

Mental simulation and sexual prejudice reduction: the debiasing role of counterfactual thinking

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Abstract

Reducing prejudice is a critical research agenda, and never before has counterfactual priming been evaluated as a potential prejudice-reduction strategy. In the present experiment, participants were randomly assigned to imagine a pleasant interaction with a homosexual man and then think counterfactually about how an incident of sexual discrimination against him might not have occurred (experimental condition) or to imagine a nature scene (control condition). Results demonstrated a significant *reduction* in sexual prejudice from baseline levels in the counterfactual simulation group. Importantly, whereas intergroup anxiety and motivation to control prejudice were not predictive factors, number of counterfactual thoughts generated independently predicted variance in prejudice reduction. Mechanisms for, and implications of, prejudice-reduction strategies including counterfactual thinking are discussed.

Sexual prejudice is defined as negative attitudes toward homosexual or bisexual persons, behaviors, and communities, and it is the motivational seed behind sexually prejudicial hate crimes. A national survey conducted in 2005 indicated that 49% of sexual minorities reported having experienced verbal abuse, 21% reported having experienced violence or property crime, and 11% reported having experienced housing discrimination (Herek, 2007). As stated by Herek (2007):

The task of confronting sexual stigma and prejudice represents not only an important practical application of our knowledge to a significant social issue. It is also a theoretically challenging area of inquiry that will yield valuable insights into human social behavior. (p. 922)

It has been well established that positive interactions with outgroup members promote favorable intergroup attitudes and reduced prejudice (Allport, 1954; Cook, 1985; Festinger & Kelley, 1951; Pettigrew, 1998; Pettigrew & Tropp, 2006, 2008). Relatively recently, attention has turned to the subtle but remarkably effective role of *imagined* intergroup contact, that is, mental simulations of positive encounters with outgroup members in enhancing intergroup attitudes and reducing stereotyping (Crisp & Turner, 2009; Stathi & Crisp, 2008; Turner, Crisp, & Lambert, 2007). For example, Turner

et al. (2007; Experiment 3) found that heterosexual male participants who imagined talking with a homosexual man subsequently evaluated homosexual men more positively than those who had not imagined contact, and this effect was explained by lower intergroup anxiety in the group that had imagined contact with the homosexual man. Crisp and Turner (2009) noted that, although actual intergroup contact may be ideal in promoting positive intergroup attitudes and relations, lack of opportunity to engage in actual contact due to physical or social segregation or lack of motivation may be barriers to this reality.

One type of mental simulation that may promote prejudice reduction is counterfactual thinking, or alternate-to-reality reflections about how actual events might have transpired differently (Markman, Klein, & Suhr, 2009). Counterfactual thinking is a pervasive human tendency that has implications for social judgment, causal ascription, and emotional reactions including sympathy and blame (Markman, Lindberg, Kray, & Galinsky, 2007; Markman & Miller, 2006). In the case of upward counterfactual thoughts, which are naturally provoked following negative life events, the content of mental imaginings involves how a relatively favorable outcome might rather have occurred. It is believed that such thoughts aid in the construction of useful naïve theories about causality that ultimately form a blueprint for

improved future outcomes (Roese, 1994). For example, in light of the current subject, someone might think, “if only people were not prejudiced, this act of discrimination might not have occurred,” and, in turn, translate this conditional supposition into future intentions (e.g., “if I challenge my own prejudicial attitudes, I will not discriminate against others this way”).

Counterfactual priming has been shown to induce consideration of alternatives with potential to debias immediate, conventional solutions to problems (Galinsky & Moskowitz, 2000; Markman et al., 2007; Roese, 1994). Yet, despite the promise of counterfactual thinking for transcending cognitive constraint, never before has it been investigated as a method that might promote prejudice reduction. The current study is premised on the notion of counterfactual simulation as a potentially debiasing problem-solving strategy; in particular, it was hypothesized that counterfactual thinking may correct the stereotypic and constricted thinking that characterizes prejudice and, in this way, promote prosocial attitude change.

In the present study, we utilized an imagined contact experimental paradigm similar to that of Turner et al. (2007), modified to include a counterfactual prime. Specifically, participants were prompted to imagine contact with a homosexual man and then think counterfactually about how an incident of sexual discrimination against him might not have occurred. It was hypothesized that sexual prejudice reduction would be greater in the counterfactual simulation condition as compared to a control condition. The current study design also allowed for assessment of actual *reduction* in sexual prejudice, given inclusion of pre- and post-mental simulation assessment of prejudicial attitudes, and examination of multiple potential predictors of prejudice reduction, including degree of counterfactual thought generation, intergroup anxiety, and motivation to respond without prejudice.

Method

Participants

Participants were 76 students (86.8% female, 88.2% heterosexual, 100% unmarried) at a southern university who participated for course credit. Mean age was 20.45 years ($SD = 3.14$). Ethnic composition was consistent with the diverse student body and included 55.3% European Americans, 23.7% Hispanic/Latin Americans, 19.7% African Americans, and 1.3% “other” ethnicities.

Materials

Attitudes Toward Lesbians and Gay Men Scale (ATLG; Herek, 1988)

The ATLG is a widely used measure of sexual prejudice. It is comprised of 20 self-report items, with a 9-point response

scale (1 = *strongly disagree*, 9 = *strongly agree*), and contains two subscales, *Attitudes Toward Lesbians* (ATL) and *Attitudes Toward Gay Men* (ATG). In the present study, ATG was measured both before ($\alpha = .95$) and after ($\alpha = .96$) the experimental manipulation. The pre-minus-post-ATG score constituted the index of sexual prejudice reduction.

Experimental condition (modified with counterfactual prime from Turner et al., 2007; Experiment 3)

Participants in the experimental condition were asked to spend 5 minutes imagining the following:

A gay man sits down next to you before class and politely introduces himself as Brian. After class, you begin chatting with Brian about the lecture, which turns into a positive, relaxed, and comfortable 30-minute conversation about stressors at school, your backgrounds, and life in general. During the conversation, you learn some interesting and unexpected things about Brian. You also learn that Brian recently received a package full of hate mail from members of a social group on campus because of his sexuality.

Participants were then prompted, “Following negative events such as the one Brian recently experienced, people often think ‘if only’ and imagine how the negative event might not have occurred.” They were asked to think about and list “any thoughts you have about how the hate mail incident might not have occurred.” Thought listings, individually examined to ensure genuine counterfactual nature, were quantified.

Control condition (adapted from Turner et al., 2007; Experiment 3)

Participants in the control condition were asked to spend 5 minutes imagining “You have gone on a day-long hike in an unfamiliar forest. During the trip, you find yourself unexpectedly at a secluded bay.” Following this prime, participants were prompted to think about and list “the things you see at the scene.”

Intergroup Anxiety Scale (Voci & Hewstone, 2003)

As utilized by Turner et al. (2007) to demonstrate the influence of lower intergroup anxiety on the imagined contact effect, participants were asked, “If you were to meet a gay man in the future, to what extent would you feel the following [*Awkward, Happy* (reverse scored), *Self-Conscious, Competent* (reverse scored), *Relaxed* (reverse scored), and *Anxious*],” and responded to each item according to a 7-point scale (1 = *not at all*, 7 = *very much*). In the present study, adequate internal consistency was achieved for the intergroup anxiety scale ($\alpha = .75$).

Internal and external motivation to respond without prejudice scales (Ratcliff, Lassiter, Markman, & Snyder, 2006)

Motivation to respond without prejudice was assessed via an adapted version of a five-item Internal Motivation Scale (IMS) and a five-item External Motivation Scale (EMS), originally developed by Plant and Devine (1998) to assess perceived social pressure to comply with nonprejudiced norms toward Blacks. Ratcliff and colleagues modified the scale to assess IMS toward gay men (e.g., "I attempt to act in non-prejudiced ways toward gay men because it is personally important to me") and EMS toward gay men ("I try to hide any negative thoughts about gay men in order to avoid negative reactions from others"), according to a 9-point scale (1 = *strongly disagree*, 9 = *strongly agree*). In the present study, adequate internal consistency was achieved for both the IMS ($\alpha = .84$) and EMS ($\alpha = .84$).

Demographics questionnaire

Following primary measures, a questionnaire assessed demographic characteristics including age, gender, ethnicity, sexual orientation, and marital status.

Procedure

After providing informed consent, participants individually and anonymously completed questionnaires in groups of 15 or fewer. They first completed the ATG to assess attitudes toward gay men at baseline. Next, participants were randomly assigned to one of the experimental conditions described above, following which they each completed the intergroup anxiety scale and again completed the ATG to assess post-intervention attitudes toward gay men. Finally, participants completed the IMS and EMS and the demographics questionnaire.

Results

To test the primary hypothesis that participants in the counterfactual simulation condition would experience greater reduction in prejudicial attitudes toward gay men relative to participants in the control condition, a planned comparison was conducted. Results indeed demonstrated that participants in the counterfactual simulation condition ($M = 1.53$, $SD = 4.34$) reported significant reduction in prejudicial attitudes relative to participants in the control condition ($M = -0.84$, $SD = 3.91$), $t(72) = 2.47$, $p = .02$. Descriptive statistics are reproduced in Table 1 for ease of comparison. It is also shown in the table that neither intergroup anxiety nor internal or external motivation to respond without prejudice differed between the experimental and control groups, all t s < .57, all p s > .57.

Table 1 Descriptive Statistics and Group Comparisons

Condition	CF generation <i>M (SD), Min, Max</i>	Anxiety <i>M (SD), Min, Max</i>	IMS <i>M (SD), Min, Max</i>	EMS <i>M (SD), Min, Max</i>	Prejudice reduction <i>M (SD), Min, Max</i>
Experimental ($n = 37$)	1.46 ^a (0.96), 0.00, 5.00	15.76 (6.55), 6.00, 31.00	36.08 (8.98), 15.00, 45.00	16.24 (9.05), 5.00, 39.00	1.53 ^a (4.34), -7.00, 13.00
Control ($n = 39$)	0.00 ^b (0.00), 0.00, 0.00	16.26 (6.10), 7.00, 30.00	34.95 (8.55), 13.00, 45.00	16.59 (9.22), 5.00, 38.00	-0.84 ^b (3.91), -13.00, 5.00
Total sample ($N = 76$)	0.71 (0.99), 0.00, 5.00	16.01 (6.29), 6.00, 31.00	35.50 (8.72), 13.00, 45.00	16.42 (9.08), 5.00, 39.00	0.31 (4.27), -13.00, 13.00

Note. Conditions that do not share common superscripts differ at the $p < .05$ level. Boldface emphasizes variables of primary interest. Legend: CF generation = number of counterfactual thoughts generated in response to experimental prompt (experimental condition only); Anxiety = intergroup anxiety (i.e., about future contact with gay men); IMS = internal motivation to respond without prejudice toward gay men; EMS = external motivation to respond without prejudice toward gay men; Prejudice reduction = in attitudes toward gay men, pre-to-post intervention.

Table 2 Zero-Order Correlations Among Potential Predictors and Prejudice Reduction in Experimental Group ($n = 37$)

	2	3	4	5
1. Prejudice reduction	.35*	-.17	.13	-.13
2. Counterfactual thought generation		-.12	.33*	.11
3. Intergroup anxiety			-.48**	.48**
4. Internal motivation to control prejudice				-.11
5. External motivation to control prejudice				

Note. * $p < .05$. ** $p < .01$. Boldface emphasizes variables of primary interest.

Next, potential predictors of prejudice reduction in the experimental group, including number of counterfactual thoughts generated, intergroup anxiety, and motivation to respond without prejudice, were examined. Zero-order correlations among variables are shown in Table 2. As displayed in the table, number of counterfactual thoughts generated ($r = .35, p = .04$), but neither intergroup anxiety nor internal or external motivation to respond without prejudice (all r s $< .17$, all p s $> .33$), related to prejudice reduction. A linear regression analysis indicated that degree of counterfactual thought generation, the hypothesized potent factor of the current intervention, predicted 12% of the variance in sexual prejudice reduction, $F(1, 34) = 4.63, p = .04$. Interestingly, internal motivation to respond without prejudice was positively related to number of counterfactual thoughts generated ($r = .33, p < .05$), suggesting an individual difference variable that may enhance propensity toward counterfactual simulation.

Discussion

The present results suggest that modification of an imagined contact intervention with a counterfactual prime concerning how an act of discrimination toward a homosexual man might not have occurred produced *reduction* in prejudicial attitudes—that is, pre-to-post-intervention attitude change. Importantly, number of counterfactual alternatives to discrimination generated by participants predicted prejudice reduction, whereas intergroup anxiety (a primary explanatory variable of the imagined contact effect) and motivation to control prejudice were unrelated to prejudice reduction.

Counterfactual thoughts engendered by the experimental intervention included those that altered socially prejudicial attitudes (e.g., “if only America was more accepting of homosexuals and stopped treating them as outcasts . . .”) and those that altered the homosexual man’s behavior (e.g., “If Brian

hadn’t told anyone that he was gay . . .”). Yet, those in the latter category often continued, for example:

Not that it’s not ok that he’s gay, but that makes a lot of people feel uncomfortable. I would feel bad for Brian and ask if there was anything I could do, but I think it’s something he’ll have to get used to until society fully accepts homosexuality.

Both types of counterfactual simulations were included in the present analyses, as even counterfactual thoughts that seemingly located control in the victim of prejudice appeared to engender consideration of societal faults perceived to necessitate such accommodation.

Overall, consistent with and extending research suggesting that counterfactual priming reduces constricted problem solving (Galinsky & Moskowitz, 2000; Markman et al., 2007; Roese, 1994), findings from the current experiment are the first to suggest that counterfactual thought generation reduces sexually prejudicial attitudes. This effect was demonstrated by modifying an imagined contact experimental paradigm used by Turner et al. (2007) to include a counterfactual prime. Whereas extant research has suggested that intergroup anxiety accounts for the effect of imagined contact on prejudice reduction, priming participants in the present study to focus on their cognitive processing (i.e., counterfactual simulations) rather than on their emotional processing highlighted yet another avenue for attitude change. That is, present findings do not diminish the demonstrated influence of imagined contact and, in turn, lower intergroup anxiety, as our intervention constituted an integration of the imagined contact paradigm with a counterfactual simulation enhancement of it. Rather, the present findings suggest another mechanism—counterfactual thinking—that might function in parallel to reduce prejudice. Future research might consider the relative influences of identified prejudice-reduction interventions and, moreover, deviate from the standard “nature scene” control condition (see Stathi & Crisp, 2008) to rule out additional factors (e.g., sympathy for the victim) that might contribute to sexual prejudice reduction.

Coda

As emphasized by Herek (2007), “the task of confronting sexual stigma and prejudice represents . . . an important practical application of our knowledge to a significant social issue” (p. 922). Any and all interventions demonstrating promise for reduction of prejudice deserve future research attention. Moreover, if interventions such as counterfactual priming continue to prove fruitful in reducing prejudicial social cognitions, their efficacy in the intercession of discriminatory behaviors should be evaluated.

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