretation is further supported by research examining conversational goals surrounding sexual self-disclosure. Hullman and colleagues (2022) found that individuals were more likely to engage in sexual disclosure when they perceived communicating a sexual topic as important and desired to share that information with their partner. In contrast, goals focused on managing social impressions or maintaining social appropriateness were associated with lower likelihood of disclosure. Their findings also demonstrated that anxiety and disclosure efficacy helped explain the relationship between communication goals and disclosure behaviour, suggesting that motivational processes may influence communication through their effects on individuals' emotional experiences and confidence in their ability to communicate effectively.

In line with broader relationship literature applying RFT (Hui & Molden, 2014), a promotion focus may facilitate more open and approach-oriented engagement in sexual communication, such as expressing preferences to enhance mutual pleasure, whereas a prevention focus may heighten sensitivity to potential interpersonal threat, including fears of rejection or negative evaluation (Rehman et al., 2019), which can limit disclosure. The present findings build on this distinction by demonstrating that growth-oriented motivations may be particularly beneficial in the context of sexual communication, whereas security-oriented motivations, while potentially protective, may inadvertently limit engagement in communication

processes that support sexual wellbeing. This pattern aligns with broader evidence that the quality and openness of sexual communication are positively associated with both sexual and relationship outcomes, particularly when communication is oriented toward mutual understanding and responsiveness

Self-efficacy for sexual communication showed a nuanced pattern of associations, also highlighting the importance of distinguishing between communication domains. Consistent with social cognitive theory (Bandura, 1994), greater confidence in one's ability to communicate sexual preferences retained positive associations with perceived partner understanding and sexual wellbeing after accounting for other included variables, suggesting that self-efficacy may facilitate more effective and sustained engagement in sexual dialogue. This aligns with prior research indicating that individuals with higher sexual communication self-efficacy are more likely to initiate and navigate discussions about sexual topics, including preferences, boundaries, and health-related concerns (Harris et al., 2014; Quinn-Nilas et al., 2016). Given the heightened interpersonal risk relative to nonsexual communication (Rehman et al., 2019), confidence in one's communicative ability may be particularly critical in overcoming barriers to disclosure and fostering mutually satisfying exchanges.

In contrast, greater self-efficacy for communicating boundaries was associated with lower perceived understanding when considered alongside other included variables. One interpretation is that boundary communication may involve more difficult, potentially conflict-laden interactions that do not immediately translate into feelings of being understood, particularly in the short term. Although asserting boundaries is an essential component of healthy sexual communication, it may initially disrupt equilibrium within the relationship or challenge existing sexual scripts, thereby complicating perceptions of responsiveness. This interpretation is

consistent with the broader literature suggesting that not all forms of communication yield uniformly positive relational outcomes, and that the interpersonal context and content of communication shape how they are received. Moreover, lower self-efficacy has been linked to avoidance of sexual communication, which can contribute to misunderstandings, dissatisfaction, and riskier sexual decision-making (Harris et al., 2014), underscoring the importance of distinguishing between confidence that facilitates approach-oriented disclosure versus confidence that may emerge in response to more complex or corrective interactions.

Integrating Longitudinal and Cross-Sectional Findings

Taken together, the findings provide different levels of information about the PMSC. The measurement analyses supported distinguishing its assessed communication dimensions, and the exploratory cross-sectional analyses identified associations among several proposed components. However, difficulties with longitudinal estimation prevented reliable evaluation of the proposed within-person directional pathways. Cross-sectional associations cannot resolve this limitation or establish that the model operates primarily between individuals. The PMSC therefore remains a preliminary framework whose temporal ordering, reciprocal associations, and applicability across different timescales require further investigation.

Measurement Contributions

The present study also provides important contributions to the measurement of sexual communication. The three-factor structure of the MSC, which includes perceived consequences, disclosure depth, and perceived partner understanding, demonstrated good model fit, strong reliability, and invariance across multiple demographic groups, supporting the use of the expanded MSC as a multidimensional measure of sexual communication processes. Finally, the development of the RFQ-SC extends regulatory focus theory into the domain of intimate

communication and highlights the relevance of motivational processes in shaping communication outcomes.

Clinical and Applied Implications

The findings have several implications for clinical practice that warrant evaluation through measure validation and testing the PMSC in clinical populations and settings. Interventions aimed at improving sexual communication may benefit from targeting individuals' beliefs about the consequences of communication, enhancing communication self-efficacy, and fostering promotion-focused motivations. Patterns of sexual communication may be resistant to change in the absence of deliberate efforts to modify them, highlighting the potential value of targeted therapeutic intervention. Emerging intervention research suggests that meaningful improvements in specific dimensions of sexual communication can occur over relatively short periods when couples are provided with structured opportunities to practice communication skills. For example, a five-week online Sensate Focus intervention with Chinese heterosexual couples increased during-sex sexual self-disclosure between partners, demonstrating that communication behaviours can shift when they are intentionally targeted within a therapeutic context (Li et al., 2025). These findings are encouraging for clinicians, suggesting that sexual communication may be a modifiable treatment target that can be effectively integrated into existing evidence-based interventions for couples, including approaches that already emphasize communication, emotional intimacy, and behavioural skill development.

The PMSC can also function as a psychoeducational tool that helps clients understand sexual communication as a multifaceted process rather than a simple matter of willingness to disclose certain topics to their partner. Clients often experience communication difficulties as reflecting something fixed about themselves or their relationship, such as a lack of openness,

incompatibility with a partner, or a broader relationship failure, which can contribute to frustration and self-blame (Wasson, 2023). The PMSC offers an alternative framework by conceptualizing communication as a process comprised of multiple interacting components that may facilitate or impede disclosure. Communication difficulties may emerge from a range of sources, including anticipated consequences of disclosure, communication self-efficacy, motivational processes, attachment dynamics, perceived partner responsiveness, and broader relational experiences. Helping clients identify where breakdowns occur within this process may foster greater self-awareness, reduce blame directed toward themselves or their partner, and support more targeted intervention efforts. The framework may be particularly useful for exploring why communication differs across topics, helping clients recognize that some conversations evoke greater vulnerability, uncertainty, or perceived interpersonal risk than others. By identifying the specific processes that contribute to communication difficulties, clients may be better able to understand and communicate their experiences to their partner while developing more effective strategies for navigating challenging conversations.

This process-oriented approach shares conceptual ground with behavioural chain analysis (BCA) as used in Dialectical Behaviour Therapy, in which clinicians work collaboratively with clients to map the sequence of events, thoughts, emotions, and behaviours that precede and follow a target behaviour, with the aim of identifying points in the chain where intervention is most likely to be effective (Linehan, 1993). Applying a similar logic to sexual communication, clinicians might explore with clients the anticipated consequences of disclosing a particular sexual topic, the emotional responses (e.g., anxiety, shame, or anticipatory rejection) that arise when that topic is considered, the urges to avoid or redirect the conversation that follow, and the relational experiences that have shaped those expectations over time. Unlike BCA, which is

typically applied to crisis or self-destructive behaviours, using a similar approach applied to sexual communication is less about interrupting a harmful pattern and more about increasing clients' understanding of the factors that maintain avoidance or constrain the depth of their communication in a systematic, detailed way, so that specific components can be targeted rather than treating communication as a single skill to be developed. The present findings suggest that perceived consequences of disclosure and motivational orientation may be particularly productive entry points for this kind of collaborative mapping, given their consistent associations with both perceived partner understanding and sexual wellbeing across analyses. This approach aligns with contemporary therapeutic practice, in which clinicians seek to understand behaviours within the broader context of a client's experiences, presenting concerns, and personal worldviews (e.g., Kuyken et al., 2009).

Methodological Considerations and Data Quality

Several methodological factors warrant consideration. Attrition analyses and the use of full information maximum likelihood informed the handling of missing data, but they do not resolve the longitudinal models' estimation difficulties or establish the validity of their substantive conclusions. Full information maximum likelihood relies on assumptions concerning missingness and model specification, and differential attrition may still affect the representativeness of the retained sample. Although inconsistencies in reported relationship length suggest some participants may not have met eligibility criteria at baseline, stable responses across subsequent waves and consistent patterns across analyses support confidence in the overall integrity of the data. These limitations should be considered alongside the exploratory cross-sectional associations and the unresolved longitudinal questions.

Limitations and Future Directions

Several limitations should be acknowledged. First, model inadmissibility and nonconvergence limited interpretation of the longitudinal analyses, preventing firm conclusions about growth trajectories and the proposed within-person directional pathways. Future research should evaluate simpler, theoretically justified model specifications and use simulation-based planning to determine the sample size and assessment schedule needed to estimate these processes reliably.

Second, the longitudinal design included only three primary time points over a six-month period, which may have been insufficient to capture meaningful change in sexual communication. Sexual communication may fluctuate more in response to discrete relational events than through gradual linear change, particularly during periods that require partners to recalibrate expectations, roles, and sexual scripts. Future research would benefit from longer follow-up periods and more frequent assessments, including event-based or daily diary designs, to better capture within-person variability and temporal dynamics

Third, the study relied exclusively on self-report data from a single partner, which may introduce shared method variance, recall bias, and subjective interpretation of communication processes. Sexual communication is inherently dyadic and interactional, and individual reports may not fully capture discrepancies between partners' experiences or the interpersonal dynamics that unfold during communication. Future studies should incorporate dyadic designs that include both partners' perspectives, as well as observational or behavioural methods (e.g., coded interaction tasks), to more directly assess communication processes and responsiveness in vivo.

Fourth, although the initial sample was adequately powered, attrition across waves reduced the effective longitudinal sample size, potentially limiting the ability to detect small or moderate effects over time. Larger samples, particularly those designed to retain participants

across multiple waves, are needed to examine longitudinal change more robustly and support more complex modelling approaches.

Fifth, the cross-sectional mediation analyses were exploratory and not preregistered and thus should be interpreted with caution. Although these analyses provided preliminary support for associations among proposed model components and sexual wellbeing, they cannot establish temporal ordering or causal pathways. Replication in independent samples using preregistered analytic plans and longitudinal mediation models is needed to strengthen confidence in these findings.

Sixth, using importance-weighted disclosure depth limited the ability to distinguish perceived importance from disclosure depth. Because this variable incorporated the disclosure depth scores also used as the predictor, the predictor and proposed mediator were mathematically coupled. This overlap complicates interpretation of their association and the estimated indirect effects, limiting conclusions about the distinct role of perceived importance. Measuring importance has also presented challenges across my master's research and the present studies, with self-report ratings showing ceiling effects as participants tended to rate most topics as highly important to discuss. Such ratings may capture a general endorsement of sexual communication rather than the relative priority individuals assign to particular topics. Future research should assess importance independently of disclosure depth and consider approaches such as topic ranking or forced-choice comparisons to distinguish these priorities. This would help clarify whether a topic's relative importance is associated with how deeply it is disclosed.

Seventh, attrition analyses indicated that participant dropout varied across ethnicity groups, with notably higher attrition among Black-African participants, who comprised a meaningful proportion of the baseline sample. As a result, this group was underrepresented in

later waves, which may limit the generalizability of the longitudinal findings and introduce potential bias in estimates of change over time. Although the present data cannot determine the reasons for this differential attrition, this pattern is consistent with previous research identifying challenges in retaining Black participants in longitudinal research (e.g., Drenkard et al., 2020). Potential explanations identified in the broader literature include greater logistical and participation burden, competing demands, concerns regarding privacy and the use of research data, and mistrust of research institutions resulting from historical and ongoing experiences of discrimination (e.g., George et al., 2014; Hughes et al., 2017). Most primary study variables were not strongly associated with attrition, though these demographic differences suggest that the retained sample may not fully reflect the diversity of the original sample at baseline. Future work should carefully consider the systemic barriers to retention that underrepresented groups may experience to build greater capacity to complete future timepoints in a longitudinal study design, including increased targeted recruitment and retention strategies, to achieve more representative samples and improve the generalizability of study findings.

Eighth, although the PMSC conceptualizes sexual communication as being shaped by individual and relational factors, it does not currently account for broader cultural influences that may shape communication processes. This omission is noteworthy given theoretical perspectives such as SST and the IEMSS, which posit that individuals' sexual attitudes, expectations, and behaviours are embedded within larger cultural systems that define what is considered acceptable, desirable, or appropriate within intimate relationships (as summarized in the meta-analytic review by Mallory; 2022). Cultural factors, including gender role norms, individualism-collectivism, sociosexual attitudes, gender inequality, and broader societal beliefs about sexuality, may influence how individuals evaluate the importance of discussing sexual topics,

anticipate the consequences of disclosure, develop confidence in their ability to communicate, and interpret partner responses. Such factors may therefore shape not only sexual communication directly but also the strength of associations between communication processes and sexual or relational outcomes. Future research should examine cultural influences as both contextual antecedents and potential moderators within the PMSC to better capture how sexual communication unfolds across diverse social and cultural contexts.

Finally, the present study did not explicitly capture key relational transition points that may be particularly important for understanding variability in sexual communication. Prior work suggests that periods such as the initiation of a new relationship, transition to parenthood, children leaving the home, the onset of physical illness, navigating a partner's or child's health condition, or coping with mental health diagnoses are characterized by heightened uncertainty and the need to renegotiate sexual intimacy (e.g., Bois et al., 2013; Knowles & Hammond, 2025; Merwin et al., 2017), which is achieved through sexual communication (Coffelt & Hess, 2014). These contexts may represent critical windows during which sexual communication is more dynamic and consequential, though were unlikely to be captured in the current longitudinal sample given its short duration. Future research should prioritize sampling during these transitional periods to test whether the PMSC operates differently across relationship stages and stress contexts, and to better understand when and for whom communication processes are most likely to change.

Conclusion

The present study examined key components of the PMSC using a prospective, three-wave longitudinal design alongside exploratory cross-sectional analyses. The findings supported a multidimensional assessment of sexual communication by validating a three-factor MSC-SP

and developing the RFQ-SC. They also identified theoretically relevant associations among several proposed model components, providing an initial empirical foundation for further model testing and refinement. The temporal relationships among these constructs remain unresolved because estimation difficulties limited interpretation of the longitudinal models. Methodological constraints, including attrition and the three-wave assessment schedule, may have contributed to these difficulties and warrant consideration in future studies. Replication using designs and model specifications that permit reliable estimation is needed to clarify whether and how these constructs predict one another over time. This study therefore represents an important step toward validating and refining the PMSC, contributing measurement tools and evidence about associations to guide future investigation of its proposed pathways and the conditions under which sexual communication patterns persist or change.

General Discussion

Sexual communication has been well established as a vital component of romantic and intimate relationships for numerous decades and is one of the most commonly studied components of sexuality (e.g., Byers & Demmons, 1999; Knowles & Hammond, 2026; Mallory et al., 2019; Mallory, 2021). This robust body of literature has led to a good understanding of the function and importance of sexual communication to intimate relationships. Extant literature suggests that sexual communication serves a critical function within intimate relationships by allowing individuals to negotiate needs, preferences, boundaries, and changes in sexual functioning over time (Coffelt & Hess, 2014; MacNeil & Byers, 2009). Greater sexual communication has consistently been associated with stronger sexual and relationship satisfaction, whereas difficulties with sexual communication are linked to poorer sexual and relational functioning, dissatisfaction, and distress (Mallory et al., 2019; Rehman et al., 2013). Despite this ample base of support for the role of sexual communication in intimate relationships, we have missed capturing the nuance of this dynamic process by not expanding on what people are discussing or by exploring other factors, such as *why* communication does or does not occur and *how* it unfolds. I believe that a comprehensive approach to understanding, evaluating, and intervening to support sexual communication is critical.

My dissertation work aimed to address these limitations by creating an expanded approach to conceptualizing sexual communication that can be implemented in future research and clinical practice. I developed a comprehensive model, the Process Model of Sexual Communication (PMSC), that captures multiple dimensions and components of sexual communication within individual and relational contexts. I also developed a research program that examined the model's proposed longitudinal pathways and cross-sectional associations

among its components (Study 2), using multidimensional sexual communication measurement tools that I developed in Study 1. These studies support multidimensional assessment of sexual communication and identify associations among proposed model components, laying the groundwork for future research to evaluate the model's proposed pathways and potential clinical applications.

To address the broader findings of this work as they relate to and extend the current body of literature, I first review findings on the critical pathways of the PMSC and evaluate the extent to which the proposed model is supported by empirical evidence. Next, I discuss the methodological contributions of this dissertation, including the development and validation of two multidimensional measures of sexual communication. I then consider the clinical and broader relational implications of this work, including how these findings may inform future assessment, intervention, and sexual wellbeing research. Finally, I outline the limitations of the present research and directions for future investigation.

Establishing a Multidimensional Measurement Framework for Sexual Communication

Study 1 provided strong support for the multidimensional measurement of sexual communication using self-report. Across two independent samples, the MSC-SP and MSC-SS demonstrated robust psychometric properties, including clear factor structures, strong internal consistency, evidence of convergent and divergent validity, and successful replication of the measurement models. Together, these findings suggest that sexual communication can be meaningfully assessed through multiple communication processes that operate across different sexual topics. Importantly, both measures demonstrated measurement invariance across a range of demographic groups, including gender, sexuality, age, race, and ethnicity. Establishing invariance indicates that the measures assess the same underlying constructs across groups and

that observed similarities or differences are unlikely to reflect measurement bias. This is particularly important in sexual communication research, where many existing measures have been developed and validated primarily in heterosexual, cisgender, White, and North American samples, limiting confidence in comparisons across diverse populations. The successful invariance findings therefore provide evidence that the multidimensional framework underlying the MSC measures functions similarly across a broad range of identities and relationship contexts. Overall, these results support the validity of assessing sexual communication as a multidimensional process and provide a strong empirical foundation for extending this framework in Study 2 to examine additional communication processes and the broader associations among sexual communication dimensions and relational and sexual outcomes.

Developing and Evaluating the Process Model of Sexual Communication

Study 2 evaluated the PMSC's proposed pathways using longitudinal analyses and exploratory cross-sectional analyses. The longitudinal analyses addressed distinct questions about average trajectories and directional associations among communication dimensions, though the findings provided limited support for the PMSC. The primary growth model estimated no statistically significant average linear change in perceived consequences, alongside average increases in perceived partner understanding and disclosure depth. However, a negative disclosure-depth slope variance rendered the solution inadmissible, limiting confidence in its substantive interpretation. The RI-CLPMs likewise did not yield admissible solutions from which within-person directional associations could be reliably interpreted. The absence of robust longitudinal change may suggest that communication patterns become increasingly consolidated over time through repeated interpersonal interactions and the reinforcement of relational expectations. From this perspective, sexual communication may reflect a broader interpersonal

relational style maintained through ongoing cycles of interaction, rather than a process that changes easily in the absence of intentional effort to shift patterns (e.g., working with a couples therapist) or substantial contextual disruption necessitating such change (e.g., onset of illness). This interpretation aligns with interpersonal and attachment-based theories, suggesting that individuals develop relatively stable expectations surrounding vulnerability, disclosure, responsiveness, and emotional safety within close relationships (Beaulieu et al., 2022; Birnbaum, 2010; McNeil et al., 2018).

Rather than changing gradually over evenly spaced time intervals in established relationships, as tested in Study 2, communication processes may fluctuate primarily during periods of transition or stress, and this remains an important question for future research. Transitional periods often require couples to renegotiate expectations, routines, emotional needs, and sexual scripts established earlier in the relationship, which may temporarily destabilize existing communication patterns and increase reliance on explicit discussion of changes in needs, preferences, and consented sexual activities through collaborative negotiation (e.g., adjusting to a sexual pain diagnosis; Rancourt et al., 2017). In contrast, communication within more established relational contexts may become scripted as part of the couple's routine and, therefore, demonstrate substantial continuity over time (Wiederman, 2005). Although there is no clearly established point at which these patterns become stable, research with adult couples indicates that sexual and relational dynamics change with relationship duration, with particularly notable changes occurring during the earlier years of relationships (Schmiedeberg & Schröder, 2016; Schröder & Schmiedeberg, 2015). Accordingly, the focus on earlier-stage relationships in the present study was intended to capture sexual communication during a period in which relational and sexual patterns may still be actively developing. The present analyses could not determine

whether meaningful variability is concentrated around periods of relational transition. It remains possible that meaningful variability in sexual communication may be event-dependent and concentrated around periods of relational transition rather than distributed continuously across time, which will need to be assessed in future research. The available demographic data provided limited opportunities to examine this possibility, as relatively few participants experienced identifiable changes across the study period. Across changes in socioeconomic circumstances, pregnancy, geographic closeness, gender identity, and sexual identity, only 15 participants at T2 and 11 participants at T3 reported a change from the previous timepoint. The small number of participants experiencing these changes precluded meaningful comparisons of sexual communication trajectories between those who did and did not experience a transition. Importantly, however, the study did not explicitly assess whether participants perceived themselves as having undergone a significant life or relationship transition, nor did it capture several potentially relevant changes, such as changes in physical or sexual functioning, health status, or the addition of dependent or caregiving responsibilities. Thus, meaningful transitions may have occurred that the study's demographic measures did not capture.

Given that sexual communication often involves heightened vulnerability, discomfort, and fears of rejection or conflict (Rehman et al., 2019), anticipated interpersonal risk may be relevant to whether individuals maintain or modify their communication patterns. However, the present analyses could not establish whether these patterns persist in the absence of a salient catalyst for change. Because avoiding these conversations can reduce immediate relational risk, such patterns may reinforce relational homeostasis and contribute to the persistence of communication dynamics over time. Beyond the potential role of relational transitions, however, a related question is whether trajectories of sexual communication differ from those of other

forms of relationship communication. Comparing trajectories across sexual communication and other domains, such as finances, household responsibilities, and emotional concerns, could help determine whether the timing and extent of change differ across topics. Such work would clarify whether changes across communication domains reflect broader relational adaptation processes or the distinctive vulnerability associated with discussing sexual topics.

Although the longitudinal findings did not permit reliable evaluation of the proposed temporal pathways, the cross-sectional findings provide a separate source of information about associations among PMSC components. These analyses suggest considering disclosure depth alongside cognitive, motivational, and relational variables when examining perceived partner understanding and sexual wellbeing. However, they cannot determine whether associations are temporal or reciprocal. The findings suggest value in understanding communication as a multidimensional process whose implications may vary with the relational context. Greater disclosure depth should therefore not be assumed to be uniformly beneficial or appropriate. Further disclosure may be unnecessary when partners already understand one another's preferences, and individuals may reasonably choose to maintain privacy or limit disclosure when they anticipate an unsafe response. Although these possibilities were not directly tested, they highlight the importance of considering whether disclosure aligns with individuals' needs and boundaries. These findings suggest that focusing solely on *what* is communicated is overly simplistic and highlight the need for models that capture the complexity of sexual communication, including its quality, meaning, and underlying motivations.

The Study 2 findings also identify associations involving several variables conceptualized as precursors within the PMSC, although their antecedent roles remain unestablished. Across analyses, perceived consequences, motivational orientations, and communication self-efficacy

were associated with disclosure depth and/or the assessed outcomes in the cross-sectional analyses, suggesting that sexual communication is shaped not only by what individuals choose to disclose but also by how they evaluate, approach, and feel capable of engaging in that disclosure. One theoretical interpretation of these associations is that sexual communication involves relational risk assessment, in which individuals continuously evaluate the potential costs and benefits of vulnerability before deciding whether and how to communicate. This interpretation is consistent with Holmes and colleagues' risk regulation system (Murray et al., 2006), which proposes that intimate relationships require individuals to balance competing motivations for connection and self-protection. From this perspective, communication decisions may be guided not only by the desire to foster intimacy and understanding but also by assessments of whether a partner is likely to respond in accepting, responsive, and supportive ways. The strong associations observed for perceived consequences, perceived partner responsiveness, and attachment avoidance suggest that decisions about sexual disclosure may be shaped by ongoing evaluations of relational safety, trust, and anticipated responsiveness.

When considering the other PMSC precursors, the differing patterns observed across communication self-efficacy domains similarly suggest that perceived competence in sexual communication may entail navigating multiple forms of interpersonal vulnerability and relational risk rather than reflecting a single interpersonal skill. In contrast, the perceived importance of disclosure topics demonstrated weaker and less consistent associations with outcomes than the other precursor processes. Although these findings may suggest that topic importance plays a more limited role in shaping sexual communication outcomes than other precursors included in this study, methodological considerations offer an alternative explanation. In Study 2, participants were asked to identify topics that were relatively more or less important to discuss

with their partner, an approach that may not have fully captured the subjective salience, emotional significance, or complexity of topic-related importance within sexual communication. This interpretation is consistent with the findings from the first Study 1 data collection, in which perceived importance exhibited substantial ceiling effects and was ultimately removed from the final scale. These findings suggest that participants generally viewed sexual topics as highly important to discuss, resulting in limited variability in perceived importance across topics. As such, the weaker associations observed for perceived importance may reflect how the construct was operationalized and measured rather than indicating that importance plays a negligible role in the communication process and future research is required to elucidate the role, if any, of perceived topic importance.

Regarding motivational orientations, the results support my Master's work, which demonstrated that communication may be guided by two distinct orientations: some individuals disclose primarily to foster intimacy, connection, and growth, whereas others disclose primarily to avoid rejection, conflict, or relational harm (Wasson & Rehman, 2024), demonstrating the utility of applying RFT (Molden & Winterheld, 2013; Molden et al., 2008) to the context of sexual communication. From this perspective, motivations may represent a distinct component of the disclosure process because they address a fundamentally different question than the other precursor variables. These constructs reflect distinct aspects of the sexual communication process: perceived consequences capture *what individuals expect will happen if they communicate*, self-efficacy reflects *whether they believe they can communicate successfully*, perceived importance reflects *whether they believe the topic warrants discussion*, and motivations capture *why they choose to communicate in the first place*. Rather than functioning solely as direct determinants of disclosure behaviour, motivational orientations may operate as

interpretive frameworks through which individuals evaluate communication opportunities. RFT further suggests that individuals may approach communication with qualitatively different goals, even when engaging in similar disclosure behaviours. Individuals may simultaneously evaluate potential gains, losses, missed opportunities, and avoided risks associated with either communicating or remaining silent, suggesting that decisions about sexual communication extend beyond a simple assessment of whether disclosure is advantageous or threatening. Instead, individuals may evaluate multiple possibilities and determine which outcomes they are most motivated to pursue or avoid. In turn, these motivational orientations may shape how communication experiences are interpreted and the extent to which they contribute to relational and sexual wellbeing.

While the RFT is a compelling motivational framework for understanding sexuality and, specifically, sexual communication, other motivational perspectives may also offer valuable insights. For example, Self-Determination Theory (Deci & Ryan, 2012) distinguishes between autonomous motivations, in which behaviours are enacted because they are personally valued or intrinsically meaningful, and controlled motivations, in which behaviours are driven by external pressures, expectations, or obligations. Applied to sexual communication, this framework may help explain whether individuals engage in communication because they genuinely value openness and connection with their partner or because they feel compelled to communicate to avoid conflict, maintain the relationship, or meet perceived expectations. Similarly, communal motivation frameworks emphasize the extent to which individuals are motivated to meet a partner's needs and promote relationship wellbeing, rather than prioritizing solely individual goals. In the sexual domain, communal motives involve responding to a partner's sexual needs out of genuine concern for their wellbeing and mutual satisfaction, and have been associated

with greater sexual desire, sexual satisfaction, relationship satisfaction, and more adaptive navigation of sexual disagreements over time (Le et al., 2018; Muise & Impett, 2016). Such perspectives may be particularly relevant to sexual communication given that discussions often involve balancing personal desires, partner needs, and broader relational goals. Future research would benefit from directly comparing these motivational frameworks to determine whether certain models better capture the complexities of sexual communication and intimate relationships overall, or whether different motivational perspectives best explain distinct aspects of communication experiences.

More broadly, the present findings identify associations among cognitive, motivational, behavioural, and relational components relevant to the PMSC. These associations suggest value in examining sexual communication within its broader individual and relational context, while leaving the temporal organization of these components unresolved. Whether the proposed processes reflect enduring differences between individuals, fluctuations within individuals, or both remains an empirical question. The PMSC therefore offers a preliminary framework for generating and testing hypotheses about how these components are related across different relationship timepoints and contexts.

The cross-sectional associations can also be considered in relation to the expressive and instrumental pathways of sexual communication proposed by MacNeil and Byers (2005). Rather than positioning disclosure as the starting point of communication, the findings suggest that factors within the PMSC may precede communication and influence whether disclosure occurs. In particular, perceived partner responsiveness and anticipated relational consequences consistently emerged as important predictors of sexual communication, suggesting that relational factors may serve as antecedent conditions that shape individuals' willingness to engage in

vulnerable sexual discussions and warrant longitudinal investigation. These findings extend expressive perspectives by highlighting that relationship processes may influence communication not only as outcomes of disclosure, but also as factors that determine whether disclosure occurs at all. In particular, perceived partner responsiveness and anticipated relational consequences consistently emerged as important predictors of communication, suggesting that relational factors shape individuals' willingness to engage in vulnerable sexual discussions. These findings extend expressive perspectives by indicating that relationship processes may function not only as outcomes of communication but also as antecedent conditions that facilitate disclosure. Perceived partner understanding was associated with disclosure depth, consistent with theories positing that communication fosters validation, responsiveness, and relational connection.

Support for the instrumental pathway was evident in the role of communication precursors and perceptions of partner understanding. Motivation, self-efficacy, and anticipated consequences were consistently associated with communication, suggesting that individuals evaluate the likely effectiveness, benefits, and costs of disclosure before deciding whether to communicate. These findings imply that communication may function as a strategic interpersonal process through which individuals assess whether disclosure is likely to achieve desired outcomes. Furthermore, the importance of perceived partner understanding supports the notion that communication serves an informational function, helping partners develop shared knowledge regarding needs, preferences, boundaries, and experiences. Instrumental evaluations may be revisited primarily when circumstances change rather than through ongoing change in established relationships and should be the focus of future research.

Methodological Contributions

A central methodological contribution of this program of research is the demonstration that sexual communication can be measured reliably and validly as a multidimensional process. This conceptualization of sexual communication contrasts with most existing measures, which treat sexual communication as a unidimensional construct and rely on global assessments of communication frequency or the presence versus absence of disclosure, often aggregating diverse communicative experiences into a single score. The present findings suggest that this approach may obscure important distinctions among sexual communication processes, given that these processes had different associations with communication-related constructs, as well as with individual and relational contexts. Across studies, the MSC measures demonstrated that perceived consequences and disclosure depth are related but distinct dimensions of sexual communication that show different patterns of associations with relational and sexual outcomes. The addition of perceived partner understanding in Study 2 further supported the multidimensional nature of sexual communication and the distinction between these communication processes. These findings support the value of moving beyond unidimensional assessments and toward measurement approaches that capture the complexity of communication experiences within intimate relationships and encourage a shift from static conceptualizations of sexual communication toward a process-oriented understanding that recognizes communication as embedded within broader cognitive, motivational, behavioural, and relational contexts.

The findings also challenge assumptions regarding the centrality of disclosure itself. Although depth of disclosure has often been treated as the defining feature of sexual communication, the present findings suggest that it may be more appropriately conceptualized as one component within a larger communication process. The components of the PMSC related to precursors and outcomes of disclosure were consistently associated with communication

experiences and outcomes, indicating that understanding sexual communication requires consideration not only of what is communicated but also of the conditions under which communication occurs and how it is experienced by those involved. Methodologically, these findings highlight the limitations of relying exclusively on measures of communication frequency or openness when attempting to understand sexual communication processes. Instead, they suggest that researchers may benefit from assessing the broader interpersonal context surrounding communication, including how individuals interpret, anticipate, and navigate vulnerable conversations.

Beyond the development of the MSC, this dissertation also contributes a preliminary process model of sexual communication that can be empirically tested, refined, and expanded in future research. Although the present findings provided stronger support for some components of the model than others, they nonetheless offer an initial empirical foundation from which the model can continue to evolve. Future research may identify additional processes, clarify the temporal ordering of existing components, examine alternative pathways, or determine which processes are more relevant to specific communication topics, relationship contexts, or populations.

A further methodological contribution lies in the development of the MSC framework as an adaptable template for the development and validation of future measures. Although the present studies focused on sexual preferences and safer-sex communication, the underlying structure was designed to be flexible and extensible. The framework provides a model for examining how different communication topics may be experienced across multiple process dimensions, allowing researchers to evaluate whether similar processes emerge across distinct relational domains. Future work could adapt this approach to other forms of sexual

communication, such as discussions surrounding sexual pain, consent, desire discrepancies, reproductive decision-making, or sexual identity. More broadly, the framework may have utility beyond sexuality research, offering a template for investigating communication processes surrounding other sensitive or vulnerable interpersonal topics, given similarities in sexual and nonsexual communicative processes (Mark & Jozkowski, 2013; Rehman et al., 2017).

Clinical Implications

The present findings also have several potential clinical implications for both assessment and intervention. Although additional research is needed to establish the clinical utility and effectiveness of these applications, the MSC measures and the PMSC offer frameworks that may help clinicians assess sexual communication in a more nuanced and individualized manner than traditional global communication measures and largely static models currently available. Consistent with prior work suggesting that sexual communication is distinct from general relationship communication and may require direct clinical attention (Jones et al., 2018), the present findings suggest that understanding clients' sexual communication may require assessment of not only disclosure itself, but also the cognitive, motivational, behavioural, and relational processes that shape whether communication occurs and how it is experienced, as contextualized in the PMSC by the precursors to disclosure (i.e., perceived consequences of disclosure, perceived importance of the topic, motivations for disclosure, and sexual communication self-efficacy). Consequently, these frameworks may help clinicians identify more specific barriers and facilitators of communication than would be possible using global measures of communication alone.

One potential application of the MSC measures is as a clinical assessment tool within individual or couples therapy. Because the scales assess multiple dimensions of communication

rather than disclosure alone, they may help identify where communication difficulties occur within the broader communication context. For example, partners may demonstrate similar levels of disclosure depth while differing substantially in their expectations regarding the consequences of communication or their confidence in their ability to navigate sexual conversations effectively. In couples therapy, comparing partners' profiles may facilitate discussion and deepen understanding of how each person experiences communication, increasing mutual understanding and highlighting relational misalignments that might otherwise go unspoken, to support higher-quality sexual communication in the future. The measures may also serve as potential tools for monitoring change over time, allowing clinicians and clients to track whether interventions are influencing specific communication processes rather than relying solely on global perceptions of improvement.

The MSC measures may also have particular value when completed independently by both partners in couples or sex therapy because sexual communication difficulties often arise not only from low levels of communication but also from differences in how partners perceive and experience communication processes. For example, one partner may anticipate highly negative consequences following disclosure, whereas the other assumes that disclosure will be well accepted and supported. Similarly, partners may differ in whether they believe a particular topic requires discussion (i.e., perceived importance), the anticipated consequences of discussing the topic (i.e., perceived consequences), the extent to which they believe their partner understands their perspective (i.e., perceived understanding), and the extent to which they perceive the topic to have been discussed fully and openly (i.e., depth of disclosure). Examining these similarities and discrepancies may provide clinicians with insight into areas of misunderstanding that are not immediately apparent during therapy sessions and may help identify patterns that contribute to

recurring relational difficulties. Independent assessment may also offer opportunities to discuss experiences that partners have not previously disclosed to one another, creating a structured entry point for conversations that might otherwise be difficult to initiate. In this way, partner-level assessment could provide clinicians with a richer understanding of the interpersonal dynamics surrounding sexual communication while helping couples develop greater awareness of how each partner experiences the communication process. Beyond measurement, as discussed in the Study 2 Clinical Implications, the PMSC offers a dynamic framework through which clinicians can assess, case-conceptualize, and treat concerns related to sexual communication.

The present findings underscore the value of explicitly acknowledging the unique vulnerability often associated with sexual communication. From the perspective of the Process Model of Emotion Regulation (Gross, 1998, 2001), individuals continuously evaluate situations for their emotional significance and subsequently engage in strategies designed to modify, avoid, or regulate anticipated emotional experiences. Applied to sexual communication, individuals may anticipate shame, rejection, embarrassment, conflict, or disappointment and respond by avoiding communication altogether or limiting the depth of their disclosure. Clinically, this perspective suggests that communication avoidance often represents an emotion-regulation strategy rather than a lack of motivation, insight, or relational investment. Exploring the nature of these anticipated emotional experiences and the feared judgments underlying them may therefore represent an important target for intervention. Helping clients increase their tolerance for vulnerability while fostering experiences of acceptance, responsiveness, and emotional safety may ultimately support more open and adaptive sexual communication within their relationships. Specifically, if there are distorted cognitions and beliefs related to the likelihood of negative outcomes occurring from the communication, Cognitive Behavioural Therapy (CBT) strategies

aimed at restructuring those cognitions may be effective in facilitating more sexual communication, as has been shown in benefits to general communication behaviours (Sasaki et al., 2016). Additionally, approaches focused on processing the experiences and emotions related to avoidance of sexual communication, as well as feared outcomes, such as Emotion Focused Therapy (EFT), could be employed to bring more clarity to the experience of avoidance itself (Greenberg, 2015).

Future research establishing normative and clinical reference data for the MSC measures may further enhance their clinical utility. Because the present findings suggest that sexual communication processes vary across individuals and relational contexts, establishing benchmarks across different populations could help clinicians interpret assessment results more meaningfully. For example, age-related norms may be informative, as communication needs, sexual priorities, and relational contexts can shift across the lifespan (Falgares et al., 2024), yet very little research has examined whether sexual communication processes differ systematically across age groups. Similarly, norms derived from clinical populations experiencing sexual concerns may provide important points of comparison to non-clinical samples. Many sexual difficulties, such as erectile disorder, premature ejaculation, genito-pelvic pain/penetration disorder, or vulvodynia, involve experiences that often fall outside of normative sexual scripts and, therefore, may require greater communication, negotiation, and collaborative problem-solving between partners to achieve safe and mutually pleasurable sexual experiences (Mallory et al., 2019; Rancourt et al., 2016; Rancourt et al., 2017). Understanding how communication processes differ across these contexts could help clinicians determine whether clients' communication patterns are typical of individuals facing similar challenges or constitute additional intervention targets.

Although future research is needed to evaluate their effectiveness in clinical settings, these applications suggest that the MSC measures and the PMSC may provide clinicians with practical tools for psychoeducation, assessment, and treatment planning.

Limitations and Future Directions

These findings need to be considered in the context of several limitations of the overall research program. Most notably, the present studies provided stronger evidence for the structure and correlates of sexual communication processes rather than their developmental course over time during the six-month study period. The longitudinal findings did not yield admissible models from which the proposed within-person directional pathways could be reliably evaluated. The primary growth model also produced an inadmissible disclosure-depth slope variance. Consequently, the analyses do not contribute to understanding how sexual communication unfolds over time in relationships.

Relatedly, the timing of the longitudinal assessments may not have aligned with the periods in which meaningful shifts in sexual communication are most likely to occur. Consequently, the limited within-person variability observed in the present research may reflect the characteristics of the sample and assessment period rather than the absence of meaningful change in sexual communication itself. These findings also have implications for how longitudinal research on sexual communication should be designed moving forward. Traditional panel designs with evenly spaced assessments at any point during a relationship may not be optimally suited for capturing the types of communication fluctuations that occur within intimate relationships. If communication processes are most likely to shift around salient relational events, future research may benefit from incorporating transition-focused sampling strategies, event-contingent assessments, ecological momentary assessment methods, or other intensive

longitudinal designs that capture shorter-term fluctuations as they unfold in real time. Such approaches may be particularly valuable for understanding how couples adapt their communication patterns during periods of heightened individual and/or relational uncertainty, vulnerability, and change. Accordingly, future research should prioritize the study of relationship transitions and stressors that may require partners to renegotiate intimacy, boundaries, roles, and expectations.

These transitional periods may include the transitions in the relationship itself (e.g., formation, cohabitation, marriage; Schmiedeberg & Schröder, 2015; Schröder & Schmiedeberg, 2016), transitions related to parenthood (e.g., transition to parenthood; Tavares et al., 2023), the onset of sexual difficulties (e.g., sexual pain; Bois et al., 2013; Rancourt et al., 2017), and mental or physical illness (e.g., experiences of infertility, chronic illness, disability, cancer treatment, or mental health concerns; e.g., McInnis & Pukall, 2022), which often require partners to revisit assumptions about sexuality, intimacy, and relational needs while simultaneously navigating heightened uncertainty and vulnerability. As such, they may represent critical windows during which sexual communication becomes particularly dynamic and consequential for relationship functioning. In particular, future research would benefit from examining sexual communication during the early stages of relationship development, as was the initial intention of Study 2. Initial conversations about sexual preferences, boundaries, values, desires, and expectations may shape perceptions of compatibility, trust, and relational safety, ultimately influencing whether relationships progress, remain stable, or dissolve. Prior research has also identified exploring sexual communication in the context of formative stages of romantic relationships as an important future research direction (Knowles & Hammond, 2026). Understanding how communication processes operate during relationship formation may therefore provide important

insight into the role of sexual communication in the development of intimate relationships more broadly.

The present program of research also relied primarily on self-report data collected from individual participants. While self-report methods are well-suited for understanding subjective experiences, it limits capturing the dynamic, interpersonal nature of sexual communication. Future research would benefit from greater use of dyadic designs that examine both partners' perspectives simultaneously, allowing researchers to investigate how similarities and discrepancies in communication processes influence relationship outcomes. Such designs may be particularly informative for understanding whether partners differ in their perceptions of vulnerability, anticipated consequences, communication efficacy, or responsiveness during sexual discussions. Beyond dyadic research, future studies should incorporate methodologies that capture communication processes as they unfold in real time. Observational studies, laboratory-based interaction tasks, daily diary methods, and ecological momentary assessment designs may provide a more nuanced understanding of how communication emerges within specific relational contexts. These approaches would be particularly valuable for testing assumptions embedded within the PMSC regarding the dynamic interplay among cognitive, emotional, behavioural, motivational, and relational processes before, during, and following sexual conversations. Specifically, integrating the MSC measures with observational assessments of couples' sexual communication may be particularly informative for further validating and refining them. Comparing individuals' self-reported communication processes with observed communication behaviours could help clarify the extent to which the measures validly capture the process of sexual communication as it is enacted in interactions and identify aspects of the communication process that may not be fully reflected through self-report alone. Such work would allow the

MSC measures to remain responsive to emerging empirical findings, supporting their continued refinement as a flexible, adaptive framework for future measures that evolve alongside advances in the scientific understanding of sexual communication.

Future work should also continue to evaluate and refine the PMSC itself. The present findings provided initial support for several components of the model and suggested that some processes may play a more central role than others. Additional research is needed to examine alternative pathways, identify potential moderators, clarify temporal ordering among model components, and determine whether different communication topics involve distinct processes. It will also be important to identify the conditions under which sexual communication is most likely to change, as well as the contextual factors that facilitate growth, instability, or adaptation over time. In this way, the PMSC should be viewed as an evolving framework that can be continuously tested and refined as empirical evidence accumulates.

Conclusion

This program of research advances the study of sexual communication by moving beyond conceptualizations that treat communication as a singular act of disclosure and toward a more comprehensive understanding of sexual communication as a multidimensional interpersonal process. Study 1 established the psychometric foundation for this work by developing and validating the MSC measures, providing flexible, adaptable tools to assess multiple dimensions of communication across diverse sexual topics. Building on this foundation, Study 2 demonstrated the utility of these measures for examining associations among PMSC components, highlighting the relevance of cognitive, motivational, behavioural, and relational factors to sexual communication experiences and sexual wellbeing.

More broadly, this work contributes to a growing shift in the literature toward understanding sexual communication not simply in terms of whether it occurs, but in terms of the processes by which individuals decide to communicate, experience communication, and derive meaning from those interactions. By integrating and expanding on insights from communication, relationship, and sexual wellbeing theories, the present research provides a framework for understanding how sexual communication is embedded within broader relational contexts and interpersonal dynamics. In doing so, it offers both researchers and clinicians a more nuanced conceptualization of sexual communication that may facilitate future theory development, assessment, and intervention efforts. Ultimately, this program of research positions sexual communication not as a single behaviour, but as a complex relational process that plays a central role in how partners understand one another, negotiate their sexual relationships, and achieve sexual and relational wellbeing.

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Appendix A

Pre-Registered Two-Factor Model

Considering theoretical interpretability and usability of the questionnaire, we decided to test two CFA models, one with four-factors and one with two-factors, the former based on data-driven approaches and the latter being theory-driven and pre-registered as analyses.

Sample 1

While the four-factor solution yielded a conceptually coherent and psychometrically acceptable structure, it also introduced added complexity that may limit ease of use for individuals who do not want to conceptually differentiate between communicating about past experiences compared to current planning. To address this, the theorized and OSF pre-registered two-factor model was also tested and retained based on both theoretical and practical considerations. Specifically, the two-factor structure reflects the same dimensional organization as the MSC-SP with assessing both the perceived consequences of disclosure and actual depth of disclosure. We expected that both scales would be similar given their overlap in the contextual aspects of sexual communication they assess, with differences based on the specific content. Given these similarities, testing a simplified two-factor model allowed for greater comparability and coherence across versions of the scale.

We conducted a CFA with two factors, with all items loaded onto two latent variables: perceived consequences and depth of disclosure. An identical model structure was used compared to the four-factor model (e.g., including inter-factor correlations, wording effects, self- and partner-focused item pairs). The final model included 24 observed variables: 12 items measuring consequences and 12 items measuring depth. The model also accounted for the 17 residual correlations explained above.

This two-factor model demonstrated adequate to good fit (robust CFI = .948, robust TLI = .938, robust RMSEA = .060 (90% CI = .051-.068). All standardized factor loadings were moderate to strong, and all estimates were statistically significant (ps < .001). Internal consistency was strong across both factors (α = 0.89-0.91, ω = 0.92-0.93; See Supplementary Table 10). Measurement invariance was also

established for both gender and sexual identity, though the same pattern was observed with having a decrease in model fit compared to the full model.

Sample 2

The two-factor model also demonstrated an adequate fit to the data, with a robust CFI of 0.917, a robust TLI of 0.901, and robust RMSEA of 0.073 (90% CI = 0.066–0.081). Internal consistency was strong across both factors (α = 0.88-0.90, ω = 0.91-0.94; See Supplementary Table 10). Measurement invariance was also established for both gender and sexuality, though the same pattern was observed with a decrease in model fit compared to the original. There were, again, some findings when comparing observed group means.

Discussion

We implemented the data-driven four-factor model in the main studies. The theoretically justified two-factor solution demonstrated lower though borderline acceptable fit, with the two-factor model prioritized for consistency and usability.

Table A1

Reliability Estimates for the Four- and Two-Factor MSC-SS Scale Across Both Samples

Scale Dimension	Sample 1						Sample 2					
	Four Factor				Two Factor		Four Factor				Two Factor	
	PC	PD	CC	CD	C	D	PC	PD	CC	CD	C	D
α	0.88	0.89	0.87	0.85	0.91	0.89	0.90	0.88	0.86	0.82	0.90	0.88
ω	0.91	0.91	0.91	0.89	0.93	0.92	0.92	0.92	0.90	0.87	0.94	0.91

Note : MSC-SS = Multidimensional Sexual Communication Questionnaire-Safer Sex -PC = past sexual experiences perceived consequences; -PD = past sexual experiences depth of disclosure; -CC = current planning perceived consequences; -CD = current planning depth of disclosure; -C = perceived consequences; -D = depth of disclosure.