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# Darling, Come Lay with Me or Talk with Me: Perceived Mattering and the Complementary Association between Sex and Communication within Marital Relationships

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## ABSTRACT

According to the theories on interpersonal mattering, reciprocal interactions and mutual engagements facilitate the formation of interpersonal mattering within relationships. However, the theoretical framework on mattering has rarely been applied to understand the roles of sexual and verbal exchanges within intimate relationships. To fill this research gap, the authors proposed that heightened perception of mattering captures the common mechanism through which both frequent sex and communication predict greater marital satisfaction. Building on this perspective, the study examined whether frequent sex and communication can compensate for the other in predicting marital satisfaction by sustaining the sense of mattering between spouses. Two survey studies were conducted using cross-cultural online samples (Study 1: *N*<sub>Korean</sub> = 307 and *N*<sub>American</sub> = 277) and a community sample of married dyads (Study 2: *N* = 286). Across these samples, the results demonstrated that the perceived sense of mattering to spouse mediated the effects of both sexual frequency and communication quantity on the couples' overall satisfaction with their marriage. Moreover, the results of the moderated mediation analyses supported the hypothesis that sexual frequency and communication quantity can moderate the effects of the other on marital satisfaction by providing a buffer on the couples' perceived sense of mattering to spouse.

"Sex can be such a stark barometer for a marriage."

—John Eldredge

"A happy marriage is a long conversation which always seems too short."

—Andre Maurois

There are two fundamental forms of reciprocal interactions that appear as central themes in the relationship literature: sexual and verbal exchanges (Johnson et al., 2021; McNulty et al., 2016). Based on the notion that the dynamic two-way interactions between partners constitute an integral aspect of their daily union (Dainton, 1998; Felmlee & Greenberg, 1999), a robust body of research has emphasized the importance of both frequent sex (Costa & Brody, 2012; Meltzer et al., 2017; Schmiedeberg et al., 2017) and verbal communication (Emmers-Sommer, 2004; Segrin & Flora, 2018) in promoting the wellbeing of intimate relationships. Notably, the constructs of sexual and verbal exchanges have been generally explored as distinct domains, attracting separate scholarly attention in past decades. However, in the present study, we proposed a relatively counterintuitive yet compelling view that these two seemingly different processes may, in fact, serve a common psychological function within the context of committed relationships. Specifically, we applied the theoretical framework on *interpersonal mattering*, which refers to the

feeling that one is a relevant part of others' lives (Elliott et al., 2004; Rosenberg & McCullough, 1981). Based on this framework, we suggest that the sense of mattering to one's partner serves as a key psychological mechanism through which both frequent sex and communication predict greater relationship quality. Moreover, based on the conception that sexual and verbal exchanges are both associated with a common psychological reward of perceived mattering to one's partner, the present study examined whether greater amounts of sexual activity and verbal communication can mutually compensate for the other within a committed relationship.

## Psychological Overlap between Sex and Communication: Perceived Sense of Mattering

*Interpersonal mattering*, the feeling that one is significant to and noticed by others (Elliott et al., 2004), is conceptualized as a universal need in which "all individuals want to believe that they matter to others" (Rayle, 2006). Accordingly, perspectives on mattering have emerged as prominent theories in multiple disciplines (e.g., social psychology, adolescent studies, and counseling; Elliott et al., 2004; Rayle, 2006; Stevenson et al., 2014), wherein the importance of feeling mattered by one's significant other has been particularly emphasized across various relationship contexts (Mak & Marshall, 2004; Marshall, 2001; Sebastian, 2018).

With other being readily incorporated in the evaluation of one's significance, many scholars have theorized reciprocal interaction as an important building block of interpersonal mattering (Elliott et al., 2004; Fazio, 2009; Marshall, 2001; Marshall & Lambert, 2006; Rayle, 2005). Specifically, Elliott et al. (2004) have delineated the two bidirectional components that underlie the formation of interpersonal mattering. The first is *importance*; that is, a person must "take" attention from others to realize that he or she is an important object of concern. The second is *reliance*; that is, a person should "give" attention to others who have opted to rely on him or her. Thus, mattering within relationships essentially entails bidirectional interactions: individuals should be able to *give* attention to and *take* attention from others to perceive that they matter to the target (Elliott et al., 2004; France & Finney, 2009). Pursuing this notion, scholars have highlighted mattering as one of the most interactive forms of self-concept stemming from *social interaction* (Fazio, 2009), in which exclusivity and mutual engagement are deemed critical (Marshall & Lambert, 2006).

In this vein, the theoretical perspectives on mattering hint that in the context of building a sense of interpersonal mattering, the quantity of reciprocal interactions, rather than their quality, may be the most relevant. Specifically, the literature frequently emphasizes that the size of investment, or the degree to which a partner invests their time and attention for the other, is critical to the feeling of mattering (Mak & Marshall, 2004; Stevenson et al., 2014). Meanwhile, the failure to share sufficient time together is conceived to generate the threatening perception of being less significant to the other (Marshall & Lambert, 2006). In this regard, one's sense of mattering is conceived to stem from either positive (e.g., acknowledgment) or negative (e.g., criticism) interactions (Elliott et al., 2004; Jung, 2015; Marshall, 2001; Rosenberg & McCullough, 1981). That is, greater signs of attention, whether positive or negative, act as opposing forces against the threat of having no significance or impact at all, which serves to nourish people with a sense of mattering (Marshall, 2001; Rayle, 2006). Based on these perspectives, indicators of quantity are expected to better capture the extent to which social interactions are associated with a greater sense of mattering.

Despite such emphasis in the theoretical realm, the nature of associations between frequent social interactions and sense of mattering has yet to be intensively studied in the empirical realm. In particular, while there has been some investigation in the context of parent-child relationships (Stevenson et al., 2014), limited research has yet devoted much attention to the association between frequent social interactions and a sense of mattering within intimate relationships (e.g., married couples). Thus, to fill this research gap, we aimed to delineate how the two prominent forms of marital interactions, namely, sexual and verbal exchanges, are associated with the perception of mattering within marriage. We specifically focused on sexual and verbal exchanges as they typically describe critical dyadic interactions that play a significant role in promoting the relationship satisfaction of marital couples (e.g., Blanchflower & Oswald, 2004; Call et al., 1995; Emmers-Sommer, 2004; Muise et al., 2016; Navran, 1967). While these relationship interactions have generally drawn separate scholarly attention in the past literature, the current study investigated the affective

foundation of mattering as the common psychological component that explains the pathways through which both frequent sex and communication contribute to marital satisfaction.

Specifically, we hypothesized that frequent sexual activity would be associated with an elevated perception of mattering within committed relationships based on its central features of exclusivity, reciprocity, and mutual engagement. Sexual activity, which is characterized by exclusivity, especially in monogamous marital relationships (Forste & Tanfer, 1996), necessarily obligates mutual attention and reciprocity in the form of dyadic giving and taking. That is, it is both the partner's responses (*taking*) as well as one's own reactions (*giving*) that constitute the outcomes of sexual activities (Gadassi et al., 2016). Within such mutual engagements, sexual activity also provides a window for the partners to communicate each other's significance and concern, which builds greater meaning and bonds between them (Birnbaum & Finkel, 2015; Birnbaum & Reis, 2019; Kashdan et al., 2018). In fact, research has demonstrated that even less-satisfying sex on days of conflict can provide a momentary buffer on marital satisfaction (Maxwell & Meltzer, 2020). Given these aspects, we hypothesized that frequent sexual activity plays a critical role in promoting the perception of mattering to the partner, highlighting the corporeal aspect of perceived mattering.

In parallel, frequent verbal communication is also hypothesized to be associated with greater perception of mattering through similar reasoning. Communication refers to the "verbal interchange of a thought or idea" (Hoben, 1954) and engages involved parties to reciprocally share attention to one another. In the process of communication, the active involvement of a listener conveys affection to a speaker in the sense that the listener *gives* time, presence, and attention to the speaker (Floyd, 2014). In the meantime, when the listener becomes the speaker, he or she also *takes* attention from the other. Moreover, previous studies have demonstrated that communication is not an end in itself but allows one to connect with the inner state of the other person (Echterhoff et al., 2009). For instance, the interactive process that involves self-disclosure and responsiveness contributes to feelings of understanding and chemistry between partners (Welker et al., 2014). Further highlighting the nourishing aspect of engaging in frequent communication in relationships, research has demonstrated that even negative forms of communication, such as disagreements and conflicts, can promote marital satisfaction in the long-term (Gottman & Krokoff, 1989). Hence, given the interactive features of communication involving reciprocity and mutual attention, frequent communication between spouses is expected to serve as an important route to building the sense of mattering within marriage.

### The Complementary Association between Sex and Communication

Based on the conception that sexual and verbal exchanges both pertain to a common psychological foundation in contributing to a couple's evaluations of their relationship, the present study further investigated the possibility that the amounts of sexual activity and verbal communication may mutually compensate for the lack of the other within marriage. This type of

transactional reasoning is consistent with the perspectives on attitude formation and social exchange theories (Kelly & Thibaut, 1978; Olson & Fazio, 2001; Rusbult et al., 1998). Such perspectives conceptualize the global perception of a target as being based on the evaluations of specific qualities, which should be considered in *relation* to each other, rather than in *isolation*. If sexual and verbal exchanges both contribute to a sense of mattering to one's partner, it could be postulated that these two forms of relationship interactions both serve as diagnostic situations for a common symbolic reward within the relationship (see, Rusbult & Van Lange, 2008, for a review on interdependence theory). In such a case, when one recognizes sufficient reward (i.e., perceived mattering) from a particular diagnostic situation (i.e., frequent sex or communication), it should accordingly help to offset the need for additional reward from a comparable diagnostic situation. Hence, in other words, it could be expected that engaging in frequent communication may provide a buffer against the deteriorating impact of less frequent sex, and vice versa, by optimizing a couple's perceived sense of mattering to each other.

Evidence drawn from the literature on marital research also provides support for such a proposition. As direct evidence, Litzinger and Gordon (2005) have explicitly examined the complementary association between sex and communication and found a significant interaction between sexual satisfaction and communication quality in predicting relationship satisfaction among married couples. As indirect evidence, research has demonstrated that sexual frequency can moderate the costs of attachment insecurity or neuroticism on marital satisfaction (Little et al., 2010; Russell & McNulty, 2011), suggesting that bodily exchanges may act as a buffer against psychological vulnerabilities within relationships. Consistent with the conception that engaging in increased communication can compensate for less frequent sex, the literature also suggests that "one way to stabilize and strengthen a relationship when dyadic sexual activity is low would be to emphasize dyadic communication" (Ahlborg et al., 2005).

However, although these studies are informative in highlighting the potential complementarity between sex and communication, these findings are subject to several limitations. First, this relatively small body of research is limited in that no study has attempted to specify a theoretically identified variable that could account for the underlying mechanism of the interactive association between sex and communication. Second, Litzinger and Gordon (2005) have notably focused on sexual satisfaction and communication quality in their research without considering the frequency or quantity of those relationship interactions. To address these research gaps, the current study advanced the existing research by adopting the theoretical perspectives on mattering. In parallel to proposing the sense of mattering as an underlying mechanism of the complementary association between sex and communication, we extended past research by exploring the quantities of sexual and verbal exchanges instead of their qualities.

## Overview of the Current Study

In summary, the current set of studies sought to verify the hypothesis that frequent sex and communication can mutually compensate for each other within marriage based on their associations with the common symbolic outcome of perceived mattering. Hence, we proposed two central hypotheses. First, we predicted that an individual's perceived sense of mattering to their spouse would mediate the association between sexual frequency and marital satisfaction, in which this mediated pathway would be moderated by communication quantity. Second, we predicted that a person's perceived sense of mattering to their spouse would also mediate the association between communication quantity and marital satisfaction, in which this indirect pathway would be moderated by sexual frequency.

A set of two studies were conducted to test the hypotheses. In Study 1, online samples of married participants from both eastern (i.e., South Korea) and Western (i.e., United States) countries were recruited to ensure the generalizability of findings. Given the scarcity of research documenting cross-cultural differences on the construct of mattering, or the effects of sex and communication within marriage, we did not consider there to be a clear theoretical reason to predict any cultural differences to emerge from the hypothesized associations. However, we aimed to empirically demonstrate the robustness of the findings by testing whether the predicted associations would be equally relevant across broad cultural samples to address the notion that investigating a culturally restricted sample may limit the interpretation of results (Henrich et al., 2010; Rad et al., 2018).

In Study 2, a dyadic sample of married couples was recruited to replicate the findings from Study 1. It has been widely acknowledged that samples drawn from both members of couples (vs. individual members) provide a more optimal context for examining relationship dynamics such as sexuality and communication, which involve sensitive and private processes (Cheung et al., 2008; Yucel & Gassanov, 2010). Using dyadic data, we aimed to operationalize sexual frequency and communication quantity dyadically and test our predictions while accounting for the interdependence nested within dyads.

Lastly, Studies 1 and 2 were conducted within the specific context of marital relationships. First, given that sexual desire is typically a more important driver of relationships during the earlier stages (Birnbaum & Reis, 2019), we considered that our predictions could be most relevant in the context of long-term, committed relationships. Second, the predicted interrelations among sex, communication, and mattering might be best captured among partners with a shared way of living across comparable activities and life cycles (e.g., Hoppmann & Gerstorf, 2009). While these features might be similarly relevant in other types of cohabiting couples, employing married samples was deemed a more reliable way of ensuring that the partners were involved in long-term, committed relationships, especially in the countries where we conducted the studies (i.e., South Korea and the United States).



## Study 1

### Method

#### Participants and Procedure

Given the lack of previous empirical studies on this topic, we conservatively aimed to collect a sufficiently large sample that would enable the detection of small effect sizes. An a priori sample size calculation was conducted to test interaction effects using G\*power (Faul et al., 2007), finding that a total sample of 262 was required to detect a small effect size with 95% statistical power. Accordingly, a final sample of 307 Koreans (148 women, 153 men, 6 unknown; mean age = 41.96 years,  $SD = 7.88$  years) and 277 Americans (142 women, 135 men; mean age = 40.23 years,  $SD = 12.70$  years) were recruited from the online survey platforms dataSpring and Amazon Mechanical Turk (Mturk), as part of a large research project on the psychological well-being of married individuals.<sup>1</sup> In the final sample, the majority of the American participants were identified as Caucasian (i.e., White or European American = 84.5%, Black or African American = 4.0%, Asian American = 5.4%, Hispanic or Latino American = 5.4%, Other = .7%), whereas Korean participants were all identified as of Korean descent.

The details of the data collection procedure and exclusion criteria are as follows. Potential participants from the online survey platforms were directed to a secure website to read the study's informed consent form. Those who provided informed consent completed several self-report measures via QualtricsTM. The participants were further screened to select those aged more than 18 years and who were currently married. The screening questionnaires on age and marital status were embedded at the beginning of the survey to conceal their purpose and to ensure the validity of our sample. Those who were ineligible to participate based on the screening questionnaires were redirected to an exit page and did not complete the survey. Moreover, two attention-check items (e.g., "Please select 'Strongly disagree' for this question.") were included to ensure that the participants were attentive and provided credible answers. Hence, the final sample was obtained after the exclusion of participants who (1) did not meet the selection criteria (3 Koreans and 88 Americans), (2) withdrew before finishing the survey (37 Koreans and 82 Americans), (3) failed attention checks (74 Koreans and 18 Americans), and (4) completed the survey more than once (0 Koreans and 21 Americans as implicated by duplicate IP addresses). All the participants who completed the online survey received a compensation of approximately 1 US dollar. All the procedures were approved by the university's institutional review board.

#### Measures

**Sexual Frequency.** Following the methods from previous studies (Call et al., 1995; Russell & McNulty, 2011), sexual frequency was operationalized as the number of times that participants engaged in sexual activity per month. Accordingly, the participants provided a numeric estimate of

the average number of times they had sex with their spouse per month, i.e., "On average, how many times do you have sex with your spouse per month?"

**Communication Quantity.** Communication quantity was operationalized as the minutes of time that participants spent in verbal communication with their spouse per day. Toward this end, the participants provided a numeric estimate of the average minutes per day they spent talking to their spouse, i.e., "On average, how many minutes do you spend talking to your spouse per day?"

**Sense of Mattering to Spouse.** As a measure of the perceived sense of mattering to spouse, eight items from Stevenson et al. (2014) and Marshall (2001) were selected and revised to describe a marital context (e.g., "I believe I greatly matter to my spouse," "My spouse really cares about me," and "My spouse needs me"; 1 = strongly disagree to 7 = strongly agree). These items aimed to assess perceptions of mattering in terms of importance and reliance as indicated by the theoretical perspectives on interpersonal mattering (Elliott et al., 2004; France & Finney, 2009). Similar to reports from previous studies (Mak & Marshall, 2004; Marshall, 2001; Stevenson et al., 2014), factor analysis revealed that all items were loaded on a single factor with item loadings ranging from .53 to .96. Hence, the items were combined into a single index such that higher scores indicated a greater perceived sense of mattering to one's spouse. Item analysis demonstrated good internal consistency estimates (Cronbach's  $\alpha = .97$  and .93 for Koreans and Americans, respectively).

**Global Marital Satisfaction.** Marital satisfaction was assessed using the Quality Marriage Index (Norton, 1983), which is a global measure of marital quality that is widely used in relationship research. According to Norton (1983), the items indicated adequate reliability (i.e., average item-total correlation: .76) and validity (i.e., related as expected to the measures of commitment and attitude similarity between partners) during the initial development. A large body of studies that utilized this scale as a measure of marital satisfaction also provided support for the psychometric properties of this measure (Meltzer et al., 2017; Rubin et al., 2020; Russell & McNulty, 2011). The QMI comprises six items rated on a seven-point scale (e.g., "We have a good marriage" and "My relationship with my partner is very stable"; 1 = strongly disagree to 7 = strongly agree). Following the methods from previous research (Meltzer et al., 2017; Russell & McNulty, 2011), the items were combined into a single index, such that higher scores indicated greater marital satisfaction. The items indicated adequate internal consistency estimates in the present study (Cronbach's  $\alpha = .98$  and .95 for Koreans and Americans, respectively).

All items in the present study were translated into Korean using a back-translation procedure for the Korean participants. The back-translation method is generally recommended for instrument validation and use in cross-cultural studies (Behling & Law, 2000; Cha et al., 2007; McDermott & Palchanes, 1992).

### Data Analytic Strategies

Three sets of analyses were conducted to test the hypotheses that (1) perceived mattering would mediate the association between sexual frequency and marital satisfaction, where communication quantity would moderate this mediation pathway, and (2) perceived mattering would mediate the association between communication quantity and marital satisfaction, where sexual frequency would moderate this mediation pathway. First, mediation analyses were conducted to test whether a sense of mattering to one's spouse mediated the pathways through which sexual frequency and communication quantity are associated with marital satisfaction. For these analyses, Model 4 of the PROCESS macro for SPSS (Hayes, 2013) was used to obtain 95% bias-corrected confidence intervals (CIs) using 5,000 bootstrap samples. Second, interaction analyses were conducted to test whether frequent sex or frequent communication moderated the effect of the other in predicting marital satisfaction. Finally, and most importantly, moderated mediation analyses were conducted to examine whether frequent sex and communication compensate for each other in predicting marital satisfaction by providing a buffer on perceived sense of mattering to spouse. Toward this, the study employed Model 7 of the PROCESS macro for SPSS (Hayes, 2013) using 5,000-sample bootstrap procedures.

Significant moderation and moderated mediation patterns were decomposed and investigated with simple slopes and indirect effects at three different levels of the moderator (Aiken et al., 1991). Low, moderate, and high levels corresponded to the first, second, and third quartiles, respectively. Considering that the distributions of sexual frequency and communication quantity were substantially skewed to the right, the conditional effects were evaluated at the median (second quartile) and the first and third quartiles of the moderator distribution rather than at the mean  $\pm$  1 standard deviation as is conventional. However, the analyses showed identical patterns of results when the mean  $\pm$  1 standard deviation were used as conditioning values (detailed results are available in the Supplemental Materials).

Given the findings that married couples' sexual frequency and marital satisfaction tend to decline over the course of a marriage (Lucas et al., 2003; McNulty & Russell, 2010), marital duration ( $M = 12.65$ ,  $SD = 8.66$  for Koreans;  $M = 13.70$ ,  $SD = 11.16$  for Americans) was assessed and controlled for in the analyses. For ease of interpretation and a stable estimation, communication quantity, sexual frequency, and marital duration were grand-mean centered for the analyses. In addition, we present the combined results of the sample across cultures for the sake of brevity. The separate results of the analyses of the Korean and American samples are available in the supplemental materials.

### Results

For the Korean participants, the means and standard deviations for the measures in Study 1 were as follows: monthly sexual frequency, 3.32 ( $SD = 2.91$ ); daily minutes of communication time, 57.03 ( $SD = 48.08$ ); perceived sense of mattering, 5.19 ( $SD = 1.35$ ); and marital satisfaction, 5.20 ( $SD = 1.44$ ). For the American participants, the means and standard deviations for the measures were as follows: monthly sexual frequency, 5.24 ( $SD = 4.11$ ); daily minutes of communication time, 85.75 ( $SD = 57.86$ ); perceived sense of mattering, 5.95 ( $SD = 1.03$ ); and marital satisfaction, 5.83 ( $SD = 1.18$ ).

### Mediation Analyses

As regards the effect of sexual frequency on marital satisfaction, the analysis showed evidence of partial mediation by perceived mattering. When perceived mattering was included as a mediator, the indirect mediation effect was significant ( $b = .117$ ,  $SE = .013$ , 95% CI = [.092, .144]), while the direct effect of sexual frequency on marital satisfaction also remained significant ( $b = .020$ ,  $SE = .009$ ,  $p = .024$ , 95% CI = [.003, .037]). Similarly, for the effect of communication quantity on marital satisfaction, analysis indicated a partial mediation by perceived mattering. When perceived mattering was included as a mediator, the indirect mediation effect was significant ( $b = .009$ ,  $SE = .001$ , 95% CI = [.007,

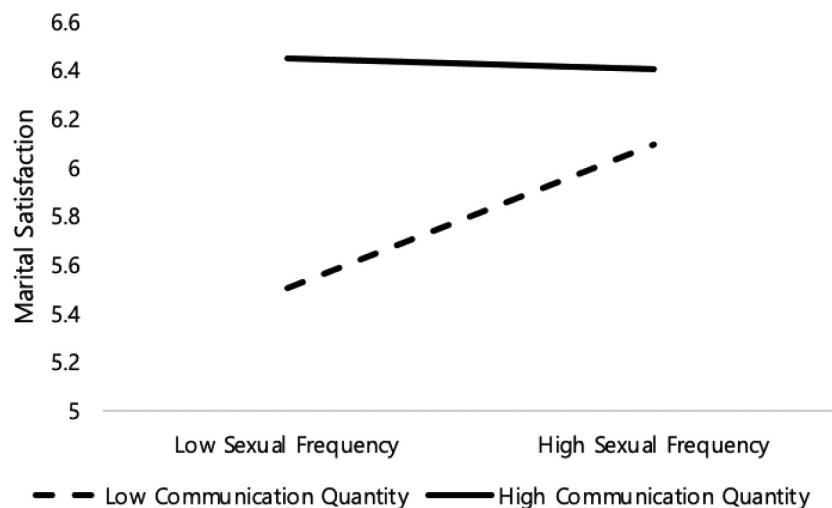
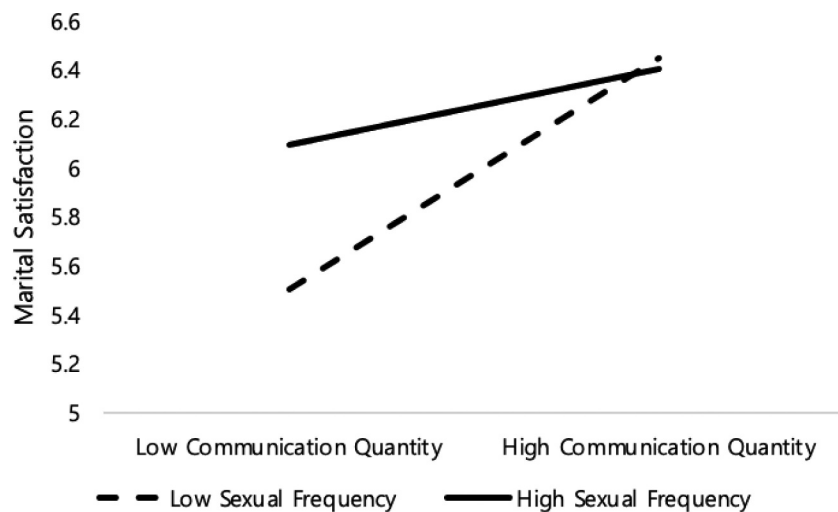


Figure 1. The relationship between sexual frequency and marital satisfaction depending on communication quantity in study 1.



**Figure 2.** The relationship between communication quantity and marital satisfaction depending on sexual frequency in study 1.

.010]), whereas the direct effect of communication quantity on marital satisfaction also remained significant ( $b = .001$ ,  $SE = .001$ ,  $p = .041$ , 95% CI = [.0001, .002]).

### Interaction Analyses

As predicted, the interaction between sexual frequency and communication quantity on marital satisfaction was significant (see, **Figures 1 and 2**;  $b = -.001$ ,  $t(524) = -5.114$ ,  $p < .001$ , 95% CI = [-.002, -.001]). Specifically, the effect of sexual frequency on marital satisfaction was found to be significantly weaker when communication quantity was high ( $b = -.006$ ,  $SE = .027$ ,  $p = .820$ , 95% CI = [-.058, .046]) compared with when communication time was moderate ( $b = .044$ ,  $SE = .019$ ,  $p = .021$ , 95% CI = [.007, .082]) or low ( $b = .082$ ,  $SE = .015$ ,  $p < .001$ , 95% CI = [.051, .112]). Similarly, the effect of communication quantity on marital satisfaction was significantly weaker when sexual frequency was high ( $b = .003$ ,  $SE = .002$ ,  $p = .062$ , 95% CI = [-.0001, .006]) than when it was moderate ( $b = .005$ ,  $SE = .001$ ,  $p < .001$ , 95% CI = [.003, .008]) or low ( $b = .007$ ,  $SE = .001$ ,  $p < .001$ , 95% CI = [.005, .009]).

### Moderated Mediation Analyses

Lastly, the moderated mediation analyses revealed that the indirect effect of sexual frequency on marital satisfaction (via perceived mattering) differed significantly depending on the

communication quantity (see, **Table 1**;  $b = -.001$ ,  $SE = .0002$ , 95% CI = [-.002, -.001]). Specifically, the indirect effect was significantly weaker when communication quantity was high ( $b = -.014$ , 95% bias-corrected bootstrap CI = [-.054, .016]) than when it was moderate ( $b = .032$ , 95% CI = [.005, .055]) or low ( $b = .067$ , 95% CI = [.044, .088]).

Similarly, a separate moderated mediation analyses showed that the indirect effect of communication quantity on marital satisfaction (via perceived mattering) also differed depending on sexual frequency ( $b = -.001$ ,  $SE = .0002$ , 95% CI = [-.002, -.001]). Specifically, the indirect effect was significantly weaker when sexual frequency was high ( $b = .002$ , 95% CI = [.0001, .004]) than when it was moderate ( $b = .005$ , 95% CI = [.003, .006]) or low ( $b = .006$ , 95% CI = [.004, .007]).

### Gender Differences

None of the analyses reported above (e.g., mediation, moderation, and moderated mediation) showed a significant interaction with gender; the reported results did not significantly differ across gender.

### Study 1 Summary

Study 1 analyzed online survey reports from married individuals from the United States and South Korea to test the intertwined associations between sexual frequency and communication quantity within marriage. As predicted, the results showed that one's sense of mattering to their spouse underlied the pathways through which both sexual frequency and communication quantity were positively associated with individuals' overall satisfaction with their relationships. These findings provide inferential evidence that sexual activity and verbal communication relate to a common domain of interpersonal mattering in the context of relationship rewards. Accordingly, the results showed that frequent sex and communication could mutually compensate for each other in predicting one's marital satisfaction by sustaining their sense of mattering. These findings indicate that, by providing a buffer on individuals' sense of mattering, greater communication

**Table 1.** The conditional indirect effects of sexual frequency and communication quantity on marital satisfaction via perceived mattering to spouse (study 1).

Path	Effect (Conditional level)	<i>b</i>	95% CI
Sexfreq → Matt → Marsat	Direct	.020	[.003, .37]
	Indirect (High Comquant)	-.014	[-.054, .016]
	Indirect (Low Comquant)	.067	[.044, .088]
Comquant → Matt → Marsat	Direct	.001	[.0001, .002]
	Indirect (High Sexfreq)	.002	[.0001, .004]
	Indirect (Low Sexfreq)	.006	[.004, .007]

*Note.* Sexfreq = sexual frequency, Comquant = communication quantity, Matt = perceived mattering to spouse, Marsat = global marital satisfaction.

might have offset the need for frequent sexual relations, and sexual activity might have allowed individuals to better tolerate less communication.

Given that the results of Study 1 mostly supported our predictions, Study 2 was conducted with the aim of enhancing the ecological validity and robustness of the findings. Study 2 utilized a community sample of married dyads to consider the interdependent nature of marital dynamics. By controlling for the interdependence nested within a dyadic relationship, we aimed to provide a more nuanced understanding of the complementary association between sexual activity and verbal communication within marriage. Furthermore, given the concerns on measurement error in sexual data, in which people tend to overreport or underreport their patterns of sexual relations (Blanchflower & Oswald, 2004), Study 2 aimed to reduce the likelihood of measurement error by utilizing dyadic data to combine responses from both spouses for increased objectivity.

## Study 2

### Method

#### Participants and Procedure

Given the a priori sample size calculation in Study 1, Study 2 collected dyadic survey data from 180 married couples (360 participants) from an elementary school in Seoul, South Korea, as part of a large research project on family dynamics. All couples were identified as heterosexual, except three couples, of which one partner did not report their gender. The couples received a package containing a pencil-and-paper survey and a letter with an instruction to complete the self-report questionnaires independently. The completed questionnaires were instructed to be sealed in separate packages before being returned to the lab. Couples who did not report their sexual frequency or communication quantity were excluded from the study, for a final sample of 143 married couples (286 participants; mean age = 43.55 years,  $SD = 4.69$  years). All the procedures were approved by the university's institutional review board.

### Measures

**Sexual Frequency.** As in Study 1, both spouses were asked to provide a numeric estimate of the average number of times they had sex with their spouse per month. The reports of sexual frequency from the husbands and wives were highly correlated ( $r = .790, p < .001$ ) and did not differ systematically ( $t(284) = .058, p = .954, 95\% \text{ CI} = [-0.510, .541]$ ). Similar to previous research using dyadic responses (Russell & McNulty, 2011), a couple sexual frequency variable was created to improve the reliability of the data by computing the means of the spouses' responses.

**Communication Quantity.** Communication quantity was again assessed by asking both spouses to provide a numeric estimate of the average minutes they engaged in verbal communication with their spouse per day. The quantities of communication according to the husbands and wives were highly correlated ( $r = .510, p < .001$ ) and did not differ systematically ( $t(284) = .745, p = .457, 95\% \text{ CI} = [-5.480, 12.159]$ ). Similar to the sexual frequency variable, a couple communication quantity variable was created by computing the means of the spouses' responses.

**Sense of Mattering to Spouse and Global Marital Satisfaction.** The same measures from Study 1 were used to assess couples' perceived sense of mattering to spouse and marital satisfaction. Both measures demonstrated high internal consistency (Cronbach's  $\alpha = .96$  and  $.97$ , respectively). All the items in the present study were translated to Korean using a back-translation procedure.

### Data Analytic Strategies

To examine whether frequent sex and communication compensated for each other in predicting marital satisfaction by providing a buffer on perceived sense of mattering, the moderated multiple mediator model was fitted as presented in Figure 3. This model can be conceived of as a modified version of the moderated multiple mediation model discussed in Hayes (2015, Figure 2a), in which the residuals of the mediators are permitted to correlate with each other (as indicated by the double-headed arrow between the two mediators), and those of the dependent variables are also

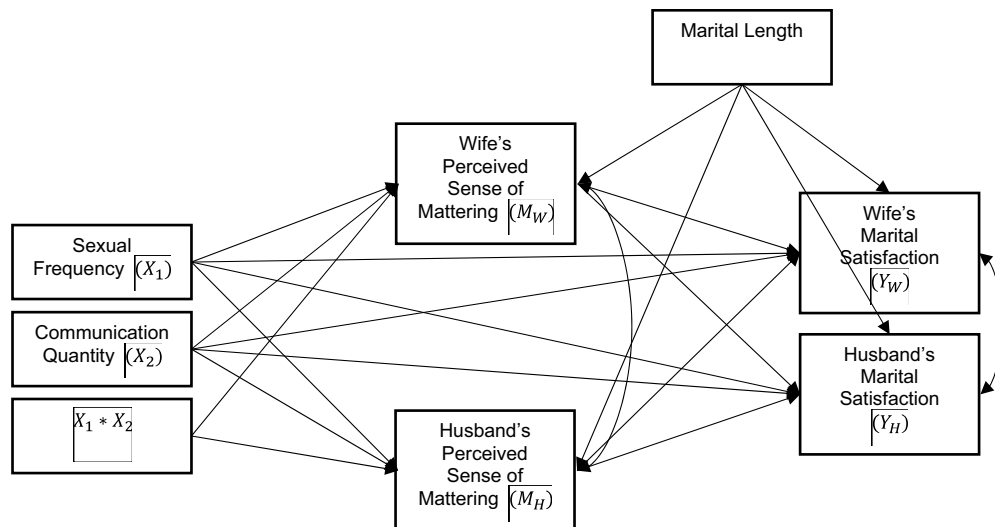


Figure 3. The path diagram of the moderated multiple mediation model in study 2.



permitted to correlate with each other (as indicated by the double-headed arrow between the two dependent variables), to account for the dyadic nature of the mediators and dependent variables. This model can also be considered a modified version of the actor-partner interdependence mediation model (Ledermann et al., 2011), in which the independent variables are not dyad member-specific measures but characteristics common to both members of married couples, and the interaction between the independent variables is considered.

The tested model included two independent variables (sexual frequency and communication quantity), two mediators (wife's perceived sense of mattering to spouse and husband's perceived sense of mattering to spouse), and two dependent variables (wife's marital satisfaction and husband's marital satisfaction). It was hypothesized that each independent variable would affect each mediator as well as each dependent variable and, in turn, each mediator would affect each dependent variable. Each of these effects is depicted by single-headed arrows in Figure 3. In addition, the effect of each independent variable on each mediator was hypothesized to be moderated by the other independent variable, and thus, the interaction term between the two independent variables ( $\gamma$ ) was included. Similar to Study 1, marital duration for each couple ( $M = 13.21$ ,  $SD = 3.65$ ) was included as a covariate.

The model was fitted to our data using Mplus 8.4 (Muthén, 2017). The significance of an indirect effect was tested by obtaining a 95% bias-corrected bootstrap CI on the basis of 5,000 bootstrap samples. As in Study 1, communication quantity, sexual frequency, and marital duration were grand-mean centered before being entered into the model.

To examine the complementary effects of sex and communication on marital satisfaction through perceived sense of mattering, the model tested the indirect effects of each independent variable (i.e., communication quantity and sexual frequency) on each dependent variable (i.e., wife's marital satisfaction and husband's marital satisfaction) conditional on the moderator (i.e., the other independent). A set of two indirect effects were investigated separately: the effect of the independent variable on the dependent variable through wife's perceived sense of mattering and that through husband's perceived sense of mattering. The index of moderated mediation (Hayes, 2015) was examined to test whether each indirect effect varied across different levels of the moderator (i.e., sexual frequency).

For a more accurate understanding of the pattern of the moderated mediation, each indirect effect was probed at three different levels of the moderator: low, moderate, and high. As in Study 1, the low, moderate, and high levels correspond to the first, second, and third quartiles, respectively, given that the distributions of both sexual frequency and communication quantity were substantially right skewed. However, the analyses showed identical patterns of results when the mean  $\pm 1$  standard deviation were used as conditioning values (see the detailed results).

## Results

The means and standard deviations for the measures in Study 2 were as follows: monthly sexual frequency, 2.45 ( $SD = 2.13$ ); daily minutes of communication time, 44.31 ( $SD = 32.85$ ); perceived sense of mattering, 5.45 ( $SD = 1.13$ ); and marital satisfaction, 5.76 ( $SD = 1.07$ ). The results of fitting the moderated multiple mediator model showed that the hypothesized model fit the data well ( $2 = 2.345$ ,  $p = .3096$ ,  $CFI = .999$ ,  $SRMR = .016$ ,  $RMSEA = .035$ ). The detailed results of the indirect effects of our main interest are presented below.

### Indirect Effects of Sexual Frequency on Marital Satisfaction Conditional on Communication Quantity

First, the results revealed that the indirect effect of sexual frequency on wives' marital satisfaction through wives' perceived sense of mattering varied significantly across different levels of couples' communication quantity (see Table 2). Specifically, the indirect effect was significant when communication quantity was low ( $b = .188$ , 95% CI = [.091, .308]) and moderate ( $b = .144$ , 95% CI = [.057, .254]) but not when it was high ( $b = .047$ , 95% CI = [−.042, .168]). The index of moderated mediation was significant ( $b = -.004$ , 95% CI = [−.006, −.002]).

Similarly, the indirect effect of sexual frequency on husbands' marital satisfaction through husband's own perceived sense of mattering was significantly moderated by sexual frequency ( $b = -.002$ , 95% CI = [−.005, −.001]). Probing the indirect effect showed that the effect was significant when communication quantity was low ( $b = .109$ , 95% CI = [.039, .181]) and moderate ( $b = .078$ , 95% CI = [.017, .137]) but not when it was high ( $b = .009$ , 95% CI = [−.074, .068]).

In contrast, the indirect effect of sexual frequency on wives' marital satisfaction through husbands' perceived sense of mattering did not differ by couples' communication quantity ( $b = .000$ , 95% CI = [−.001, .000]). Probing the indirect effect showed no significant results at any of the three levels of communication quantity (low:  $b = .019$ , 95% CI = [−.014, .061]; moderate:  $b = .014$ , 95% CI = [−.008, .049]; high:  $b = .002$ , 95% CI = [−.014, .026]). In short, there was no significant moderated mediation or, in fact, any mediation.

Similarly, the indirect effect of sexual frequency on husbands' marital satisfaction through wives' perceived sense of mattering did not vary across different levels of

**Table 2.** The conditional indirect effects of sexual frequency and communication quantity on marital satisfaction via perceived mattering to spouse (study 2).

Path	Conditional level	<i>b</i>	95% CI
Sexfreq → Wmatt → Wmarsat	High Comquant	.047	[−.042, .168]
	Low Comquant	.188	[.091, .308]
Sexfreq → Hmatt → Hmarsat	High Comquant	.009	[−.074, .068]
	Low Comquant	.109	[.039, .181]
Comquant → Wmatt → Wmarsat	High Sexfreq	−.003	[−.007, .000]
	Low Sexfreq	.008	[.004, .014]
Comquant → Hmatt → Hmarsat	High Sexfreq	.000	[−.005, .003]
	Low Sexfreq	.007	[.004, .013]

Note. Sexfreq = sexual frequency, Comquant = communication quantity, WMatt = wives' perceived mattering to spouse, HMatt = husbands' perceived mattering to spouse, WMarsat = wives' global marital satisfaction, Hmarsat = husbands' global marital satisfaction.

communication quantity ( $b = -.001$ , 95% CI =  $[-.001, .000]$ ). No significant indirect effect of sexual frequency was found through wife's perceived sense of mattering at any of the three levels of communication quantity (low:  $b = .029$ , 95% CI =  $[-.004, .078]$ ; moderate:  $b = .022$ , 95% CI =  $[-.003, .064]$ ; high:  $b = .007$ , 95% CI =  $[-.006, .040]$ ).

Taken together, the mediated association between sexual frequency and individuals' marital satisfaction via their perceived sense of mattering to spouse was mitigated for those who engaged in more frequent communication. In the meantime, spouses' perceived sense of mattering did not mediate the relationship between sexual frequency and one's marital satisfaction.

### ***Indirect Effects of Communication Quantity on Marital Satisfaction Conditional on Sexual Frequency***

As regards wives' marital satisfaction, the results indicated that the indirect effect of communication quantity on wives' marital satisfaction through wives' perceived sense of mattering significantly varied across different levels of couples' sexual frequency ( $b = -.004$ , 95% CI =  $[-.006, -.002]$ ). Specifically, the indirect effect was significant for couples with low and moderate levels of sexual frequency (low:  $b = .008$ , 95% CI =  $[-.004, .014]$ ; moderate:  $b = .005$ , 95% CI =  $[-.002, .009]$ ) but not with high levels ( $b = -.003$ , 95% CI =  $[-.007, .000]$ ).

Similarly, the indirect effect of communication quantity on husband's marital satisfaction through husband's own perceived sense of mattering was significantly moderated by sexual frequency ( $b = -.002$ , 95% CI =  $[-.005, -.001]$ ). Probing the indirect effect showed that it was significant when couples had low ( $b = .007$ , 95% CI =  $[-.004, .013]$ ) or moderate ( $b = .005$ , 95% bias-corrected bootstrap CI =  $[-.002, .009]$ ) but not high ( $b = .000$ , 95% CI =  $[-.005, .003]$ ) sexual frequency.

In contrast, the indirect effect of communication quantity on wives' marital satisfaction through husbands' perceived sense of mattering did not differ by couples' sexual frequency ( $b = .000$ , 95% CI =  $[-.001, .000]$ ). The indirect effects were nonsignificant at all three levels of sexual frequency (low:  $b = .001$ , 95% CI =  $[-.001, .004]$ ; moderate:  $b = .001$ , 95% CI =  $[-.001, .003]$ ; high:  $b = .000$ , 95% CI =  $[-.001, .001]$ ). Similarly, the indirect effect of communication quantity on husbands' marital satisfaction through wives' perceived sense of mattering did not vary across different levels of sexual frequency ( $b = -.001$ , 95% CI =  $[-.001, .000]$ ) and was non-significant at all three levels (low:  $b = .001$ , 95% CI =  $[-.000, .003]$ ; moderate:  $b = .001$ , 95% CI =  $[-.000, .002]$ ; high:  $b = .000$ , 95% CI =  $[-.002, .000]$ ).

In sum, although communication quantity was indirectly associated with individuals' marital satisfaction via their sense of mattering to spouse, such a relation was attenuated for those with higher sexual frequency. Again, the spouses' perceived sense of mattering did not play an intermediate role in the relationship between communication quantity and one's own marital satisfaction, the same as the finding for sexual frequency.

## **General Discussion**

The present study investigated interpersonal mattering as an underlying mechanism of the intertwined associations between sex and communication within marriage. In accordance with the hypotheses on the theorized role of perceived mattering, the results demonstrated that frequent sex and communication were both associated with an increased perception of being significantly cared for and relied upon by one's spouse, which in turn, predicted greater overall satisfaction with marriage. Building on this finding, the results also consistently displayed that greater verbal communication could compensate for less frequent sex and vice versa by buffering the couples' perceived sense of mattering. Specifically, we found that for those who engaged in sufficient verbal communication, the affective domain of perceived mattering was adequately sustained to mitigate the link between less frequent sex and lower marital satisfaction. Concurrently, the results revealed that the sense of mattering of those who engaged in frequent sexual relations was also buffered to attenuate the association between communication quantity and marital satisfaction.

Based on these robust observations, the present study offers the insight that sexual relations and verbal communication could comparably fulfill the central need for interpersonal mattering within intimate relationships. The results provide inferential evidence that one's heightened sense of mattering from either frequent sex or communication provides benefits that extend beyond only general satisfaction and allow couples to better tolerate the lack of one of the two. In this sense, this study confirms the notion that "one way to stabilize and strengthen a relationship when dyadic sexual activity is low would be to emphasize dyadic communication" (Ahlborg et al., 2005) and that "if couples have strong communication skills, it may be that their sex life is less essential to their marital satisfaction" (Litzinger & Gordon, 2005). In terms of the extent to which a partner significantly matters to the other, our findings reveal that the verbal exchanges might be as intimate as sexual exchanges, while sexual engagements could be as symbolic as spoken words.

Furthermore, the study contributes to and advances existing literature through significant theoretical and practical implications. First, although the previous literature on perceived mattering emphasized the importance of relationship interactions in promoting the sense of mattering (Elliott et al., 2004; Fazio, 2009; Marshall, 2001; Marshall & Lambert, 2006; Rayle, 2005), there has been a paucity of empirical studies that have tested this fundamental premise, especially in the context of intimate relationships. As such, the present study gave heed to this call and contributed to the literature by investigating the mediating role of the sense of mattering in the associations between sexual frequency, communication quantity, and marital quality. The results not only provide empirical evidence on the theorized link between perceived mattering and reciprocal relationship interactions but also demonstrate the importance of capturing the concept of mattering in future work on marital relationships.

Second, although the past literature on mattering has documented the importance of *social interactions* or *social exchanges* using broadly defined terms (Elliott et al., 2004;

Fazio, 2009; Marshall, 2001; Marshall & Lambert, 2006; Rayle, 2005), the potential role of *sexual exchanges* has rarely been a focus of scholarly attention. In this sense, establishing the association between sexual frequency and perceived mattering is deemed important, such that it highlights the corporeal aspect of the sense of mattering. Moreover, the current study extends prior work on the link between sexual activity and human pair-bonding (Birnbau & Finkel, 2015; Birnbau & Reis, 2019; Meltzer et al., 2017) by demonstrating that bodily exchange could serve as a central route for building a psychological sense of importance and reliance between partners. To extend this study, future research would benefit by investigating whether other forms of nonverbal exchanges (e.g., affectionate touch; Jakubiak & Feeney, 2019) would play a similar role in promoting a sense of mattering within committed relationships.

Third, the results obtained across the two studies are important, because identify one of the mechanisms through which sexual frequency and communication quantity may compensate for the other. By examining perceived mattering as an underlying mechanism for these associations, the present study provides a parsimonious explanation for the complementarity between sex and communication and extends the understanding of the role of perceived mattering. Furthermore, the findings join other research (Little et al., 2010; Rusbult & Van Lange, 2008; Russell & McNulty, 2011) in demonstrating the importance of attending to the broad context of the relationship to build a comprehensive understanding of close relationships. As an avenue for future studies, it would be valuable to examine individual differences in the patterns of the complementarity between sex and communication. For instance, a recent study illustrated that the positive outcomes of verbal or nonverbal affection from one's partner might be dependent on an individual's attachment orientations (Schrage et al., 2020). Along this line, exploring whether the unique needs of each spouse influences the extent to which sex and communication compensate for the other would be worthy of attention.

Lastly, the current study holds practical implications for offering insight into understanding how diverse forms of relationships may thrive in instances where certain forms of relationship interactions are lacking. For instance, how long-distance couples maintain their relationships with limited access to one of the core contributors to relationship satisfaction, namely, sexual intimacy, remains less understood. Hence, the present finding that sufficient communication may buffer the deprived opportunities for sexual activity further highlights the importance of communication in maintaining relationship satisfaction among long-distance couples (Dainton & Aylor, 2002; Maguire & Kinney, 2010; Stafford & Reske, 1990). To extend these implications, future studies may investigate the current findings at a daily level. Specifically, verifying whether couples' daily levels of perceived mattering and marital satisfaction are comparable between days with sex but less communication and days without sex but more communication would be interesting. Given the recent findings on sexual afterglow (elevated sexual satisfaction for approximately 48 h after sex; Meltzer et al., 2017) another avenue for future research would be to determine whether sexual engagement exerts a certain

degree of lasting effect (e.g., 48 h) to buffer perceptions of mattering. This line of future research should be particularly important given that the current study assessed the general tendencies of engaging in sex or communication without specifying the exact timeframes for the occurrences of such relationship interaction.

### Limitations and Future Directions

Despite the contributions of the present research, findings should be considered in the light of several limitations until further replicated and extended. First, although the results provided support for the proposed models, the correlational nature of the data limits strong causal inferences. Indeed, given the possibility of bidirectionality, in which greater perception of mattering or relationship quality could also lead to increased sexual frequency or communication quantity, it would be important to examine these causal patterns in greater detail. Given the challenges associated with conducting experimental work in the domain of sexuality (Loewenstein et al., 2015), future studies are encouraged to employ longitudinal procedures to target the question of causality and corroborate the temporal precedence of the current findings.

The second potential limitation is that our samples were restricted to married couples, thus making it less clear to what extent our findings would generalize to other forms of relationships (e.g., cohabiting, or dating couples). On the one hand, since most cohabiting couples could also be involved in long-term, committed relationships, we expect our findings to be comparably relevant across most types of cohabiting couples, including those with diverse sexual and gender characteristics, who might be less likely to be married. While the online survey data did not allow for a precise determination of their relationship structures, the samples in Study 1 were not restricted to heterosexual dyads and may therefore reflect broader types of relationships. Nevertheless, the exclusion of participants who did not report their sexual frequency or communication quantity in Study 2 does add to the concern that this sample may have been biased toward sexually active and communicative couples. On the other hand, for dating couples at the earlier stages of the relationship, one might plausibly expect different patterns of results to emerge. For example, studies have suggested that sexuality plays a more central role at the earlier stages of romantic relationships (Birnbau & Reis, 2019) when the novelty of the relationship drives sexual desire (e.g., honeymoon effect; Call et al., 1995). In this vein, the extent to which sexual and verbal exchanges could compensate for each other based on their degree of connection with a common psychological reward might be weaker among those who are still new in their relationship. Considering that couple configurations have largely changed over the recent years (Smock & Schwartz, 2020), future studies should investigate broad samples of dyads to verify whether the findings remain relevant across different contexts and types of relationships.

Another caveat regarding generalizability entails the measures of sexual frequency and communication quantity, which required the participants to report how much they "have sex" or "talk" with their spouse with less details on the contexts of such interactions. Although establishing a standard definition of sex and



communication was beyond the scope of the present research, it would be worth investigating the extent to which the results are generalizable to specific forms of sexual activities (e.g., oral sex, mutual masturbation, and sexual intercourse) or communication (e.g., virtual communication, sexual communication, and written communication). While we expect that the theoretical viewpoint on perceived mattering would be similarly relevant across these types of interactions, future research is required to empirically delineate these possibilities.

Lastly, future research should benefit from elucidating several contextual factors that might elucidate the nature of our findings in greater detail. For example, it could be expected that the degree to which sexual frequency and communication quantity compensate for the other may be dependent on an individuals' perceived value of sex life or communication within marriage. This line of speculation aligns with the aforementioned call for future research to consider individual differences (e.g., attachment orientation) to extend the findings. In a similar vein, detailed patterns or the perceived qualities of the relationship interactions may be another aspect to consider. The present study exclusively focused on the number of relationship interactions based on the viewpoint that interpersonal mattering may be realized through either positive or negative means (Elliott et al., 2004; Jung, 2015; Mak & Marshall, 2004; Marshall, 2001; Rosenberg & McCullough, 1981). However, given the recent findings on the predictive power of perceptions on marital satisfaction (Joel et al., 2020), it would be valuable for future research to consider broader contextual factors to further delineate the nuanced associations between various types of relationship interactions and feelings of mattering.

## Conclusion

Despite the large body of literature emphasizing the importance of frequent sex and communication to marital quality, limited research has examined the core psychological component that explains the overlapping nature of these two dyadic interactions. The present study sheds light on the psychological overlap between sex and communication by exploring the role of perceived mattering in explaining the complementarity between sex and communication within marriage. In this regard, the findings of the current study pave the way for future research by offering insight into understanding the sense of mattering as a core psychological foundation of committed relationships. In addition, the findings demonstrate the importance of considering the broader context of the components of relationships to provide a more comprehensive understanding of their dynamics.

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