




# Sexual rumination and relationship satisfaction in Sexual Interest/Arousal Disorder: item-level multivariate analysis in partnered women with Sexual Interest/Arousal Disorder

Orli S. Hellerstein, BA<sup>1</sup> , Leo Arreaza, BSc<sup>2</sup>, Renée E. Woodward, BA<sup>2</sup>, Abhijit Chinchani, PhD<sup>2,3</sup>, Todd S. Woodward, PhD<sup>2,3,\*</sup> , Lori A. Brotto, PhD<sup>4</sup> 

<sup>1</sup>Department of Psychology, University of British Columbia, Vancouver, BC, V6T 1Z4, Canada

<sup>2</sup>BC Mental Health and Addictions Research Institute, Vancouver, BC, V5Z 4H4, Canada

<sup>3</sup>Department of Psychiatry, University of British Columbia, Vancouver, BC, V6T 0A6, Canada

<sup>4</sup>Department of Obstetrics & Gynaecology, University of British Columbia, Vancouver, BC, V5Z 1M9, Canada

\*Corresponding author: BC Mental Health & Addictions Research Institute, Vancouver, BC V5Z 4H4, Canada. Email: [Todd.S.Woodward@gmail.com](mailto:Todd.S.Woodward@gmail.com)

**Keywords:** sexual interest/arousal disorder; sexual rumination; relationship satisfaction.

Female Sexual Interest/Arousal Disorder (SIAD) is a diagnosis consisting of polythetic criteria pertaining to absent or reduced sexual interest or sexual arousal lasting at least 6 months, accompanied by clinically significant levels of personal distress. Low desire is the most prevalent sexual concern among cisgender women although the number of women experiencing resulting distress is somewhat lower. To qualify for a diagnosis of SIAD, women must experience clinically significant distress and at least 3 of 6 SIAD symptoms for a minimum of 6 months.

Our prior work on treatment of SIAD focused on cognitive behavioral therapy and mindfulness-based cognitive therapy (MBCT)<sup>1</sup> and examined related outcomes to SIAD as a way of measuring treatment efficacy. Our team conducted a randomized controlled trial of treatment efficacy in SIAD patients<sup>1</sup> and measured sexual rumination—rumination on one's sexual behaviors and sexual life—and relationship satisfaction outcomes alongside symptoms. Over the course of treatment, sexual rumination and relationship satisfaction improved as SIAD symptoms improved.

In the current study, we conducted secondary analyses of our RCT results to understand the underlying mechanisms in the relationship between SIAD, sexual rumination, and relationship satisfaction. This work identifies the individual relationships between each item on a measure of sexual desire and interest and each item on measures of sexual rumination and relationship satisfaction to establish the most relevant symptoms of SIAD to commonly measured treatment outcomes using multivariate analyses to account for the polythetic nature of the SIAD diagnosis.

As all data analyzed were collected prior to treatment, no differentiation was made between women who went on to receive MBCT or group supportive-expressive sexual educa-

tion. Analyses were conducted on 76 cisgender women in romantic partnerships who provided written consent.

Sexual desire and arousal were measured with the validated sexual interest/desire inventory (SIDI).<sup>2</sup> Cronbach's alpha in this study was 0.79. Sexual rumination was measured with an adapted version of the validated Rumination-Reflection Questionnaire (RRQ)—Adapted Rumination Subscale<sup>3</sup> whereby rumination questions were adapted to reflect ruminations about sex. Cronbach's alpha in this study was 0.93. Relationship satisfaction was assessed using the validated Relationship Assessment Scale (RAS),<sup>4</sup> although item 7 was not recorded. Cronbach's alpha in this sample was 0.91.

A detailed explanation of the analysis method can be found in the supplementary material. When studying the overlap between sets of variables, data are often analyzed by using summed aggregate scores, partially due to concerns regarding Type 1 errors associated with the assessment of multiple significance tests when items in a variable set are individually analyzed. The limitation of this summary score approach is that it prevents examination of which combinations of individual items are responsible for overlap between the SIDI and the RRQ/RAS. Iterative constrained principal component analysis (iCPCA) enables us to examine the component structure of the RRQ/RAS optimized to the overlap with the SIDI at the item-specific level. In turn, this will enable us to understand which SIAD symptoms—using the SIDI—best predict individual aspects of sexual rumination and/or relationship satisfaction. In the current study, we aimed to explore the dominant components of the RAS and RRQ at the multivariate level, constrained to variance predictable from the SIDI, using iCPCA. Thirteen items from the sexual interest and desire inventory SIDI were used as predictor variables, and 12 items from the RRQ modified for sexual rumination,

Received: March 20, 2025. Revised: September 2, 2025. Accepted: September 3, 2025

© The Author(s) 2025. Published by Oxford University Press on behalf of The International Society for Sexual Medicine.

This is an Open Access article distributed under the terms of the Creative Commons Attribution-NonCommercial License (<https://creativecommons.org/licenses/by-nc/4.0/>), which permits non-commercial re-use, distribution, and reproduction in any medium, provided the original work is properly cited. For commercial re-use, please contact [reprints@oup.com](mailto:reprints@oup.com) for reprints and translation rights for reprints. All other permissions can be obtained through our RightsLink service via the Permissions link on the article page on our site—for further information please contact [journals.permissions@oup.com](mailto:journals.permissions@oup.com).

along with 6 items from the RAS, were used as criterion variables. The resulting components identify underlying mechanisms through which SIAD symptoms and items on measures of sexual rumination and relationship satisfaction are linked.

Participants in the parent study were women currently in a committed relationship in their 40s ( $M = 39.85$ ,  $SD = 12.41$ ). Overall, these women reported low sexual desire and arousal ( $M = 15.97$ ,  $SD = 6.81$ ), high sexual rumination ( $M = 4.71$ ,  $SD = 1.02$ ), and low to medium relationship satisfaction ( $M = 23.53$ ,  $SD = 5.09$ ). SIDI items accounted for 43% of the total variance of the RRQ/RAS, and 2 components were extracted from PCA on the RRQ/RAS score matrix constrained to variance predictable from the SIDI items. These 2 components explained 70.20% of the variance in the set of RRQ/RAS predicted scores and were varimax rotated. For component 1 (C1), SIDI item 7 (sexual distress) was a significant predictor ( $r = -0.57$ ,  $PLRP = 0.97$ ,  $P < .005$ ) of a component dominated by 6 RRQ items relating to rumination: 1 ( $r = 0.52$ ), 2 ( $r = 0.57$ ), 3 ( $r = 0.57$ ), 4 ( $r = 0.55$ ), 5 ( $r = 0.55$ ), and 6 ( $r = 0.46$ ), with no RAS items significant (see Tables S1–S3). For component 2 (C2), SIDI item 5 (nonsexual affection) was a significant predictor ( $r = 0.51$ ,  $PLRP = 0.84$ ,  $P < .05$ ) of a component dominated by 5 RAS items relating to relationship satisfaction: 2 ( $r = 0.61$ ), 3 ( $r = 0.65$ ), 4 ( $r = 0.56$ ), 5 ( $r = 0.61$ ) and 6 ( $r = 0.62$ ), with no RRQ items significant for C2 (see Tables S1–S3).

Results from our secondary analysis of RCT data<sup>1</sup> on a group of partnered cisgender women with SIAD showed that (1) sexual distress in partnered women with SIAD optimally predicted specific sexual rumination items, and (2) desire for nonsexual affection in partnered women with SIAD optimally predicted specific relationship satisfaction items. There was no overlap in predicted item component structure between the RRQ and the RAS.

Our finding that greater reported sexual distress (SIDI item 7) was associated with higher rumination scores on the RRQ, but not relationship satisfaction on the RAS, provided a link between sexual distress and sexual rumination. While sexual rumination has not been explored as a codified construct and has not been examined specifically within the context of SIAD, rumination and sexual distress are known to be linked. Our finding that these 2 constructs are related in SIAD may suggest a link between sexual rumination and sexual distress in other sexual dysfunctions.

Our finding that the SIDI item concerning nonsexual affection (SIDI 5) was associated with higher relationship satisfaction scores on the RAS, but not sexual rumination, provided a link between nonsexual affection and relationship satisfaction. The RAS item that showed the weakest involvement in component 2 was item 1, the only item of the RAS that asks the participant to reflect on their partner in the relationship, as opposed to their own role in the relationship or

the relationship overall. This suggests that the participants' view of their partner's contributions to the relationship is less important than their own contributions when viewed in the context of desire for nonsexual affection. Future research should examine how SIAD treatment can focus more on perceptions of partner's contributions and dyadic aspects. In addition to limitations of the statistical method previously discussed, findings are limited to cisgender women in romantic relationships. Future work should address these connections in alternative and diverse populations. Overall, these results show that SIAD symptoms separately predicted sexual rumination and relationship satisfaction items and emphasize the importance of using individual items instead of aggregate scores to understand the complexity of the SIAD diagnosis.

## Author contributions

O.S.H.: Formal analysis-Lead, Writing—original draft-Equal, Writing—review & editing-Lead. L.A.: Formal analysis-Supporting, Writing—original draft-Supporting. R.W.: Formal analysis-Supporting. A.M.C.: Formal analysis-Supporting. L.A.B.: Supervision-Supporting, Writing—review & editing-Supporting. T.W.: Methodology-Lead, Supervision-Equal, Writing—review & editing-Equal.

## Supplementary material

Supplementary material is available at *The Journal of Sexual Medicine* online.

## Funding

None declared.

## Conflicts of interest

None declared.

## References

1. Brotto LA, Zdaniuk B, Chivers ML, *et al.* A randomized trial comparing group mindfulness-based cognitive therapy with group supportive sex education and therapy for the treatment of female sexual interest/arousal disorder. *J Consult Clin Psychol.* 2021;89(7): 626–639. <https://doi.org/10.1037/ccp0000661>
2. Clayton AH, Segraves RT, Bakish D, *et al.* Cutoff score of the sexual interest and desire inventory-female for diagnosis of hypoactive sexual desire disorder. *J Women's Health.* 2010;19(12):2191–2195. <https://doi.org/10.1089/jwh.2010.1995>
3. Trapnell PD, Campbell JD. Private self-consciousness and the five-factor model of personality: distinguishing rumination from reflection. *J Pers Soc Psychol.* 1999;76(2):284–304. <https://doi.org/10.1037/0022-3514.76.2.284>
4. Hendrick SS. A generic measure of relationship satisfaction. *J Marriage Fam.* 1988;50(1):93–98. <https://doi.org/10.2307/352430>