Commentary

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Examining the Link Between Conception Risk and Intergroup Bias: The Importance of Conceptual Coherence

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Evolutionary approaches to intergroup bias have predominantly focused on male perpetrators of bias (e.g., Sidanius & Pratto, 1999; Van Vugt, De Cremer, & Janssen, 2007; Wrangham & Peterson, 1996). However, recent research has examined how the motivations for intergroup bias may differ between men and women, providing evidence for a female-specific psychology of prejudice against out-group men that is linked to changes in conception risk across the menstrual cycle (McDonald, Asher, Kerr, & Navarrete, 2011; Navarrete, Fessler, Fleischman, & Geyer, 2009). Hawkins, Fitzgerald, and Nosek (2015) reported a putative failure to confirm this link in a series of replication attempts. Here, we offer three important critiques of their replication attempts that should help clarify these apparent inconsistencies. The most important critique involves the theoretical coherence of the conceptual replications—specifically, the use of female target stimuli in research purportedly aimed at investigating the workings of a psychological system for the avoidance of sexual coercion. Our Commentary is intended to improve understanding of the theoretical arguments underlying key predictions in order to facilitate the continued coherence of research in this important area.

Nontrivial Discrepancies in a Conceptual Replication

In Studies 1 and 2, Hawkins et al. (2015) attempted to conceptually replicate the main effect reported by Navarrete et al. (2009), specifically, that women's conception risk was positively associated with intergroup bias. In Study 3, Hawkins et al. attempted to conceptually replicate the interactive effect (reported by McDonald, Asher, et al., 2011) of conception risk and physicality stereotypes in producing increased evaluative intergroup bias. In this section, we describe two key ways in which their replication attempts departed from the original research and discuss the potential influence of those discrepancies.

Implicit and explicit measures of intergroup bias

In their measurement of intergroup bias, Hawkins et al. (2015, Studies 1 and 2) used three explicit bias items asking participants to report their preference for African Americans versus European Americans and their warmth toward each group; they also used an evaluative Implicit Association Test (IAT). In contrast, Navarrete et al. (2009) placed a greater focus on indirect, or implicit, assessments of intergroup bias. For example, participants completed both a stereotype and an evaluative IAT, and also evaluated pictures of race-manipulated male targets for their attractiveness and perceived level of threat.

There are a variety of theoretical and empirical reasons to favor the use of implicit measures of intergroup bias in this area of research. First, explicit measures of intergroup bias may be more susceptible to socially desirable responding (Greenwald, Poehlman, Uhlmann, & Banaji, 2009). Second, the psychological processes connecting conception risk and intergroup bias are predicted to be largely outside individual awareness and conscious control. Third, compared with explicit measures, implicit measures are typically better predictors of other implicit processes (Fazio & Olson, 2003). Finally, the associations between measures of intergroup bias and conception risk reported by Navarrete et al. (2009) were strongest for the implicit measures of bias (rs = .25–.40), and nonsignificant for the explicit measure (r = .20). The measurement

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discrepancies between the studies may play an important role in explaining why the studies did not produce similar results.

Targets of bias

The most critical difference between the measures used in the original research and the replication attempts concerns the gender of the targets. Whereas the original research (McDonald, Asher, et al., 2011; Navarrete et al., 2009) used male targets in both IATs and the assessments of perceived attractiveness and threat, Hawkins et al. (2015, Studies 1–3) used both male and female targets in their IAT and did not specify gender in their explicit measures of bias. Theoretically, the prediction that intergroup bias varies as a function of conception risk applies solely to bias against out-group men, not women. This explicitly articulated *out-group-male-target hypothesis* is based on the notion that men are the primary targets of intergroup prejudice, as they may have historically posed a greater threat than out-group women to women's reproductive choice (McDonald, Navarrete, & Sidanius, 2011; McDonald, Navarrete, & Van Vugt, 2012; Navarrete, McDonald, Molina, & Sidanius, 2010). Therefore, tests of this hypothesis would not use female target stimuli except to demonstrate the domain specificity of the predicted effects on attitudes toward out-group males, which is not possible in the design of Hawkins et al. Accordingly, their Studies 1 through 3 are of extremely limited validity as true replication attempts.

Competing Mechanisms

Despite discrepancies in the measures used to examine intergroup bias, the replication attempts by Hawkins et al. (2015) serve to highlight an important theoretical issue, specifically, that the key theoretical prediction is not a direct link between conception risk and intergroup bias, but rather a link moderated by women's perceptions of the physical threat posed by out-group men or by women's self-appraised vulnerability to that threat. Indeed, all of our research on the association between conception risk and intergroup bias has examined one of these two moderators (McDonald, Asher, et al., 2011; Navarrete et al., 2009). The reason for this is the potential for competing mechanisms. For example, we wrote that

> the association between increased intergroup bias and conception risk may rely on perceptions of the physical formidability of out-group men. . . . This qualification is based on the understanding that a woman's blanket prejudice against all out-group men carries the opportunity cost of decreasing her pool of potential mates, particularly mates whose optimal genetic distinctiveness has the potential to increase the genetic variability of her offspring. . . . For these reasons, selection may have favored a flexible psychological system that is sensitive to perceptions of the potential for coercive threat from the target. (McDonald, Asher, et al., 2011, p. 860)

In other words, women may possess competing mechanisms that produce both greater bias against and greater affinity toward out-group men. Which mechanism is activated may depend on the nature of the perceived physical threat from out-group men or on women's appraisals of their own vulnerability to such threats. Note that these moderating variables may preclude detection of a main effect of conception risk on intergroup bias.

A Meta-Analysis of Theoretically Coherent Findings

Given the concerns we have outlined, it is our view that Studies 1 through 3 reported by Hawkins et al. (2015) do not reach a level of conceptual clarity necessary to be considered fair replications of the original research. However, Study 4 was conducted with our feedback, which resulted in several methodological changes. Most notably, Study 4 was an attempted replication of the interaction between conception risk and threat (rather than the main effect), and female targets were removed from the IATs. Given these adjustments and the large sample size, the failure to replicate our previous results is potentially quite meaningful. There are theoretically relevant differences between the Project Implicit sample and the samples in our original research (e.g., online vs. in the lab, students vs. nonstudents), and these differences may account for the discrepancies in results. However, rather than quibble about differences between the samples, we treat Study 4 as a valid replication attempt that adds important information to the literature on this topic. Such replication attempts are particularly important given the relative novelty of this research.

However, to caution readers against dismissing our previous results (McDonald, Asher, et al. 2011), we present the results of a meta-analysis focusing on the interaction of conception risk and threat. For this analysis, we included only those studies executed with the theoretical coherence we have outlined: Study 4 of Hawkins et al. (2015), Studies 1 and 2 of McDonald, Asher, et al. (2011), and an independent, unpublished replication by Cesario (2014). We had access to all of the data sets to be included in the meta-analysis, so we conducted the interaction analysis on the combined data (N = 601; available at Open Science Framework: https://osf.io/7bujx/). We did not drop any observations from the data sets, though we considered only complete cases and variables relevant to the current analysis. Analyses were conducted using the SPSS macro PROCESS (Hayes, 2013). In Model 1, we

entered evaluative-IAT score as the dependent variable, conception risk as the independent variable, and the stereotype-IAT score as the moderator. A dichotomous indicator of participant's race (1 = White, −1 = non-White) was entered as a covariate. Variables were mean centered within the PROCESS macro.

Replicating the findings of McDonald, Asher, et al. (2011), results revealed a significant two-way interaction between conception risk and stereotype-IAT score, β = 0.12, b = 3.73, SE (b) = 1.22, $t(596)$ = 3.06, p = .002, 95% bias-corrected bootstrapped confidence interval (CI) = [1.34, 6.12]. Specifically, elevated conception risk was associated with greater evaluative bias at high levels (1 SD above the mean) of stereotyping (associating the outgroup with "physical"), β = 0.16, b = 2.07, SE (b) = 0.69, $t(596)$ = 2.99, p = .003, 95% CI = [0.71, 3.42] but not at low levels (1 SD below the mean). To control for sample differences, we then entered a dichotomous indicator of sample (1 = student sample, −1 = Project Implicit sample) as an additional moderator (PROCESS Model 3). This produced a significant three-way interaction, such that the two-way Conception Risk × Stereotype-IAT Score interaction was significant in the student samples, β = 0.17, b = 5.48, SE (b) = 1.38, $t(592)$ = 3.96, p < .001, 95% CI = [2.76, 8.20], but not the Project Implicit sample, β = −0.08, b = −2.56, SE (b) = 2.53, $t(592)$ = −1.02, p = .310, 95% CI = [−7.52, 2.40].

Conclusion

Replication is essential to the advancement of psychological science, and we are excited that our research has generated sufficient interest to merit replication attempts. However, we encourage researchers interested in replication and extensions of past research to exercise caution in making methodological changes when those changes directly conflict with the theoretical framework that informs predictions in that research domain.

Author Contributions

M. M. McDonald drafted the manuscript and conducted the included analyses with critical editing and feedback from C. D. Navarrete. Both authors approved the final version of the manuscript for submission.

Declaration of Conflicting Interests

The authors declared that they had no conflicts of interest with respect to their authorship or the publication of this article.

Open Practices

All data have been made publicly available via Open Science Framework and can be accessed at https://osf.io/7bujx/. The complete Open Practices Disclosure for this article can be found at http://pss.sagepub.com/content/by/supplemental-data. This article has received the badge for Open Data. More information about the Open Practices badges can be found at https://osf.io/tvyxz/wiki/view/ and http://pss.sagepub.com/content/25/1/3.full.

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