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What is This?

Treating Prejudice With Imagery: Easier Said Than Done?

Melissa M. McDonald[1], M. Brent Donnellan[2], Ryan Lang[2], and Katie Nikolajuk[2]

[1]School of Psychology, Interdisciplinary Center, Herzliya, Israel,
and [2]Department of Psychology, Michigan State University

Exposure therapy, a commonly used treatment for anxiety disorders and phobias, involves exposing the patient to a fear-eliciting stimulus in the context of a safe and supportive environment (Foa & Kozak, 1986). Birtel and Crisp (2012) used this framework to develop a novel "treatment" for prejudice based on the idea that out-group members are an anxiety-provoking stimulus. Across three studies, anticipatory anxiety about interacting with a stigmatized out-group member (i.e., a person with schizophrenia, a gay man, or a British Muslim) was reduced if participants first imagined a negative interaction followed by a positive interaction, relative to when participants imagined only positive interactions. These results suggest that guided imagery might be a useful tool to reduce prejudice.

These findings are also compelling in light of research in neuroscience demonstrating that conditioned fear may not follow the typical pattern of spontaneous recovery after extinction if extinction occurs shortly after reactivation of the fear memory (Schiller et al., 2010). This work suggests that the activation of emotional memories produces a reconsolidation window in which stored memories are capable of being updated with new information. Given this convergence of theory and empirical findings, as well as the societal importance of reducing prejudice, we attempted to independently replicate Birtel and Crisp's findings from Studies 1 and 2a.

Moreover, it is critically important to replicate and establish precise effect-size estimates when research findings may be used as treatment interventions. The effect sizes obtained by Birtel and Crisp for Studies 1 and 2a (ds = 0.76–1.08; see Table 1) are larger than those reported in other prejudice-reduction studies (e.g., r = .215, d = 0.43; Pettigrew & Tropp, 2006). Precise estimates require large sample sizes (Cumming, 2012), but Birtel and Crisp recruited small samples of 29 participants (Study 1) and 32 participants (Study 2a). Therefore, we followed Simonsohn's (2013) recommendation that replication studies use samples that are at least 2.5 times the size of the original samples.

Method

For this online study, participants were recruited from Michigan State University's psychology participant pool. Study 1 included 240 students (46% male, 54% female) without mental-health problems (sample size 8 times larger than the original). Study 2a included 175 heterosexual male students (sample size more than 5 times larger than the original).

Procedures closely followed those of Birtel and Crisp; complete details are in the original report and in our Supplemental Material available online. Participants were randomly assigned to receive either positive- or negative-imagery instructions at Time 1. Participants in Study 1 were instructed as follows: "Please take a moment to imagine yourself meeting an adult with schizophrenia for the first time. Imagine that the interaction is positive, relaxed, and comfortable [negative, tense, and uncomfortable]." Participants in Study 2a received the same instructions except that "a gay man" was substituted for "an adult with schizophrenia." Participants were then asked to provide a description of what they imagined and to answer 10 items assessing their anxiety about future interactions with the stigmatized group. In Study 2a, participants also completed a measure of their future intentions to have contact with gay men. At Time 2, participants completed the task again, but this time all participants received the positive-imagery instructions. They then completed the same follow-up measures from Time 1.

Corresponding Author:
Melissa M. McDonald, Interdisciplinary Center Herzliya, P. O. Box 167, Herzliya, 46150, Israel
E-mail: m.m.mcdonald32@gmail.com

Results

The key prediction was that participants who received the negative-imagery instructions at Time 1 (the negative-positive, or N-P, condition) would score lower than those who received the positive-imagery instructions at Time 1 (the positive-positive, or P-P, condition) on measures of negative reactions to the stigmatized group at Time 2 (full results from mixed-model regression analyses are available in the Supplemental Material). We found no support for this prediction. In Study 1, anxiety scores did not differ significantly by condition (P-P: $M = 3.26$, $SD = 0.92$; N-P: $M = 3.18$, $SD = 0.91$), $t(238) = 0.76$, $p = .450$. Moreover, the effect size was substantially smaller than that obtained by Birtel and Crisp ($d = 0.10$ vs. 0.76; see Table 1). In Study 2a, the difference in anxiety was actually counter to predictions: Participants in the P-P condition reported less anxiety at Time 2 ($M = 2.73$, $SD = 1.03$) than did participants in the N-P condition ($M = 2.96$, $SD = 1.29$), although this difference was not statistically significant, $t(171.99) = -1.26$ (t test with equal variances not assumed), $p = .210$, $d = -0.19$. No significant difference was found for participants' contact intentions at Time 2 (P-P: $M = 4.11$, $SD = 1.78$; N-P: $M = 4.12$, $SD = 1.95$), $t(173) = 0.05$, $p = .958$, $d = 0.01$ (Table 1).

Discussion

Birtel and Crisp found evidence that guided imagery was effective for reducing anxiety related to stigmatized groups. However, we did not replicate their findings using the same procedures and much larger sample sizes.

Given that we had more than 99% power to detect the effect sizes obtained in the original studies (Table 1), it is unlikely that we have made a Type II error. The fact that our effect-size estimates were substantially smaller than the original estimates suggests that more work is needed to establish the magnitude of the originally reported effect.

A key consideration for future research is that prejudice may be characterized by a variety of emotions, including anger, disgust, entitlement, guilt, and shame, many of which may not respond to exposure-therapy treatment. The guided-imagery intervention may be effective only for people who experience heightened anxiety or fear during interactions with out-groups. Future research could also consider the type of imagery evoked. Work by Schiller et al. (2010) suggests that fear memories, rather than novel imagined situations, must be activated and then updated with new information in order for anticipatory anxiety to be reduced in intergroup interactions. Accordingly, participants could be instructed to recall actual interactions with out-group members that evoked fear, rather than to imagine new interactions. Finally, encouraging more vivid imagery might strengthen the manipulation; for example, participants might be instructed to imagine a negative interaction with an accompanying fearful physiological response (Lang, Kozak, Miller, Levin, & McLean, 1980).

Failures to replicate add important information to the literature and should be a normal part of the scientific enterprise. The current study suggests that more work is needed before Birtel and Crisp's procedures are widely

Table 1. Comparison of Effect Sizes From Birtel and Crisp (2012) and the Current Replication Attempt

Study and dependent variable	Positive-positive condition		Negative-positive condition		d	Power for original effect	Power for a medium-size effect[a]
	M	SD	M	SD			
Study 1 (adult with schizophrenia)							
Original ($N = 29$)							
Anxiety	3.19	0.45	2.69	0.81	0.76	.50	.25
Replication ($N = 240$)							
Anxiety	3.26	0.92	3.18	0.91	0.10	> .99	.97
Study 2a (homosexual man)							
Original ($N = 32$)							
Anxiety	2.81	0.58	2.18	0.59	1.08	.84	.28
Contact intentions	3.99	1.40	5.25	1.47	−0.88	.67	.28
Replication ($N = 175$)							
Anxiety	2.73	1.03	2.96	1.29	−0.19	> .99	.90
Contact intentions	4.11	1.78	4.12	1.95	0.01	> .99	.90

[a]This column reports the estimated power to detect a medium-size effect (i.e., $d = 0.50$) slightly larger than the effect of intergroup-contact interventions obtained by Pettigrew and Tropp (2006) in their meta-analysis ($d = 0.43$).

implemented. Interventions for treating prejudice may require more precise manipulations along with rigorous evaluation using large sample sizes.

Author Contributions

All authors contributed to the study design and editing of the manuscript. K. Nikolajuk wrote the application for the institutional review board. R. Lang programmed the online survey and conducted a review of the relevant literature. M. M. McDonald and M. B. Donnellan analyzed and interpreted the data. M. M. McDonald drafted the manuscript, and M. B. Donnellan provided critical revisions. All 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.

Supplemental Material

Additional supporting information may be found at http://pss .sagepub.com/content/by/supplemental-data

References

Birtel, M. D., & Crisp, R. J. (2012). "Treating" prejudice: An exposure-therapy approach to reducing negative reactions toward stigmatized groups. *Psychological Science*, *23*, 1379–1386. doi:10.1177/0956797612443838

Cumming, G. (2012). *Understanding the new statistics: Effect sizes, confidence intervals, and meta-analysis*. New York, NY: Routledge.

Foa, E. B., & Kozak, M. J. (1986). Emotional processing of fear: Exposure to corrective information. *Psychological Bulletin*, *99*, 20–35. doi:10.1037/0033-2909.99.1.20

Lang, P., Kozak, M. J., Miller, G. A., Levin, D. N., & McLean, A. (1980). Emotional imagery: Conceptual structure and pattern of somato-visceral response. *Psychophysiology*, *17*, 179–192. doi:10.1111/j.1469-8986 .1980.tb00133.x

Pettigrew, T. F., & Tropp, L. R. (2006). A meta-analytic test of intergroup contact theory. *Journal of Personality and Social Psychology*, *90*, 751–783. doi:10.1037/0022-3514 .90.5.751

Schiller, D., Monfils, M. H., Raio, C. M., Johnson, D. C., LeDoux, J. E., & Phelps, E. A. (2010). Preventing the return of fear in humans using reconsolidation update mechanisms. *Nature*, *463*, 49–54. doi:10.1038/nature08637

Simonsohn, U. (2013). *Evaluating replication results*. Retrieved from Social Science Research Network Web site: http:// dx.doi.org/10.2139/ssrn.2259879