

THE ROLE OF SEXUAL COMMUNICATION IN COUPLES' SEXUAL OUTCOMES: A DYADIC PATH ANALYSIS

Adam C. Jones, W. David Robinson, and Ryan B. Seedall
Utah State University

In a study of 142 couples, we gathered survey data to show how sexual communication influences sexual and relationship satisfaction as well as sexual and orgasm frequency. In two dyadic data path analyses, we observed the significant paths of influence that sexual communication has on sexual and relationship satisfaction, as well as sexual and orgasm frequency. Our findings revealed greater amounts of sexual communication were associated with increased orgasm frequency in women and greater relationship and sexual satisfaction in both sexes. We also observed important differences in the associations of sexual communication and general communication on satisfaction levels. With these analyses, we expand the current literature to broaden our understanding of the role that sexual communication plays in committed relationships.

Sexual issues are among the most prevalent presenting issues in couples' therapy (Peplau, 2003). Couples' communication skills may have a large impact on sexual and relational satisfaction as well as other contributors to sexual satisfaction (i.e., sexual and orgasm frequency) (Litzinger & Gordon, 2005). Recent studies have suggested that couples may experience communication about sexuality differently than other general issues (Mark & Jozkowski, 2013; Rehman et al., 2011a). While many approaches to treating couples' sexual issues center around sexual exploration, relaxation, the use of medication, or improving general communication processes (Metz & McCarthy, 2007), few studies have focused on how couples' communication about sex impacts sexual relationships.

By ignoring couples' sexual communication, clinicians and researchers may be unintentionally overlooking a key component in improving couples' sexual relationships and functioning. Understanding the impact that communication has on these outcomes will help clinicians facilitate increase couple connection (Rehman et al., 2011b). In this study, we examined the ways that sexual communication, separate from general communication, impacts couples' relationships in order to lay the groundwork for future intervention and clinical parsimony.

LITERATURE REVIEW

Sexual satisfaction and healthy couple communication have repeatedly been found as two of the most important predictors of relationship satisfaction (Byers, 2005; Litzinger & Gordon, 2005; Yoo, Bartle-Haring, Day, & Gangamma, 2014). While sexual satisfaction can be a complex and difficult construct to define, sexual functioning and relational dynamics are the most common contributors to self-reported sexual satisfaction (Pascoal, Narciso, & Pereira, 2014). Researchers and clinicians have assumed that sexual problems can be fixed through improving general communication within relationships (Byers & MacNeil, 1997; Haning et al., 2007). Only recently have researchers begun to examine whether couples' sexual communication might influence their

Adam C. Jones, MS, Doctoral Student, Marriage and Family Therapy, Texas Tech University, Lubbock, TX; W. David Robinson, PhD, Department of Family, Consumer, and Human Development, Utah State University, Logan, UT; Ryan B. Seedall, PhD, Department of Family, Consumer, and Human Development, Utah State University, Logan, UT.

Address Correspondence to Adam C. Jones, Marriage and Family Therapy, Texas Tech University, P.O. Box 79409, Lubbock, TX; E-mail: a.jonesy111@gmail.com

relational dynamics and sexual functioning (i.e., MacNeil & Byers, 2009; Mark & Jozkowski, 2013). This focus on sexual communication is based on the assumption that couples may communicate differently about sex than they do about other relational areas, which, in turn, may affect sexual outcomes.

Sexual Communication

Sexual communication researchers have examined both self-disclosure of sexual expectations, beliefs, and attitudes (labeled “sexual content” in this paper) as well as the communicative dynamics behind sexual conversations (labeled “sexual communication” processes in this paper). In terms of sexual communication, content and process may be different concepts with distinct effects on relational and sexual outcomes, and should therefore be considered separately. The topics discussed in sexual conversations (content) may be indicative of the couple’s level of sexual knowledge, education, awareness, experience (Hess & Coffelt, 2012), while sexual communication processes may be more indicative of the attitudes toward sexuality, dynamics of perceived power in the sexual relationship, and emotional safety in discussing sexual problems (MacNeil & Byers, 2005). Whether examining sexual communication content or process, most of the extant literature is based on the assumption that couples’ sexual self-disclosure may be experienced differently than other types of self-disclosure in relationships (i.e., MacNeil & Byers, 2009; Rehman et al., 2011a).

Differences in couples’ experiences of general and sexual communication may be due to several factors. While couples may have great success resolving significant relational problems through communication, many couples have greater difficulty resolving sexual issues (Byers & MacNeil, 1997). Some even suggest that discussing sex feels qualitatively different than other topic areas (Rehman et al., 2011a).

A person’s comfort level in discussing sexuality may be different than other areas of communication due to familial or cultural norms of sexual communication, such as parenting (Kim & Ward, 2007), sexual education (Milburn, 1995), or gender norms (Litzinger & Gordon, 2005; Peplau, 2003; Theiss, 2011). Family-of-origin or religious dynamics around sexual communication may impact whether sexual discussion is encouraged or considered taboo. Gender norms surrounding sex may lead to several assumptions about sex that determine who can initiate, adjust, and derive pleasure from sex (Litzinger & Gordon, 2005; Peplau, 2003). These differences may also be attributed to individual differences such as one’s perception of his or her sexual identity (Montesi et al., 2013), a history of sexual abuse or trauma (Davis & Petretic-Jackson, 2000), or individual sexual dysfunction (Byers & MacNeil, 1997). These experiences of poor sexual identity, sexual abuse, or sexual dysfunction may increase anxiety or shame surrounding sexual conversations, making it more difficult to discuss sexuality.

Difficulty in addressing sexual issues may not only be present in couples, MFT’s and other health professionals may also struggle to address and discuss sexual issues with clients (Haboubi & Lincoln, 2003). Many clinicians may feel comfortable discussing general communication problems with clients, but may have difficulty discussing sexual topics with clients due to their own lack of knowledge and discomfort (Harris & Hays, 2008). This personal discomfort of the therapist may possibly translate into further avoidance by the couple in the bedroom.

Due to these potential differences between sexual and general communication, researchers have addressed several aspects of how sexual communication impacts relationships (Byers & MacNeil, 1997). Researchers have only recently begun to examine how sexual communication could be empirically linked to both subjective relationship outcomes (i.e., relationship and sexual satisfaction) and contributors of sexual satisfaction (e.g., sexual frequency and orgasm frequency).

Sexual Communication and Relationship and Sexual Satisfaction

There is a burgeoning body of research showing that more disclosure to one’s partner about sexual preferences and desires (which is conceptualized in this study as “sexual communication content”) is positively correlated with sexual satisfaction and relationship quality (e.g., Byers & Demmons, 1999; MacNeil & Byers, 2005; Mark & Jozkowski, 2013; Montesi, Fauber, Gordon, & Heimberg, 2011; Rehman et al., 2011b). Conversely, those that are less satisfied sexually and relationally are often more avoidant or indirect in their approach to communication (Montesi et al., 2013; Theiss, 2011).

Sexual routines, roles, and expectations that remain undiscussed or un-negotiated may lead to greater sexual issues the longer couples are together, which suggests that individuals who struggle to communicate about sexuality may experience lower overall sexual and relational satisfaction over time (Byers, 2005). Because much of the literature on sexual communication is relatively new, most of these cited studies have been conducted with college-age or relationally satisfied couples (e.g., Byers & Demmons, 1999; Hess & Coffelt, 2012; MacNeil & Byers, 2005; Mark & Jozkowski, 2013). As a result, these studies are not generalizable to the public who might have different sexual and relational experiences. As couples develop long-term relationships, the level of sexual knowledge and self-disclosure is likely to change (Hess & Coffelt, 2012). In this study, we examined if these same relationships exist within committed couples of varying amounts of relationship duration and satisfaction levels.

Sexual Communication and Sexual and Orgasm Frequency

While relationship factors are highly related to sexual satisfaction, higher satisfaction does not always indicate optimal sexual functioning (McCarthy & Fucito, 2005). Couples that report lower communication satisfaction often experience more sexual problems (Byers & MacNeil, 1997; Kelly, Strassberg, & Turner, 2004; Rehman et al., 2011b). However, one study found that orgasm and sexual frequency were among two of the most important predictors of sexual satisfaction for both men and women (Pascoal et al., 2014). There are often opposing ideas in the field of sexual study of whether relational factors or physical functioning have the largest impact on sexual satisfaction (McCarthy & Fucito, 2005). While relationship satisfaction should be an important focus of sexual relationships (Metz & McCarthy, 2007), there may still be many who experience continued frustration due to poor sexual functioning or inability to orgasm (Kelly et al., 2004). Little has been done to explore if sexual communication may influence specific sexual behaviors and outcomes.

While women may tend to be more interested in relational aspects of sex (i.e., emotional closeness), experiencing orgasm is one of the largest predictors of sexual satisfaction in women (Haning et al., 2007; Rehman et al., 2011b). Previous researchers suggest that women generally experience orgasm less frequently than men. One recent study found that only 35.6% of women had reached orgasm in their most recent sexual encounter (Herbenick et al., 2010). The existing body of literature still is unclear as to the relationship between sexual communication and the frequency that women experience orgasm in their sexual encounters.

As men tend to have less difficulty reaching orgasm (Peplau, 2003), one might expect less of a relationship between sexual communication and men's orgasm frequency. However, men generally tend to over-estimate the frequency of orgasm in their wives (Gagnon & Simon, 2011), which may indicate that many couples may not regularly or honestly communicate about their sexual encounters with each other. This failure to communicate often leaves each partner with varying perceptions of the sexual relationship.

Similarly, after a recently failed clinical trial of a "female Viagra," aimed at increasing female sexual functioning, the authors hypothesized that the reason the treatment was not found to be more effective than the placebo was because each couple began to communicate more about sex after taking the placebo (Muin et al., 2015). While many of the current treatments of sexual issues include medications, new positions, and sexual devices and toys, these treatments are less effective if they are not integrated into the couple's sexual style through communication and negotiation (McCarthy & Fucito, 2005).

Many common interventions in sex therapy involve increasing communication in building physical awareness of sexual functioning (i.e., sensate focus, the start-stop technique) (Masters & Johnson, 1970; Yoo et al., 2014), which further raises the question of whether the increased physical awareness or the increased communication has the greatest impact on improved functioning (McCarthy & Fucito, 2005). In the present study, we explored if sexual communication influences sexual and orgasm frequency.

Need for the Present Study

The present study addressed some of the gaps within the sexual communication literature. Much of the current literature fails to analyze the impact of sexual communication on both sexual

and relationship satisfaction as well as contributors to sexual satisfaction (i.e., orgasm and sexual frequency). It is important for clinicians to know that helping their clients improve their sexual communication will: (a) improve their self-reported relationship and sexual satisfaction, which is commonly the measuring stick of improvement in therapy, (b) improve the couple's sexual functioning and outcomes, and (c) be helpful in enhancing the sexual experience for all couples regardless of age or relationship duration.

In this study, we used an actor-partner interdependence model within the framework of a path analysis to explore the effects of both sexual communication content (i.e., discussion of sexual beliefs, attitudes, desires, and expectations) and process (i.e., the relational interactions between partners with discussing sexual problems) and their association with relational and sexual outcomes. After observing if various types of sexual communication effect overall relationship perceptions, we then find it important to observe how sexual communication impacts different contributors to sexual satisfaction. Our research questions were as follows: (a) "How are sexual communication content and process each associated with relationship and sexual satisfaction while controlling for general communication processes and relationship duration?" (b) "How are sexual communication content and process each related to sexual and orgasm frequencies while controlling for relationship duration?" (c) "What gender differences are evident in how sexual communication influences relational and sexual outcomes?" By utilizing a dyadic path analysis, we explored how discussing sex may potentially benefit relationships. The findings from the study have numerous implications for sex and couple's therapists as they address couples' sexual issues.

METHOD

Sample

A total of 142 paired couples (total $N = 284$) completed an anonymous 30-minute, online survey, all of whom were married, cohabiting, or dating in heterosexual, committed relationships. Participants were recruited through numerous national email/research listservs, clinical settings, and social media outlets. The length of the participants' current relationships ranged from 3 months to 61 years ($M = 9.61$ years, $SD = 9.85$). Participant ages ranged from 20 to 83, ($M = 32.38$, $SD = 10.57$; male $M = 33.27$, male $SD = 10.75$; female $M = 31.49$, female $SD = 13.20$). The number of children that these couples had ranged from 0 to 8 ($M = 1.50$, $SD = 1.70$). All couples indicated that they were sexually active with their partners. In our study, 31 of the couples (22%) had at least one partner that was clinically dissatisfied ($M = 65.49$, $SD = 13.48$, Range = 20–81, CSI satisfaction cutoff = 51.5).

Our sample was mostly Caucasian ($n = 256$; 90.3%). The majority of participants (81%) had achieved at least an Associate's degree or higher. The annual incomes of participants were almost evenly distributed (15–22% in each \$15,000 income bracket starting at \$20,000 and ending at \$100,000). The resulting couples ($n = 142$) were a portion of the total 513 individuals who completed the survey. One couple indicated never having had sex, and another indicated being currently separated, both were excluded in the final analysis. No additional exclusion criteria were used in the study. GPS locations gathered by the survey website, www.Qualtrics.com, indicated representation from most of the United States.

Procedures

Using an online survey program (www.Qualtrics.com), couple participants were asked to fill out a 30-minute survey. Each partner was given information about the study and was told to read a letter of information before beginning the survey. The directions of the survey indicated that each partner should take the survey separately and independently from his or her spouse. Because names were omitted to ensure participant anonymity, partner responses were paired through a unique couple code that consisted of the first letter of the first names of both partners, the numeric birth month of both partners, and the numeric birthday of both partners (e.g., RR06240330, for partners named Ruth and Ryan who were born on June 24 and March 30, respectively). Once both partners completed the survey, the participants could choose to be entered into a drawing for a \$50 gift card.

Measures

Six assessments were used in our final analysis. The various assessments measured sexual communication content and processes, general communication processes, relationship and sexual satisfaction, as well as sexual and orgasm frequency. Demographic information from the participants was also used in our final analysis. Tables 1 and 2 provide the averages, reliability, correlations, and scoring range for each of the variables.

Sexual self-disclosure. We used a portion (30 questions) of The *Revised Sexual Self-Disclosure Scale* (SSDS-R) consisting of 9 three-item subscales, which measure the extent to which individuals have discussed various sexual topics with their partner using a 5-point Likert scale. The nine subscales (along with example questions) in our 30-item version included: Sexual behaviors (e.g., “The sexual behaviors that I consider appropriate”), sexual sensations (e.g., “The types of sexual foreplay that feel arousing to me”), sexual fantasies (e.g., “The sexual episodes that I day-dream about”), sexual preferences (e.g., “The sexual preferences that I have”), the meaning of sex (e.g., “What sex in an intimate relationship means to me”), sexual accountability (e.g., “The sexual behaviors that I consider appropriate”), distressing sex (e.g., “Times when sex was distressing for me”), sexual dishonesty (e.g., “The times I have pretended to enjoy sex”), and sexual delay preferences (e.g., “The times when I might not want to have sex”) (Snell et al., 1989). Scores were calculated by summing each of the responses to the 30 items. The SSDS-R produced very reliable results within this sample (male $\alpha = 0.97$, female $\alpha = 0.95$). Male and female responses were moderately correlated ($r = .42, p < .01$).

Communication patterns. We found it very important to include sexual communication processes in our models because the content measurement provides only a one-sided view of relational functioning. We used the “overall positive interaction” subscale from the *Communication Patterns*

Table 1
Psychometric Properties of Predictor Variables and Covariates (n = 284 individuals)

Variable	Gender	M	SD	α	Male-female r	Range	
						Potential	Actual
Relationship satisfaction	M	64.79	13.77	0.97	.57**	0–81	23–81
	F	66.17	13.20	0.96			20–81
Sexual satisfaction	M	44.42	7.73	0.88	.49*	12–60	28–60
	F	45.07	9.20	0.93			17–60
General communication process	M	20.40	4.39	0.78	.48**	0–27	7–27
	F	20.76	4.43	0.79			4–27
Sexual communication process	M	19.55	4.71	0.82	.47**	0–27	8–27
	F	20.49	4.88	0.90			3–27
Sexual communication content	M	81.11	29.53	0.97	.42***	0–120	7–120
	F	86.34	24.97	0.95			8–120
Average sexual intercourse frequency	M	5.57	1.19	N/A	.78**	1–8	2–8
	F	5.83	1.16	N/A			2–8
Average frequency of orgasm in sex	M	4.80 (80–100%)	.63	N/A	-.02	1–5	1–5
	F	3.86 (60–80%)	1.44	N/A			1–5

* $p \leq .05$, ** $p \leq .01$, *** $p \leq .001$.

Questionnaire- Short Form (CPQ-SF), which consisted of a 3-item self-assessment that measures the likelihood of positive interactions when problems arise (e.g., “What is the likelihood that both spouses express feelings to each other?”) how one partner perceives their relational interactions using a 9-point Likert scale (Christensen, 1988; Futris, Campbell, Nielsen, & Burwell, 2010).

In this study, we also distributed a modified version of the questionnaire in order to assess for communication patterns surrounding sexual topics. The responses were worded the same, however the questions read, “When sexual issues or problems arise, how likely is it that. . .” Regressions indicated that couples had different communication patterns toward sex than they do in other relational areas. This modified version will be referred to as the Sexual Communication Patterns Questionnaire—Short Form (SCPQ-SF) throughout the article. We scored the CPQ-SF and SCPQ-SF by creating the sum of the positive process subscale items using the method developed by Futris et al. (2010), which is better suited for research purposes. For this study, reliability of the CPQ-SF positive subscale was good (male $\alpha = 0.78$, female $\alpha = 0.79$; male and female correlation $r = .48$, $p < .01$). For the SCPQ-SF, the reliability was very good (male $\alpha = 0.82$, female $\alpha = 0.90$; male and female correlation $r = .47$, $p < .01$).

Sexual satisfaction. The *New Sexual Satisfaction Scale-Short (NSSS-S)* is a 12-item survey that uses 5-point Likert-type responses to measure satisfaction in the following five dimensions (along with example items): (a) sexual sensations (e.g., “The quality of my orgasms”), (b) sexual presence/awareness (e.g., “My “letting go” and surrender to sexual pleasure during sex”), (c) sexual exchange (e.g., “The balance between what I give and receive in sex”), (d) emotional connection/closeness (e.g., “My partner’s emotional opening up during sex”), and (e) sexual activity (e.g., “The frequency of my sexual activity”) (Štulhofer, Buško, & Brouillard, 2011). Scores were obtained by creating a sum total of each of the items. In a recent psychometric comparison of the most commonly used sexual satisfaction scales, the NSSS-S received the strongest psychometric support as a bi-dimensional measure of sexual satisfaction and showed strong internal consistency, convergent validity, and test–retest reliability (Mark, Herbenick, Fortenberry, Sanders, & Reece, 2014). Internal consistency was also strong in the present study (male $\alpha = 0.88$, female $\alpha = 0.93$). Male and female sexual satisfaction was correlated at $r = .49$ ($p < .05$).

Relationship satisfaction. We used a 16-item version of the *Couple Satisfaction Inventory (CSI)* to measure individual’s satisfaction with a relationship using a 6-point Likert scale (Funk & Rogge, 2007). Question types include responses to statements (e.g., “In general, how satisfied are you with your relationship?”) and rating their satisfaction between two dichotomous options (e.g., I feel my relationship is “hopeful/discouraging”). Scores were made by creating a sum total of each of the items. CSI scores show strong convergent validity with other measures of relationship satisfaction and have shown higher precision in predicting relationship satisfaction than the typically used Marital Adjustment Test and the Dyadic Adjustment Scale (Cronbach’s $\alpha = 0.940$) (Funk & Rogge, 2007). The CSI showed good reliability (male $\alpha = 0.97$, female $\alpha = 0.96$) in this study. Relationship satisfaction was highly correlated between men and women ($r = .57$, $p < .01$).

Sexual intercourse frequency. Each participant estimated the sexual intercourse frequency using one item. The item read, “In the past year, what has been your average sexual intercourse frequency?” Responses were categorical in nature, choosing between seven different frequencies increasing in frequency (“less than once or twice a year”(Coded as 1), “less than once a month” (2), “once a month”(3), “two times a month”(4), “1-2 times a week”(5), “3–5 times a week”(6), “almost daily” (7)). The question was left purposely vague (rather than referring to specific sexual behaviors (i.e., coitus, anal, or oral sex), allowing each participant to determine what they considered to be “sex.” The average response was 5.75 for men ($n = 142$) and 5.82 for women ($n = 142$), which indicates that the average couple in the sample was having sex closer to 3–5 times a week.

Orgasm frequency. Participants also provided an estimate of how often they reached orgasm in their sexual encounters using one item. The question read “In what percent of your sexual encounters do you reach orgasm?” The possible responses included various ranges of twenty percent on a Likert scale from 1(0–20%) to 5 (80–100%). For men, the average orgasm frequency was reported at 4.8, which indicates the average male in the sample reached orgasm in 80–100% of sexual encounters ($n = 142$, $SD = 0.64$). For women, the average orgasm frequency was reported at 3.86, which would indicate that on average the females in the sample reached orgasm in 60–80% of sexual encounters ($n = 142$, $SD = 1.45$).

Table 2
Variable Correlations

	1	2	3	4	5	6	7	8	9
Sexual communication process (1)	0.47**	0.46**	0.60**	0.52**	0.37**	0.23**	0.12	0.03	-0.01
Sexual communication content (2)	0.46**	0.42**	0.39**	0.52**	0.50**	0.27**	0.01	-0.00	0.02
General communication process (3)	0.60**	0.39**	0.48**	0.52**	0.51**	0.20*	-0.03	0.01	-0.07
Sexual satisfaction (4)	0.52**	0.52**	0.52**	0.49*	0.63**	0.32**	0.21*	-0.03	-0.13
Relationship satisfaction (5)	0.37**	0.50**	0.51**	0.63**	0.57**	0.33**	0.06	-0.10	-0.07
Sexual intercourse frequency (6)	0.23**	0.27**	0.20*	0.32**	0.33**	0.78**	0.15	-0.25**	-0.25**
Orgasm frequency (7)	0.12	0.01	-0.03	0.21*	0.06	0.15	-0.02	-0.02	0.00
Age (8)	0.03	-0.00	0.01	-0.03	-0.10	-0.25**	-0.02	0.96**	0.86**
Relationship duration (9)	-0.01	0.02	-0.07	-0.13	-0.07	-0.25**	0.00	0.86**	0.97**

Note. Upper-right cells—correlations between variables for women.
Lower-left cells—correlations between variables for men.
Trace—correlations between men and women.
* $p \leq .05$, ** $p \leq .01$, *** $p \leq .001$.

Relationship duration. Relationship duration was used as a control variable in both models. We used the arithmetic mean of both partners' responses to how long they had been in a relationship together. Responses were averaged to avoid any multicollinearity in the models, as they were highly correlated ($r = .97, p < .001$).

Data Analytic Strategy

Dyadic data analysis was the overarching framework used in our quantitative analyses. Dyadic data analysis is a statistical technique that provides a very useful paradigm for better understanding the nature and functioning of relationships (Kenny, Kashy, & Cook, 2006). As couple dyads are inherently related to one another, we used the actor-partner interdependence model (APIM), which incorporates the potential influence of couples by examining both partner and actor effects while examining generalized patterns across all couples (Kenny et al., 2006).

Prior to using gender as a distinguishing variable within the APIM, it is important to first determine that the female and male responses were empirically distinguishable in order to justify the additional complexity introduced when distinguishing by gender. We planned to test for distinguishability by using the omnibus test of distinguishability as described by Ackerman, Donnellan, and Kashy (2014). Within an SEM/path analytic framework, the omnibus test of distinguishability consists of two primary steps. We planned to run a specified model where all means, variances, and covariance were constrained to be equal for men and women. We then planned to run the model again, this time freely estimating the means for men and women.

Path modeling lends itself easily to systems thinkers, as it examines the relationships and paths of influence between multiple interrelated and interdependent constructs (Olsen & Kenny, 2006). Merging these two statistical approaches gave us the unique opportunity to look at the role of sexual communication in relationships, while controlling for male and female differences (Ackerman et al., 2014).

There are several advantages in using path analysis over regression analyses. First, path analysis examines multiple paths, while taking into account the disturbance, or combined error terms created when looking at multiple variables at once. In using a path analysis, one can also account for how closely the hypothesized model fits the presented data (Olsen & Kenny, 2006). For our analyses, we used previously established guidelines for acceptable fit, including an RMSEA less than 0.08, a Comparative Fit Index over 0.90, a Tucker Lewis Index that exceeds 0.90, and an SRMR below 0.08 (Hooper, Coughlan, & Mullen, 2008).

Two models were planned in this study, one measuring satisfaction outcomes and the other measuring frequency outcomes that contribute to sexual satisfaction. Each model had various control variables included in the model. The *satisfaction model* controlled for general communication processes (CPQ-SF) and relationship duration. The *frequency model* controlled only for relationship duration. Any variables that did not contribute to parsimony or do not address our research questions were to be removed through the analysis process (Byrne, 2013).

Missing data were a relatively minor problem as there was less than 3% missing data for sexual communication process, general communication process, relationship satisfaction, and sexual satisfaction variables, and 7% for the sexual communication content variable, which is within previously established limits for avoiding biased analyses (Acock, 2005). Using a "Maximum Likelihood" estimator and bias-corrected bootstrapping methods further strengthened the confidence of our analysis (Finney & DiStefano, 2006).

Our models also examined multiple mediated relationships between sexual communication and relational and sexual outcomes. However, mediation was only indicated by the model beta values and did not include other recommended steps in the process of testing for mediation (Preacher & Hayes, 2008). As mediation was not the focus of this study, we outlined the mediated relationships for future study.

While the calculations in a path analysis are like those in a multiple regression, path analysis allows us to postulate other hypotheses about the relations among variables and see whether they have a significant association between variables and partners (Olsen & Kenny, 2006). In this study, we opted to use path analysis rather than SEM, which uses latent variables to account for potential measurement error. Path analysis is similar to multiple regression but is especially useful as it allows researchers to analyze two or more dependent variables. We decided that a path analytic

framework was sufficient for answering our research question. In addition, our variables did not have the advisable number of indicators (i.e., typically three or more) to create latent variables (Byrne, 2013).

RESULTS

Preliminary Analyses

Prior to examining our research questions, we conducted two preliminary analyses. We first calculated bivariate correlations for men and women and between men and women in order to confirm that all of the variable relationships were in the expected directions. Then, we conducted the omnibus test of distinguishability as described in our analysis plan. Because the fully constrained model had a significant chi-square (Satisfaction model $\chi^2(12) = 28.17, p < .01$; frequency model $\chi^2(6) = 298.02, p < .01$), we then proceeded to run the second model. The chi-square result for this model was again significant (Satisfaction $\chi^2(12) = 19.18, p < .01$; frequency $\chi^2(6) = 169.13, p < .01$). Overall, the results from these two models highlighted the differences between men and women on these variables and provided justification for conducting APIM with distinguishable dyads.

While it is often recommended to remove nonsignificant pathways to work toward parsimony (Byrne, 2013), all variables in our models were useful in addressing our research questions and no variables were removed. Choosing to keep the variables allowed us to examine the model holistically, controlling for as many potential factors as possible.

Primary Analyses

Proposed model with satisfaction outcomes. Figure 1 depicts our path model for the relationship and sexual satisfaction outcomes. Sexual communication content and process were the two-first-order manifest variables used to predict two outcome variables (sexual and

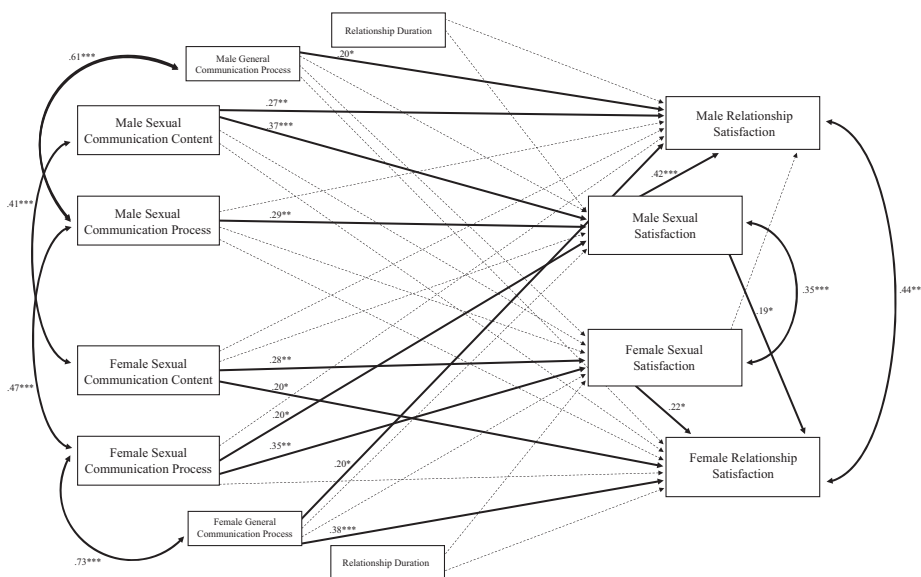


Figure 1. Satisfaction outcomes path analysis model. Significant actor and partner effects between sexual communication content and process, general communication process, and sexual and relationship satisfaction. The relationship duration variable was created by averaging the male and female responses, while the variable is shown twice in the model, it is only separated to provide visual simplicity. $\chi^2(10) = 14.68, p = 0.14$; CFI = 0.99; TLI = 0.96; RMSEA = 0.06 (90% CI [0, 0.12]; SRMR = 0.04.

Note. The figure shows standardized coefficients. Solid lines indicate significant beta values at the $p < 0.05$ value. Dotted lines indicate nonsignificant beta values. * $p > .05$; ** $p > .01$; *** $p > .001$.

relationship satisfaction). Within this model, we examined both actor and partner effects for males and females. Our model also included two important control variables. We used general communication as a control variable to distinguish sexual communication from general communication. Because we lack knowledge on whether sexual communication varies over time, we also used relationship duration as a control for relationship and sexual satisfaction.

In our satisfaction model, our exogenous variables included sexual and general communication processes, sexual communication content, and average relationship duration. Our endogenous variables included sexual satisfaction and relationship satisfaction. Overall, fit statistics provided evidence of a good fitting model., $\chi^2(10) = 14.68, p = .14$; CFI = 0.99; TLI = 0.96; RMSEA = 0.06 (90% CI [0, 0.12]; SRMR = 0.04 (Hooper et al., 2008). Table 3 contains all of the significant and insignificant relationships in the satisfaction model. The significant direct effects of the satisfaction model are discussed below.

Sexual communication content. Our findings (see also Figure 1) indicated that the extent to which couples communicated about sex (i.e., sexual communication content) had significant actor effects on relationship satisfaction for both males and females (male standardized coefficient $\beta = 0.27, p < .01$; female standardized coefficient $\beta = 0.20, p < .05$; from here on, we will refer to the standardized coefficients as β). These standardized coefficients indicate that a one standard deviation increase in sexual communication content yields an increase of 0.27 and 0.20 standard deviation increase in relationship satisfaction scores, for males and females respectively. Greater amounts sexual communication content also had significant actor effects with higher levels of sexual satisfaction for both men and women. (male $\beta = 0.37, p < .001$; female $\beta = 0.28, p < .01$). Finally, the actor effect between sexual communication content and relationship satisfaction was partially mediated by sexual satisfaction levels for men but not for women (male indirect effect $\beta = 0.15, p < .02$; female indirect effect $\beta = 0.06, p > .05$; Preacher & Hayes, 2008).

Sexual communication process. There were significant actor effects between sexual communication processes and sexual satisfaction for both men and women (male $\beta = 0.29, p < .001$; female $\beta = 0.35, p < .001$). Interestingly, there were no significant actor effects between sexual communication process and relationship satisfaction. There were, however, significant actor effects between positive communication processes about sex and greater sexual satisfaction. Also, there was a partner effect between women's positive sexual communication processes and their male partners sexual satisfaction ($\beta = 0.20, p < .05$).

General communication process. For both males and females, the actor effects of general communication processes were significantly associated with relationship satisfaction (male $\beta = 0.20, p < .05$; female $\beta = 0.38, p < .001$). Another partner effect indicated that increased positive general communication processes in females predicted greater relationship satisfaction in males. ($\beta = 0.20, p < .05$).

Other findings. Relationship duration did not have any significant effects on the designated outcome variables for either men or women. As expected, there was a significant actor effect for both men and women where those reporting higher sexual satisfaction were also more satisfied in their overall relationship (male $\beta = 0.42, p < .001$; female $\beta = 0.22, p < .01$). Male sexual satisfaction had a significant partner effect on female relationship satisfaction ($\beta = 0.19, p < .05$).

Proposed model with sexual and orgasm frequency. Figure two depicts our path model that examined the relationship between sexual communication (content and process) and sexual satisfaction when including sexual and orgasm frequency in the model. As with the first model, we examined both actor and partner effects for both males and females. Because it is likely that sexual frequency and orgasm frequency will vary over time, we also included relationship duration as a covariate in our model. As male and female responses were highly correlated ($r = .78$), the model was run by with sexual frequency variables both separate and averaged across partners, in order to avoid any multicollinearity. As there were no significant differences between the two models, we decided to keep the model with both the male and female reports of sexual frequency as previous literature showed that males and females may report sexual frequency differently (Peplau, 2003). Our sexual and orgasm frequency model provided evidence of acceptable model fit according to some previously set thresholds ($\chi^2(9) = 16.60, p = .06$; CFI = 0.98; TLI = 0.90; RMSEA = 0.08 (90% CI [0, 0.14]; SRMR = 0.05; Hooper et al., 2008). As the RMSEA level of the model may be

Table 3
Satisfaction Model Results

Effect	Predictor	Male standardized coefficient	Male SE	Male <i>p</i> Value	Female standardized coefficient	Female SE	Female <i>p</i> Value
Actor effects							
Relationship satisfaction	Sexual communication content	0.27	0.04	<.001	0.20	0.05	<.05
	Sexual communication process	-0.12	0.28	.21	0.12	0.37	.39
	General communication process	0.20	0.28	<.05	0.38	0.30	<.001
	Sexual satisfaction	0.41	0.18	<.001	0.22	0.13	<.05
Sexual satisfaction	Sexual communication content	0.37	0.02	<.001	0.28	0.03	.80
	Sexual communication process	0.29	0.14	<.001	0.35	0.19	.90
	General communication process	-0.01	0.05	.16	0.05	0.07	.20
Partner effects ^a							
Relationship satisfaction	Sexual communication content	-0.04	0.04	.66	-0.05	0.06	.60
	Sexual communication process	-0.16	0.25	.08	-0.01	0.31	.99
	General communication process	-0.01	0.25	.97	0.20	0.30	<.05
	Sexual satisfaction	0.19	0.16	<.05	-0.02	0.13	.81
Sexual satisfaction	Sexual communication content	-0.01	0.03	.90	-0.08	0.03	.30
	Sexual communication Process	-0.11	0.17	.20	0.20	0.14	<.05
	General communication process	-0.09	0.07	.80	0.02	0.05	.16
Control variables							
Relationship satisfaction	Relationship duration	-0.01	0.08	.89	0.05	0.09	.45
Sexual satisfaction	Relationship duration	-0.10	0.05	.16	0.02	0.07	.79

Note. ^aBeta coefficients indicate the male or female predictor variables that predict the opposite partner's outcome variables; e.g., female standardized coefficient for sexual communication content indicates the effect of the female's report of sexual communication content on the male's relationship satisfaction.

Table 4
Frequency Model Results

Effect	Predictor	Male standardized coefficient	Male SE	Male <i>p</i> value	Female standardized coefficient	Female SE	Female <i>p</i> value
Actor effects							
Sexual satisfaction	Sexual communication content	0.40	0.02	<.001	0.21	0.02	<.001
	Sexual communication process	0.25	0.13	<.01	0.30	0.14	<.001
	Sexual frequency	0.01	0.75	.95	0.25	0.85	<.05
Sexual frequency	Orgasm frequency	0.20	0.80	<.01	0.38	0.37	<.001
	Sexual communication content	0.26	0.01	<.05	0.01	0.01	.85
	Sexual communication process	0.10	0.03	.41	0.18	0.03	.13
Orgasm frequency	Sexual communication content	-0.03	0.01	.72	0.23	0.01	<.05
	Sexual communication process	0.17	0.02	.11	0.08	0.04	.50
Partner effects ^a							
Sexual satisfaction	Sexual communication content	-0.01	0.02	.99	-0.13	0.02	.09
	Sexual communication process	0.06	0.12	.39	0.18	0.13	<.05
	Sexual frequency	-0.08	0.79	.42	0.05	0.72	.62
Sexual frequency	Orgasm frequency	0.30	1.14	<.001	0.24	0.36	<.001
	Sexual communication content	0.17	0.01	.14	-0.08	0.01	.48
	Sexual communication process	0.02	0.03	.83	-0.09	0.03	.45
Orgasm frequency	Sexual communication content	-0.08	0.01	.42	-0.03	0.01	.80
	Sexual communication process	0.03	0.03	.79	-0.08	0.02	.51
Control variables							
Sexual satisfaction	Relationship duration	-0.10	0.05	.11	0.03	0.05	.55
Sexual frequency	Relationship duration	-0.25	0.01	<.01	-0.24	0.01	<.01
Orgasm frequency	Relationship duration	-0.01	0.01	.93	0.08	0.01	.37

Note. ^aBeta coefficients indicate the male or female predictor variables that predict the opposite partner's outcome variables; e.g., female standardized coefficient for sexual communication content indicates the effect of the female's report of sexual communication content on the male's sexual satisfaction.

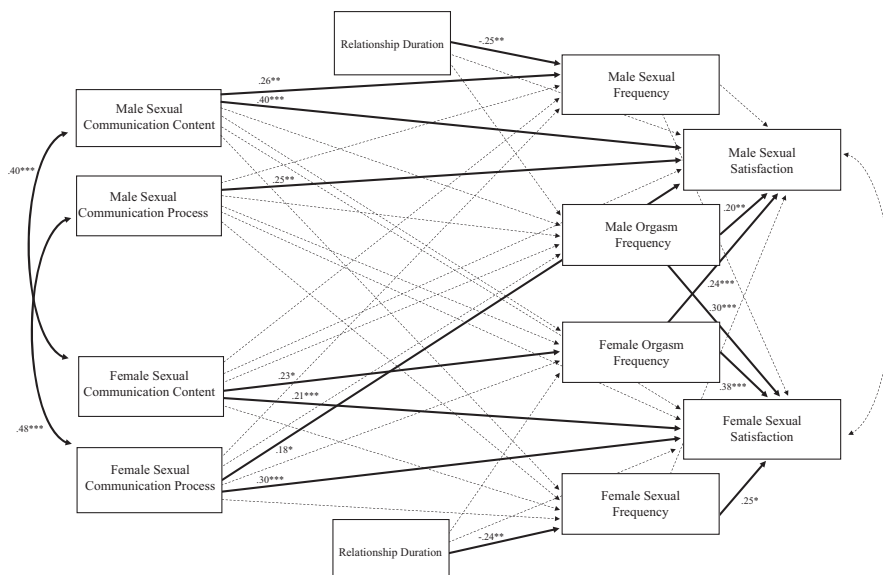


Figure 2. Sexual and orgasm frequency path analysis model. Significant actor and partner effects between sexual communication content and process, sexual and orgasm frequency, and sexual satisfaction. $\chi^2(9) = 16.60, p = 0.06$; CFI = 0.98; TLI = 0.90; RMSEA = 0.08 (90% CI [0, 0.14]; SRMR = 0.05.

Note. The figure shows standardized coefficients. Solid lines indicate significant beta values at the $p < .05$ value. Dotted lines indicate nonsignificant beta values. * $p > .05$; ** $p > .01$; *** $p > .001$.

above certain standards for good fit, it is important to remember that the RMSEA rewards parsimony and the model tested is very complex (Hooper et al., 2008). Table 4 contains all of the significant and insignificant relationships in the frequency model. The significant direct effects of the frequency model are discussed below.

Sexual communication content. Our findings (see Figure 2) indicate that, more sexual communication content discussed had a significant actor effect on higher levels of sexual frequency and satisfaction for men ($\beta = 0.26, p < .05$; $\beta = 0.40, p < .05$, respectively). For women, there was a significant actor effect between sexual communication content and frequency of orgasm ($\beta = 0.23, p < .05$); meaning that women who communicated about sex more were more likely to reach orgasm more often. As expected, no actor effect was found between sexual communication content and orgasm frequency for men. For both genders, actor effects between orgasm frequency and sexual satisfaction were found (male $\beta = 0.20, p < .01$; female $\beta = 0.38, p < .001$).

Other findings. For both men and women, relationship duration had a negative actor effect on sexual frequency (male $\beta = -0.25, p < .01$; female $\beta = -0.24, p < .01$), indicating that couples that are together longer have sex less frequently. Although frequency of sex was not associated with sexual satisfaction for men, there was an actor effect found for women that those who reported higher sexual frequency also reported higher sexual satisfaction (female $\beta = 0.25, p < .05$). As with the satisfaction model, actor effects for both sexual communication content and process were significantly associated with sexual satisfaction (Content: male $\beta = 0.40, p < .001$; female $\beta = 0.21, p < .001$. Process: male $\beta = 0.25, p < .01$; female $\beta = 0.30, p < .001$). Also similar to the satisfaction model, a partner effect was found where female sexual communication processes were significantly associated with male sexual satisfaction ($\beta = 0.18, p < .05$). Partner effects revealed that orgasm frequency was also significantly associated with both men and women's partners' sexual satisfaction (male $\beta = 0.30, p < .001$; female $\beta = 0.24, p < .001$), meaning that an important component in one's sexual satisfaction is not only the frequency of one's own orgasm, but also the frequency of orgasm for their partner.

DISCUSSION

Overall, the direct effects of our models provided important findings related to how sexual communication was related to sexual and relationship satisfaction as well as sexual and orgasm frequency. Sexual communication content was significantly associated with both relationship and sexual satisfaction while controlling for relationship duration. This confirms and expands upon previous studies that have observed this relationship (e.g., MacNeil & Byers, 2005; Mark & Jozkowski, 2013; Montesi et al., 2011), but provides evidence that these changes do not differ based on relationship length. While sexual communication content predicted relationship satisfaction, sexual communication process did not. As suggested by previous studies, the broader range of sexual topics discussed may be more indicative of more positive relational processes (Hess & Coffelt, 2012), while the processes surrounding sexual communication may be more directly related to attitudes about sex. In the frequency model, sexual communication content was significantly associated with sexual frequency for men. Also, women who communicated about sex more reached orgasm more often. Lastly, it is important to note that there were significant actor and partner effects between male's and female's frequency of orgasm and sexual satisfaction levels.

The significant partner effects provide further empirical backing for some common perceptions about sex in couple relationships and address our third research question about gender differences in the role sexual communication plays in relationships. Similar to previous findings (i.e., Litzinger & Gordon, 2005; MacNeil & Byers, 2005), we found that women who felt that they positively contributed to the couples' sexual and general communication were more likely to have sexually and relationally satisfied husbands, and to be satisfied themselves. Our partner effects additionally revealed that as men were sexually satisfied, their female partners tended to be relationally satisfied. From these partner effects, we argue that in order to maintain dyadic, relational and sexual satisfaction, it is important for men to be attuned to their partners' communication needs, and for women to be attentive to their partners' sexual expectations. This finding adds strength to previous gender differences in the influential pathways of sexual communication and relational outcomes (MacNeil & Byers, 2005).

Actor effects also revealed that more sexual communication content had a significant relationship with orgasm frequency in women, a relationship that has been tested in women with anorgasmia, but not the general public (Kelly et al., 2004). While couples may commonly employ new sexual accessories or acts to improve their sexual relationship, we can infer from our findings that the very discussion of novelty (e.g., sex toys, new positions, role plays), might possibly be the vehicle of increasing sexual functioning and satisfaction in couples. This assumption contrasts many interpretations of sexual interventions which tend to downplay the importance of sexual communication (Yoo et al., 2014). This finding provides the basis for further studying how the cooperation and negotiation required in sexual communication may help couples change routines, reduce dysfunction, and enhance their relational and sexual satisfaction (Herbenick et al., 2010; Muin et al., 2015).

Only a few researchers have suggested that general problem-solving communication processes may be distinct from the processes of disclosing beliefs, preferences, and experiences of sex (Byers & MacNeil, 1997; Mark & Jozkowski, 2013; Rehman et al., 2011a). However, neither of these previous studies compared both of these variables in the same model. Our path analysis provides strong evidence for considering these two types of communication as separate and distinct, with distinct effects. In both men and women, general communication processes had significant actor effects on each partner's relationship satisfaction. Likewise, positive sexual communication processes had significant actor effects on each partner's sexual satisfaction. However, it is important to note that general communication processes did not directly affect sexual satisfaction, nor did sexual communication processes predict relationship satisfaction.

This result leads us to assume there may be qualitative differences between sexual and general communication, which has significant implications for clinicians. Clinicians, educators, and researchers have long assumed that if couples communicate positively in nonsexual areas, that those skills will automatically translate into competent sexual communication (Byers & MacNeil,

1997). However, this finding assumes that there might be couples who excel at communicating generally, but do not communicate positively when it comes to sexual matters. This distinction between the two has numerous impacts on the training and practice of mental health practitioners.

Clinical Implications

Our findings suggest an important paradigm shift in the way clinicians view sexual problems. It has been assumed by clinicians and educators that meliorating general communication will naturally improve communication in every other relational area. This idea permeates educational, clinical, and religious settings (e.g., Hawkins, Blanchard, Baldwin, & Fawcett, 2008; Litzinger & Gordon, 2005). As sexual issues often accompany relational problems, our finding indicates that failing to directly address sexual issues may leave these issues largely untreated, an idea that has been suggested, but never tested until now (Byers & MacNeil, 1997). The actor effects from our model suggest that general communication and sexual communication are separate skills that couples should develop, and clinicians should treat them as such. Furthermore, the satisfaction model revealed that male reports of discussion of sexual topics are more associated with male relationships satisfaction than general communication process, which speaks to the importance of the sexual relationship in couples and may be more influential than having positive conflict resolution processes.

Many clinicians may be ill prepared or unwilling to address these sexual problems in therapy. One study found that while 90% of health and mental health professionals felt that it was important to address sexual issues in treatment, 86% were found to be poorly trained and 94% were unlikely to discuss sexual issues with their patients (Haboubi & Lincoln, 2003). Another study showed that licensed MFT's commonly felt uncomfortable or incompetent in addressing their clients' sexual issues, and as a result, many sexual issues may go undiagnosed and untreated (Harris & Hays, 2008). Additionally, couples may often be unlikely to address sexual issues unless directly asked by the therapist. This avoidance by both clinician and client may be ignoring the distinct need to address sexual issues and develop sexual communication skills. As a result, clinicians may be unintentionally harming those whom they are trying to help.

Our finding that actor effects of general and sexual communication processes may have distinct relational effects highlights that there is a critical need to improve the training and practice of therapists to include sexual problem assessments, especially the assessment of couples' sexual communication. Because our significant actor effects imply that helping clients increase the extent to which they discuss their sexual relationship may improve sexual outcomes, we ask MFT instructors to direct efforts into helping clinicians address their own discomfort or hesitancy in discussing sex.

We agree with Byers and MacNeil (1997) in suggesting that clinicians integrate sexual and general communication skills into their relational work. Our actor effects reveal that integrating sexual communication into relational education may have an impact in improving both relational and sexual satisfaction, rather than relationship satisfaction alone. For example, one commonly used sex therapy intervention is "Sensate Focus," developed by Virginia Johnson (Masters & Johnson, 1970), which focuses on helping couples connect through touch. Contrary to other interpretations of "Sensate Focus" (i.e., Yoo et al., 2014), we suggest it may be beneficial for clinicians to integrate a communication component before or after this exercise. This shift in paradigm may change how these, and other sex therapy interventions, are administered in the future.

Limitations and Future Directions in Research

The sample of our study lacked the diversity needed to be generalizable to all couples. In our study, we recruited monogamous married or cohabiting, heterosexual relationships. We lack understanding on how these relationships might change in terms for heterosexual dating relationships, LGBT married or cohabiting relationships, or other relationship paradigms (i.e., open sexual relationships). Also, as nearly 90% of our sample was Caucasian, more research on diverse populations is needed. Future longitudinal studies can better assess how sexual communication changes over time and determine the directionality of these relationships.

Also, our measures of sexual and orgasm frequency may be in question, because we asked participants to report their own frequencies, rather than more objective measures (e.g., tracking the

frequencies). Our question measuring orgasm frequency was left open ended to the participant's interpretation, which may potentially be misleading as someone might experience more than one orgasm during a sexual encounter. Future researchers may use more objective measures of orgasm frequency. We also failed to ask about any sexual medication use, which may impact sexual and orgasm frequency. Also, those who participate in surveys about sex are likely to have attitudes and beliefs that might differ than individuals who did not participate, which may potentially influence our findings.

Another limitation of our study is that we used a path analysis rather than a full structural model. Not creating latent variables may fail to account for potential measurement error. Using a path model better suited our research questions, allowing us to see the differences between sexual communication processes and general communication processes while also comparing sexual communication content and process.

We acknowledge that having two different models possibly increased the potential for experiment-wise error. We separated our analysis into two models for two reasons. We wanted to ensure conceptual parsimony, allowing readers to examine the effects of sexual communication on satisfaction and frequency outcomes separately. Also, while we feel good about the strength of our sample size, combining models would increase the complexity enough to potentially decrease power. We hope future research will examine these variables together.

Our study provides only a cross-sectional look at how sexual communication impacts relationships. We know very little about improving sexual communication as an intervention. While they may be related, they may not be causally linked. Future researchers may better examine many of our therapeutic interventions and use longitudinal analyses to examine if including sexual communication elements increases sexual and orgasm frequency and improves satisfaction outcomes. Clinical research on sexual communication interventions may also play a pivotal role in future sex and couples therapy training. Lastly, more studies should be done in order to better understand the qualitative differences between general and sexual communication in order to better explain the different outcomes.

CONCLUSION

Through our findings, we propose that by integrating sexual communication components into sex and marital therapy, clinicians can impact a number of relational and sexual areas. This integration would potentially help couples have better sexual functioning, enjoy their sexual encounters, and promote relational bonding. Addressing sexual topics on a regular basis may help each partner to feel more comfortable to explore and enjoy his or her sexuality to the fullest. To have a complete picture of relational processes, it may be important for clinicians to know how things are discussed in the bedroom. Failing to do so may leave sexual problems unaddressed. The goal of promoting these sexual communication conversations is not to aggrandize the role that sexual communication plays in relationships, rather it is to normalize the common difficulty couples have in negotiating sexuality and to provide couples with tools to navigate these conversations in a manner that promotes connection.

REFERENCES

- Ackerman, R. A., Donnellan, M. B., & Kashy, D. A. (2014). Working with dyadic data in studies of emerging adulthood: Specific recommendations, general advice, and practical tips. In F. Fincham & M. Cui (Eds.), *Romantic relationships in emerging adulthood* (pp. 67–98). Cambridge, United Kingdom: Cambridge University Press.
- Acock, A. C. (2005). Working with missing values. *Family Science Review*, *10*, 76–102.
- Byers, E. S. (2005). Relationship satisfaction and sexual satisfaction: A longitudinal study of individuals in long-term relationships. *Journal of Sex Research*, *42*, 113–118.
- Byers, E. S., & Demmons, S. (1999). Sexual satisfaction and sexual self-disclosure within dating relationships. *Journal of Sex Research*, *36*, 180–189.
- Byers, E. S., & MacNeil, S. (1997). The relationships between sexual problems, communication, and sexual satisfaction. *The Canadian Journal of Human Sexuality*, *6*, 277.
- Byrne, B. M. (2013). Testing the validity of a causal structure. *Structural equation modeling with Mplus: Basic concepts, applications, and programming* (pp. 147–189). New York, NY: Routledge.

- Christensen, A. (1988). Dysfunctional interaction patterns in couples. In P. Noller & M. A. Fitzpatrick (Eds.), *Perspectives on marital interaction* (pp. 31–52). Clevedon, PA: Multilingual Matters.
- Cupach, W. R., & Metts, S. (1991). Sexuality and communication in close relationships. In K. McKinney, S. Sprecher, K. McKinney & S. Sprecher (Eds.), *Sexuality in close relationships* (pp. 93–110). Hillsdale, NJ, US: Lawrence Erlbaum Associates Inc.
- Davis, J. L., & Petretic-Jackson, P. A. (2000). The impact of child sexual abuse on adult Interpersonal functioning: A review and synthesis of the empirical literature. *Aggression and Violent Behavior, 5*, 291–328.
- Finney, S.J., & DiStefano, C. (2006). Non-normal and categorical data in structural equation modeling. *Structural equation modeling: A second course, 10*, 269–314.
- Funk, J. L., & Rogge, R. D. (2007). Testing the ruler with an item response theory: Increasing precision of measurement for relationship satisfaction with the couples satisfaction index. *Journal of Family Psychology, 21*, 572–583.
- Futris, T. G., Campbell, K., Nielsen, R. B., & Burwell, S. R. (2010). The Communication Patterns Questionnaire—Short Form: A review and assessment. *The Family Journal, 18*, 275–287.
- Gagnon, J.H., & Simon, W. (2011). *Sexual conduct: The social sources of human sexuality*. New Brunswick, NJ: Transaction Publishers.
- Haboubi, N. H. J., & Lincoln, N. (2003). Views of health professionals on discussing sexual issues with patients. *Disability and Rehabilitation, 25*, 291–296.
- Haning, R. V., O’Keefe, S. L., Randall, E. J., Kommor, M. J., Baker, E., & Wilson, R. (2007). Intimacy, orgasm likelihood, and conflict predict sexual satisfaction in heterosexual male and female respondents. *Journal of Sex and Marital Therapy, 33*, 93–113.
- Harris, S. M., & Hays, K. W. (2008). Family therapist comfort with and willingness to discuss client sexuality. *Journal of Marital and Family Therapy, 34*, 239–250.
- Hawkins, A. J., Blanchard, V. L., Baldwin, S. A., & Fawcett, E. B. (2008). Does marriage and relationship education work? A meta-analytic study. *Journal of Consulting and Clinical Psychology, 76*, 723–734.
- Herbenick, D., Reece, M., Schick, V., Sanders, S. A., Dodge, B., & Fortenberry, J. D. (2010). An event-level analysis of the sexual characteristics and composition among adults ages 18 to 59: Results from a national probability sample in the United States. *The Journal of Sexual Medicine, 7*, 346–361.
- Hess, J. A., & Coffelt, T. A. (2012). Verbal communication about sex in marriage: Patterns of language use and its connection with relational outcomes. *Journal of Sex Research, 49*, 603–612.
- Hooper, D., Coughlan, J., & Mullen, M. R. (2008). Structural equation modelling: Guidelines for determining model fit. *Electronic Journal of Business Research Methods, 6*, 53–59.
- Kelly, M. P., Strassberg, D. S., & Turner, C. M. (2004). Communication and associated relationship issues in female anorgasmia. *Journal of Sex and Marital Therapy, 30*(4), 263–276.
- Kenny, D. A., Kashy, D. A., & Cook, W. L. (2006). *Dyadic data analysis*. New York, NY: Guilford.
- Kim, J. L., & Ward, L. M. (2007). Silence speaks volumes: Parental sexual communication among Asian American emerging adults. *Journal of Adolescent Research, 22*, 3–31.
- Litzinger, S., & Gordon, K. C. (2005). Exploring relationships among communication, sexual satisfaction, and marital satisfaction. *Journal of Sex and Marital Therapy, 31*, 409–424.
- MacNeil, S., & Byers, S. (2005). Dyadic assessment of sexual self-disclosure and sexual satisfaction in heterosexual dating relationships. *Journal of Social and Personal Relationships, 22*, 169–181.
- MacNeil, S., & Byers, E. S. (2009). Role of sexual self-disclosure in the sexual satisfaction of long-term heterosexual couples. *Journal of Sex Research, 46*, 3–14.
- Mark, K. P., Herbenick, D., Fortenberry, J. D., Sanders, S., & Reece, M. (2014). A psychometric comparison of three scales and a single-item measure to assess sexual satisfaction. *Journal of Sex Research, 51*, 159–169.
- Mark, K. P., & Jozkowski, K. N. (2013). The mediating role of sexual and nonsexual communication between relationship and sexual satisfaction in a sample of college-age heterosexual couples. *Journal of Sex and Marital Therapy, 39*, 410–427.
- Masters, W., & Johnson, V. E. (1970). *Human sexual inadequacy*. New York, NY: Little, Brown and Company.
- McCarthy, B., & Fucito, L. (2005). Integrating medication, realistic expectations, and therapeutic integration in the treatment of male sexual dysfunction. *Journal of Sex and Marital Therapy, 31*, 319–328.
- Metz, M. E., & McCarthy, B. W. (2007). The “Good-Enough Sex” model for couple sexual satisfaction. *Sexual and Relationship Therapy, 22*, 351–362.
- Milburn, K. (1995). A critical review of peer education with young people with special reference to sexual health. *Health Education Research, 10*, 407–420.
- Montesi, J., Conner, B., Gordon, E., Fauber, R., Kim, K., & Heimberg, R. (2013). On the relationship among social anxiety, intimacy, sexual communication, and sexual satisfaction in young couples. *Archives of Sexual Behavior, 42*, 81–91.
- Montesi, J. L., Fauber, R. L., Gordon, E. A., & Heimberg, R. G. (2011). The specific importance of communicating about sex to couples’ sexual and overall relationship satisfaction. *Journal of Social and Personal Relationships, 28*, 591–609.

- Muin, D. A., Wolzt, M., Marculescu, R., Rezaei, S. S., Salama, M., Fuchs, C., et al. (2015). Effect of long-term intranasal oxytocin on sexual dysfunction in premenopausal and postmenopausal women: A randomized trial. *Fertility and Sterility*, *104*, 715–723.
- Olsen, J. A., & Kenny, D. A. (2006). Structural equation modeling with interchangeable dyads. *Psychological Methods*, *11*, 127.
- Pascoal, P. M., Narciso, I. D. S. B., & Pereira, N. M. (2014). What is sexual satisfaction? Thematic analysis of lay people's definitions. *Journal of Sex Research*, *51*(1), 22–30.
- Peplau, L. A. (2003). Human sexuality how do men and women differ? *Current Directions in Psychological Science*, *12*, 37–40.
- Preacher, K. J., & Hayes, A. F. (2008). Asymptotic and resampling strategies for assessing and comparing indirect effects in multiple mediator models. *Behavior Research Methods*, *40*, 879–891.
- Rehman, U. S., Janssen, E., Newhouse, S., Heiman, J., Holtzworth-Munroe, A., Fallis, E., et al. (2011a). Marital satisfaction and communication behaviors during sexual and nonsexual conflict discussions in newlywed couples: A pilot study. *Journal of Sex and Marital Therapy*, *37*, 94–103.
- Rehman, U. S., Rellini, A. H., & Fallis, E. (2011b). The importance of sexual self-disclosure to sexual satisfaction and functioning in committed relationships. *The Journal of Sexual Medicine*, *8*, 3108–3115.
- Snell, W. E., Jr, Belk, S. S., Papini, D. R., & Clark, S. (1989). Development and validation of the Sexual Self-Disclosure Scale. *Annals of Sex Research*, *2*, 307–334.
- Štulhofer, A., Buško, V., & Brouillard, P. (2011). The new sexual satisfaction scale and its short form. In T. D. Fisher, C. M. Davis, W. L. Yarber & S. L. Davis (Eds.), *Handbook of sexuality related measures* (3rd edn). (pp. 530–532). New York, NY: Routledge.
- Theiss, J. A. (2011). Modeling dyadic effects in the associations between relational uncertainty, sexual communication, and sexual satisfaction for husbands and wives. *Communication Research*, *38*, 565–584.
- Weiner, L., & Avery-Clark, C. (2014). Sensate focus: Clarifying the Masters and Johnson's model. *Sexual and Relationship Therapy*, *29*, 307–319.
- Yoo, H., Bartle-Haring, S., Day, R. D., & Gangamma, R. (2014). Couple communication, emotional and sexual intimacy, and relationship satisfaction. *Journal of Sex and Marital Therapy*, *40*, 275–293.

Copyright of Journal of Marital & Family Therapy is the property of Wiley-Blackwell and its content may not be copied or emailed to multiple sites or posted to a listserv without the copyright holder's express written permission. However, users may print, download, or email articles for individual use.