

RESEARCH ARTICLE

Does Exposure to Sexualized Media Lead to Boys' Objectification of Girls and Women?: A Preregistered, Longitudinal Reanalysis of Rousseau *et al.* (2019)

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Abstract: Background: The issue of whether fictional media can socialize male attitudes toward women remains hotly contested. One recent longitudinal study concluded that exposure to sexualized TV was associated with viewing women as sex objects as well as **the** objectification of women. However, it was unclear whether these findings were robust.

Methods: Original data was obtained. In a preregistered regression design, the association between sexualized television and music videos was longitudinally examined with male sexual dominance, viewing women as sex objects and objectification, controlling for T1 outcome scores and other control variables. The sample included 487 adolescent males from Belgium.

Results: No longitudinal association was found between sexualized media variables and any of the outcome variables with proper controls in place.

Conclusions: Longitudinal analyses do not support long-term associations between sexualized media and adolescent male objectification of women.

ARTICLE HISTORY

Received: November 29, 2021
Revised: January 21, 2022
Accepted: March 08, 2022

DOI:
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Keywords: Sexualization, sexy media, objectification, sexism, misogyny, masculinity.

1. INTRODUCTION

Scholars have debated whether sexualized media are able to influence young boys' attitudes toward girls and women in a more objectified manner for years. However, despite some passionate views on this matter, actual evidence, or at least high-quality evidence, has remained scant and often of dubious quality and lacking preregistration (for discussion of preregistration in media effects, see: Ferguson, 2020; Przybylski & Weinstein, 2019). Preregistration is a process in which a scholar's hypothesis, methods, and

analyses are publicly prerecorded to reduce researcher expectancy effects that can cause **false-positive results**. Without preregistration, it remains unclear if the effects exist or are simply an artifact of too flexible data analyses, which can reflect scholars' a priori assumptions, particularly on morally valenced issues.

2. LITERATURE REVIEW

Past evidence has been mixed regarding whether sexualized media can influence the behavior or attitudes of youth. For instance, one large longitudinal dataset of youth found a predictive relationship between sexualized media use and sexual behavior in youth (Brown *et al.*, 2006). However, a reanalysis of this data was

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unable to confirm the findings (Steinberg & Monahan, 2011). In a separate article using the same dataset, longitudinal relationships were found between sexualized media viewing and teen pregnancy (Chandra *et al.*, 2008). However reanalysis suggested that multicollinearity in regression designs had likely caused **false-positive results** (Ferguson, Nielsen & Markey, 2017). **Multicollinearity occurs when two variables that are highly correlated with each other (television viewing and sexy television viewing, for instance, as in the case of Chandra *et al.*, 2008) are both entered as predictors in a regression. This causes the regressions weights to “bounce” away from each other, giving spurious and confusing results (often called “bouncing betas”). Indeed, Chandra’s results suggested that sexy television viewing predicted greater odds of pregnancy whereas television viewing generally predicted lower odds of pregnancy and unlikely scenario, given that, to watch sexy TV, one must-watch TV at all, meaning sexy and general TV viewing time is highly correlated. When regressions were rerun with only one predictor at a time, it was found that neither sexy TV viewing nor general TV viewing predicted teen pregnancy, confirming the bouncing beta mistake.**

One recent study highlights some of the potential confusion in this area. A recent longitudinal study by Rousseau and colleagues (2019) examined the impact of sexualized music videos and television in a sample of just under 500 Belgian adolescent boys. The overall longitudinal period was about 1 year. The authors concluded that sexualized music videos were associated with later perceptions of men as sexually dominant, with sexualized television associated with later increases in viewing women as sex objects and moderated by parental gender socialization, **and** objectification of women. However, a closer look at the data suggested the outcomes may have been less consistent than implied in the abstract and it was unclear if the analyses used were proper. Specifically, structural equation modeling (SEM) was used, which arguably can create some **false**-positive results

due to the numerous flexible choices available to such analyses.

With these critiques in mind, there is value in reanalyzing the dataset to examine if the original conclusions are robust to preregistered reanalysis. The current article is a preregistered reanalysis of Rousseau and colleagues. The original authors of Rousseau *et al.* graciously provided raw data upon request. This article reexamines this data using a series of preregistered multiple regressions as described below.

3. METHODS

3.1. Participants

Participants in the study were 487 **adolescents** (age in days $M = 4154.4$, $SD = 354.5$) Belgian boys between 9 and 13 years old. The original article reported a sample size of 496, although the received dataset included 487. Data **were** collected at 3 intervals between October 2014 and October 2015, spaced 6-months apart.

3.2. Measures

3.2.1. Sexualized Media Viewing

Sexualized TV viewing was measured by the mean frequency of viewing 7 teen-oriented shows on Disney and Nickelodeon. Response options ranged from 1 (never) to 5 (almost every day). Coefficient alpha reliability for these shows was .848. For music television, participants rated on a 7-point Likert scale from 1 (never) to 7 (almost every day) whether they watched MTV or local channels TMF and JIMtv. Coefficient alpha between these three items was .851. Although the television shows, in particular, were developed for teen audiences, Rousseau and colleagues make the argument that sexualization and traditionalized gender norms are frequently presented in these shows and this is not disputed by this reanalysis.

3.2.2. Women as Sexual Objects

This scale involved 6 Likert-scale items designed to measure the degree to which girls and

women were defined by their sexual appeal. For instance, "Using her body and looks is the best way for a girl to attract a boy" is a sample item. This item was administered at T1 ($\alpha = .779$) and T2 ($\alpha = .822$).

3.2.3. Men as Sexually Dominant

To measure the degree to which boys viewed men as sexually dominant, a 7-item Likert scale was used. Sample items include "A boy should decide what happens during sexual activities" and "Most boys are ready for sex at any time." This scale was administered at T1 ($\alpha = .893$) and T2 ($\alpha = .919$).

3.2.4. Objectification of Women and Girls

Objectification of women and girls was assessed using Likert items with sample items involving both appearance (measurement, attractiveness, muscle tone) and physical competence (coordination, stamina). The original article implied that there were 18 items and a score was derived by subtracting the competence subscale from the appearance subscale. However, this scoring method proved impossible to replicate for two reasons. First, the provided dataset included only 11 items at T1 (but 18 and T2 and T3). Upon further inquiry, the dataset was amended to include only 11 items at each time point. However, it remains unclear which items belonged to which subscale. Further, the scale consisting of all items proved to have very high internal consistency. As such, it was unclear that dividing the items into two subscales was warranted. Given these issues, a single scale score was calculated for all eleven available items at T1 ($\alpha = .823$) and T3 ($\alpha = .860$), the latter representing the longest available longitudinal period.

3.2.5. Body Mass Index

As per the original manuscript, BMI was calculated as a control variable. It was calculated as weight in kilograms divided by height in meters squared.

3.2.6. Heterosexual Involvement

As per the original study, heterosexual involvement was calculated as a control variable. This measure examines non-dating cross-gender socialization opportunities with items such as "About how often do you spend free time after school with a group of boys and girls?" Coefficient alpha for T1 in this sample was .858.

3.2.7. Pubertal Development

As per the original study, a 4-item scale of pubertal development was included as a control variable. Participants were asked about growth, skin changes, voice changes, and body hair. Coefficient alpha for this scale was .706.

3.2.8. Parent Gender Socialization

This Likert-item scale was designed to assess the degree to which parents enforced traditional gender norms with items such as "A husband should not have to do housework". The original paper suggested that this had thirteen items, but only twelve were available in the dataset. The authors responded to a query confirming twelve was the correct number. Coefficient alpha was .816.

3.2.9. Preregistration and Analyses

Preregistration of the analyses is available here: <https://aspredicted.org/blind.php?x=uf24uw>. As noted, this dataset was preexisting. The original authors graciously provided it upon request, and it contained only raw data with no variables calculated. All analyses were preregistered before variables were calculated and no analyses were conducted until the preregistration was posted.

As this study involved archival data with no new human participant research, this study was exempt as per local Stetson University IRB standards. The protocol number was #1032.

All analyses were conducted through ordinary least squares (OLS) regression using pairwise deletion for missing data. Highest VIF was 1.63, indicating a lack of collinearity issues. Outcome

variables were T2 Men as Sexually Dominant, T2 Women as Sexual Objects, and T3 Objectification. Control variables included age in days, BMI, T1 men as sexually dominant, T1 women as sexual objects, T1 objectification (to control for preexisting selection effects), Heterosexual Involvement, puberty, and Parent Gender Socialization.

4. RESULTS

The first regression considered men as sexually dominant at T2 as the outcome. This model was significant [$R = .547$, $adjR^2 = .282$, $F(10,415) = 17.70$, $p < .001$]. Only T1 men as sexually dominant ($\beta = .417$, $p < .001$) and T1 women as sexual objects ($\beta = .105$, $p = .045$) were significant predictors of T2 men as sexually dominant. Neither music videos ($\beta = .075$, $p = .093$) nor teen television ($\beta = .056$, $p = .194$) were significant predictors.

The second regression considered women as sexual objects at T2 as the outcome. This model was significant [$R = .555$, $adjR^2 = .292$, $F(10,425) = 18.92$, $p < .001$]. Only T1 men as sexually dominant ($\beta = .123$, $p = .014$) and T1 women as sexual objects ($\beta = .433$, $p < .001$) as well as age ($\beta = .121$, $p = .007$) were significant predictors of T2 women as sexual objects. Neither music

videos ($\beta = -.017$, $p = .704$) nor teen television ($\beta = .051$, $p = .223$) were significant predictors.

The third regression considered objectification at T3 as the outcome. This model was significant [$R = .393$, $adjR^2 = .134$, $F(10,425) = 7.76$, $p < .001$]. Only T1 pubertal development ($\beta = .097$, $p = .040$) and T1 objectification ($\beta = .325$, $p < .001$) were significant predictors of T3 objectification. Neither music videos ($\beta = -.032$, $p = .509$) nor teen television ($\beta = .078$, $p = .094$) were significant predictors. The analysis was rerun also including T2 objectification as a control variable, which appeared consistent with the original article (although it was not preregistered). This did not significantly change the outcomes. Neither music videos ($\beta = -.034$, $p = .463$) nor teen television ($\beta = .064$, $p = .148$) were significant predictors.

5. ARE MODERATOR/MEDIATOR ANALYSES JUSTIFIED?

In their original analysis, Rousseau and colleagues used moderated mediation analyses to test for more complex interactions between variables. However, the lack of association between the predictor variables and outcome variables suggests that mediation analyses are unwarranted.

Table 1. Regression equations predicting T2 and T3 outcomes.

Predictor Variable	T2 MSD	T2 WSO	T3 Objectification
Age	.010	.121*	-.039
BMI	-.007	-.021	-.031
Heterosexual Involvement	.041	.039	.066
Pubertal Development	.015	-.006	.097*
Parent Gender Socialization	.052	.026	-.037
T1 Males as Sexually Dominant	.417*	.123*	.015
T1 Women as Sexual Objects	.105*	.433*	.058
T1 Objectification	.023	-.014	.325*
Music TV	.075	-.017	-.032
Teen TV	.056	.051	.078

Note: MSD = Males as Sexually Dominant, WSO = Women as Sexual Objects. Coefficients are standardized regression coefficients.

* $p < .05$

For moderation analyses, interaction terms were created for television and music exposure on Parent Gender Socialization (PGS), as PGS appeared to be the main moderator tested in the original article. Bivariate correlations between these interaction terms and outcome variables were small but significant (between $r = .10$ and $.20$). These were then tested in OLS regression using age, BMI, Heterosexual Involvement, Pubertal Development, and T1 scores for males as sexually dominant, women as sex objects, and objectification as control variables. Interaction terms were nonsignificant for all outcomes in the regression, suggesting that moderator effects were largely trivial once other factors were controlled.

Moderation and mediation analyses can arguably have high false positive rates in the absence of preregistration. It is not clear, for instance, why PGS was chosen as a moderator variable, compared to other control variables. Such analyses can present a wide range of analytic choices for the authors, and to the extent indirect effects may be considered hypothesis supportive in the absence of direct effects, it can spuriously *rescue* hypotheses from null results.

6. DISCUSSION

Whether exposure to sexualized media can influence teen boys' attitudes toward women remains an issue of significant debate. The current article reanalyzed data from a sample of Belgian boys. This reanalysis concluded that the data did not support the hypothesis that boys are influenced by media to have more sexualized views of women or girls. **This suggests that, for clinicians, focusing on media exposure as a particular point of concern regarding adolescent development is unwarranted.**

These results fit with other studies in other realms of media effects that increasingly suggest that fictional media has little impact on people's attitudes or behaviors. It may be that people simply don't respond cognitively **or behaviorally** to fictional media in the way that they do to real-life events or perhaps even news media. **This is not to conclude that media use has no**

emotional, moral, or aesthetic impact at all. However, it does not appear that fictional media use translates to worrying behavioral outcomes in the long term. Overall, it is suggested that scholars should be much more cautious in attributing the cause for negative outcomes to fictional media.

This also fits with the observation that fictional media are often the target of moral panic, such that they are blamed for negative social ills, real or imagined. **The term "moral panic" is used here in its strictly sociological sense (Cohen, 1972) to refer to a phenomenon in which explanations for social problems are developed by social processes, typically prior to available data or contravening data when it becomes available. No pejorative interpretation should be implied from the term as this is a common phenomenon which deserves careful investigation.** Social scientists can contribute to this by failing to put weak research results in context. For instance, new data suggests that effect sizes below $r = .10$ tend to be unreliable even when "statistically significant" such as in large samples (Ferguson & Heene, in press). Researchers may wish to be more cautious about interpreting such small effect sizes as a hypothesis supportive in future research. **For the clinician, the clinician may approach encounters with adolescents with preconceived notions of media effects that may not be supported by research evidence. This issue extends to realms beyond sexualized media, such as to video game violence or the belief shows such as 13 Reasons Why cause suicide (Kuhn *et al.*, 2019; McKenzie *et al.*, 2021). Becoming distracted with media effects concerns, could reduce time spent on more pressing issues for the adolescent patient while simultaneously harming rapport given the clinician may come across as yet another hectoring adult unfamiliar with popular culture. The trick for clinicians comes in spotting research reports that may exaggerate "statistical significance" when effect sizes are, in fact, trivial and unworthy of clinical concern. My general suggestion is to look for correlation coefficients (or standardized regression weights) that are**

larger than $r = .20$ as a minimum threshold for clinical significance, with effects below $r = .10$ likely to be methodological noise (Ferguson & Heene, in press) even if “statistically significant.”

The current study is not without limitations. For instance, the media selected appear to be fairly standard tween media. Thus, it is not clear how sexualized the content necessarily was. An analysis of content analyzed shows may get at this issue more clearly. Outcomes for moderator variables were slightly different for the current study (no significance once other factors were controlled) *versus* the original study (small but significant moderator effects for television but not music television). This may be due to the method employed (OLS regression with interaction terms *versus* PROCESS). Authors may wish to be cautious to be sure that moderator effects are rigorous in the methodology and are preregistered in advance of data collection.

CONCLUSION

Results of the current study were unable to confirm a link between sexualized television viewing and objectification-related outcomes. This study adds to a body of literature questioning the degree to which exposure to media has a clear impact on the attitudes or behaviors of youth (Ferguson, Nielsen & Markey, 2017; Hayes & Tantleff-Dunn, 2010; Holmstrom, 2004; Lindner *et al.*, 2020). Further research should make use of preregistration and include time diaries or other means of assessing media exposure aside from self-report. More longitudinal studies are welcome. In conclusion, this longitudinal data does not appear to support the hypothesis that viewing teen television or music videos is associated with the later objectification of women. It is suggested that scholars become more cautious in making such causal attributions in the future.

ETHICS APPROVAL AND CONSENT TO PARTICIPATE

Not applicable.

HUMAN AND ANIMAL RIGHTS

No animals/humans were used for studies that are the basis of this research.

CONSENT FOR PUBLICATION

Not applicable.

STANDARDS OF REPORTING

STROBE guidelines were followed.

AVAILABILITY OF DATA AND MATERIALS

Data have been openly provided by the authors of the original article to whom the data belong. Data outcome files for this paper are available upon request.

FUNDING

None.

CONFLICT OF INTEREST

The authors declare no conflict of interest, financial or otherwise.

ACKNOWLEDGEMENTS

Declared none.

REFERENCES

- Brown, J.D., L'Engle, K.L., Pardun, C.J., Guo, G., Kenneavy, K., Jackson, C. (2006). Sexy media matter: Exposure to sexual content in music, movies, television, and magazines predicts black and white adolescents' sexual behavior. *Pediatrics*, 117(4), 1018-1027.
<http://dx.doi.org/10.1542/peds.2005-1406> PMID: 16585295
- Chandra, A., Martino, S.C., Collins, R.L., Elliott, M.N., Berry, S.H., Kanouse, D.E., Miu, A. (2008). Does watching sex on television predict teen pregnancy?

- Findings from a national longitudinal survey of youth. *Pediatrics*, 122(5), 1047-1054.
<http://dx.doi.org/10.1542/peds.2007-3066> PMID: 18977986
- Cohen, S. (1972). *Folk devils and moral panics..* London: MacGibbon and Kee.
- Ferguson, C.J. (2020). One less reason why: Viewing of suicide-themed fictional media is associated with lower depressive symptoms in youth. *Mass Commun. Soc.*, 2020, 1756335.
<http://dx.doi.org/10.1080/15205436.2020.1756335>
- Ferguson, C.J., Heene, M. Providing a lower-bound estimate for psychology's "crud factor": The case of aggression. *Prof. Psychol. Res. Pr.* [Epub ahead of print].
<http://dx.doi.org/10.1037/pro0000386>
- Ferguson, C.J., Nielsen, R.K.L., Markey, P.M. (2017). Does sexy media promote teen sex? A meta-analytic and methodological review. *Psychiatr. Q.*, 88(2), 349-358.
<http://dx.doi.org/10.1007/s11126-016-9442-2> PMID: 27356986
- Hayes, S., Tantleff-Dunn, S. (2010). Am I too fat to be a princess? Examining the effects of popular children's media on young girls' body image. *Br. J. Dev. Psychol.*, 28(Pt 2), 413-426.
<http://dx.doi.org/10.1348/026151009X424240> PMID: 20481395
- Holmstrom, A. (2004). The effects of media on body image: A meta-analysis. *J. Broadcast. Electron. Media*, 48, 186-217.
http://dx.doi.org/10.1207/s15506878jobem4802_3
- Kühn, S., Kugler, D.T., Schmalen, K., Weichenberger, M., Witt, C., Gallinat, J. (2019). Does playing violent video games cause aggression? A longitudinal intervention study. *Mol. Psychiatry*, 24(8), 1220-1234.
<http://dx.doi.org/10.1038/s41380-018-0031-7> PMID: 29535447
- Lindner, D., Tribble, M., Pilato, I., Ferguson, C.J. (2020). Examining the effects of exposure to a sexualized female video game protagonist on women's body image. *Psychol. Pop. Media Cult.*, 9(4), 553-560.
<http://dx.doi.org/10.1037/ppm0000251>
- McKenzie, S.K., Jenkin, G., Steers, D., Magill, R., Collings, S. (2021). Young people's perspectives and understanding of the suicide story in 13 Reasons Why: A qualitative study. *Crisis*, 42(1), 64-70.
<http://dx.doi.org/10.1027/0227-5910/a000688> PMID: 32366169
- Przybylski, A., Weinstein, N. (2019). Violent video game engagement is not associated with adolescents' aggressive behaviour: Evidence from a registered report. Available from: <https://royalsocietypublishing.org/doi/10.1098/rsos.171474>
- Rousseau, A., Rodgers, R.F., Eggermont, S. (2019). A short-term longitudinal exploration of the impact of TV exposure on objectifying attitudes toward women in early adolescent boys. *Sex Roles*, 80(3-4), 186-199.
<http://dx.doi.org/10.1007/s11199-018-0925-5>
- Steinberg, L., Monahan, K.C. (2011). Adolescents' exposure to sexy media does not hasten the initiation of sexual intercourse. *Dev. Psychol.*, 47(2), 562-576.
<http://dx.doi.org/10.1037/a0020613> PMID: 20677858

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