

**Category 2****(a) Drafting the Article**

Robert E. Pyke

**(b) Revising It for Intellectual Content**

Robert E. Pyke; Anita Clayton

**Category 3****(a) Final Approval of the Completed Article**

Robert E. Pyke; Anita Clayton

**References**

- 1 Brotto LA, Bitzer J, Laan E, Leiblum S, Luria M. Women's sexual desire and arousal disorders. *J Sex Med* 2010;7:586–614.
- 2 Clayton AH, DeRogatis LR, Rosen RC, Pyke R. Intended or unintended consequences? The likely implications of raising the bar for sexual dysfunction diagnosis in the proposed DSM-V revisions: 1. For women with incomplete loss of desire or sexual receptivity. *J Sex Med* 2012;9:2027–39.
- 3 Sand M, Fisher WA. Women's endorsement of models of female sexual response: The nurses' sexuality study. *J Sex Med* 2007;4:708–19.
- 4 Giles KR, McCabe MP. Conceptualizing women's sexual function: Linear vs. circular models of sexual response. *J Sex Med* 2009;6:2761–71.
- 5 Giraldi A, Kristensen E, Sand M. Endorsement of models describing sexual response of men and women with a sexual partner. *J Sex Med* 2015;12:116–28.
- 6 Clayton AH, Goldfischer ER, Goldstein I, Derogatis L, Lewis-D'Agostino DJ, Pyke R. Validation of the decreased sexual desire screener (DSDS): A brief diagnostic instrument for generalized acquired female hypoactive sexual desire disorder (HSDD). *J Sex Med* 2009;6:730–8.
- 7 Goldfischer ER, Breaux J, Katz M, Kaufman J, Smith WB, Kimura T, Sand M, Pyke R. Continued efficacy and safety of flibanserin in premenopausal women with hypoactive sexual desire disorder (HSDD): Results from a randomized withdrawal trial. *J Sex Med* 2011;8:3160–72.
- 8 Clayton AH, Goldfischer E, Goldstein I, DeRogatis L, Nappi R, Lewis-D'Agostino DJ, Kimura T, Hebert A, Pyke R. Validity of the decreased sexual desire screener for diagnosing hypoactive sexual desire disorder. *J Sex Marital Ther* 2013;39:132–43.
- 9 Kingsberg S, Shifren J, Wekselman K, Rosenberg C, Koochaki P, Derogatis L. Evaluation of the clinical relevance of benefits associated with transdermal testosterone treatment in postmenopausal women with hypoactive sexual desire disorder. *J Sex Med* 2007;4(4 Pt 1):1001–8.
- 10 Jayne C, Simon JA, Taylor LV, Kimura T, Lesko LM, SUNFLOWER study investigators. Open-label extension study of flibanserin in women with hypoactive sexual desire disorder. *J Sex Med* 2012;9:3180–8.
- 11 Clayton A, Jordan R, Edelson J, Greenberg S, DeRogatis L, Kingsberg S, Rosen R, Althof SE, Portman DJ, Krychman ML. Efficacy of subcutaneous bremelantoid self-administered at home by premenopausal women with female sexual dysfunction: a placebo-controlled dose-ranging study, ASCP/NCDEU annual meeting, Hollywood FL, May 28, 2013.
- 12 Tuiten A, Bloemers J, van Rooij K, Poels S, Gerritsen J, van Ham D, de Leede L, Everaerd W. Response to "toward personalized sexual medicine: Where is the evidence?". *J Sex Med* 2014;11:2359–63.
- 13 Pyke RE, Katz M, Segraves RT, Sitchon N. Phase IIa study of Lorexys™ for HSDD in premenopausal women: Novel responder and remitter results (abstract), Fourth International Consultation on Sexual Medicine, Madrid, Spain, June 19–21, 2015.
- 14 Pollack A. "Viagra for women" is backed by an FDA panel, *New York Times*, June 4, 2015.
- 15 Pereira VM, Arias-Carrión O, Machado S, Nardi AE, Silva AC. Sex therapy for female sexual dysfunction. *Int Arch Med* 2013;6:37.

## Women's Endorsement of Different Models of Sexual Functioning Supports Polythetic Criteria of Female Sexual Interest/Arousal Disorder in DSM-5

DOI: 10.1111/jsm.12965

There has been much interest in identifying the best model of sexual functioning that would apply universally to women and men. Although Masters and Johnson's [1] model depicting arousal, plateau, orgasm, and resolution dominated the field of sex therapy for decades, researchers have been formulating and testing other models of sexual response. The goal of the recent study by Giraldi et al. [2] was to examine the endorsement of three different models of sexual functioning in a large Danish nonclinical sample of men and women. A total of 499 men and 573 women completed, among other measures, the Female Sexual Function Index (FSFI) and the Female Sexual Distress Scale (FSDS; for women) and the International Index of Erectile Function (IIEF; for men). Participants were also given a brief description of three models of sexual response, and asked to choose the one that described their own

sexual response with their current partner, or, if none fit, "None of these." The three descriptions were originally written for the well-known "Nurses' Sexuality Study" [3] to correspond to the linear models of sexual response proposed by Masters and Johnson and Kaplan [4] and the circular model proposed by Basson [5], respectively (see Appendix).

Among the original sample, only the data from 429 women and 401 men, all sexually active, were analyzed. There were some major strengths of the study, such as the large sample size, and the inclusion of both women and men, allowing Giraldi et al. to make comparisons between the sexes. In this letter, we draw attention to important methodological limitations that were not addressed in the article, as well as our concerns related to Giraldi et al.'s interpretations of their findings and representation of the development

of the Diagnostic and Statistical Manual of Mental Disorders, 5th Edition (DSM-5) criteria for Female Sexual Interest/Arousal Disorder (FSIAD).

### Questionnaire Design

In this study, Giraldi et al. selected three models of sexual response from among those developed over the past 50 years. Of those developed over the last decade, Giraldi et al. cited only two: the “Dual Control Model” [6] and the “Sexual Tipping Point” [7]. In contrast to Giraldi et al.’s statement that the Dual Control Model describes “*male* sexual response . . . as a balance between central excitation and inhibition,” this model was proposed to apply equally to women [6]. In any case, the Dual Control Model is not a model describing human sexual response, but one that conceptualizes individual differences in sexual arousal. It is curious that Giraldi et al. did not mention the Incentive Motivation Model [8–10], which arguably has generated the most empirical research compared with other models such as the circular model, or include its description as an option for participants in this study.

Importantly, there were several significant problems with the way the descriptions of the three models of sexual response (see Appendix) were presented (ordering, context, accuracy, and complexity), that may have biased participants’ endorsement of the models and/or limited interpretation of the findings.

1. Ordering: The order in which the descriptions of the models were presented to participants was always Masters and Johnson’s first, followed by Kaplan’s, and then Basson’s. Given the primacy effect [11], which finds that people tend to remember and identify with things earlier on in a list compared with those presented later, it is likely that this effect influenced endorsement across the three models. However, the recency effect [11] may also have influenced endorsement of the later presented models. At a minimum, the order of presentation of the models should have been counterbalanced across participants.
2. Context: While the explanation of the Masters and Johnson model focused only on the person’s experience *during* the sexual encounter, the descriptions of both the Kaplan and the Basson models also focused on the experiences leading to a sexual encounter. This is reflective of the content of the original models; however, it is also problematic, as it is possible for a person to initiate sex for desire or nondesire-related reasons and still endorse the description in the Masters and Johnson model. Thus, the descriptions of the Kaplan and Basson models are potentially compatible with the description of the Masters and Johnson model, rather than the three being mutually exclusive. Further, the endorsement of the Masters and Johnson model by participants in this study cannot be interpreted as indicating any particular motivation for sexual activity, as is done by Giraldi et al. throughout their Discussion (e.g., “. . . the M&J model, which described sexual arousal as the primary motive for sexual activity,” p. 124).
3. Accuracy: While the Masters and Johnson and Kaplan models are accurately described, the description of the Basson model does not reflect the possibility of initiating a sexual encounter because of feelings of sexual desire. The actual Basson model includes “spontaneous sexual desire” at the center of the circular cycle, as a possible motivator for sexual activity [5].
4. Complexity: It is notable that the description of the Masters and Johnson model was brief and clear, whereas the description of the Kaplan model was more complex, and the description of the Basson model was even more complex, twice as long, potentially confusing, and framed in the negative rather than the positive (e.g., “I am not at the beginning ‘in the mood’”). Given evidence that this inconsistency in framing of the three options may directly impact participants choices [12], it would have been

more appropriate for the description of the Basson model to begin with “I begin sexual activity for any one or many reasons, which may or may not include feelings of sexual desire.”

Other concerns with the presentation of the models include the lack of definitions for terms such as “desire” and “arousal,” which may have created inconsistency in how participants understood these terms and therefore which model they endorsed. Participants were also instructed to choose only one model, a limitation that was acknowledged but not explained by Giraldi et al. This does not allow for insight into whether a single participant might have endorsed a different model at different times or in different relationships.

### Interpretation of Results

With respect to the female participants, 34% endorsed the Kaplan model, 28% endorsed the Masters and Johnson model, and 26% endorsed the Basson model. Interestingly, 13% of the women did not endorse any of the three models. Giraldi et al. [2] concluded that equal proportions of women endorsed the three models and that “no single model described women’s sexual response, but all the presented models could describe the sexual experiences of a portion of women” (p. 124). This seems to be a reasonable conclusion to make based on the proportions of women endorsing the three descriptions.

Women who endorsed the Kaplan or Masters and Johnson models had mean FSFI scores that were significantly higher than women who endorsed the Basson model or none of the models. Furthermore, women with FSDS scores  $\geq 15$  (the cut-off suggesting clinically significant sexual distress) were significantly more likely to endorse the Basson model or none of the models than women who scored below this cut-off. The subgroup of 17% of the women with FSFI scores  $\leq 26.55$  (the cut-off suggesting sexual dysfunction) and FSDS scores  $\geq 15$  was also examined. Among these women, who represented the “sexually dysfunctional” group, over half (56%) endorsed the Basson model, 19% endorsed none of the models, 18% endorsed the Kaplan model, and only 7% the Masters and Johnson model. The majority of the women who endorsed the Basson model fell in this “sexually dysfunctional” group. Giraldi et al. concluded that it was mostly women reporting sexual difficulties who endorsed the Basson model, whereas women with scores in the “functional” range on the FSFI and FSDS were more likely to endorse the descriptions of the Masters and Johnson and Kaplan models.

Giraldi et al. suggested that “women who endorse the Basson model might be at a higher risk of developing sexual dysfunctions” (p. 125). While this is a possibility, there are other explanations that should be given equal consideration, including: (i) women who are experiencing sexual problems may begin to relate more to the Basson model, which explicitly includes the possibility of nondesire motivations for sexual activity; (ii) women with distressing sexual difficulties may have spent more time thinking about their own sexuality and sexual function, and thus have greater insight into the complexity of the process, prompting them to choose the Basson model; and (iii) women with depressed mood may both experience sexual problems and endorse this study’s description of the Basson model (because of its negative phrasing relative to the other models). It is unfortunate that the study measured depressed mood, but that its association with endorsement of the three models was not reported.

With respect to the male participants, in contrast to Giraldi et al.’s statement that “for the men included in our study, desire precedes arousal, and this difference can be distinguished” (p. 124), their results suggest significant variability, as only 38% of the men endorsed the Kaplan model. Giraldi et al.’s findings appear to demonstrate that, consistent with previous studies that have questioned the adequacy of existing models of sexual response in

describing men's sexual responses [13], no one model explained the sexual response experienced by men (or women).

Another concern with the interpretation of the male participants' responses are the conclusions drawn about motivations for sexual activity (e.g., "Nearly 50% of the investigated men endorsed the M&J model, which described sexual arousal as the primary motive for sexual activity," p. 124), which are inappropriate considering that the Masters and Johnson model begins once sexual activity has already commenced, and does not discuss motivation at all.

Finally, some of the conclusions by Giraldi et al. are contradictory. After stating in the Results section that "a *considerable difference* existed between men's and women's endorsements of the models of sexual response" (p. 120), the Discussion section begins with: "The most prominent results in the study are the overall *similarity* between men's and women's endorsements of the models" (p. 123).

### Representation of FSIAD

In several places, Giraldi et al. misrepresented the process leading to the revised diagnostic criteria for female sexual disorders in the DSM-5. They stated that the introduction of FSIAD was "mainly based on the concept that women are not able to distinguish between arousal and desire, and it incorporates the Basson model as a description of women's sexual function" (p. 126). These statements are incorrect. First, the Basson model was not incorporated as a model underlying the FSIAD diagnosis. We have previously stated that the rationale underlying the DSM-5 proposals included moving beyond the widely criticized human sexual response cycle model as a framework for female sexual disorders [14]. In fact, the Sexual Dysfunctions subworkgroup adopted polythetic criteria for FSIAD precisely to underline the fact that no single model of sexual response fits the experience of all women, as reflected in the FSIAD "Diagnostic Features" section: "There may be different symptom profiles across women, as well as variability in how sexual interest/arousal disorder may be expressed . . ." (p. 433) [15]. In contrast to Giraldi et al.'s assertion that their data "indicated that a merging of desire and arousal disorders in the DSM-5 is inconsistent with women's overall sexual experiences" (p. 126), we believe that their findings support the opposite conclusion. The fact that women can meet any three of six FSIAD criteria allows for different ways in which sexual response (and the lack thereof) can be experienced within and across women and very much fits their findings, which revealed approximately equal endorsement of the different models.

Second, the introduction of FSIAD was not "mainly based" on women's lack of differentiation between arousal and desire, as suggested by Giraldi et al. Comprehensive literature reviews provided the full rationale for why the definition of hypoactive sexual desire disorder in the DSM (4th ed., text revision) was expanded [16] and why FSAD was eliminated [17]. The description of FSIAD in the DSM-5 states that "sexual desire and arousal frequently coexist and are elicited in response to sexual cues" (p. 434) [15] and the Sexual Dysfunctions subworkgroup responsible for introducing the FSIAD diagnosis has never claimed that sexual desire and arousal are indistinguishable.

In conclusion, the results of this study were interesting and consistent with much of the previous research on women and men's sexuality, and we congratulate Giraldi et al. on attempting to move the science of understanding models of sexual response forward. Women showed more variation than men regarding which models they endorsed, consistent with previous evidence on the variability of women's sexuality (for review, see [18]). Contrary to Giraldi et al.'s conclusions, we would contend that their data very much support the introduction of FSIAD and its polythetic criteria in DSM-5.

*Conflict of Interest:* The author(s) report no conflicts of interest.

LORI A. BROTTTO, PHD,\* CYNTHIA A. GRAHAM, PHD,<sup>†</sup>  
LAUREL Q. PATERSON, PHD,\* MORAG A. YULE, MA,<sup>‡</sup> and  
KENNETH J. ZUCKER, PHD<sup>§</sup>

\*Obstetrics/Gynaecology, University of British Columbia, Vancouver, BC, Canada; <sup>†</sup>Psychology, University of Southampton, Southampton, UK; <sup>‡</sup>Psychology, University of British Columbia, Vancouver, BC, Canada; <sup>§</sup>Child, Youth and Family Services, CAMH, Toronto, ON, Canada

### Statement of Authorship

#### Category 1

##### (a) Conception and Design

Lori A. Brotto; Cynthia A. Graham; Laurel Q. P. Paterson; Morag A. Yule; Kenneth J. Zucker

##### (b) Acquisition of Data

n/a

##### (c) Analysis and Interpretation of Data

n/a

#### Category 2

##### (a) Drafting the Article

Lori A. Brotto; Cynthia A. Graham; Laurel Q. P. Paterson; Morag A. Yule; Kenneth J. Zucker

##### (b) Revising It for Intellectual Content

Lori A. Brotto; Cynthia A. Graham; Laurel Q. P. Paterson; Morag A. Yule; Kenneth J. Zucker

#### Category 3

##### (a) Final Approval of the Completed Article

Lori A. Brotto; Cynthia A. Graham; Laurel Q. P. Paterson; Morag A. Yule; Kenneth J. Zucker

### References

- Masters WH, Johnson VE. Human sexual response. Boston, MA: Little, Brown; 1966.
- Giraldi A, Kristensen E, Sand M. Endorsement of models describing sexual response of men and women with a sexual partner: An online survey in a population sample of Danish adults ages 20–65 years. *J Sex Med* 2015;12:116–28.
- Sand M, Fisher WA. Women's endorsement of models of female sexual response. The Nurses' Sexuality study. *J Sex Med* 2007;4:708–19.
- Kaplan H. The new sex therapy. New York, NY: Brunner Mazel; 1974.
- Basson R. Rethinking low sexual desire in women. *BJOG* 2002;109:357–63.
- Bancroft J, Graham CA, Janssen E, Sanders SA. The dual control model: Current status and future directions. *J Sex Res* 2009;46:121–42.
- Perelman MA. The sexual tipping point: A mind/body model for sexual medicine. *J Sex Med* 2009;6:629–32.
- Both S, Everaerd W, Laan E. Desire emerges from excitement: A psychophysiological perspective on sexual motivation. In: Janssen E, ed. *The psychophysiology of sex*. Bloomington, IN: Indiana University Press; 2007:327–39.
- Laan E, Both S. What makes women experience desire? *Fem Psychol* 2008;18:505–14.
- Laan E, Janssen E. How do men and women feel? Determinants of subjective experience of sexual arousal. In: Janssen E, ed. *The psychophysiology of sex*. Bloomington, IN: Indiana University Press; 2007:278–90.

- 11 Deese J, Kaufman RA. Serial effects in recall of unorganized and sequentially organized verbal material. *J Exp Psych* 1957;54:180–7.
- 12 Tversky A, Kahneman D. The framing of decisions and the psychology of choice. *Science* 1981;211:453–8.
- 13 Barlow DH. Causes of sexual dysfunction: The role of anxiety and cognitive interference. *J Consult Clin Psychol* 1986;54:140–8.
- 14 Graham CA, Brotto LA, Zucker KJ. Response to Balon and Clayton (2014): Female Sexual Interest/Arousal Disorder is a diagnosis more on firm ground than thin air. *Arch Sex Behav* 2014;43:1231–4.
- 15 American Psychiatric Association. Diagnostic and statistical manual of mental disorders. 5th edition. Washington, DC: American Psychiatric Publishing; 2013.
- 16 Brotto LA. The DSM diagnostic criteria for Hypoactive Sexual Desire Disorder in women. *Arch Sex Behav* 2010;39:221–39.
- 17 Graham CA. The DSM diagnostic criteria for Female Sexual Arousal Disorder. *Arch Sex Behav* 2010;39:240–55.
- 18 Bancroft J, Graham CA. The varied nature of women's sexuality: Unresolved issues and a theoretical approach. *Horm Behav* 2011;59:717–29.

## Appendix

1. When I'm being sexual with my partner, I become excited, or "turned on." Then those feelings and sensations build through our activity until I may reach orgasm. Then I return to a "relaxed" state. (Masters and Johnson model)
2. I mostly agree to sexual activity with my partner or initiate it when I am feeling sexual desire or "in the mood"—meaning I want the sexual sensations, excitement, pleasure, maybe orgasm(s) and the good feelings that follow. Once my partner and I start interacting and touching and stimulating each other, I get aroused—excited, feel the sexual sensations building and maybe have orgasm(s). (Kaplan).
3. I mostly agree to sexual activity with my partner or initiate it for reasons other than sexual desire (for example, I might want to be closer to my partner emotionally). In other words, I am not at the beginning "in the mood." Once my partner and I start interacting and touching and stimulating each other, I get aroused-excited, feel the sexual sensations building and maybe have orgasm(s). When it gets more intense, I do feel desire—then I am "in the mood" and I want to continue. (Basson).

## Response and Rebuttal of “Endorsement of Models Describing Sexual Response Men and Women with a Sexual Partner: An Online Survey in a Population Sample of Danish Adults Ages 20–65 Years”

DOI: 10.1111/jsm.12984

### Can an Endorsement Be Problematic?

We thank the authors of the comment for their interest in our article “Endorsement of models describing sexual response in men and women with a sexual partner.”

Human sexuality is influenced by bio-psycho-social factors and is as such not a static condition but varies over the life of an individual, in different contexts, with psychological and somatic state and with the individual's perception of its own sexuality. Furthermore, the way we conceptualize the sexual responses changes over time and is influenced by norms, theory, empirical data, and popular culture. So one could ask whether it is possible at all to investigate sexual responses in a quantitative study? It is difficult to apply quantitative research on sexual responses and models describing them, as we have done in our study. In order to do so, it is necessary to make a decision how to approach the question raised, in our article: Which model best describe men and women's sexual response at this period of their life? In the process, it has been necessary to make decisions and simplify what is unquestionably a complex experience in order to be able to do the research. But we feel quite confident that the study is adding valuable knowledge to our understanding of men and women's sexual responses taking into consideration that the responses are not static and may change, which is also emphasized in the article. We are therefore surprised that the authors of the comment indicate that we think sexual responses are not changing as we clearly state that the model you endorse may change over life and also overlap.

Two major concerns are raised by the authors. First, the descriptions of the sexual responses, especially the “Basson model,” as they find that it does not reflect her model. The wording used in our study is the same wording used in the study by Sand and Fisher [1]. In their study, the final wording utilized was an almost verbatim copy of that written by Dr. Basson herself when they approached her for a description. We do believe that no one is better than Dr. Basson herself to describe the model. Furthermore, we still find it very interesting that when men and women are presented to the same descriptions of sexual responses, they show many similarities but also differences. Interestingly, Giles and McCabe in an Australian sample of 404 women aged 16–65 years used a slightly different approach to evaluate the Basson model but came to similar conclusions [2]. We note that although similar criticism has been leveled at these studies, to date, they have been the only ones in which this construct has been evaluated. We think that the replication seen in both the Australian and now Danish samples of women speak powerfully to the validity of the findings.

The second major concern is the use of the Female Sexual Function Index (FSFI) [3,4] and the International Index of Erectile Function (IIEF) [5] and that they are biased against participants who rarely acknowledge nontriggered desire. The FSFI and IIEF are not perfect, but we find that they give us important information, with their limitations, being the best validated and most used instruments in sexological research. Our results showed interestingly that the patterns of response were different between men and women. Specifically, that men still endorsed the models focusing on