

authors offer no justification for the inclusion of data from these subjects, nor any accounting to indicate that these subjects were excluded from their analysis of sexual arousal and desire. Moreover, it is clear from the published manuscripts that the other three studies providing subjects for this investigation [7–9] used videos of inconsistent duration (20 seconds to 3 minutes). Without uniformity of the erotic stimulus, the legitimacy of pooling data from the various sources is questionable.

It is disturbing that the authors do not provide descriptive statistics about the study's central parameter: the hours of pornography viewed. While the authors report that they have clustered the data into three bins (none, less than 2 hours, more than 2 hours), they do not provide basic population statistics such as the mean, standard deviation, median, or range for hours of pornography viewing for the overall population or any subpopulation. Without understanding the populations in terms of the critical parameter, the reader cannot translate the study findings to the care of his/her individual patients.

The hours-viewed parameter itself is poorly defined. We are not told if the self-report of hours referenced the preceding week, the average over the last year, or was entirely left to subject interpretation. Were there subjects who were new porn users who had not had enough exposure to develop erectile or other sexual issues? Were there subjects who were previously heavy users who had recently cut down or eliminated their pornography viewing? Absent a well-defined and consistent referent, the porn use data are uninterpretable.

Furthermore, the authors do not report on relevant viewing parameters such as total pornography usage, age of onset, presence of escalation, and extent of sexual activity with partner which may have bearing on male sexual functioning [11,12]. In addition, the exclusion of hypersexual men (the men who generally complain about pornography-induced erectile dysfunction) raises questions about the relevance and generalizability of the study's erectile function findings.

Even more disturbing is the total omission of statistical findings for the erectile function outcome measure. The statistical tests that the authors used are not identified, although the reader is told that there were "several." No statistical results whatsoever are provided. Instead, the authors ask the reader to simply believe their unsubstantiated statement that there was no association between hours of pornography viewed and erectile function. Given the authors' conflicting assertion that erectile function with a partner may actually be improved by viewing pornography (with fruit fly studies cited for support), and their boastful prepublication promotion of their findings on Twitter (<https://twitter.com/NicolePrause/status/552862571485605890>), the absence of statistical analysis is most egregious.

The authors clearly devoted much time and energy to their research project. It is unfortunate that they have not provided the reader with sufficient information about the population studied or the statistical analyses to justify their conclusion that pornography is unlikely to negatively impact erectile functioning. While there is some indication in the data that nonporn-addicted men watching brief pornography films may have increased sexual arousal and desire, this is hardly a novel finding.

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References

- 1 Yoder VC, Virden TB, Amin K. Internet pornography and loneliness: An association? *Sex Addict Compulsivity* 2005; 12:19–44.
- 2 Boies SC, Cooper AI, Osborne CS. Variations in internet-related problems and psychosocial functioning in online sexual activities: Implications for social and sexual development of young adults. *Cyberpsychol Behav* 2005;7:207–40.
- 3 Schneider J. The impact of compulsive cybersex behaviors on the family. *Sex Relat Ther* 2003;18:329–54.
- 4 Philaretou AG, Mahfouz A, Allen K. Use of Internet pornography and men's well-being. *Int J Mens Health* 2005;4:149–69.
- 5 Twohig MP, Crosby JM, Cox JM. Viewing Internet pornography: For whom is it problematic, how and why? *Sex Addict Compulsivity* 2009;16:253–66.
- 6 Prause N, Moholy M, Staley C. Biases for affective vs. sexual content in multidimensional scaling analysis: An individual difference perspective. *Arch Sex Behav* 2013;43:463–72.
- 7 Prause N, Staley C, Roberts V. Frontal alpha asymmetry and sexually motivated states. *Psychophysiology* 2014;51:226–35.
- 8 Prause N, Staley C, Fong TW. No evidence of emotion dysregulation in "hypersexuals" reporting their emotions to a sexual film. *Sex Addict Compulsivity* 2013;20:106–26.
- 9 Moholy M, Prause N, Proudft GH, Rahman A, Fong T. Sexual desire, not hypersexuality, predict self-regulation of sexual arousal. *Cogn Emot* 2015;6:1–12.
- 10 Julien E, Over R. Male sexual arousal across five modes of erotic stimulation. *Arch Sex Behav* 1988;17:131–43.
- 11 Kuhn S, Gallinat J. Brain structure and functional connectivity associated with pornography consumption: The brain on porn. *JAMA Psychiatry* 2014;71:827–34.
- 12 Seigfried-Spellar KC, Rogers MK. Does deviant pornography use follow a Guttman-like progression. *Comput Human Behav* 2013;29:1997–2003.

Red Herring: Hook, Line, and Stinker

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A red herring is not a delicacy that we have had the pleasure of trying, but we are fond of its use as an English idiom. In our "Viewing Sexual Stimuli Associated with Greater Sexual Responsiveness, Not Erectile Dysfunction", we speculate that viewing erotic films might resemble such a fish/idiom with respect to causing erectile dysfunction (ED). The letter writer weaves a nefarious tale of "gays", "missing data", and "egregious" problems in our original study [1]. This sounds like a good read indeed, if any of the problems had actually occurred.

No questions were raised about the strong finding that the more men viewed sex films at home the stronger sexual desire they reported for their partner. In fact, this result was described as "hardly novel". Also, no questions were raised about the poor literature published in this area. We were pleased to find that our original report was replicated and extended by a recent independent laboratory study that examined male sexual function even more broadly [2]. Hence, we seem to agree that viewing sex films at home does not inexorably impair the desire for one's

Table 1 Participant counts

Source	Prause and Pfau	Moholy et al.	Prause, Staley, and Fong	Prause, Staley, and Roberts	Prause, Moholy, and Staley	Moholy and Prause (under review)
Male participants*	280	104	53	20	51	52
Participants with partners [†]	59	48	0	0	11	0
Participants with IIEF scores [‡]	127	92	0	0	35	0

*Participants across studies actually total 290, but 10 had no measures relevant for this analysis and were excluded. All participants correct as originally reported.

[†]All participants correct as originally reported.

[‡]Of the 133 men who started the IIEF, six failed to answer one or more of the items. Rather than impute, these missing values were excluded from analysis. Hence, all participants are correct as originally reported.

partner, and is in need of further research that actually tests such claims.

The letter writer begins by stating that “the Internet has lead [sic] to a host of . . . problems for our patients”, but cites five studies that do not contrast sexual stimulation on the Internet from other forms of visual sexual stimulation. This statement is contradicted by data showing that VHS was responsible for a larger change in sex film viewing than the Internet [3]. To make this more accessible for nonscientists, we have created an accessible application that plots data from the General Social Survey for you and welcome its distribution [4].

The author describes “discrepancies” in participant counts, but no discrepancies exist. Table 1 shows all 280 participants, including the subsample with International Index of Erectile Function (IIEF) scores.

Secondary analysis affords two benefits. First, participants who had to be excluded from published studies because of problems with some measures (e.g., high blink rate in electroencephalography studies, failure to complete a computer task as instructed) do not need to be excluded when a secondary analysis does not require those affected measures. Hence, many participant counts for this study should be, and are, higher than those available for analysis in the initial publications. Second, we are able to include questionnaire measures that had to be described only briefly in previous publications. Full descriptions of every single questionnaire administered are commonly excluded from publications for many not-so-sinister reasons. Questionnaires (such as the IIEF) typically are described thoroughly in the publications that introduce the questionnaires. Repeating the entirety of those original descriptions would be redundant (and exceed word limits). Sometimes, authors are asked during the peer-review process to remove descriptions of questions, because the questions and their answers are straightforward and pertain in an obvious way to the overall hypotheses being tested. In our analysis, we used IIEF data from every participant for whom we also had a complete report of the average hours of erotica viewed weekly and the completed IIEF. This is important for statistical power (as we reported in the article).

The author of the letter also made a false statistical statement: “Results from different Likert scales are not poolable [sic]”. Of course they are! In fact, there are at least three different methods to pool them. The first method (actually encompassing many possibilities) is to normalize the scores (e.g., *z*-scores, *T*-scores, percentile rank, etc). The second method is to use “scale” as a covariate. The third is to provide evidence that participants were using the scale in a consistent way theoretically, such as similar variance without using the top two or bottom two scores (see e.g., [5,6]).

The author also made a false statement that stimuli varied between studies and this was not “controlled”. We assessed and controlled the stimuli as stated in our original article (“sexual arousal reported did not differ by film length, so data were collapsed across studies for this analysis”, p. E4).

Finally, again contrary to the author’s claims, there were not “four gay” men in any study. All participants were required to be

attracted to the opposite sex, as stated in the original article (“All reported attraction to women” p. 3). It seems the author remains unaware of the well-replicated studies showing that self-identity often differs from behaviors, fantasy/attraction, and/or relationship desires in both men and women. Also, this thing called “bisexual” exists. We recommend an excellent review of this research and topic by Diamond [7] and more recently van Anders [8]. Hence, all stimuli were appropriate for the female sex attraction reported by the men tested.

We describe the hours-viewed parameter in two places in the study, and included its distribution (“strongly positively skewed” p. 4) and bin counts (“0 (n = 25), up to 2 (n = 56), or more than 2 (n = 55) hours”). We now add the range of 0–25 hours per week. Of course, the skew (4.7) was, as we originally reported, high. Finally, the mean hours of viewing was 1.5 hours, which is in the range of experience of 46.4% of men in one large study [9].

The author claims we did not adequately describe the sex film viewing variable. We described that variable at least 13 places in the article (“weekly average” in abstract; “reported the average number of hours they consumed VSS per week” on p. 3; “amount of VSS viewed weekly” and “Hours of VSS viewing per week” and “hours of VSS in the average week” on p. 4; “amount of VSS viewed during the week” and “hours of VSS consumed in the average week” and “hours of VSS viewed in the typical week” and “hours of VSS viewed in the average week” and “hours of VSS being consumed in the average week” and “hours of VSS viewed in the average week” on p. 5; “Hours viewing sexual stimuli per week on average” in Figure 1; “hours of VSS viewed weekly” on p. 6). The question was exactly as described, “How much time per week did you spend using pornography during the past month?” with the response box including the descriptor “hours” for which they could indicate partial hour(s).

Assessing current average hours per week is consistent with other studies of the level of sexual film use. For example, Hald and Malamuth [10] used one item from four time-related measures described as the “average time of use in minutes per week during the past year” (p. 102). Kühn and Gallinat [11] included “hours on average spent with pornographic material during the week” as their only predictor in quantifying porn use in relation to brain structure and function (p. 828). Rosser et al. [12] examined “frequency and duration measures of SEM consumption of any kind in the last 3 months . . .” which were combined “to create an index of the hours per week dedicated to SEM consumption” (p. 1491). Further, the hours per week of online sexual activities was the only use variable that differentiated problem and nonproblem users in an early study [13] and the amount of use continues to be included in recent conceptualizations of “problem” use (“Hypersexual Disorder is associated with increased time engaging in sexual fantasies and behaviors” [14], p. 385). Other scientists have used less detailed measures of engagement (“e.g., “Approximately how many times in the past 30 days have you viewed pornography?”, p.72 [15]; partner viewing frequency as “6 (usually), 5 (usually), 4 (often), 3 (sometimes), 2 (rarely), and 1 (never).” [16]). Thus, our approach, which exceeds the measures of many investigations, is

commonly used and has been demonstrated to differentiate proposed clinical groups. Although we appreciate a good drama, “the porn use data is [sic] uninterpretable”, is a bit emotional for measures that represent the current state of the science. Also, one should remember that the data “are”.

The author cites two studies as evidence that we should have assessed “total pornography usage, age of onset, presence of escalation, and extent of sexual activity with partner”. The first study actually demonstrates the opposite. Specifically, “Even when controlling for Internet addiction, we found a negative association between PHs and the right caudate GM volume ($r = -0.336$, $P < .01$); similarly, the association was still significant when controlling for sex addiction” (p. E4).¹¹ This means that more in-depth assessment than the hours of weekly consumption added nothing to the prediction. Further, those authors actually did not analyze any of the variables independently (age of onset, presence of escalation, sexual activity with a partner). The second study cited is quite puzzling, as those scientists assessed only age of onset (“Only 15 items from the Online Pornography Survey, which focused on the respondent’s age of onset for online pornography use, were included in this study”, p. 1998) [17]. Finally, a new study has expanded our initial results to show that neither the frequency of viewing over a year nor changes in the frequency of use were related to erectile problems [2]. Hence, the complaint was not actually supported and was not warranted.

We followed the example of Kuhn and Gallinat [11] and chose to examine men not reporting problems in their use of erotica. We state this at least twice in the article (“Nontreatment-seeking men” in the abstract; “The current study investigated erectile difficulties in a non-patient sample”, p. E3), then spend the better part of a paragraph (beginning “Finally, it is worth reiterating that these data did not include hypersexual patients”) discussing this decision. Our use of nontreatment-seeking men was clearly described and is consistent with previous studies. Also, it is an appropriate test of the notion that sex film use leads inexorably to erectile problems. Had we tested men who reported erectile problems, and especially men who may well have had their porn use identified by a therapist as the “cause” of their ED raising anxiety around sex film use and masturbation, the claim could be falsely reified. As many independent studies have now demonstrated, the main variable that differentiates those identifying as sexually “addicted” is primarily religiosity and conservative values [18,19], so such a sample would introduce a known sample bias.

The author also asks that we introduce a statistical error by reporting nonsignificant statistics for the partnered analysis. The only reason to include nonsignificant statistics would be to interpret P values, which reflects a misunderstanding of P values. A P value cannot be directly interpreted [20]. Hence, one common practice is to not facilitate this error by reporting nonsignificant values (or only report $P = \text{not significant}$). We now reveal our grand conspiracy to hide these results by admitting that, well, actually, neither the total IIEF score ($P = 0.2$) nor the erectile functioning subscale ($P = 0.6$) were near $P < 0.05$.

We also recognize that we stated in one place that the IIEF was a “19-item” (p. E3) scale. The scale actually is a 15-item scale. We profusely apologize for this gross oversight, although the scores, results, and conclusions were accurate and indicative of normal erectile function (cp., controls from table V [21]).

The author further describes our announcement of the accepted publication using social media as “boastful pre-publication promotion . . . most egregious”. As both authors are federally funded scientists, we are mandated by our governments to disseminate our research findings. This includes mandatory sections in our grant submissions describing our methods of outreach. Facebook, Twitter, and similar social media are overwhelmingly where the public receives its scientific information [22]. In fact, the International Society for the Study of Women’s Sexual Health at their annual meeting in 2015 hosted a seminar on

“Social Media in Sexual Medicine” instructed by Robert Miller. Thus, our use of these media is supported, progressive, entirely appropriate, and will continue. The Twitter handle for those who would like to follow research updates from one of our laboratories is @NicolePraise. Thank you for the opportunity to share our research more broadly (and some statistics cartoons, for which the first author also has a fondness).

We want to thank the letter writer for giving us the opportunity to offer additional details of our report, which has now been largely replicated by another independent laboratory focused on porn use and problems of sexual functioning in men [2]. We further point out that the author did not dispute the finding that more viewing of sex films is associated with increased desire for sex with a partner. We note that this finding is inconsistent with the concept of “porn addiction” and especially claims that use of sex films desensitizes erectile function, which in turn generalizes to a decreased arousal and desire for partnered sex. Watching sex films does not impair, and may enhance, the desire to be sexual with a partner. Fishing in a different pond thus appears appropriate.

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References

- 1 Praise N, Pfaus J. Viewing sexual stimuli associated with greater sexual responsiveness, not erectile dysfunction. *Sex Med* 2015. doi:10.1002/sm2.58. [Epub ahead of print].
- 2 Landripet I, Štulhofer A. Is pornography use associated with sexual difficulties and dysfunctions among younger heterosexual men? *J Sex Med* 2015;12:1136–9.
- 3 Buzzell T. Demographic characteristics of persons using pornography in three technological contexts. *Sex Cult.* 2005;9:28–48.
- 4 Praise N. Viewing sexual stimuli in the United States using data from the General Social Survey. 2015. Available at: <https://liberos.shinyapps.io/VSS-GSS/> (accessed May 10, 2015).
- 5 Likert R. A technique for the measurement of attitudes. *Arch Psychol.* 1932;22:55.
- 6 Nunnally JC, Bernstein IH. *Psychometric Theory*. 3rd edition. New York: McGraw Hill.; 1994.
- 7 Diamond LM. What does sexual orientation orient? A biobehavioral model distinguishing romantic love and sexual desire. *Psychol Rev* 2003;110:173–92.
- 8 van Anders S. Beyond sexual orientation: Integrating gender/sex and diverse sexualities via sexual configurations theory. *Arch Sex Behav* 2015;1–37. doi:10.1007/s10508-015-0490-8.
- 9 Cooper A, Scherer CR, Boies SC, Gordon BL. Sexuality on the Internet: From sexual exploration to pathological expression. *Prof Psychol Res Pract.* 1999;30:154–64.
- 10 Hald G, Malamuth N. Experimental effects of exposure to pornography: The moderating effect of personality and mediating effect of sexual arousal. *Arch Sex Behav* 2015;44:99–109.
- 11 Kühn S, Gallinat J. Brain structure and functional connectivity associated with pornography consumption: The brain on porn. *JAMA Psychiatry* 2014;71:827–34.
- 12 Rosser BRS, Smolenski D, Erickson D, Iantaffi A, Brady SS, Grey JA, Hald GM, Horvath KJ, Kilian G, Træen B, Wilkerson JM. The Effects of gay sexually explicit media on the HIV risk behavior of men who have sex with men. *AIDS Behav* 2013;17:1488–98.
- 13 Cooper A, Griffin-Shelley E, Delmonico DL, Mathy RM. Online sexual problems: Assessment and predictive variables. *Sex Addict Compulsivity* 2001;8:267–85.

- 14 Kafka M. Hypersexual disorder: A proposed diagnosis for DSM-V. *Arch Sex Behav* 2010;39:377–400.
- 15 Braithwaite S, Aaron S, Dowdle K, Spjut K, Fincham F. Does pornography consumption increase participation in friends with benefits relationships? *Sex Cult.* 2015;1–20. doi:10.1007/s12119-015-9275-4.
- 16 Tylka TL, Van Diest AMK. You looking at her “Hot” body may not be “Cool” for me: Integrating male partners’ pornography use into objectification theory for women. *Psychol Women Q* 2015;39:67–84.
- 17 Seigfried-Spellar KC, Rogers MK. Does deviant pornography use follow a Guttman-like progression? *Comput Human Behav* 2013;29:1997–2003.
- 18 Carvalho J, Štulhofer A, Vieira AL, Jurin T. Hypersexuality and high sexual desire: Exploring the structure of problematic sexuality. *J Sex Med* 2015. doi:10.1111/jsm.12865. [Epub ahead of print].
- 19 Grubbs J, Exline J, Pargament K, Hook J, Carlisle R. Transgression as addiction: Religiosity and moral disapproval as predictors of perceived addiction to pornography. *Arch Sex Behav* 2015;44:125–36.
- 20 Cohen J. The earth is round ($P < .05$). *Am Psychol* 1994;49:997–1003.
- 21 Rosen RC, Riley A, Wagner G, Osterloh IH, Kirkpatrick J, Mishra A. The international index of erectile function (IIEF): A multidimensional scale for assessment of erectile dysfunction. *Urology* 1997;49:822–30.
- 22 Bik HM, Goldstein MC. An introduction to social media for scientists. *PLoS Biol* 2013;11:e1001535.