COUPLES

The Role of Sexual Desire, Sexual Satisfaction, and Relationship Satisfaction in the Sexual Function of Arab Couples Living in Saudi Arabia

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ABSTRACT

Introduction: This study is one of the first to examine the association between relationship and sexual variables as approached from a dyadic perspective in Saudi Arabian couples. Theoretical models assign an important role to relationship factors in women's sexuality.

Aim: We examined the role of sexual and relationship satisfaction relative to sexual desire in explaining sexual function in a sample of clinical versus nonclinical couples.

Methods: This is a cross-sectional, observational study in a sample of 50 heterosexual couples with sexual problems and 50 control couples without problems (N = 100 couples; 200 men and women).

Main Outcome Measure: All participants completed an Arabic version of measures of relationship satisfaction, sexual satisfaction, sexual desire, sexual distress, and sexual function.

Results: Results showed that in the clinical group, sexual function of women was predicted by their own and their partner's level of sexual satisfaction, and their own level of solitary and dyadic sexual desire. Men's sexual function was predicted by their own sexual satisfaction and their partner's relationship satisfaction. In the control group, the sexual function of women was predicted only by their level of sexual satisfaction. In men, sexual function was predicted by their own sexual satisfaction and their level of dyadic sexual desire.

Conclusion: These results suggest that sexual desire rather than relationship satisfaction plays an important role in women's sexual dysfunction. Being the most consistent determinant of male and female sexual functioning, sexual satisfaction is an important target of intervention in Arabian couples. **A Attaky, J Schepers, G Kok, et al. The Role of Sexual Desire, Sexual Satisfaction, and Relationship Satisfaction in the Sexual Function of Arab Couples Living in Saudi Arabia. Sex Med 2021;9:100303.**

Key Words: Sexual Function; Sexual Satisfaction; Sexual Desire; Relationship Satisfaction; Couple; Dyadic; Middle East; Saudi Arabia

INTRODUCTION

Sexual dysfunction is a prevalent and disabling health condition worldwide.[1,2] Most research on prevalence, determinants, and outcomes of sexual problems has been conducted in Western countries, leaving largely unexplored how sexual problems are distributed in other parts of the world. Sexual health care and services in Saudi Arabia are limited[3] and we lack clear data on sexual problems in this country, which is probably due to the sexual taboo that is a characteristic of this culture.[4,5] The few studies that have been conducted in this area indicate that sexual

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problems are common in the Middle East.[4,5] Numbers of sexual dysfunction range from 35.4% to 59.1% in women[4,6] and 43.1−45.1% in men.[5,7] Furthermore, most research so far has taken an individual focus and did not target the couple or include relational determinants of sexual dysfunction such as sexual and relationship satisfaction.

A Dyadic Perspective on Sexual Function in Saudi Arabia

The lack of dyadic data refers to an important limitation in sex research. That is, the majority of research on sexual dysfunctions has studied the sexual behavior and experiences of individual respondents, while sexual behavior is largely a social experience and thus needs to be studied as a dyadic interaction.[8,9] This is particularly relevant when studying sexual dysfunctions because these most often occur during sex with a partner rather than during masturbatory sexual behavior.[10,11]

Taking a dyadic perspective on sexual functioning is a specific challenge in the Middle East, especially in Saudi Arabia. Traditional beliefs in Arabian populations are male dominant, which implies that less attention has been paid to studying and treating female sexual problems.[12] It is noteworthy that it is not religion and tradition in itself that might explain (gender differences in) sexual problems, but diversity in sexual socialization that results from traditional and cultural beliefs. The sexual relationship between male and female partners is a sensitive topic due to cultural criticism of premarital and nonmarital sex, which are forbidden, and arranged marriages are the norm.[12−14] In addition, cultural behavioral prescriptions may impede sexual self-realization in women, which makes it difficult to express their sexual wishes and sexual boundaries and refuse unwanted sexual behaviors, thereby promoting sexual dysfunction and dissatisfaction.[15] The sexual needs of the men are most prominent in marriage, implying that men take initiative and are responsible for satisfying the women's needs as part of a healthy marriage. Women's motivations for sex are thus subordinate to men's needs and initiation.

As a result, almost no research has been done on female sexuality or on the relationship dynamics of sexual interactions in Saudi Arabian couples. Although a few studies have been conducted on Arabian populations that advanced our knowledge on the association between sexual function, relationship satisfaction, sexual satisfaction, and sexual desire, the evidence is still limited and not systematic. Most research so far has measured sexual function, relationship satisfaction or sexual satisfaction in separate studies and in specific groups of couples with infertility problems, or women suffering from vaginismus.[3,16]

The Role of Subjective Sexual Experiences

When studying sexual behavior in couples, it is relevant to measure sexual distress and well-being in addition to sexual function.[9] For a long time, the focus of research and therapy has been on functional and dysfunctional sexual responding. Research on subjective sexual experiences has gained attention only during the past decades. Masters and Johnson have proposed a physiologically driven model of sexual responding that follows a linear sequence of arousal, plateau, orgasm, and resolution in both men and women.[17] Kaplan has built on this "functional" model by introducing the concept of sexual desire as precursor of sexual responding, thereby drawing first attention to sexual experiences instead of only sexual function.[18] Further modifications of the traditional sexual response model have been proposed in order to better account for the diversity of male and female sexual responding.

Basson proposed an alternative model to the traditional sexual response cycle to describe the female sexual response.[19] Female sexual responding would depend more heavily on contextual rather than physical factors compared to male sexual responding.[20] According to the circular model, women's motivation and responsiveness towards sexual stimulation is not only initiated by sexual desire but also driven by nonsexual reasons such as intimacy and the need to become closer to the partner.[19] Furthermore, the model considers not only physical gratification and orgasm as the outcome of sexual responding but also nonsexual benefits such as increased intimacy, commitment, satisfaction, and feeling sexually desirable. Although this revised model has become highly influential in describing women's sexuality, it has been criticized as well because it offers a too narrow view on female sexual desire which is characterized by fluidity and diversity.[21] The latter implies that female sexual attraction and sexual desire are not fixed responses but subject to change throughout life.[21] Whereas the sexual desire in some women will be triggered by the need for emotional closeness, there is also evidence showing that women may display sexual desire independently from intimacy and relational needs.[22] In addition, it has been suggested that the circular model would apply mainly to women with sexual problems and women in long-term relationships.[22,23] The idea that the male sexual response reflects a strict linear process that flows directly from sexual desire to excitement and orgasm and acts independently from intimacy requirements may also be controversial, especially in the context of long-term relationships.[24] That is, intimacy requirements are usually implicated when having sex in the context of a relationship, for both women and men.[9]

The Links Between Sexual Problems and Relationship Satisfaction, Sexual Satisfaction, and Sexual Desire

The interrelations between sexual desire, sexual satisfaction, relationship satisfaction, and sexual function are generally well documented, yet mainly in Western populations. We thus lack systematic data in Arabian couples. Furthermore, research on the interrelation between sexual function and relational variables has yielded only inconsistent results.

Regarding the association between relationship satisfaction and sexual problems, a series of studies have shown that both

variables are related, especially in women.[25] In men, the association between relational and sexual variables would be less strong,[25] although there are indications that relational factors do play a significant role in cases of psychogenic erectile dysfunction[2,26] and male sexual desire problems.[27] On the other hand, there are studies showing that the quality of sexual activity and physical intimacy are unrelated to relationship happiness for both men and women. A more recent study on dyadic effects of sexual and relational variables showed that women's and men's sexual function were positively related to their own relationship satisfaction. Furthermore, women's sexual function was positively related to their male partners' relationship satisfaction and men's sexual function was positively related to their female partners' relationship satisfaction.[28]

Studies on the link between sexual satisfaction and sexual function have also revealed inconsistent results, with some studies showing that individuals with low sexual desire and individuals who are sexually inactive can still report high levels of general contentment with their sexual relationship.[29] Other evidence on the link between sexual function and satisfaction has shown that sexual dysfunctions in men and women are associated with lower sexual satisfaction.[30]

The link between sexual function and sexual desire has received most theoretical and empirical support. It has been argued that sexual desire results from and is implicated in sexual arousal responding, which is a central process in sexual function.[31] Accordingly, in both men and women, sexual desire would show a direct link with sexual function. Yet, the alternative model of female sexual responding postulates that sexual desire is less central to women's sexual responding and that emotional intimacy is their primary need to be fulfilled by sex.[19]This would speak against a direct link between sexual desire and sexual function in women. More research is needed to understand the link between sexual desire and sexual function.

The Present Study

The present study is one of the first to examine sexual responding in Arabian couples, focusing specifically on the interdependence between both partner's sexual and relational responses. The general aim of this study was to examine sexual problems in a clinical and nonclinical control sample of couples in Saudi Arabia and to examine the underlying determinants of sexual function. More concretely, we wanted to study whether sexual function is determined by different factors in men versus women and in clinical versus control couples, considering the role of sexual satisfaction, relationship satisfaction, and sexual desire.

Based on the circular model of Basson,[19] we expect that sexual function in women will be more strongly predicted by relationship satisfaction rather than sexual satisfaction and sexual desire, while the opposite would hold for men. In men, we expect that sexual desire will be a strong predictor of sexual function. The innovative part of this study is that we explored this pattern of interrelations in a clinical group and nonclinical group of Saudi Arabian couples and that we included the responses of both partners to examine cross-relations between the variables of interest.

Regarding partner effects, different predictions are possible. On the one hand, we might predict that partner effects will be stronger in women as their sexuality has been described as more interpersonally oriented.[19] We might thus expect that female sexual function will depend on both their own and their partner's responses (ie, sexual desire, relationship and sexual satisfaction), whereas male sexual function might be more individually determined. On the other hand, there are studies showing that men's sexual responses are also dependent on their female partner's responses.[32,33] Based on these results, we might expect that also male sexual function will be predicted by their own and their partners responses.

METHOD

Participants

This study was conducted among patients attending the outpatient clinic at Mutmaena Medical Center in Riyadh city. About 60% of participants were seeking treatment for their sexual or marital problems, about 30% were referred by other colleagues within the center and about 10% were referred by other colleagues outside the center. Data were collected from March 2017 to December 2017 among 130 married heterosexual couples. Every couple who consulted for marital and sexual problems in the medical center was asked to participate in a study on sexuality and intimacy in close relationships by a research assistant. Thirty women and men refused to participate in the study mainly due to lack of cooperation, shyness, and fear of confidentiality and privacy (despite our efforts to guarantee confidential responding). Informed consent was obtained from all participants and ethical approval has been obtained from the institutional review boards of the medical center where the research took place.

Our final sample included 50 heterosexual couples (ie, 50 women and 50 men) which constituted the clinical sample. We also recruited a control group of 50 heterosexual couples, by relying on the relatives of patients attending the center or on the personal network of the research team. We are aware that this is not a matched or a selected sample that allows systematic comparison with the clinical group. Yet, this convenience sample does provide a valid opportunity to compare the determinants and underlying structure of sexual dysfunctions between couples with and without sexual problems. Power analyses based on detecting a medium effect size ($d = 0.50$) at a 0.05 significance level, showed that a sample of 54 couples is sufficient to detect reliable effects.

The inclusion criteria for both samples were as follows: (i) Arabic married couple living in Saudi Arabia and aged between 18 and 50 years; (ii) able to give consent, and (iii) able to read and understand the Arabic language.

Participants were excluded in case of

a. Comorbid physical disorders: diabetes mellitus, hypertension, symptoms that suggest of alcoholic cirrhosis, a clinical diagnosis of endocrine disorders, other systemic illnesses, history of genito-urinary surgery and neurological or spinal cord lesions.
b. Comorbid psychiatric disorders: schizophrenia, delusional disorder, anxiety disorders and mood disorders including dysthymia. Patients who had symptoms of depression or anxiety not fulfilling a clinical diagnosis were included in the study.
c. Substance use and use of medication affecting sexual function (antipsychotics, antidepressants, antihypertensive, and so forth)
d. Pregnant women.
e. If one of the partners refused to participate or if they felt any psychological burden or stress.
f. Not able to read and understand Arabic.

In the clinical sample, women ranged in age from 18 to 48 years (mean = 30.85, SD = 7.64) and men ranged in age from 21 to 52 years (mean = 36.36, SD = 8.23). In the control group, women ranged in age from 19 to 48 years (mean = 30.70, SD = 6.91) and men ranged in age from 22 to 63 years (mean = 35.52, SD = 9.06).

Procedure

All participants were informed that participation was strictly voluntary with no adverse effects whatsoever. Refusing to participate would have no negative effects on treatment, neither would it deny them the possibility of any further treatment. Participants were also informed that the information they provided would be completely anonymous as no names or other identifiers would be collected on the surveys.

Women and men who were eligible and consented to participate in the study were interviewed alone in a comfortable, private environment in the center. They were given 2 different envelopes that included study questionnaires, one for them and one for the partner. They were informed that they had the right to ask to stop recording at any time during the interview. They were also informed that they had the right not to answer a question and could withdraw at any stage without given reasons. Couples were asked to answer questionnaires separately and to refrain from consulting each other's answers. Several parts of the questionnaires were completed in private and then handed to the researcher. Other parts were administered as an interview to guarantee sufficient understanding of the items. All the information given was treated as confidential with the data available only to the research team. The participants did not gain any financial benefit from this study. The research findings did not disclose any personal information of the participants that have taken part in the study; coded numbers or letters were used, and no actual names were revealed. All the transcripts and data were stored securely in a locked cabinet.

All relevant questionnaires were translated into the Arabic language using a back-translated procedure. During the translation process, simple formal Arabic was used to make the questionnaires clear and understandable. The author modified wordings that were not clear and confusing. The Arabic translation of all questionnaires was judged by 10 couples for clarity and conformity with the local culture. As far as we know, the questionnaires we used have not been applied yet into a Saudi environment, although few of them have already been applied to other Arabian environments. We did not rely on the validated Arabian questionnaires because some items would have been either inappropriate or inapplicable within the Saudi culture and several items required more thorough explanation of the underlying meaning to facilitate comprehension by the participants. We followed a back-translation procedure including expert translation and preliminary pilot testing. Unfortunately, we did not include any other validity testing (eg, content, discriminant and construct validity). After reading and signing the informed consent form, participants completed the Arabic version of the questionnaires in the clinic (in the cabinet of the researcher or the cabinet of a colleague who was absent at the time of research) or at home.

MATERIALS

Demographic variables were collected via standardized questions asking about age, parity, employment status, educational level, duration of the marriage, the age difference between partners, number of wives to his partner, number of marriages, consanguinity, and history of traumatic events such as sexual harassment. Then, we presented both men and women with a series of standardized questionnaires to measure sexual function, sexual desire, sexual satisfaction, and relationship satisfaction. Other measures were taken as well, but these are beyond the scope of the present paper.

To measure the sexual functioning of women, we administered the Female Sexual Function Index (FSFI).[34] The FSFI includes 19 items that tap into women's reports of sexual experience over the last 4 weeks; the 19 questions covered 6 domains: desire, arousal, lubrication, orgasm, satisfaction, and pain. Responses to each question are scored either from 0 (no sexual activity) or 1 (suggestive of dysfunction) to 5 (suggestive of normal sexual activity). Individual domain scores were obtained by summing the scores of the individual questions that comprise the domain and multiplying the sum by the domain factor provided in the FSFI for each domain. The full-scale score was obtained by summing the 6 domain scores. Clinical cut off scores were set on <26 as validated in a Western population. Lower scores indicate a greater magnitude or severity of problems. In the present study, the internal consistency of the total score of the FSFI revealed high reliability, $\alpha = 0.94$.

To measure the sexual functioning of men, we administered the International Index of Erectile Function (IIEF-15),[35] which consists of 15 questions grouped into 5 domains that assess erectile function, intercourse satisfaction, orgasmic function, sexual desire, and overall satisfaction. The responses were rated on a 6-point scale or a 5-point scale. Items were summed to create a total score with higher scores indicating better function. The IIEF has been found to demonstrate high reliability and validity. The internal consistency in the present study was high, $\alpha = 0.92$.

Sexual satisfaction was measured using the Index of Sexual Satisfaction (ISS).[36] This scale measures the degree, severity, or magnitude of a problem in the sexual component of a couple's relationship. The ISS contains 25 items that are scored on a 7-point Likert scale going from none of the time to all of the time. Total scores were obtained by adding all domain scores. Higher scores indicated a greater magnitude or severity of problems. In the present study, the internal consistency of theISS was good $\alpha = 0.76$.

General Relationship satisfaction was measured using the Revised Dyadic Adjustment Scale (RDAS).[37] This is a self-report questionnaire that assesses 7 dimensions of couple relationships within 3 overarching categories including consensus in decision-making, values and affection, satisfaction in the relationship with respect to stability and conflict regulation, and cohesion as seen through activities and discussion. The RDAS includes 14 items that are rated on a 5- or 6-point Likert scale. Items were summed to create a total score with higher scores indicating greater relationship satisfaction and lower scores indicating lower relationship satisfaction. In the present study, the internal consistency of the RDAS total score good $\alpha = 0.76$.

To assess sexual desire, we administered the Sexual Desire Inventory (SDI).[38] The SDI is a brief 14-item scale that measures the multidimensional construct of sexual desire and contains 2 subscales: dyadic sexual desire and solitary sexual desire. Four items were scored on an 8-point Likert scale from 0 (= not at all) to 7 (= more than once a day) concerning frequency of desire. The remaining items were answered on a 9-point Likert scale ranging from 0 (= no desire) to 8 (= strong desire). Items were summed to create a total score, with a lower score indicating low sexual desire. In the present study, the internal consistency of the total score of the SDI was high $\alpha = 0.88$.

To measure sexual distress, we administered the Female Sexual Distress Scale-revised.[39] Women rated each of the 13 items in terms of frequency from 0 (never) to 4 (always). Items were summed to create a total score, with higher scores indicating more sexual distress. In the present study, the internal consistency of the total score was high $\alpha = 0.91$. Men were presented with the same questionnaire, but for unknown reasons, the majority of men did not respond adequately to the scale. Therefore, we could not include the male distress data in our analyses.

Statistical Analyses

To examine group mean differences ("clinical" vs '"ontrol") on the variables of interest, a set of independent samples t-tests were performed on the male and female variables separately. To examine gender mean differences ("male" vs "female") on these variables of interest, we conducted paired samples t-tests.

In both control and clinical groups, zero-order correlations were calculated between all pairs of variables of interest. Furthermore, to study the association between sexual function and its potential determinants, taking into account the dyadic nature of the data and differentiating between actor and partner effects, we used the Actor-Partner Interdependence Model (APIM).[40] Because of power issues, we tested the APIM model separately in the control and clinical groups. The APIM analyses were run on the composite scores to ensure sufficient power. Given the high reliability of the scale scores, possible error variance was likely limited.

Finally, to examine the extent to which sexual function, sexual and relationship satisfaction, and dyadic and solitary sexual desire uniquely explained sexual distress in women, a multiple regression analysis was performed in the control and clinical groups. The APIM analyses were done within the framework of structural equation modeling and computations were performed using Mplus (version 7.2).[41] All other analyses were performed with IBM SPSS, version 25.0 software (IBM Corp., Armonk, NY, USA).

RESULTS

Demographic Information

All participants were Muslims of religion and most of the participants had bachelor's degrees or higher (57% in the clinical group and 84% in the control group). The average length of marriage in the clinical group was 8.3 years (SD = 6.91) (ranging from 4 months to 25 years) and 8.5 years (SD = 6.41) (ranging from 2 months to 28 years) in the control group. Sixty-seven percent of the participants in the clinical group was working and in the control group, 68% of the participants were working. Seventy-six percent of the clinical couples reported this was their first marriage. In the control group, this was 83%. For most of the participants, the marriage included only one wife; 80% in the clinical group and 84% in the control group. In the clinical sample, the number of children ranged from 0 to 7 and in the control group, it ranged from 0 to 6. The average age difference between couples in the clinical sample was 5.86 years (SD = 4.23) and 5.36 years (SD = 2.98) in the control sample. No group differences were found regarding the demographic variables, all p's > 0.10.

Group (Clinical versus Control) and Gender (Male versus Female) Differences in Sexual Function, Sexual Desire, Sexual Distress, Sexual Satisfaction, and Relationship Satisfaction

Means and standard deviations are reported in Table1. When comparing the clinical and control group on the main variables of

Table 1. Means and standard deviation of the main variables as function of clinical status and gender

	Group	Man			Women		
		Mean	Std. deviation	*T*	Mean	Std. deviation	*t*
Dyadic sexual desire	Clinical	32.04	10.53	3.323**	25.42	9.21	5.538**
	Control	38.66	9.36		34.82	7.7	
Solitary sexual desire	Clinical	9.08	4.33	6.801**	5.58	3.39	7.706**
	Control	15.94	5.67		11.88	4.68	
Sexual function	Clinical	42.26	13.6	2.799**	16.66	6.45	4.891***
	Control	50.48	15.69		22.48	5.4	
Sexual satisfaction	Clinical	105.76	18.35	2.441**	102.36	19.64	3.322**
	Control	115.4	21.05		115.34	19.43	
Relationship satisfaction	Clinical	30.46	9.98	3.810**	30.78	9.66	3.418**
	Control	38.16	10.23		37.58	10.22	
Sexual distress(w)	Clinical				26.78	11.56	1.840
	Control				22.5	11.71	

*$P < .05$, **$P < .01$.
std = standard; W = women.

interest using independent *t*-tests, we found significant group mean differences on sexual function, dyadic sexual desire, solitary sexual desire, relationship satisfaction, and sexual satisfaction, indicating higher mean levels on all variables in the control group compared to the clinical group. No significant group mean difference was found regarding the level of sexual distress in women.

When comparing the male and female scores per group using paired sampled *t*-tests, we found a significant mean difference between men and women on dyadic sexual desire and solitary sexual desire in both the control and clinical group. Men reported higher mean levels of sexual desire compared to women. No significant gender differences were found regarding mean sexual satisfaction and relationship satisfaction. Note that the scores on sexual function cannot be compared because different scales were used to measure male and female sexual function.

Correlational Analyses Between the Variables of Interest in the Clinical and Control Group Using Pearson Correlations

In the clinical group, we found that the sexual function score in women was significantly and positively correlated with their own level of sexual satisfaction, $r = 0.51$, $P < .01$, and their dyadic sexual desire, $r = 0.63$, $P < .01$. None of the other variables showed a significant correlation with the sexual function of women. In men, we found that sexual function was significantly and positively correlated with their own level of dyadic sexual desire, $r = 0.51$, $P < .01$, sexual satisfaction, $r = 0.57$, $P < .01$, and relationship satisfaction, $r = 0.31$, $P < .05$. No correlations were found with the other variables, all p's > 0.10.

In the control group, we found a significant and positive correlation between the sexual function of women and their level of relationship satisfaction, $r = 0.43$, $P < .01$, and a negative significant correlation with sexual distress, $r = -0.61$, $P < .01$. In men, we found that the sexual function score showed a positive correlation with their level of sexual satisfaction, $r = 0.28$, $P < .05$, $r = 0.32$, $P < .05$. No correlations were found with the other variables, all p's > 0.10.

Actor and Partner Effects on Sexual Function Using the APIM Model

In the clinical group, we found that sexual function in women was significantly predicted by their own level of sexual satisfaction, $\beta = 0.18$, $P < .01$; solitary sexual desire, $\beta = 0.06$, $P = .05$; dyadic sexual desire, $\beta = 0.16$, $P = .00$; and their partner's level of sexual satisfaction, $\beta = 0.09$, $P < .01$.

Sexual function in men was predicted by their own level of sexual satisfaction, $\beta = 0.27$, $P = .00$, and by their partner's level of relationship satisfaction, $\beta = -0.28$, $P = .00$. None of the other variables showed a significant relationship with sexual function, all$\beta's <.23$,all $p's > 0.10$.

In the control group, we found that sexual function in women was significantly predicted by their own level of sexual satisfaction, $\beta = 0.71$, $P = .01$. Sexual function in men was predicted by their own level of sexual satisfaction, $\beta = 0.52$, $P = .02$, and their level of dyadic sexual desire, $\beta = 0.51$, $P = .02$. None of the other variables showed a significant relation with sexual function, all$\beta's < 0.15$, all $p's > 0.10$.

Explaining Sexual Distress in Women

The results of the regression analyses on sexual distress in women are presented for each group ("clinical" vs "control") in Table 2. In the clinical group, sexual distress in women was predicted by their level of relationship satisfaction and solitary sexual desire, and their partner's level of sexual satisfaction. In the control group, the sexual distress in women was predicted only by their own level of sexual satisfaction.

Table 2. Regression coefficients of the association between relational and sexual predictors and sexual distress in women

	Gender	Clinical			Control		
		SE	*β*	*t*	*SE*	*β*	*t*
Dyadic sexual desire	Women	.19	.20	1.29	.20	.10	.77
	Men	.18	−.12	−.74	.19	.06	.38
Solitary sexual desire	Women	.55	.31**	−1.93	.34	−.17	1.28
	Men	.42	.13	.82	.28	.16	1.23
Sexual function	Women	.38	−.15	−.70	.45	−.01	−.06
	Men	.16	.25	1.33	.15	−.10	−.53
Sexual satisfaction	Women	.11	.09	.51	.10	.46**	2.66
	Men	.10	.57**	−3.43	.10	−.09	−.51
Relationship satisfaction	Women	.18	.29**	1.88	.14	−.15	1.17
	Men	.18	−.03	−.19	.16	−.17	1.27

*$P < .05$, **$P < .01$.
SE = standard error; β = standardized regression coefficients.

DISCUSSION

This is one of the first studies to examine sexual functioning and its sexual and relational determinants in a sample of Saudi Arabian heterosexual couples. The interrelation between sexual function, sexual desire, sexual satisfaction, sexual distress, and relationship satisfaction of both partners was explored in a sample of couples consulting for sexual and relationship problems versus healthy controls.

Group and Gender Differences in Sexual and Relational Outcome Variables

As expected, the clinical group reported significantly lower levels of sexual function, sexual satisfaction, relationship satisfaction, and sexual desire, compared to the control group. This suggests that the quality of the sexual relationship may be an important motive to seek treatment. Interestingly, we found no significant difference between the control group and clinical group regarding sexual distress in women, although women in both groups did show moderate levels of sexual distress. This fits with previous work, suggesting that sexual function and sexual distress are not necessarily associated and that women can report significantly impaired sexual function without experiencing notable levels of personal distress.[42,43] The latter was also reflected in our pattern of correlations, showing no significant association between sexual function and sexual distress in women. This contradicts current definitions of women's sexual dysfunction, in which the presence of personal distress represents a crucial dimension.[44] Our finding may be explained by a possible lack of awareness of sexual distress in Saudi Arabian couples or the belief that sexual problems are not a serious therapeutic concern.[45] Disregarding the sexual distress associated with sexual problems is one of the most common reasons for women and men not to consult a health practitioner about their sexual difficulties.[45] This may be particularly the case in Saudi Arabia, which is a sexually restricted culture that does not place a high value on talking openly about or seeking help for sexual problems.

The lack of relationship between sexual distress and sexual function could also result from sampling biases. That is, we cannot rule that individuals who experience more sexual distress experience sexuality as more sensitive, which might have retracted them from taking part in the study.[46] Unfortunately, we cannot make any conclusions on whether the men in our sample experienced personal distress related to sexual problems because—for unknown reasons—the majority of men did not respond adequately to the scale. It was difficult to convince some men of rural origin to complete this questionnaire, forcing us to exclude the male data from analyses because no valid conclusions could be drawn.

When turning to the observed gender differences in sexual and relational variables, we found a significant difference between men and women on the sexual response variables, that is, desire and function, but not on the sexual experience variables, that is, sexual satisfaction, sexual distress, and relationship satisfaction. This might suggest that the gender gap is closing, particularly when it comes to the subjective experience of sex and relationships.[32,47] Although our cross-sectional design does not allow formal conclusions on this behalf, it is plausible that increasing globalization, urbanization, economic challenges, and digital communications represent new sources of sexual socialization that impact and diversify women's sexual development,[14] leading to more sexual assertiveness, acknowledgement of female sexuality, and open sexual expression. To formally test this hypothesis, a longitudinal comparative design is needed.

The fact that sexual desire scores are higher in men than in women confirms the findings of other studies.[5,48] Differences in level of sexual desire between heterosexual partners might speak to the issue of sexual desire discrepancies, which are a common experience in long-term relationships.[49] Desire discrepancies between partners are the most common sexual complaint in women and can arise from a variety of reasons including relationship factors, hormonal levels, health problems, stress, and conflicting schedules.[48]

Sexual Function and Correlations Between Outcome Variables

Women in this study reported lower levels of sexual function when compared to their male partners. Although this study did not include a direct comparison with a Western sample, in general, it can be expected that Saudi women are more vulnerable to experiencing sexual dysfunction than other populations because women are generally not permitted to express their sexuality freely.[50] In addition, women are likely to be negatively affected by self-esteem issues, cultural suppressions regarding their sexuality, inadequate sex education, and lack of openness in publicly discussing sexuality issues.[4,51] Cultural values and traditional beliefs in Saudi Arabia restrict communication about sexual function, particularly concerning female sexuality and private issues on the sexual relationship.[12] When analyzing the absolute scores on the FSFI, it seems that the women in our sample, even the control women without sexual complaints, showed higher means scores than what is observed in other studies relying on Western female populations. Yet, we have to be cautious when interpreting absolute scores on the FSFI because the Saudi version of the FSFI has not been validated yet and no norm scores are available for the Saudi Arabian population. Given the cultural differences in sexual expression between the Middle East and Western countries, it may well be that other norms apply. The same concern can be raised regarding the male scores on the IIEF.

Actor and Partner Effects Regarding Sexual and Relational Variables

When examining the role of sexual desire, satisfaction, and relationship satisfaction in explaining sexual function in couples, we found that the sexual function of women in the clinical group was positively predicted by their own and their partners level of sexual satisfaction. Also in the control group, the sexual function of women was predicted by their own sexual satisfaction, which fits with the idea that women's sexual responding is highly dependent on the quality of their (sexual) relationship. Note, however, that, based on previous theoretical and empirical work, we would have expected that general relationship satisfaction rather than sexual satisfaction is predictive of women's sexual functioning. Compared to men, women have been shown to report a greater need for intimacy and are more likely to use feelings of emotional connectedness as a measure of sexual desire and sexual function.[52] Accordingly, relationship satisfaction is assumed to play a more prominent role in female sexual responding, whereas male sexual responding would depend more on the level of sexual satisfaction. We also found that the sexual function of men in both the clinical and control group was predicted by their own level of sexual satisfaction. However, in men, only their own level of sexual satisfaction determined sexual functioning, whereas women with sexual problems also needed their partner to be satisfied with the sexual relationship to experience functional sexual responding. Interestingly, we also found a partner effect in the clinical group of men, indicating that men's level of sexual functioning depended on their female partner's general evaluation of the relationship. This points towards the pervasiveness of women's satisfaction in determining the motivators, and gains of sexual activity and fits with the general description of women taking a leading responsibility in the relationship.[53] On the one hand, our results are in line with other work, revealing that men's sexual function was positively related to their female partners' relationship satisfaction.[30] On the other hand, they do not match with previous work, showing that relationship satisfaction moderated the link between sex and relationship variables in women, but not in men.[30,54]

The observation that sexual satisfaction was the most consistent predictor of sexual function across gender and clinical status fits with previous work, showing that a higher level of sexual satisfaction can increase the quality of marital life and decrease couples' relationship problems. In relation to this, the importance of sexual satisfaction is also reflected in research showing that nearly 70% of women apply for divorce due to dissatisfaction with their sexual relationship.[55,56]Men are also known to use their level of sexual satisfaction as a benchmark for evaluating their general relationship, which will eventually determine relationship break-up versus staying together.[57]

Remarkably, we found that in the clinical group, but not in the control group, women's level of sexual function was positively predicted by their level of solitary and dyadic sexual desire, which was not expected. Based on the circular model of sexual responding, sexual function in women would depend more heavily on relationship factors rather than their level of sexual desire, especially in women with sexual problems.[19,58] The centrality of sexual desire in female sexual function seems counter-intuitive at first sight because it does not correspond with previous work stating that women place less value at sexual desire.[59,60] Our finding does fit, however, with other research showing that women's solitary sexuality is related to their individual sexual functioning[61] and that levels of sexual functioning are closely associated with general desire.[62] Furthermore, there is increasing research supporting the idea that there are no reasons to assume that sexual desire and sexual gratification are less important to women and that they are equally likely to purse sexual pleasure in their sexual encounters as men do.[63,64]

When explaining these results, we may also consider that women use other relational and individual components to evaluate their level of sexual desire and use broader conceptualizations of sexual desire that include their need for intimacy and emotional closeness. In support of this, previous work has shown that female sexuality is more responsive to person-by-situation interactions and interpersonal influences and thus more variable than men's sexual experiences.[65,66] Accordingly, when examining sexual desire in couples, it is important to determine what is defined by sex and whether partners agree on this conceptualization. Another interesting finding is that we found a direct association between sexual desire and sexual function in men in the control group, though pertaining only to the desire

for partnered sex and not for solitary sex. This fits with the idea that men follow the more traditional linear sexual sequence of sexual responding, meaning that sexual activity and sexual responding are predicated on sexual desire.

Limitations

To our knowledge, this is the first study that examined sexual and relational variables in a sample of Saudi Arabian couples as approached from a dyadic perspective. It is not easy to recruit couples in Saudi Arabia for participating in a sex survey via free announcements or advertisements. Accordingly, participants in our study were recruited via a confidential and qualified sector. The data were obtained from a relatively small sample of Muslims couples who came to a private medical center. We cannot exclude the possibility that these couples show a specific distribution of religious beliefs, socioeconomic status, lifestyle, and attitudes regarding sex and relationships and are therefore not representative for the total Saudi Arabian population. Accordingly, there could have been a potential selection bias. People with more conservative sexual ideas may have felt uncomfortable with the study's topic and were thus unlikely to participate.[67] Our study required the consent of both partners to participate. We thus missed couples in which one of both partners did not want to participate. Note that, given the sensitivity of the topic in a culture in which sexual expression is limited, recruiting a sample of 100 couples is a huge achievement.

Owing to power issues, we were unable to perform an APIM between-group analysis. That is, we did not explicitly compare our models between the clinical and control groups but tested the models in each group separately to guarantee enough power. Other limitations are that sexual and relationship responding was assessed via self-report measures, and social desirability may play a role in such a sensitive and often stigmatized construct.[68] In addition, we used our own Arabic translation of the measures and did not rely on previously validated Arabic scales of sexual function. Unfortunately, we lack sexual distress data in men because the majority of men did not respond adequately to the scale. Furthermore, other variables not assessed in this study may have driven the observed associations between predictors and outcome variables. Future studies should include longitudinal data to examine possible bidirectional connections between the predictor variables and sexual function in both partners.

CONCLUSION

The results of our study revealed significant differences between the clinical and control group regarding sexual function, sexual satisfaction, sexual desire, and relationship satisfaction, with similar scores regarding sexual distress across women. Furthermore, women reported significantly more sexual (desire) problems than men. In general, we did find differences between men and women, but also many commonalities. Hence, we have to be cautious not to portray men as being guided only by sexual urges and women needing only emotional intimacy. Research should go beyond focusing only on gender differences as there might be much more variation within genders than across genders. Sexual responding is likely influenced by numerous individual, relational, and sociocultural variables.

Importantly, our study showed that sexual satisfaction is an important target of intervention, as this seemed the most consistent predictor of sexual function across gender and clinical status. Our study adds to a growing literature that emphasizes the role of sexual satisfaction and desire in dyadic relationships.[69] Finally, the present study supports the significance of interpersonal factors in sexual responding.[70] We hope this study paves the way for more studies on Arabic couples to increase our understanding of relationship functioning and satisfaction.

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