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Two Preregistered Direct Replications of “Objects Don’t Object: Evidence That Self-Objectification Disrupts Women’s Social Activism”



Matthias De Wilde¹, Annalisa Casini¹, Philippe Bernard², Robin Wollast², Olivier Klein², and Stéphanie Demoulin¹ **[AQ: 1][AQ: 2][AQ: 3][AQ: 4]**

¹Université Catholique de Louvain, and ²Université Libre de Bruxelles

Abstract

Self-objectification has been claimed to induce numerous detrimental consequences for women at the individual level (e.g., sexual dysfunction, depression, eating disorders). Additionally, at the collective level, it has been proposed that self-objectified women might themselves contribute to the maintenance of the patriarchal status quo, for instance, by participating less in collective action. In 2013, Calogero found a negative link between self-objectification and collective action, which was mediated by the adoption of gender-specific system justification. Here, we report two Preregistered Direct Replications (PDRs) of Calogero’s original study. We conducted these PDRs after three failures to replicate the positive relation between self-objectification and gender-specific system-justification belief in correlational studies. Results of the two PDRs, in which we used a Bayesian approach supported the null hypothesis. This work has important theoretical implications because it challenges the role attributed to self-objectified women in the maintenance of patriarchy.

Keywords

self-objectification, system justification, reproducibility, mini meta-analysis, open data, open materials, preregistered

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Objectification has been widely investigated in social psychology since the publication of the influential objectification theory (Fredrickson & Roberts, 1997). It is defined as the treatment of a human being as an object (Nussbaum, 1995) and has been mainly applied to the sexual sphere (i.e., sexual objectification), in which women are often reduced to sexual objects (Bartky, 1990). Objectification theory suggests that because of repeated exposure to objectifying portrayals of women in the media, culture, and education, women internalize such a view of themselves—that is, they self-objectify (Fredrickson & Roberts, 1997).

In numerous studies, self-objectification has been claimed to be responsible for a large array of negative consequences at an individual level (e.g., eating disorders, decreased self-esteem, depressive symptoms; for a review, see Moradi & Huang, 2008). Adopting a collective perspective, some scholars argued that self-objectification

might additionally be deleterious for the status of women as a group (Calogero, 2013). Indeed, women who adopt an objectifying view of themselves may “perpetuate their own disadvantaged state” (Calogero, p. 313). The explanation for such maintenance of the status quo relies on system-justification theory (Jost & Kay, 2005). This theory suggests that members of a disadvantaged group not only comply with the dominant view but also sometimes internalize it and consider it to be fair, balanced, and legitimate (Jost & Kay, 2005). Integrating objectification in the system-justification perspective, Calogero proposed that self-objectified women tend to support the patriarchal status quo (i.e., gender-specific system justification, or

Corresponding Author:

Matthias De Wilde, Université Catholique de Louvain, Place Cardinal Mercier, 10, 1348 Louvain-la-Neuve, Belgium
E-mail: matthias.dewilde@uclouvain.be

GSSJ; Jost & Kay, 2005). Support for the patriarchal system would, in turn, undermine these women's motivation to engage in collective action. One of the most effective ways to achieve social change (Tajfel & Turner, 1979).

Calogero's (2013) work was of great importance because it was the first to examine the impact of self-objectification on women's engagement in collective action and, consequently, how it might affect their social status. These findings are also significant because they bring empirical evidence to the important debate among gender scholars regarding the potential impacts of women's self-sexualization (e.g., Lamb & Peterson, 2012). However, this proposal yields a potentially disturbing conclusion: Women who self-objectify are not only victims of social influence (Fredrickson & Roberts, 1997), but also, by being passive and centered on their appearance, they participate in the reproduction of gender inequalities. At a more fundamental level, the controversial issue of women's agency (or passivity) in the perspective of objectification theory (Lerum & Dworkin, 2009) is at the core of this research program. **[AQ: 5]** Whether objects object or not will be debated further in this article.

In the present research, we intended to examine more closely the link between self-objectification and GSSJ. First, we gathered data from five correlational studies and conducted a mini meta-analysis, following Goh, Hall, and Rosenthal's (2016) recommendations and also performing Bayesian statistical analyses to examine whether self-objectification is related to women's tendencies to justify gender inequalities. Second, we performed two Preregistered Direct Replications (PDRs) of Calogero's (2013) study, which offered initial evidence of this relationship.

Mini Meta-Analysis

Our mini meta-analysis (Goh et al., 2016) included four unpublished studies independently run by two social-psychology laboratories specializing in the field of objectification (Bernard & Klein, 2013; De Wilde, Casini, & Demoulin, 2017; Wollast, Bernard, & Klein, 2015; Wollast, Coertjens, Bernard, & Klein, 2016)¹ **[AQ: 6]** in addition to Calogero's (2013) original study. In all of these studies, the link between self-objectification and GSSJ was investigated. Self-objectification was measured via the Self-Objectification Questionnaire (SOQ; described in the Method section of PDR 1 below; Noll & Fredrickson, 1998; for a discussion of the psychometric qualities of this scale, see Lindner & Tantleff-Dunn, 2017). **[AQ: 7]** Four of the five studies measured GSSJ with a scale adapted from a scale designed by Jost and Kay (2005; described in the Method section of PDR 1 below) and validated when translated in French

(Verniers & Martinot, 2015). Bernard and Klein (2013) conducted their study before the publication of the GSSJ scale validated in French.

Method

Calogero's (2013) sample was composed of 50 women who were undergraduates in psychology (age: $M = 18.65$ years, $SD = 2.11$, range = 18–25) and who participated in return for credit in a psychology course or for an entry into a raffle. The sample consisted mostly of Caucasian (37%) and African American (35%) students. Most of the participants (80%) were first-year students, and there was little variation in their sexual orientation (90% heterosexual, 5% bisexual, and 5% lesbian). The assessment of self-objectification, GSSJ, and intention of collective action was part of a larger study on college women and was presented in counterbalanced order (for more details, see Calogero, 2013).

A total of 233 women took part in the survey conducted by De Wilde et al. (2017) in exchange for course credit. Four participants were not included in the analyses because they provided incomplete answers. Thus, the analyses were performed on a sample of 229 French-speaking women and first-year students in psychology (age: $M = 21.42$ years, $SD = 5.12$, range = 16–63, 95% confidence interval, or CI = [19.50, 22.10]). Most of them self-identified as heterosexual (90.2%) and were Belgian (89.5%). Wollast et al. (2016) collected their data from a sample of 126 Thai-speaking women studying various disciplines (age: $M = 26.11$ years, $SD = 8.09$, range = 18–59, 95% CI = [24.70, 27.52]), who participated in exchange for course credit. Most of them self-identified as heterosexual (78.4%). The study targeted only Thai individuals who spoke Thai as their native language. Wollast et al. (2015) collected their data from a sample of 194 French-speaking women and first-year students in psychology (age: $M = 21.15$ years, $SD = 5.48$, range = 17–60, 95% CI = [20.39, 21.93]), who participated in exchange for course credit. Most of them self-identified as heterosexual (94%). The study targeted only Belgian individuals who spoke French as their native language. Bernard and Klein (2013) collected their data from a sample of 117 French-speaking women studying psychology in their final year (age: $M = 24.91$ years, $SD = 7.41$, range = 18–65, 95% CI = [23.57, 26.25]) during a seminar supervised by Philippe Bernard. Most of them were Belgian (76%).

We conducted our analyses on the full sample of complete answers on the various questionnaires without excluding any participant, as in Calogero's (2013) sample. Excluding outliers on the basis of the median absolute deviation (univariate; ± 3 median absolute deviations) or minimum covariance determinant (multivariate; with

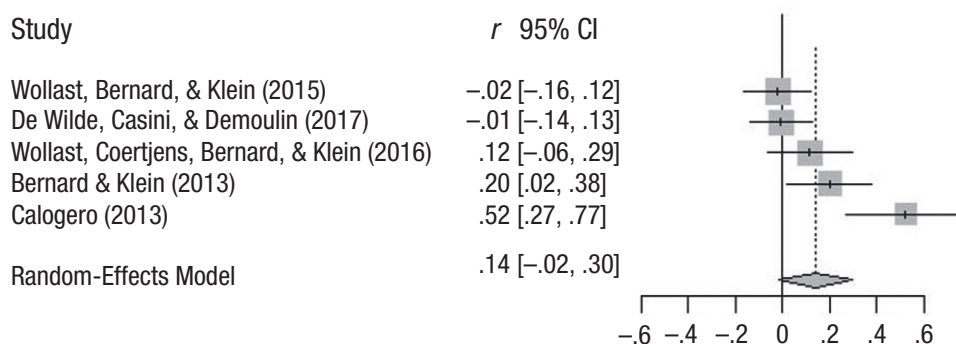


Fig. 1. Results of the mini meta-analysis: forest plot depicting correlations between self-objectification and gender-specific system justification, separately for the five analyzed studies and for the random-effects model. Error bars indicate 95% confidence intervals (CIs). **[AQ: 9]**

a breakdown point of .25) did not alter our statistical conclusions. Full details of the method, participants, measures, and analyses are available on the Open Science Framework (OSF) at <https://osf.io/exz4p/>. **[AQ: 8]**

All the scales used in the four unpublished studies were similar to those used by Calogero (2013; two of them have been translated) and presented good psychometric properties. Cronbach's alphas ranged from .69 to .91. With regard to the SOQ (Noll & Fredrickson, 1998), a correlation of -1 between the sum of the ranks of the observable attributes and the nonobservable ones was found (confirming that participants understood the instructions properly²; Lindner & Tantleff-Dunn, 2017). Further, all variables were normally distributed (skewness and kurtosis between -1 and 1 ; George & Mallery, 2010).³ Each scale was presented to participants in random order to reduce common method-variance problems (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003).

Results

We conducted a meta-analysis (see Fig. 1) on the estimates of correlation parameters (r s) and their precision CIs using R statistical software (Version 3.5.1; R Core Team, 2018) and the *meta* package (Version 4.9-3;

Schwarzer, 2007). This package allows one to calculate the overall magnitude of the estimates of correlation parameters and their degree of accuracy. The R script for the meta-analysis is publicly available at <https://osf.io/exz4p/>. The random-effects analysis revealed a mean r of .14, 95% CI = $[-.02, .30]$. The inclusion of 0 in the CI suggests that these data failed to support the existence of a positive relationship between self-objectification and GSSJ.

The frequentist approach used in the mini meta-analysis did not allow us to draw any conclusion in favor of the null hypothesis (H_0 ; i.e., no correlation between self-objectification and GSSJ; Cumming, 2014). To account for this limitation, we conducted a Bayesian statistical analysis on the data to which we had access (i.e., all but Calogero's, 2013, data;⁴ see Table 1), as recommended by Van Doorn, Marsman, and Wagenmakers (2019), to determine BF_{01} , which is the Bayes factor for **[AQ: 10]** the probability of observing the data given H_0 over the probability of observing the data given the alternative hypothesis (H_1 ; i.e., correlation between self-objectification and GSSJ; Etz, Gronau, Dablander, Edelsbrunner, & Baribault, 2018).

In three out of four studies, Bayesian analyses conducted with JASP software (van Doorn et al., 2019) indicated that the data were between 2.18 and 14.59

Table 1. Results of the Bayesian Tests From the Mini Meta-Analysis

Study	N	r	BF_{01}	95% credible interval
Bernard & Klein (2013)	117	.20	0.45	[.04, .36]
De Wilde, Casini, & Demoulin (2017)	229	-.017	14.59	[.00, .14]
Wollast, Bernard, & Klein (2015)	194	-.021	13.75	[.00, .15]
Wollast, Coertjens, Bernard, & Klein (2016)	126	.116	2.18	[.01, .29]

Note: BF_{01} refers to the Bayes factor in favor of the null hypothesis (H_0) over the alternative hypothesis (H_1). A BF_{01} greater than 3 corresponds to some evidence in favor of H_0 ; a BF_{01} greater than 10 corresponds to strong evidence in favor of H_0 . **[AQ: 11]**

times more likely under H_0 than under H_1 . A BF_{01} lower than 3 is considered anecdotal evidence in favor of H_0 , a BF_{01} greater than 3 is considered some evidence in favor of H_0 , and a BF_{01} greater than 10 is considered strong evidence in favor of H_0 (Jeffreys, 1939/1961). Thus, these three studies suggest that self-objectification and GSSJ are not linearly correlated. However, a small but significant correlation between these two variables was found in the data collected by Bernard and Klein (2013) using a traditional frequentist approach ($r = .20$, $p < .05$, 95% CI = [.02, .38]).

We also performed a complementary Bayesian meta-analysis (Rouder & Morey, 2011) [AQ: 12] using the *bayesmeta* package (Röver, in press) [AQ: 13] on the five studies (including Calogero, 2013). Altogether, using four plausible priors consistent with Calogero's hypothesis,⁵ the results of the Bayesian meta-analysis moderately supported H_0 (BF_{01} between 3.17 and 3.45 depending on the prior). The R script and all the statistical details are available at <https://osf.io/exz4p/>.

On the basis of this Bayesian meta-analysis that tended to favor H_0 over H_1 and given the inconsistent results found across the four studies, we deemed it important to conduct a PDR of Calogero's (2013) original study.

PDR 1

Method

Participants. The sample size of Calogero's (2013) study was 50. We targeted a minimum sample size of 90 on the basis of a priori power analyses (power of .99 with a 95% confidence level), relying on Calogero's effect size. We recruited 110 English-speaking participants on Prolific Academic (a crowdsourcing platform dedicated to academic purposes), anticipating the usual loss of about 10% of the final sample's data (Peer, Brandimarte, Samat, & Acquisti, 2017). Most of the participants (68.5%) self-identified as heterosexual, as in Calogero's study. The other participants self-identified as bisexual (22.2%) or homosexual (5.6%) or did not wish to report their sexual orientation. Participants were compensated £0.5 for completing the study, which lasted on average of 5.22 min. We applied a priori exclusion criteria (e.g., failing the attention-check questions). Two participants were excluded because they failed the attention-check questions.⁶ Thus, the preregistered analyses were conducted on a total sample of 108 self-identified women, as in Calogero's study.⁷ [AQ: 14] The design and analysis plan for PDR 1 were preregistered at <https://osf.io/rbe2k>; the data set has also been made available at <https://osf.io/exz4p/>, following the recommendations of Klein et al. (2018).

Measures. The scales used in the present study to measure the three variables of the original model were

identical to the ones used by Calogero (2013), except what we made minor improvements (described in the Method section) that were implemented with Calogero's approval (see <https://osf.io/exz4p/>).⁸ Two attention-check questions were included in the survey to ensure that participants were carefully completing the survey (e.g., "If you are reading this question, answer 'sometimes' so that we can check if you have read the questions"). Each scale was presented in random order to reduce common method-variance problems (Podsakoff et al., 2003).

The SOQ (Noll & Fredrickson, 1998) was used to measure self-objectification. Participants had to rank from 1 to 10 the importance of 10 physical attributes for their self-concept.⁹ Of these physical attributes, 5 were observable (e.g., weight) and 5 were not (e.g., health). Scores were calculated by subtracting the sum of the ranks of the unobservable attributes from the sum of the ranks of the appearance-based attributes. Scores ranged from -25 to 25; higher scores indicated greater self-objectification. A correlation of -1 between the sum of the ranks of the observable attributes and the sum of the ranks of the nonobservable ones was found (confirming that participants understood the instructions properly; Lindner & Tantleff-Dunn, 2017).

The gender-specific system-justification scale [AQ: 15] (Jost & Kay, 2005) was used to measure GSSJ. Participants were asked to indicate their level of agreement using a 9-point Likert-type scale ranging from 1 (*strongly disagree*) to 9 (*strongly agree*) on eight items. Responses were coded in such a way that agreement with items a, b, d, e, f, and h and disagreement with items c and g resulted in higher scores on GSSJ. A sample item is "In general, relations between men and women are fair." In the present study, the scale had good reliability ($\alpha = .85$).

The collective-action-intention scale, adapted by Calogero (2013) from the work by Stake, Roades, Rose, Ellis, and West (1994), was used to measure collective-action intention. Participants were asked to indicate the frequency with which they had participated in eight different types of social activism in the area of gender equality during the 6 months preceding their participation in the survey. Responses were made using a 7-point Likert-type scale ranging from 1 (*never*) to 7 (*always*). We duplicated two items of the original scale in two alternatives ("Sign an online petition for women's rights and gender equality" vs. "Sign a petition in the street for women's rights and gender equality"). In the present study, this scale had good reliability ($\alpha = .90$).

Results

Descriptive statistics and correlations are presented in Table 2. No significant relationship was found between

Table 2. Results of Preregistered Direct Replication 1: Descriptive Statistics and Correlations Between Variables

Variable	<i>M</i>	<i>SD</i>	Correlations		
			1	2	3
1. Self-objectification	3.43	13.39	—	-.00	-.02
2. Gender-specific system justification	4.08	1.50		—	-.34*
3. Collective-action intention	2.23	1.13			—

* $p < .001$.

self-objectification and GSSJ or between self-objectification and collective-action intention. The negative correlation between GSSJ and collective-action intention was significant, providing support for system-justification theory (Jost & Kay, 2005) and thus indicating that participants did not answer randomly. All the variables were normally distributed (skewness and kurtosis between -1 and 1 ; George & Mallery, 2010; see Note 3).

In line with Calogero's (2013) analysis, we tested a simple mediation model using PROCESS (Model 4; Hayes, 2013) to examine the direct and indirect effects of self-objectification on collective-action intention as mediated by GSSJ. Self-objectification was entered as the predictor, collective-action intention was entered as the criterion, and GSSJ was entered as the mediating variable. Significance of indirect paths was assessed using 95% bias-corrected and accelerated CIs with 10,000 bootstrap resamples. Results revealed patterns inconsistent with those of the original study. The full regression model predicted 12% of the variance of collective-action intention as a function of self-objectification and GSSJ, $F(2, 106) = 6.98$, $p < .01$. These data did not provide evidence that self-objectification was indirectly negatively related to collective-action intention through GSSJ—indirect effect: $\beta = 0.0001$, $SE = 0.0028$, 95% CI = $[-0.0054, 0.0059]$, for which the upper bound was inferior to the lower bound of the 95% CI ($[0.01, 0.05]$) found in Calogero's study. The direct effect of self-objectification on collective-action intention was not significant after we controlled for GSSJ (direct effect: $\beta = -0.002$, $SE = 0.0078$, 95% CI = $[-0.0174, 0.0134]$), which does not support the mediation hypothesis. As in the mini meta-analysis, we adopted a Bayesian approach using JASP (van Doorn et al., 2019) to determine whether we could confidently discard the possibility that self-objectification and GSSJ are related. Using a uniform distribution of values between 0 and 1 as a prior (the JASP default when testing the hypothesis that $\rho > 0$), we found that Bayesian analyses moderately supported the null hypothesis ($BF_{01} = 8.62$; $r = -.004$, 95% CI = $[-.19, .18]$). Theoretical distribution under H_0 and H_1 is available in the "Supplementary Material PDR1" file at <https://osf.io/>

exz4p/. Because of some weaknesses of this first PDR (e.g., the sample-size plan was not optimal, and the preregistration plan lacked certain details, such as specification of exclusion rules), we conducted a second PDR to correct those limitations.

PDR 2

Method

In PDR 1, we targeted a minimum sample size of 90 on the basis of a priori power analyses (power of .99 with a 95% confidence level), relying on Calogero's (2013) effect size. However, results of the mini meta-analysis suggested that the effect on which we based the power analysis was overestimated. We thus decided to increase the sample size in a second preregistered replication (PDR 2). We followed the recommendation formulated by Schönbrodt and Perugini (2013) to maintain stability in correlational studies and to avoid noisiness in measures (e.g., Schönbrodt, 2013); using the small-telescopes approach of Simonsohn (2015), [AQ: 16] we estimated a sample size of at least 2.5 times the one in the original study (i.e., minimum 125 women). We collected a sample of 201 English-speaking women on Prolific Academic, anticipating the usual loss of around 10% of the data (Peer et al., 2017). Most of the participants self-identified as heterosexual (97.87%), as in Calogero's study. [AQ: 17] Participants were compensated £0.5 for completing the study, which lasted on average 5.22 min in PDR 1 (£6.00/hr). We applied a priori exclusion criteria (e.g., failing two attention-check questions). The preregistered analyses were conducted on a sample of 188 self-identified women because 13 participants failed to answer the attention-check questions (e.g., "If you read this item, please answer '1 = strongly disagree'").¹⁰ [AQ: 18] The design and analysis plan for PDR 2 were preregistered at <https://osf.io/kfv5d/>; the data set has also been made available at <https://osf.io/exz4p/>, following the recommendations of Klein et al. (2018). We used exactly the same procedure and measures as in PDR 1.

Table 3. Results of Preregistered Direct Replication 2: Descriptive Statistics and Correlations Between Variables

Variable	<i>M</i>	<i>SD</i>	Correlations		
			1	2	3
1. Self-objectification	1.49	12.85	—		
2. Gender-specific system justification	4.33	1.20	.01	—	
3. Collective-action intention	2.15	0.95	-.01	-.28*	—

* $p < .001$.

Results

Descriptive statistics and correlations are presented in Table 3. No significant relationship was found between self-objectification and GSSJ or between self-objectification and collective-action intention. As in PDR 1, the negative correlation between GSSJ and collective-action intention was significant, providing support for system-justification theory (Jost & Kay, 2005) and indicating that participants did not answer randomly. All the variables were normally distributed (skewness and kurtosis between -1 and 1 ; George & Mallery, 2010; see Note 3).

Again, we tested a simple mediation model, conducting the same analysis as in PDR 1 to be consistent with Calogero's (2013) procedure. The full regression model predicted 8% of collective-action intention as a function of self-objectification and GSSJ, $F(2, 186) = 8.11$, $p < .001$. The results did not provide any evidence that self-objectification is indirectly negatively related to collective-action intention through GSSJ—indirect effect: $\beta = -0.0002$, $SE = 0.0015$, 95% CI = $[-0.0035, 0.0028]$, for which the upper bound was inferior to the lower bound of the 95% CI ($[0.01, 0.05]$) found in Calogero's study. The direct effect of self-objectification on collective-action intention was not significant after we controlled for GSSJ—direct effect: $\beta = -0.0006$, $SE = 0.0052$, 95% CI = $[-0.0108, 0.0097]$, failing to support the mediation hypothesis. In addition, we adopted a Bayesian approach using JASP (van Doorn et al., 2019) to determine whether we could confidently discard the possibility that self-objectification and GSSJ are related. We used a uniform distribution of values between 0 and 1 as a prior (the JASP default when testing the hypothesis that $\rho > 0$). Bayesian analyses provided some evidence in favor of the null hypothesis ($BF_{01} = 9.74$; $r = .011$; 95% CI = $[-.13, .15]$). Theoretical distribution under H0 and H1 is available in the "Supplementary Material" [AQ: 19] at <https://osf.io/exz4p/>.

Finally, we conducted a Bayesian analysis on the combined data of the six studies ($N = 962$). This Bayesian analysis was conducted with JASP (van Doorn et al., 2019) using a uniform distribution of values between 0 and 1 as our prior. These results suggest that the data

are about 39.47 times more likely under H0 than under H1. A BF_{01} of 39.47 constitutes very strong evidence in favor of H0 (Jeffreys, 1939/1961). The theoretical distribution under H0 and H1 is available at <https://osf.io/exz4p/> (see Note 3). The scatterplot on the 962 complete answers is presented in Figure 2.

The random effects of a meta-analysis gathering the seven available studies (see Fig. 3) yielded a mean correlation (r) of .09, 95% CI = $[-.02, .21]$. The inclusion of 0 in the CI confirms that the present data failed to support the existence of a positive relationship between self-objectification and GSSJ. The R script and all the statistical details are available at <https://osf.io/exz4p/>.

However, such an analysis does not account for the random effect of the study. Therefore, we conducted a Bayesian meta-analysis (Morey & Rouder, 2011) on the seven studies using the *bayesmeta* package (Röver, in press). Using the same four plausible priors as previously, we found that the results moderately supported the null hypothesis (BF_{01} between 4.56 and 5.44 depending on the prior).

General Discussion

In the present research, we performed two PDRs of the mediation of the link between self-objectification and collective action by GSSJ observed by Calogero and published in *Psychological Science* in 2013. To do so, we used appropriate analyses, high statistical power, and a methodological procedure identical to the original study. Across two PDRs, our results supported the null hypothesis (i.e., no link between self-objectification and GSSJ). These findings are in line with the ones obtained in prior studies, on which we performed a meta-analysis. In addition, the two PDRs revealed that the whole model, linking self-objectification to social activism via GSSJ, was not replicated, which challenges the conclusion that self-objectification reduces women's intention to collectively engage in activities aiming at reducing or reversing the status quo.

Although we did not observe links between self-objectification, GSSJ, and social activism, this does not necessarily mean that no relationship would ever be

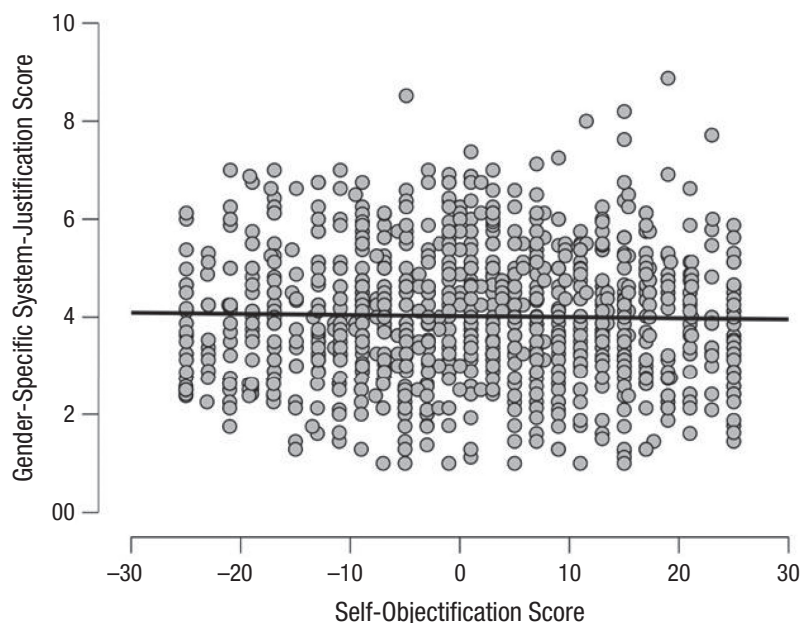


Fig. 2. Results of Preregistered Direct Replication 2: scatterplot depicting the correlation between self-objectification score and gender-specific system-justification score ($r = -.02$, n.s.), based on the data from the six studies we analyzed ($N = 962$). Self-objectification scores range from -25 to 25 , and gender-specific system-justification scores from 1 to 9 . [AQ: 20]

observed between these variables or that, at the theoretical level, such relationships would not make sense. Indeed, in the two PDRs and in Calogero's (2013) study, the SOQ (Noll & Fredrickson, 1998) was used to measure self-objectification. Although the SOQ is one of the most widely used instruments to measure self-objectification, several scholars have highlighted this scale's limitations (for an exhaustive debate, see Lindner & Tantleff-Dunn, 2017). To account for these limitations, we included the body-surveillance scale of the Objectified Body Consciousness Scale (McKinley & Hyde,

1996) in three of the five surveys presented in the mini meta-analysis as a complementary measure of self-objectification (description available at <https://osf.io/exz4p/>). Complementary analyses performed on this alternative measure of self-objectification similarly failed to support a positive link between self-objectification and GSSJ. Accordingly, the CI for the random effects included 0, and all the BF_{01} s were above 3 (between 8.97 and 11.13; for complete analyses, see <https://osf.io/exz4p/>). Given those complementary analyses, the limitation of the SOQ can hardly be held responsible

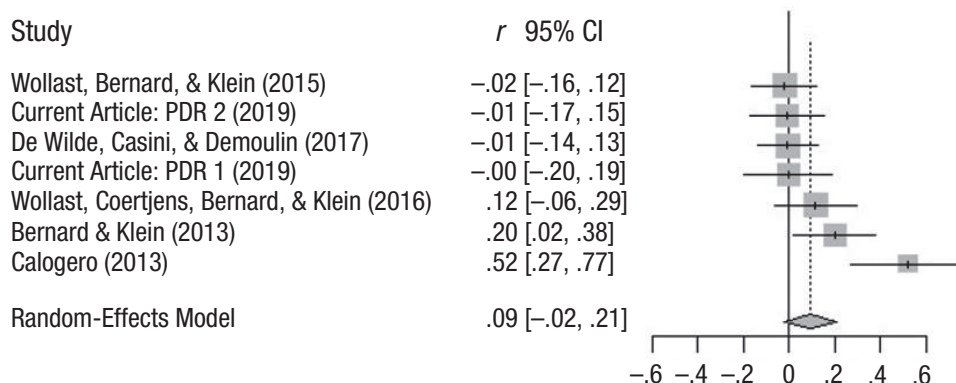


Fig. 3. Combined results: forest plot depicting correlations between self-objectification and gender-specific system justification, separately for the five analyzed studies, the two current Preregistered Direct Replications (PDRs), and the random-effects model. Error bars indicate 95% confidence intervals (CIs).

for the absence of evidence of a positive correlation between self-objectification and GSSJ. Nevertheless, the question of self-objectification measurement has been widely debated (e.g., Lindner & Tantleff-Dunn, 2017), and we cannot dismiss the possibility that other ways of assessing self-objectification may lead to different conclusions. Future research should be conducted to further investigate whether other dimensions of the self-objectification construct are linked to system justification and collective action.

Second, one could argue that the relationship reported by Calogero (2013) in the original article was sample specific. Indeed, Calogero conducted her study on a sample of undergraduate students in psychology from a private college. In 2017, the results were replicated on a sample of undergraduate students from a small liberal arts college in the southeastern United States, this time using the self-surveillance questionnaire instead of the SOQ (Calogero, Tylka, Donnelly, McGettrick, & Leger, 2017).¹¹ In contrast, our studies used samples of various origins (European, Asian, and American), and the two PDRs were conducted on an American sample of broad origins using the prolific platform. Although we cannot firmly at this stage exclude the argument of a sample-specific phenomenon, it is worth noting that no significant difference appeared across samples in terms of self-objectification and GSSJ levels.

Self-Objectification, Agency, and Passivity

The present article contributes to the literature on self-objectification, addressing the widely debated question of women's agency (Lamb & Peterson, 2012). Indeed, objectification has been defined as the reduction of women to their sexual function (Fredrickson & Roberts, 1997), depriving them of agency (Nussbaum, 1995). From a theoretical perspective, if passivity is a given component of objectification, it makes sense to argue that women who self-objectify (i.e., internalize the role of silent and passive sexual object) should avoid engaging in collective action. Yet several authors have underlined the fact that objectification theory reduces women to "cultural dupes" and victims of "false consciousness," unable to see the real patriarchal forces at stake in their environment" (Gill & Donaghue, 2013). [AQ: 21] From this point of view, women's sexualization is conceived as "happening to women and girls, as if it is outside of their choice or control" (Aubrey, Gamble, & Hahn, 2017). [AQ: 22]

In contrast to this perspective, some researchers have questioned the association between women's self-objectification and their assumed passivity (e.g., Liss,

Erchull, & Ramsey, 2011). [AQ: 23] They provided examples of women instrumentalizing their body to the benefit of collectivist motivations (Klein, Allen, Bernard, & Gervais, 2014). For instance, the "Femen" movement paradoxically "use[s] self-sexualization to restore the agency of women" (Klein et al., 2014, p. 85). In the same line, some women might self-sexualize to communicate their rights to choose to dress as they want, to feel beautiful even when their body does not match unattainable physical standards, or to assert their entitlement to sexual pleasure (Anderson, 2014). In other words, the links between self-objectification, system justification, and social activism might not be as straightforward as one might think.

On the one hand, and following Calogero's (2013, 2017) [AQ: 24] proposition, self-objectification could lead to an increase in system-justification beliefs and to a reduction in collective-action tendencies among women who have internalized traditional gender roles and who self-objectify to conform to these roles. On the other hand, self-objectification and its behavioral manifestation (i.e., self-sexualization) might also negatively relate to system-justification beliefs and positively relate to collective action among women who actively choose to use their body as a strategy to defy the status quo. [AQ: 25] In line with this idea, the absence of a significant correlation between self-objectification and GSSJ and between self-objectification and social activism might reflect the action of a yet unknown moderating mechanism rather than the total absence of a relationship between these variables. In all cases, even if the two contrasting options (i.e., that some self-objectified women "object" and that others do not) are theoretically sound, more research and data would be needed to identify the potential individual or contextual moderating factors.

Transparency

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Author Contributions

M. De Wilde developed the study concept. All the authors contributed to the study design and to data collection. M. De Wilde and O. Klein analyzed and interpreted the data. M. De Wilde drafted the manuscript and the two preregistrations, and all the authors provided critical revisions. All the authors approved the final manuscript for submission.

Declaration of Conflicting Interests

The author(s) declared that there were no conflicts of interest with respect to the authorship or the publication of this article. [AQ: 26]

Open Practices

All data and materials have been made publicly available via the Open Science Framework and can be accessed at

<https://osf.io/exz4p/>. The design and analysis plans were preregistered at the Open Science Framework (PDR 1: <https://osf.io/rbe2k/>; PDR 2: <https://osf.io/kfv5d/>), [AQ: 27] The complete Open Practices Disclosure for this article can be found at <http://journals.sagepub.com/doi/suppl/10.1177/0956797619896273>. This article has received the badges for Open Data, Open Materials, and Preregistration. More information about the Open Practices badges can be found at <http://www.psychologicalscience.org/publications/badges>.



ORCID iDs

Matthias De Wilde  <https://orcid.org/0000-0001-6177-4438>
Philippe Bernard  <https://orcid.org/0000-0003-2994-1931>

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Notes

1. The members of the two different labs conducted their studies in a totally independent way. None of them were aware that the other lab had conducted similar studies until they engaged in the PDR process.
2. Calogero (2013) found a correlation (r) of $-.97$, indicating that at least 1 participant allocated the same rank to different attributes.
3. See the file "Mini meta informations & Bayesian statistics & normality" at <https://osf.io/exz4p/> for skewness, kurtosis, and QQ plots.
4. Calogero informed us that the original data are no longer available. [AQ: 28]
5. The plausible priors are a half-normal [AQ: 29] starting at 0 with a standard deviation of .5, a normal centered on the lower bound of the CI of the effect observed by Calogero (2013) with a standard deviation of half this value, a normal centered on the effect observed by Calogero with a standard deviation equal to half this effect (all of these recommendations were based on recommendations by Dienes, 2011), [AQ: 30] and a uniform distribution of values between 0 and 1 as our prior (the JASP default when testing the hypothesis that $p > 0$).
6. Calogero (2013) did not mention any exclusion criteria in the original study.
7. The mean age of our sample (22.01 years, $SD = 2.20$, 95% CI = [21.59, 22.42]) was comparable with the mean age of Calogero's (2013) sample (18.65 years, $SD = 2.11$), even if statistically different, [AQ: 31] $t = 6.59$, $p < .001$. Controlling for age did not affect the statistical conclusions.

8. Calogero confirmed that our material was similar and the improvements were relevant before we collected the data for the PDRs. [AQ: 32]
9. In Calogero's (2013) study, the scale ranged from 0 to 9.
10. The mean age of our sample (22.28 years, $SD = 2.01$, 95% CI = [21.99, 22.57]) was comparable with the mean age of Calogero's sample (18.65 years, $SD = 2.11$), although the two were statistically different, [AQ: 33] $t = 23.96$, $p < .001$. Controlling for age did not affect the statistical conclusions.
11. Four of the eight items of the system-justification scale were used (Jost & Kay, 2005).

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