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Cross-Cultural Analysis of Sexual Response and Relationship Satisfaction in Women With and Without Orgasmic Difficulty During Partnered Sex

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ABSTRACT

Objective: To investigate how orgasmic difficulty may impact women's sexual/relationship quality depending upon their cultural origin. *Method*: We used a cross-sectional, multinational survey designed to assess orgasmic difficulty during partnered sex and other sexual/relationship factors in 88 Pakistani and 188 U.S. women. *Results:* Pakistani women reported less orgasmic difficulty than U.S. women, but those Pakistani women having orgasmic difficulty reported lower relationship satisfaction, less interest in sex, and greater difficulty becoming sexually aroused compared to U.S. respondents with orgasmic difficulty. *Conclusions:* The presence of orgasmic difficulty affected sexual and relationship factors more in Pakistani women than U.S. women.

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Problems with orgasmic difficulty (OD) are fairly common among women, estimated at 20–40% (Lewis et al., 2010; Meana, 2012). Although most women can masturbate to orgasm, many struggle to reach orgasm during partnered sex, especially when vaginal-penile intercourse constitutes the primary or exclusive form of stimulation (Dawood et al., 2005; Rowland & Kolba, 2016; Rowland & Kolba, 2019; Wade et al., 2005). Furthermore, a considerable percentage of these women—about 50%—are reportedly distressed by their condition (Graham, 2014; Laan & Both, 2011; Rowland & Kolba, 2016; Rowland & Kolba, 2018). When such negative sexual outcomes persist over time, they may well affect the woman's overall sense of sexual self-efficacy (Rowland et al., 2015), with both sexual satisfaction and relationship satisfaction suffering as a result (Hevesi et al., 2020).

The relationship between OD and relationship satisfaction appears to be bidirectional. Reaching orgasm is not only an essential aspect of sexual satisfaction but is also connected to psychological well-being and overall relationship satisfaction (Brody & Weiss, 2011; Mah & Binik, 2005; Pascoal et al., 2014). Specifically, OD-related distress and anxiety can interfere with feelings of emotional closeness, leading to diminished intimacy and therefore to lower relationship functioning; and conversely, low relationship quality may inhibit the sexual communication and arousal necessary to facilitate orgasm (Burri & Spector, 2011; Kontula & Miettinen, 2016; Milhausen et al., 2015; Philippsohn & Hartmann, 2009; Salisbury & Fisher, 2014). Repeated experiences of OD might also shift a woman's motivation for engaging in sex from approach-oriented goals (e.g., increasing relational intimacy, experiencing pleasure) to avoidance goals (e.g., placating/appeasing a partner, minimizing conflict), which may decrease relationship satisfaction over time (Impett et al., 2010; Muise et al., 2013). Under certain conditions, high relationship satisfaction may help protect against the negative effects of OD-related distress on sexual functioning (Byers, 2005; Hevesi et al., 2020). Generally, however, women with OD report lower relationship satisfaction, particularly when concurrent issues with

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the partner arise, such as when the woman perceives a lack of interest/motivation or ability/skill by the partner as being part of the cause for the problem (Rowland, Medina, et al., 2018).

A person's *interpretation* of a sexual problem such as OD is influenced by sociosexual scripts that prescribe normative and expected behaviors within specific cultural sexual contexts (Wiederman, 2005), including what behaviors are anticipated, appropriate, and arousing during sexual interactions. Sexual scripts depend on a number of factors that may vary across sexes/genders: In Western societies, for example, men are typically expected to initiate sex and take at least partial responsibility for women's orgasms whereas women are expected to present themselves as physically desirable and sexually responsive to the man's overtures and performance (Salisbury & Fisher, 2014; Wiederman, 2005). Sexual scripts also change over time and across generations. According to one of the more current and prevalent sociosexual scripts in the Western world, women voluntarily "give" their bodies to men, and they expect men to reciprocate in turn by ensuring that they are adequately satisfied (Frith, 2013). Indeed, the fact that women now expect such reciprocation signifies a perspective that likely did not exist 25 years ago (Maass & Volpato, 1989; Rowland, Dabbs, et al., 2019). Furthermore, scripts may be affected when sexual responses deviate from the norm, as occurs when one partner experiences a sexual problem such as OD. In such situations, scripts regarding causal interpretations are typically adjusted to the situation, including assumptions regarding factors that might have contributed to the problem.

Among the most relevant factors contributing to differences in socio-sexual scripts are those emanating from the cultural values and traditions in which the individual is embedded, with studies investigating the sexual difficulties of women indicating a wide diversity of experiences (Herbenick et al., 2018). Yet such studies have been slow to adopt a cross-cultural perspective. Culture undoubtedly plays a critical role in men's and women's expectations and experiences regarding sexuality, including the way individuals describe, interpret, and ascribe meaning to a sexual problem (Malik et al., 2020; Rowland, 2020; Wentzell & Labuski, 2020). Indeed, the interpretation/meaning-making process of a sexual problem within a cultural tradition is often as important for the individual as the medical signs and symptoms of the disorder. Yet most attempts at understanding women's sexual experience have relied heavily on studies conducted in Western-oriented samples, despite the contention that samples drawn from educated Western societies are perhaps among the least representative in the world (Henrich et al., 2010). For example, unlike in most Western countries, women in some cultures are expected to submit to their husbands and they may be culturally/legally bound to have intercourse with them even against their wishes (Giritharan, 2020; Malik et al., 2020), with a sense of obligation more than pleasure being a prime motivator for sex (Rashidian et al., 2015; Verma et al., 2004). Furthermore, because women's virginity is a highly valued commodity in many cultures, sexual activity for women outside of marriage (including masturbation, premarital sex, and casual sexual encounters) is not only forbidden but often socially or physically punished, meaning that women's sexual experiences tend to be more restricted in these cultures (Malik et al., 2020). Ultimately, the extent to which such cultural differences in socio-sexual scripts affect women's perceptions of their sexual experiences and difficulties is largely unknown.

Rationale and aims

Although a number of studies have examined sexual challenges for women from various cultures around the world (Moghasemi et al., 2018; Mohammadian & Dolatshahi, 2019; Rashidian et al., 2015), none has, to our knowledge, adopted a cross-cultural approach that enables a direct comparison of women with OD from cultural traditions that prescribe very different sexual scripts/roles. The lack of such comparisons has resulted in a perspective largely defined by Western values and experiences, yet such outcomes do not represent the majority of the world where women have little parity with men (Henrich et al., 2010).

To provide a more global perspective on OD in women that is less grounded in Western

culture, we replicated a U.S.-based study on women with OD during partnered sex in Pakistan, enabling a head-to-head comparison of women from these two cultures. In countries such as Pakistan, women's health is a major concern, constituting one of the most serious problems affecting the community and country. Sexual and reproductive functioning, in particular, contribute to a substantial proportion of health conditions in these nations. Low-functioning, deteriorating, or absent sexual and reproductive health systems place many women at higher risk for illness, trauma, and even death (Elias & Sherris, 2003). As noted by the WHO (2008), and apropos to Pakistan, "Reproductive and sexual ill-health accounts for 20% of the global burden of ill-health for women" and unmet needs for sexual and reproductive health deprive women of the right to make "crucial choices about their own bodies and futures," affecting family welfare.

Coupled with the above, Pakistan is a country having a culture that endorses different socio-sexual scripts for women than found in the West. Pakistan represents a mix of Eastern and Western values as well as traditional and modern values—in urban areas women enjoy many of the same educational and professional opportunities as men; in rural areas, disparities in opportunities and knowledge are often great and seldom bridged.

Regarding sexual attitudes and knowledge more specifically, publicly available television programming on sexual health and safer sex practices was heavily restricted until around 2004, which disproportionately affected women in rural areas lacking access to educational/knowledge-based institutions. Because women in rural areas most often endorsed mass media sources as their primary outlet for information, this knowledge gap represents a significant challenge in sexual health promotion and advocacy (Abidi, Raees, & Ali, 2015).

No matter the region, however, women lack parity with men,[1] have heavily scripted sex roles that include submission to husband and virginal status, and feel family pressure to take on the responsibilities of home management and family rearing, often at the cost of pursuing professional and other personal goals (Ali et al., 2011; World Health Organization, 2008). Educated women, in particular, must often contend with the large disparity between societal expectations vs. personal aspirations.

To this end, we (1) compared sexual response parameters in women from two cultures, the United States and Pakistan; (2) assessed the relationships between OD during partnered sex and other sexual response parameters in women from these cultures; (3) identified demographic and sexual factors that predicted OD during partnered sex in Pakistani (PK) and U.S. women; and (4) investigated potential moderating roles for OD and self-reported interest in sex to explain differences in overall relationship satisfaction between U.S. and PK women.

Materials and methods

Participants

Participants were drawn from two community-based convenience samples, one in Pakistan, the other in the United States (Table 1). PK participants were 88 (presumed) heterosexual cisgender women ($\bar{x} = 28.4$ yr., $SEM = 0.62$) recruited through Facebook postings and snowball sampling/word-of-mouth techniques. Inclusion criteria required women to be at least 20 years old, married, actively engaging in sex with their spouse, able to understand English,[2] and of PK origin and ongoing residence.

Participants from the United States were drawn from a large sample of women ($n = 751$) responding to Facebook notices and postings on Reddit forums to complete a survey on sexual health (see Rowland & Kolba, 2018). To increase equivalence with the PK sample, inclusion criteria for the U.S. sample for this analysis were women who were at least 20 years of age, heterosexual and cisgender, and currently in an active and ongoing sexual relationship. Using these restrictions, a random subsample was drawn from the overall U.S. sample, resulting in a final sample size of 188 ($\bar{x} = 25.1$ yr., $SEM = 0.30$).

Establishment of OD groups

To address the second aim of the study which explored women with and without OD in the PK

Table 1. Demographic Characteristics of U.S. and Pakistani Samples.

Demographic variable	United States *M* (SEM) or %	Pakistan *M* (SEM) or %	*p* value[a]
Age	25.1 (0.30)	28.4 (0.62)	**<.001**
Menopausal status %			
Premenopausal	93.7	86.4	**.044**
Peri- or post-menopausal	6.3	13.6	
Depression/anxiety %	34.6	33.3	.834
Ongoing medical issues %	22.5	14.9	.121
Current sexual partner %	100.0	100.0	N/A
Level of education %			
High school or equivalent	6.4	2.3	**<.001**
Some college/technical degree	19.1	8.00	
Undergraduate bachelor	49.5	50.0	
Graduate/post-baccalaureate	25.0	39.8	

Note. t-test was used compare means, chi square or *z*-test for proportions for frequencies.
[a]Statistically significant probabilities ($p < .05$) are designated with bold font.

and U.S. samples, the combined PK–U.S. sample was divided into two. A subgroup of 150 women, labeled the non-OD group, was identified by responses of 1, 2, or 3 on a 5-point scale (1 = *almost never* to 5 = *almost always*) to the question, "Do you have problems/difficulty reaching orgasm when having sex with your husband/partner?" A subgroup of 126 women who responded 4 or 5 on this question were labeled the *OD* group. Overall, about 45% of the sample was thus assigned to the OD group.

Survey questionnaire

The survey had been developed for the study in the United States following standard procedures regarding input from two focus groups of 23 women who reviewed items, appraised overall item reliability and face validity, ensured wording clarity, assessed the time required for survey completion, and commented on openness to responding to items dealing with sensitive issues surrounding sexual behaviors (Catania et al., 1990). For the study in Pakistan, local investigators modified the survey to better fit that population by adding questions related to family environment and relationship status and making wording/phrasing changes deemed more vernacular or appropriate for PK women (e.g., replacing "partner" with "husband" on items related to partnered sex, etc.).

Using the past 9–12 months as a timeframe for most items, the first portion of the 26-item survey gathered information about demographics, national origin, menopause status, use of medications, medical issues, self-reported ongoing anxiety or depression (a general proxy for psychological health), marital status (non-married participants were excluded), and overall relationship and (separately) sexual satisfaction. The second portion of the survey gathered information specific to sexual response, and included items related to the importance of sex, sexual desire, sexual arousal, lubrication response, orgasmic response, distress, and perceived partner distress related to the respondent's OD (when applicable). These items represented modifications (as noted above) of questions from the Female Sexual Function Index, which has been extensively validated in both clinical and non-clinical contexts (Revicki et al., 2011; Rosen et al., 2000; Wiegel et al., 2005). The final section of the questionnaire presented hypothetical scenarios of positive (i.e., enjoyable, pleasurable) and negative sexual experiences, with respondents ascribing potential attributions to each of these scenarios. Data from this portion of the survey have been presented elsewhere (Bhutto et al., 2020).

Procedure

The final version of the online survey took about 15–20 min to complete, with data collection occurring in 2017 (U.S. sample) and 2018/2019 (PK sample). Study approval was obtained from the Institutional Review Boards/Ethical Committees at the investigators' universities in Pakistan and the United States. Anonymity was

assured and steps were taken to prevent duplicate submissions. Written informed consent was given by participants by checking an appropriate box prior to accessing the questionnaire, and respondents were informed that they could skip questions or exit the survey at any time without consequence, as no data were saved until final submission of the survey questionnaire.

Analytic strategy

Statistical analyses were conducted using IBM SPSS Statistics v. 25 (IBM Corporation, Armonk, NY). As a preliminary step, we computed descriptive statistics for the demographic, sexual history, and sexual response variables. To evaluate the effects of the two independent variables—nationality/culture (Pakistan vs. United States) and OD status (non-OD vs. OD)—on sexual response outcomes (Aims 1 and 2), we conducted analysis of covariance (ANCOVA), controlling for participants' age and education levels. Dependent variables included importance of sex, interest in sex, sexual relationship satisfaction, general relationship satisfaction, vaginal lubrication difficulty, arousal difficulty, self-distress/bother from OD, and perceived partner's distress/bother. A further purpose of these analyses was to reveal interaction effects (nationality by OD) that might identify potential moderating variables for explaining differences between PK and U.S. subgroups on relationship satisfaction (see Aim 4 below).

Then, a series of regression analyses was conducted to determine (1) general predictors of OD (Aim 3), and (2) how various moderating variables might account for variance in general relationship satisfaction across the U.S. and PK groups (Aim 4) (Hayes, 2017). Regarding the first analysis, collinear covariates were established using Spearman correlations, and one of each pair of collinear variables was then eliminated from the regression.[3] The second set of analyses assessed whether relationship satisfaction in PK versus U.S. groups was moderated by participants' level of interest in sex and/or their level of OD during partnered sex (Hayes, 2017).

Results

General description of the samples

The PK sample was older (including more women who were peri- or postmenopausal) and more educated than the U.S. sample (Table 1). Accordingly, age and education were included as covariates in ANCOVA. Groups did not differ on the percent indicating medical issues or "ongoing anxiety or depression for 6 months or more."

Differences between PK and U.S. samples on sexual and relationship measures (Aim 1)

PK and U.S. women differed on four measures (Table 2). PK women reported lower interest in sex ($p = .002$), less bother/distress from OD ($p = .034$), and less partner bother/distress from OD ($p = .001$). However, they also reported less overall relationship satisfaction with their partner ($p = .003$).

Differences between OD and non-OD Groups across PK and U.S. samples (Aim 2)

The results reiterated differences between women with and without OD that have already been documented extensively in previous research using Western samples (Table 2). Specifically, women with OD indicated lower interest in and importance of sex ($p < .001$ for each), greater difficulty with vaginal lubrication and with becoming sexually aroused ($p < .001$ for each), and greater feelings of bother/distress due to orgasmic difficulty ($p < .001$) than non-OD counterparts. Women with OD also reported less sexual relationship satisfaction than non-OD women ($p < .001$).

The effects of OD groupings (shown in Table 2) were of interest because they revealed interaction effects between national origin (PK vs. U.S.) and OD status. Such interactions could demonstrate how the effects of OD depended on the participant's national origin, that is, whether OD impacted PK women differently than U.S. women on a number of outcome variables (Aim 2). Significant interactions were found for both sexual and overall relationship satisfaction ($p =$

Table 2. Preliminary Analysis using Two-Factor Analysis of Covariance, with National Origin and OD Status as Independent Variables and Age and Education as Covariates.

	OD				Non-OD				Significance Value[a]		
	United States		Pakistan		United States		Pakistan				
Outcome variable	*M* (SEM)	*n*	*M* (SEM)	*n*	*M* (SEM)	*n*	*M* (SEM)	*n*	*p* value OD/Non-OD	*p* value origin	*p* value OD by origin
Importance of sex[b]	3.7 (0.10)	94	3.5 (0.21)	31	4.0 (0.09)	93	4.1 (0.11)	57	**<.001**	.498	.148
Sexual relationship satisfaction[b]	3.5 (0.11)	94	3.2 (0.25)	31	3.7 (0.10)	93	4.1 (0.14)	57	**<.001**	.696	**.046**
Overall relationship satisfaction[b]	4.3 (0.09)	95	3.4 (0.26)	31	4.1 (0.10)	93	4.2 (0.13)	57	.089	**.003**	**<.001**
Interest in sex[b]	4.0 (0.11)	93	3.3 (0.26)	31	4.2 (0.10)	93	4.2 (0.13)	57	**<.001**	**.002**	**.015**
Lubrication insufficiency[c]	2.8 (0.13)	95	2.8 (0.51)	31	2.4 (0.13)	93	2.0 (0.14)	57	**<.001**	.195	.086
Arousal difficulty[c]	2.9 (0.12)	94	3.0 (0.25)	31	2.6 (0.12)	93	1.9 (0.15)	55	**<.001**	.057	**.022**
Self-distress regarding OD[c]	3.1 (0.14)	88	3.0 (0.26)	31	2.6 (0.13)	83	1.9 (0.16)	57	**<.001**	**.034**	.059
Partner distress regarding OD[c]	3.1 (0.14)	88	2.7 (0.48)	31	3.1 (0.13)	93	2.2 (0.28)	57	.202	**.001**	.205

Note. Inclusion in the orgasmic difficulty (OD) subgroup was determined by a score of 4 or 5 on the question "Do you ever have problems/difficulty reaching orgasm during sex with your husband/partner?" Note that this classification does not represent a formal diagnosis of female orgasmic disorder (FOD). Respondents with scores of 1, 2, or 3 to the same question were categorized as non-OD.
[a]Statistically significant probabilities ($p < 0.05$) are designated with bold font.
[b]Evaluated on a 1–5 scale, ranging from 1 (*not at all important/satisfied/interested*) to 5 (*very important/satisfied/interested*).
[c]Evaluated on a 1–5 scale, ranging from 1 (*almost never*) to 5 (*almost always*).

Table 3. Regression Results for Predicting Orgasmic Difficulty during Partnered Sexual Activity.

Predictor	Orgasmic difficulty Coefficient (SE)	Statistical significance *p* Value
Constant	3.817 (0.602)	**<.001**
Participant age	−0.028 (0.012)	**.023**
Ongoing anxiety/depression	−0.155 (0.130)	.235
Interest in Sex	−0.124 (0.057)	**.029**
Overall relationship satisfaction	0.065 (0.064)	.308
Sexual relationship satisfaction	−0.158 (0.062)	**.011**
OD self-distress/bother	0.167 (0.045)	**<.001**
Nationality/Country of origin	0.603 (0.134)	**<.001**
R value	0.518	
Adjusted *R*-squared	0.236	

Note. Statistically significant *p* values ($p < .05$) are designated with bold font.

.046 and < .001, respectively), interest in sex ($p = .015$), and sexual arousal difficulty ($p = .022$).

Predicting OD level from study variables (Aim 3)

Linear regression using OD intensity as a scaled continuous outcome variable and empirically and/or theoretically relevant demographic and sexual response variables as input covariates (block entry) are presented in Table 3. The overall ANOVA was significant, $F(7,264) = 11.54$, $p < .001$, with an adjusted R^2 of 0.236. Higher OD was significantly predicted by lower age, lower sexual satisfaction, lower interest in sex, and higher level of bother/distress regarding OD. Nationality/origin also significantly predicted OD, with women from the United States reporting greater OD.

The role of moderating variables in predicting relationship satisfaction (Aim 4)

"Relationship satisfaction" was higher in U.S. women but also showed a strong interaction with OD. In addition, "interest in sex" was lower in PK women but also showed an interaction with OD (refer back to Table 2). We therefore wanted to investigate differences in relationship satisfaction between U.S. and PK women by exploring moderating roles for each of these two variables: OD level and interest in sex. This procedure uses a two-step regression analysis in which the first model is run without the interaction term, then the second model includes the interaction term, so as to determine whether the change in explained variance (R^2) is significant (Hayes, 2017).

Table 4. Regression Models for Predicting Overall Relationship Satisfaction with One's Partner.

	Relationship satisfaction		Relationship satisfaction	
Predictor	Coefficient (SE)	*t*-statistic	Coefficient (SE)	*t*-statistic
Intercept	−0.447 (0.751)	−0.596	5.660 (0.627)	9.023***
Nationality/country of origin	2.612 (0.452)	5.780***	−1.006 (0.438)	−2.298*
Interest in sex	1.050 (0.183)	5.722***	–	
Origin-by-interest in sex interaction	−0.595 (0.110)	−5.430***	–	
Orgasmic difficulty (OD)	–		−0.646 (0.186)	−3.468**
Origin-by-OD interaction	–		0.398 (0.123)	3.243**
Model summary				
R^2 Model 1	0.026		0.020	
R^2 Model 2 (interaction included)	0.121		0.057	
Change in R^2	0.095		0.036	
Significance of change in R^2	$p < .001$		$p < .01$	

*$p < .05$, **$p < .01$, ***$p < .001$.

In the first analysis (Table 4), national origin and interest-in-sex were included as predictors of relationship satisfaction, with $R^2 = 0.026$, $F(2,273) = 3.60$; $p = .029$, but neither term emerged significant. In the second model, the interaction "national origin x interest-in-sex" was added, resulting in a significant increase in explained variance for relationship satisfaction ($\Delta R^2 = 0.095$), $\Delta F(1,272) = 29.485$, $p < .001$. Moreover, all three covariates in the second model emerged as significant. Both U.S. affiliation and greater interest in sex predicted higher relationship satisfaction, with the interaction indicating that for PK women, as their sexual interest increased, so did their relationship satisfaction. In contrast, for U.S. women, relationship satisfaction was minimally related to their interest in sex.

In the second analysis (Table 4), the initial model included national origin and OD level (as a continuous variable) as predictors of overall relationship satisfaction ($R^2 = 0.020$), $F(2,273) = 2.84$, $p = .060$. U.S. affiliation was associated with significantly higher relationship satisfaction, whereas levels of OD did not reach significance in predicting relationship satisfaction. When the interaction "national origin by OD level" was added to the model, the explained variance in relationship satisfaction increased significantly ($\Delta R^2 = 0.036$, $\Delta F = 10.518$, $p = .001$). Specifically, greater OD was associated with much lower relationship satisfaction for PK women than U.S. women.

Discussion

Factors related to orgasmic difficulty

This head-to-head comparison of U.S. and PK women on issues related to sexual and orgasmic response has reiterated findings previously documented about women experiencing OD during partnered sex, but it has also revealed interesting cross-cultural differences.

The overall sample confirmed the wide-ranging influence of OD on sexual response parameters in women, independent of culture (national origin): Women with OD differed from women without OD on 6 of 8 measures related to sexual response, ranging from importance/interest in sex to arousal and lubrication difficulty, to sexual relationship satisfaction and level of self-distress, findings comparable to many Western-based samples regarding the effects of OD on women's sexual experiences (Graham, 2014; Hevesi et al., 2020). As expected, when OD was used as a continuous outcome variable in the regression analysis, many of these same predictor covariates were significant, including lower interest in sex, lower sexual relationship satisfaction, higher self-reported distress, and higher perceived partner distress about the OD. National origin was also significant, with U.S. women indicating overall greater OD than PK women. However, this last difference is better understood within the context of interactions, as noted below.

Differences in sexual and relationship responses between PK and U.S. women

In addition to PK women reporting less OD during partnered sex than U.S. women, PK women reported lower interest in sex, and less self and partner concern/bother/distress due to OD than U.S. women. Yet, despite responses suggesting both lower concern/distress and sexual difficulty among PK women, these women also reported

lower overall relationship satisfaction than U.S. women.

As important as these main effects were, the four (of eight possible) significant interaction effects revealed substantial divergence in sexual/relationship responding between PK and U.S. women when level of OD was considered. Specifically, interaction effects for general relationship satisfaction, sexual relationship satisfaction, interest in sex, and sexual arousal difficulty all demonstrated that OD was affecting PK and U.S. women differently: in every case, the negative impact of the OD was much greater on the PK women. That is, for variables such as overall relationship satisfaction, sexual relationship satisfaction, and interest in sex, under stable, normal conditions of non-OD, the U.S. and PK groups were quite similar; in contrast, under conditions of OD, large decrements were apparent in the PK group compared to much smaller—even minimal—differences in the U.S. group. For sexual arousal difficulty, PK women without OD showed lower difficulty than U.S. women but showed equally high difficulty with U.S. women under conditions of OD. These patterns indicated that OD during partnered sex generally affected the PK women more negatively than the U.S. women.

Moderating roles for OD and interest in sex on relationship satisfaction

In this analysis, we identified two variables that played significant moderating roles that helped explain differences in relationship satisfaction between PK and U.S. women. Specifically, for PK women with higher interest in sex, relationship satisfaction was also higher, a connection that was not apparent in U.S. women. And for PK women, OD had more negative effects on relationship satisfaction than it did for U.S. women. The increased explained variances of 9.5% and 3.6% respectively for interest in sex and OD generally met or exceeded desired effect sizes for moderating variables (Aguinis et al., 2005). Such effects not only helped specify how variables are related to relationship satisfaction in different groups but also indicated the value of exploring interaction effects within regression analysis.

Cultural interpretation

Our analysis revealed substantive differences in the way women from two different cultures perceive their sexual responses and interpret a sexual problem, and furthermore, how such variables can affect their satisfaction with their relationship. We hypothesize two interrelated processes specifically related to cultural socio-sexual scripts that might account for such differences, one related to PK women's limited sexual experience beyond their spousal relationship, and the other to the strong connection between their sexual experiences and the relationship with their husband.

Regarding the first, sexual pleasure outside marriage (e.g., premarital sex, extramarital sexual encounters/affairs, masturbation) for PK women is generally taboo (and illegal). As such, the great majority of women in Pakistan are presumably sexually inexperienced when they marry (Griffiths et al., 2011), and therefore their understanding and experience of their own sexuality generally does not develop independent of their spousal relationship. Moreover, it is challenging to ascertain the proportion of women who have engaged in some form of premarital sexual activity because they are unlikely to disclose such behaviors even with a trusted medical provider (Shahawy, Deshpande, & Nour, 2015). These sociocultural taboos also impact knowledge of sexual health and safer sex practices. In a systematic review of 59 studies assessing Muslim women's knowledge and use of sexual and reproductive health services, recurring themes of potential stigmatization and spousal/familial rejection often prevented women from seeking care or advocating on behalf of their own well-being (Alomair et al., 2020). In contrast, many women in the U.S. explore their sexuality through masturbation (Herbenick et al., 2010; Rowland, Kolba, et al., 2020) and many—estimated at 85% or higher (Wu et al., 2018)—have engaged in premarital sex, thereby entering into long-term spousal relationships with sexual experience, including a better understanding of their own sexual response and pleasure points. As demonstrated in our analyses, U.S. women were less bothered by their OD than PK women

and their interest in sex was minimally affected by OD compared to PK women. Thus, women from the U.S. have not only had greater breadth of sexual experiences upon which to assess their sexual functioning, but they also have other paths to sexual pleasure, including strategies that not only involve self-stimulation of pleasure points during partnered sex, but also the alternative of masturbation. In fact, we have demonstrated elsewhere that Western (U.S. and Hungarian) women often choose to masturbate, and even prefer masturbation, when relationship issues arise, or when sexual satisfaction is fairly low during partnered sex (Rowland, Donarski, et al., 2019; Rowland, Kolba, et al., 2020). PK women are less likely to have such options available to them: In a recent systematic review of studies examining sexual knowledge and behaviors among women attending university across several Middle Eastern countries, some students were not familiar even with the term "masturbation" (Farih et al., 2015).

Regarding the second (interconnected) issue, because of the limited sexual experience of women in Pakistan, these women's sexuality is, we posit, experienced primarily, if not exclusively, within the context of their spousal relationship. Because of this strong (and often exclusive) connection between PK women's sexuality and their relationship to their husband, assessment of their sexual response may be tied more strongly to the relationship itself. This "strong relationship focus" surrounding their sexuality may have either positive or negative repercussions. For example, when both the relationship is good and sexual response is pleasurable and "normal," then relationship satisfaction is high—in fact higher than that of U.S. women, as seen in our sample of PK women without OD. But when pleasure is diminished, as in situations where OD occurs, assessments of both sexual satisfaction and overall relationship satisfaction are greatly diminished, a pattern characteristic of our PK sample, but one that was not strongly replicated in the U.S. sample. Such an interpretation is consistent with a recent study on PK women investigating their causal attributions regarding hypothetical positive and negative sexual outcomes with their partners (Bhutto et al., 2020). PK women with OD attributed their problem to a broad spectrum of targets whereas U.S. women were more specific/narrower in their attributions. PK women were also much more likely to attribute the problem to their relationship with their partner than U.S. women. In this respect, varying cultural practices and sociosexual scripts may well play an important role in defining women's sexual perceptions and experiences, including in those situations where they struggle to reach orgasm.

These findings carry significant implications. In countries such as Pakistan, women's sexuality is often defined more by her reproductive capacity/responsibilities and her relationship to her husband than by her own sense of sexual agency (Ali et al., 2011; Malik et al., 2020). Consistent with this perspective, our results demonstrate that Pakistani women are more likely to connect their sexual response to the quality of their relationship with their partner. Yet, as women in Pakistan and other developing non-Western countries become increasingly comfortable with their emerging sexual selves, they are likely to seek the guidance of professionals who can help manage disparities between rising expectations, restrictive cultural practices/roles, and their lived experiences. Therapists will therefore need adequate preparation not only in understanding women's sexual problems as defined by Western nosologies such as *DSM-5* (American Psychiatric Association, 2013), but also in expanding and adapting diagnostic and treatment algorithms for psycho-sexual problems that are both effective and culturally acceptable (Bhutto et al., 2020; Davis et al., 2018; Hall, 2020; Kamran & Rowland, 2020). Strategies that take a holistic approach to sexual health that is congruent with and supportive of the cultural, spiritual, and religious beliefs of the client's culture will be most effective in achieving endpoints that improve the woman's sense of sexual agency, sexual well-being, *and* the quality of her relationship with her husband/partner (Ali et al., 2020).

Limitations and conclusions

This study compared Western and non-Western women's perceptions about their sexual experiences in ways that have not ever been described previously, using a reasonable sample size and a

guarantee of anonymity so as to reduce social desirability and improve openness regarding sensitive sexual issues (Manzo & Burke, 2012). In doing so, the impact of cultural values and traditions on sexual response and relationship satisfaction has been highlighted. The study was limited by several factors, including bias in both PK and U.S. samples related to age and online access, and in the PK sample, related to education and urban origin—factors that limit generalizability of the PK sample to much of rural Pakistan where women's sociosexual scripts/roles are even more rigidly defined. Thus, even though substantive differences emerged between PK and U.S. samples, these differences might well have been greater had we been able to probe less educated, rural populations in Pakistan, particularly using a combination of quantitative and qualitative methodologies.

In addition, the cross-sectional design of the study prevented causal assumptions between predictor and outcome variables, though some relationships logically suggested causality. Finally, the effects of OD status must be interpreted cautiously, as such participant (subject) variables are primarily correlative in nature. Alternative methodological approaches that measure cultural and sexual response differences between PK and U.S. samples—concomitantly and within the same study participants—could provide a stronger link between these variables. Future research might also include studies that probe women's sexual experiences more deeply through ethnographic and qualitative research methodologies, including whether they feel pressure to fake orgasm so as to appease their husband, or that study women in other emerging countries so as to ascertain whether our findings are borne out in cultures sharing similarities with that of Pakistan's.

Statement of ethics

Subjects have provided written informed consent. The study protocol was approved by the IRB of the authors' institutions.

Disclosure statement

The authors have no conflicts of interests to declare.

Author contributions

ZZ, ZZ, and DR contributed to the conceptualization and data collection; ZZ, ZZ, JK, SM, and DR contributed to data analysis and manuscript preparation. All authors contributed to interpreting the results and final editing and approval.

Notes

1. Pakistan ranks 133/187 on the WHO Gender Inequality Index, indicating a high level of gender inequality.
2. English is one of two official languages of Pakistan, and most coursework in secondary and higher education is conducted in English. However, while most of those living in urban areas are fluent in English, many of those living in rural areas speak only Urdu or their regional/provincial language.
3. Collinear ($r > .60$) covariates included: Importance of sex and interest in sex; arousal difficulty and lubrication difficulty, and sexual relationship satisfaction and overall relationship satisfaction.

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