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COUNTERSTEREOTYPICAL MATERIALS AS A METHOD OF REDUCING PREJUDICE TOWARD CHILDFREE PEOPLE

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Childfree people face prejudice, discrimination, and misunderstanding. This study explores three methods of reducing such prejudice based on video materials: counterstereotypicality (CS), exposition (EXPO), and counterstereotypical exposition (CS-EXPO). Prejudice was measured twice: first, in a pretest, and then in a posttest that followed the video material, two weeks afterwards. The study covered 192 participants (M_{age} = 30.18), with 46 to 50 participants in each condition (three experimental + one control). In all of the experimental conditions (but not in the control condition), the prejudice was lower in the Posttest, compared to the Pretest. Of the three conditions, the CS and CS-EXPO conditions had the largest effect. However, the results indicated no significant differences between the conditions. Practical implications for prejudice reduction campaigns are discussed.

Keywords: childfree; prejudice reduction; experiment; online study

Prejudice is commonly understood as a negative attitude towards the outgroup manifesting in behavioural, cognitive, and emotional areas (Bohner & Wanke, 2002). It is considered a natural phenomenon once crucial for a group's survival (Kaya, 2015). Being cautious of new, strange people was essential to avoid getting hurt by them. Furthermore, rejection of familiar people who were considered a threat to the group's survival or prosperity had a similar function. Aggressive and lazy individuals could be seen as dangerous and, therefore, evoke prejudice toward them (Neuberg & Schaller, 2016).

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As the subject of childfreeness (i.e., resolving not to have offspring, not to be mistaken with involuntary childlessness caused by things like infertility) is becoming prominent in both media and science (e.g. Garncarek, 2022; Neal & Neal, 2022), prejudice against childfree people also has become an area of interest for researchers. An openly declared decision not to have children can result in being perceived as having a less mature, more selfish, and less fulfilling life (Ekelund & Ask, 2021; Kemkes, 2008; Koropeckyj-Cox et al., 2018). Both childfree men and women were seen as less caring and less driven than both parents and involuntary childless people (Szymańska, 2019). There is also some evidence that links childlessness with lower work status and salary for men (Fieder et al., 2005). Although the topic of both childfreeness and prejudice toward childfree people is becoming more prominent each year, there is a significant gap in knowledge concerning the possible ways of reducing this prejudice. This topic is crucial because apart from negative attitudes among people (which would be a sufficient reason to explore this topic), politicians also, on occasion, propose systematic discrimination against childfree people (MJ, 2018). Therefore, exploring possible ways of decreasing prejudice toward childfree people is essential.

Reducing Prejudice

As prejudice is an undesired phenomenon that can lead to discrimination and harm to outgroups, there have been many attempts to reduce it (e.g. Fitz-Gerald et al., 2019; Flores et al., 2018). However, none of them was tested in the context of reducing prejudice towards childfree people. This study focuses on two methods that were effective in reducing prejudice towards other groups that do not conform to the traditional lifestyle (e.g. transexual and homosexual people [Flores et al., 2018; Vasiljevic & Crisp, 2013]) and which would be easy to implement as a widespread prejudice reduction campaign: evoking counterstereotypical thinking (CS) and exposing people to outgroup members (EXPO).

Evoking counterstereotypical (CS) thinking was described in the Categorization-Processing-Adaptation-Generalization (CPAG) model, which argues that experiencing diversity in a way that contradicts the stereotypical expectations can result in a generalised effect of suppressing stereotypes across different groups, such as older adults or homosexual individuals (Crisp & Turner, 2011; Vasiljevic & Crisp, 2013). This model assumes that the experience must not only contradict an existing stereotype, but the person who experiences this

contradiction must also be motivated and have the resources to experience this contradiction to process it. However, some studies have achieved the effect of reducing prejudice by simply presenting counterstereotypical examples (e.g., in news stories) (Ramasubramanian & Oliver, 2007), which shows that even reading a counterstereotypical material can be an engaging enough task. This manipulation is only sometimes effective (compare meta-analysis by Carthy et al., 2020). Some strategies that used counterstereotypical examples had an effect, specifically on implicit prejudice (FitzGerald et al., 2019). It is, therefore, interesting to see whether exposing people to counterstereotypical examples (via video with text) can reduce prejudice and verify whether the effect is more substantial if the presented CS examples pertain to the group toward which we measure prejudice.

The second method (EXPO) exposes the prejudiced person to stimuli presenting the object toward which we want to evoke a more positive attitude. Many researchers explored whether simply exposing a person to an outgroup member can reduce prejudice toward them. For example, Columb and Plant (2011) showed that exposing a person to a positive outgroup member (such as Barrack Obama) can reduce implicit prejudice. Zebrowitz et al. (2008) explored the effect of subliminal exposure to outgroup members' faces (Korean and Black) and showed that this procedure can increase explicit likeability and familiarity toward those faces. Flores et al. (2018) explored the idea of exposing participants to neutral descriptions (with and without pictures) that presented transgender people. The treatment, which included exposure to pictures, next to descriptions, resulted in decreasing both discomfort and prejudice toward transexual people. It is, therefore, interesting to see whether the method presented by Flores et al. (2018) can be applied to childfree people and whether the effect would change if the description were counterstereotypical.

The Present Study

As childfree people become more noticeable in our population, and prejudice toward them seems substantial, it is essential to explore whether previous (and new) methods of prejudice reduction can be implemented to reduce negative attitudes toward them. To this end, a study of three experimental manipulations has been created based on the two methods of reducing prejudice presented earlier.

The first method (CS) focuses solely on showing counterstereotypical people, which should limit stereotypical thinking and, therefore, reduce prejudice toward outgroups, including childfree people.

The second method (EXPO) exposes participants to childfree people via text and pictures, which should weaken the negative attitude toward them.

The third manipulation synthesises the previous two methods (CS-EXPO). Participants are exposed to childfree participants (EXPO), who are presented with counterstereotypical descriptions (inducing CS thinking).

The use of three different methods is implemented to provide an overview to establish whether the counterstereotypical (CS) material and exposure (EXPO) to outgroups can reduce prejudice when childfree people are the target. The third group (CS-EXPO), however, offers the opportunity to verify whether the synthesis of these methods works and if it is more successful by combining two methods that had success in previous studies. Based on this design, seven hypotheses were formulated:

> Participants in a CS condition (H1), EXPO condition (H2) and CS-EXPO condition (H3) will have lower prejudice toward childfree people (in the Posttest) than the participants in the control group.
>
> Participants in a CS condition (H4), EXPO condition (H5), and CS-EXPO condition (H6) will have lower prejudice toward childfree people in the Posttest than in the Pretest.
>
> Participants in a CS-EXPO condition will have lower prejudice toward childfree people (in the Posttest) than those in the CS and EXPO conditions (H7).

To summarise, it is predicted that all experimental conditions will decrease prejudice toward childfree people, from which the synthesis method (i.e. CS-EXPO) will have the most significant effect.

Ethics Committee of Faculty of Psychology and Cognitive Sciences of Adam Mickiewicz University in Poznan approved the study (Opinion no. 1/06/2023). The hypotheses were pre-registered (https://osf.io/wxk2t), and all data, codes for analysis, materials, and online supplemental materials (OSM) are available at https://osf.io/xbc6n. Additional exclusion criteria were registered during the data collection (~ 60% completed) (https://osf.io/g9uv8).

METHOD

Recruitment

The study took place from April 3 to May 2, 2024. Participants were invited via social media (shared on several Facebook groups and profiles). The recruiting post briefly described the study procedure and the masked purpose of the study (i.e., stated that the purpose of the study was to explore the stability of answers in psychological questionnaires).

The inclusion criteria were: (a) being 18 years old or older (being an adult); (b) willingness to have children or having children; (c) being prejudiced against childfree people with a mean score of 2.00 or higher (on a scale of 1.00 to 5.00).

The inclusion criterion (a) was implemented for legal reasons; (b) was used to collect a sample that could treat childfree people as the outgroup; and (c) was used to provide a sample with prejudice against childfree people, which could be later reduced via an experimental method, for which the value of 2.00 was chosen as a mean value of prejudice toward childfree people in a previous study (Ciesielski, 2024a).

The exclusion criteria included: (1) failing the attention check questions in either test—there was one attention check question in both Pretest ("I do not agree") and in the Posttest ("What was the movie you saw about?"); (2) having technical problems which resulted in seeing two different video materials; (3) filling questionnaire more than once using a different email address.

The participants were informed about the inclusion criteria (a), (b) and exclusion criterion (1) explicitly. (c) was masked, and the participants were informed that their answer pattern would be analysed during Pretest and that some of them might be excluded. (2) and (3) were added during the data collection, as it was not foreseen earlier. The participants who matched the exclusion criteria (2) or (3) were excluded from the analysis, but they were rewarded for their participation. The OSM presents an analysis of a sample that does not exclude participants with technical problems (2). Detailed information about exclusion criteria (3) can be found in OSM.

Measures

Prejudice toward childfree people was measured using the Questionnaire of Prejudice Toward Childfree Individuals (QPCF; Ciesielski, 2024b) that

comprises 14 items (e.g., "If a person does not want to have children, their life will be meaningless."). The participants answered on a scale from one (*I definitely do not agree*) to five (*I definitely agree*). The participants' answers to all questions were later averaged, resulting in a score between one and five. The QPCF was reliable in both Pretest and Posttest (t_1 ω = .85, t_2 ω = .90).

Questionnaires measuring collective narcissism, religiosity, and right-wing authoritarianism were used as a part of the masking procedure, and an exploratory analysis of moderation of the experimental effect was performed (as they were shown in past study to predict the intensity of prejudice towards childfree people (Ciesielski, 2024a). The details about those scales and moderation analysis are presented in the OSM.

Procedure

After entering the recruitment link, participants entered the Pretest. They were asked to give informed consent; then, they were asked to complete questionnaires described here in the Measures section, and they were asked to leave their email addresses to which the Posttest could be sent. After a two-week break, the participants received an email inviting them to do the Posttest questionnaire.

In the Posttest, the participants were informed that they would soon complete one of the forms from the Pretest that would be chosen for them randomly (this was masking information, as they all filled out the QPCF). However, first, they were asked to watch closely a short video. They were informed that reviewing the video was the condition on which the study received funding (masking information). They watched one of four videos (described in the Materials section), assigned randomly via the Qualtrics survey flow.

After watching the video, the participants were asked whether it was attractive (from 1 = *Definitely not attractive* to 5 = *Definitely attractive*) (part of the masking procedure). Later, they were asked to complete the QPCF and answer questions about what the video they had watched was about (i. different, unusual people, ii. Childfree people, iii. Minerals). For the experimental videos, the participants were also asked whether the people depicted in the video were typical (from 1 = *Definitely not typical* to 5 = *Definitely typical*) and whether they were stereotypical (from 1 = *Definitely not stereotypical* to 5 = *Definitely stereotypical*). This question was not included in the control condition, in which people watched the video about minerals. At the end of the Posttest, the participants answered a demographic survey and were de-

briefed about the real purpose of the study. After completing the Posttest, they received a gift card (45 PLN ≈ 11 USD) for an online shop.

Materials

The participants were divided into four groups (3 experimental and one control). In each group, a different clip was presented, which was essentially a slideshow video. Each contained a title page, eight pages containing a picture with accompanying text. The videos were between 74 and 85 seconds long and had the same background music. All videos are available on the OSF.

Experimental Groups Videos

In the experimental videos, an AI-generated picture (the same pictures in each condition) was on each page with a different description.

In the CS group, the slides showed people whose past or present jobs were not commonly associated with their gender (or they did their job in a non-stereotypical manner), for example: "I am 26 years old, and I am a female firefighter." The CS descriptions were based on neutral stereotypes (e.g., "firefighters are men") instead of positive (e.g., "Asians are good at math") or negative (e.g., "Asians are bad drivers") ones, based on a pilot study described in the OSM.

In the EXPO group, one slide depicted a childfree person without any stereotypes (it stated their age, decision about procreation, and name) neutrally, e.g., "I am 26 years old, and I don't have and don't want to have children."

In Group 3, CS-EXPO, a slide depicted a childfree person who contradicts one of the stereotypes about childfree people: "I am 26 years old. I don't have and don't want to have children, but I enjoy taking care of them." (Stereotypes were formulated based on a pilot study described in the OSM and past research, e.g., Wacławik, 2012.).

Control Group Video

The control video contained a different mineral picture and description on each slide. This control group was included to reduce potential interference caused by viewing a picture of a person while ensuring a comparable experience, specifically watching a slideshow video with background music.

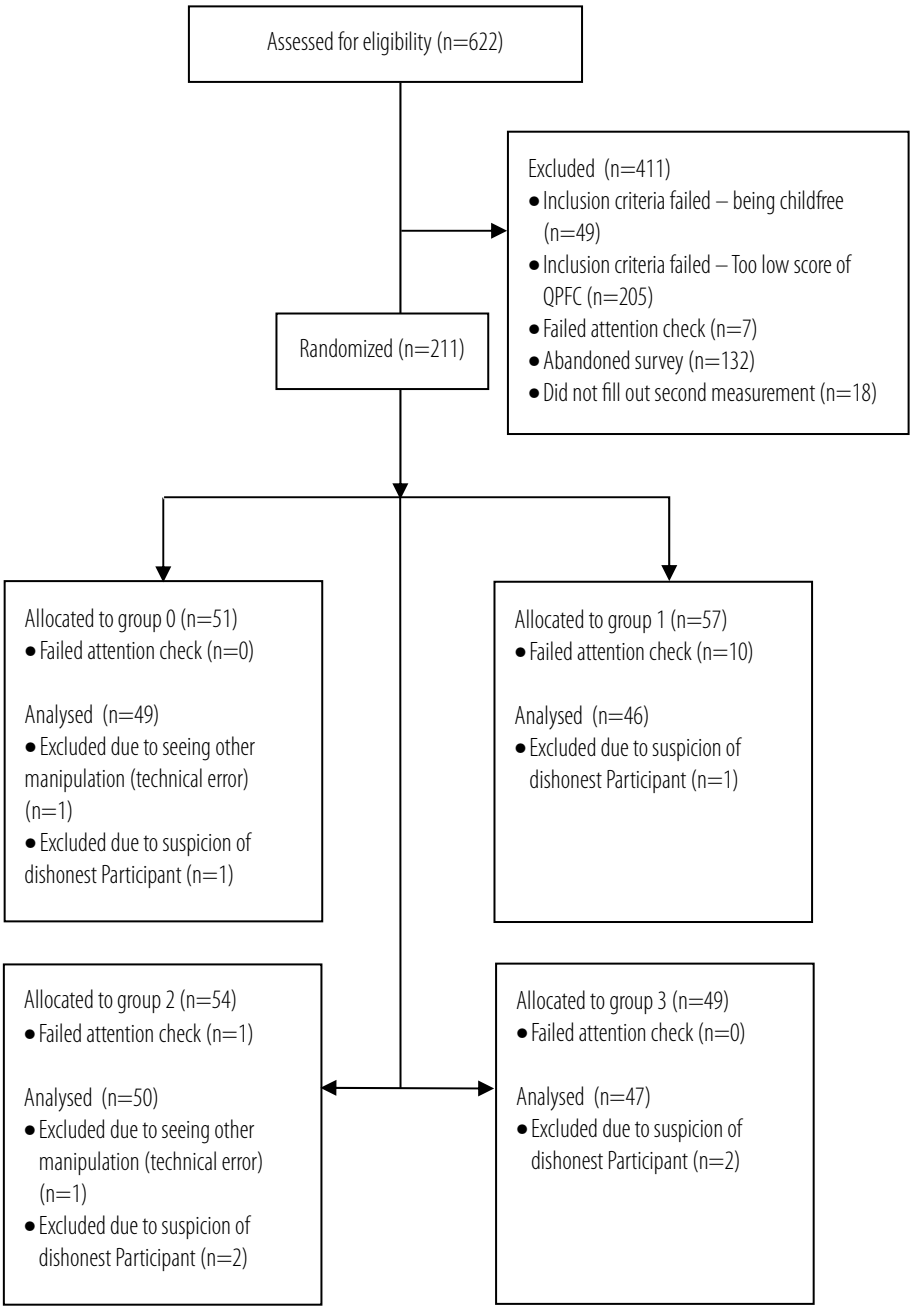
Participants

The Pretest was entered by 622 participants. However, 205 participants failed to meet the minimum QPCF score inclusion criteria, 49 failed to meet the inclusion criteria of having or wanting to have children, 7 failed the attention check question, and 132 abandoned the survey for unknown reasons. In total, the Pretest was completed in full by 229 participants. Of these participants, 18 failed to respond to the Posttest invitation, and 11 failed the attention check in the Posttest. Of the remaining participants, 6 were excluded due to suspected dishonesty and 2 others were excluded due to a technical error that resulted in watching two different experimental manipulations.

The analysed sample comprised 192 participants (100 women, 91 men, and one other/rather not say, 99 parents) aged 18–64 (M = 30.18, SD = 8.14). The majority of participants were heterosexual (92.2%), had higher education (68.2%), and lived in a large city (more than 500 thousand inhabitants; 51.0%). There were 49 participants in the control group, 46 in the CS group, 50 in the EXPO and 47 in the CS-EXPO group. Figure 1 presents the distribution of the participants to conditions and exclusions in all groups based on the CONSORT chart (Schulz et al., 2010). Groups did not differ in terms of gender, age, level of education, place of living, or being a parent ($p > .65$) nor in terms of initial prejudice ($p = .66$).

Figure 1

The Recruitment Schematic Based on the CONSORT Chart



Data Analyses

To test the hypotheses outlined in the overview, a two-way mixed ANOVA was conducted using SPSS (v.28). The sample size for this analysis was estimated using G*Power (Faul et al., 2009) with parameters set to $\alpha = .05$, $\beta = .95$, and $f = .15$, based on prior research (e.g., Carthy et al., 2020), for the within-between interaction and a correlation between pretest and posttest of $r = .50$. These assumptions indicated a required sample size of 196 participants; however, to facilitate smoother data collection, additional funding was secured to include up to 229 participants, which was considered the maximum planned sample size. ω^2 was calculated using MOTE: An Effect Size Calculator by Erin Buchanan (available at https://shiny.posit.co/r/gallery/life-sciences/mote-effect-size).

RESULTS

The collected sample size was sufficient to achieve similar or stronger statistical power than assumed, even though it was slightly smaller (192 instead of 196). Due to this, additional data collection was not implemented due to sufficient power of analysis (of within-between interaction) and out of concern of potential sample contamination (as the recruitment proceeded via social media, past participants could comment on the recruitment posts and interfere with the study).

Manipulation Check

The effectiveness of the manipulation has been verified. The exposition manipulation was verified using the attention check question, and only participants who answered correctly were able to finish the study. As the videos presented the childfree people explicitly, this was considered sufficient confirmation of the exposition manipulation's effectiveness.

The counterstereotypicality manipulation was verified using two questions (see Measurements). The CS manipulation was considered less typical and stereotypical than the other two manipulations (ps $< .001$). This suggests that the CS manipulation was effective. However, the CS-EXPO condition was not evaluated as less typical ($p = 1.00$) or less stereotypical ($p = .84$) than the

EXPO condition. Therefore, it is not confirmed that this manipulation worked as intended.

Although the attractiveness of the videos was not considered a manipulation check, it was verified whether it varied between conditions to check whether they were seen differently in this aspect. The changes between the conditions were not confirmed ($p = .15$). Detailed analysis concerning the manipulation check and attractiveness can be found in OSM (Table 1s).

Hypotheses Testing

Two-way mixed ANOVA was used to verify the hypotheses. Detailed results can be found in Table 1. There was a significant omnibus test of the effect of time, $F(1,188) = 27.07$; $p < .001$, $\omega^2 = .12$, 95% *CI* [.05, .22], but not of the time by group interaction, $F(3,188) = 0.72$; $p = .54$, $\omega^2 = –.00$, 95% *CI* [.00, 1.00].

All experimental groups (however, not the control group) had significantly lower prejudice levels after seeing the manipulation compared to the Pretest. However, no significant differences were detected between groups in either the Pretest or the Posttest. Therefore, H4, H5, and H6 were confirmed, while H1, H2, H3, and H7 were not confirmed. Notably, the collected sample allows the detection of only a strong between-factors effect (both the planned and collected samples allowed the detection of an effect of $f = 0.24$).

The results did not differ when the participants who guessed the hypothesis were excluded ($n = 16$). When the participants who watched two dissimilar manipulations ($n = 2$) were not excluded, the difference between the Pretest and the Posttest in the exposition condition becomes insignificant, and the H5 becomes unconfirmed. The details of these analyses can be found in the OSM.

Table 1

Hypotheses Testing

Measurement	Control *M* (*SD*)	CS *M* (*SD*)	EXPO *M* (*SD*)	CS-EXPO *M* (*SD*)	Group comparison within the Pretest/Posttest
Pretest	2.64 (0.59)	2.67 (0.65)	2.65 (0.63)	2.79 (0.69)	$F(3,188) = 0.53$; $p = .66$; $\omega^2 = -.01$ [.00, 1.00]
Posttest	2.53 (0.68)	2.48 (0.67)	2.54 (0.74)	2.59 (0.76)	$F(3,188) = 0.19$; $p = .90$; $\omega^2 = -.01$ [.00, 1.00]
Within comparison, Pretest to Posttest	$F(1,188) = 3.12$; $p = .08$; $\omega^2 = .01$ [.00, .06]	$F(1,188) = 10.62$; $p = .001$; $\omega^2 = .05$ [.01, .12]	$F(1,188) = 4.17$; $p = .04$; $\omega^2 = .02$ [.00, .07]	$F(1,188) = 10.89$; $p = .001$; $\omega^2 = .05$ [.01, .12]	

Note. [ ] = 95% *CI*. The significant effect sizes with ".00" in their confidence intervals have been rounded to two decimal spaces.

DISCUSSION

The presented research aimed to verify three methods of reducing prejudice toward childfree people. Based on the acquired data, it can be stated that all three methods (CS, EXPO, CS-EXPO) were effective when analysing results between Pretest and Posttest. However, due to the low power of between-factor analysis, whether these manipulations differ significantly from each other (or from the control group) is not confirmed.

The CS condition resulted in decreased prejudice. The CPAG model (Crisp & Turner, 2011) assumed that for the counterstereotypicality to work, one has to be engaged in the presented task. The participants who contributed to the study were motivated to watch the video, as they were aware of the attention check question that was going to be asked after the video. However, the task was only moderately engaging compared to writing down CS examples used by Vasiljevic and Crisp (2013). Even though the task was not as engaging, it reduced prejudice (with an effect between small and medium) toward groups

not presented in the video. This confirms the results obtained by other researchers, such as Ramasubramanian and Oliver (2007).

The EXPO manipulation had the weakest effect of prejudice reduction between conditions, and the effect disappears when including participants with technical issues, suggesting that this manipulation has weak effectiveness. The analogous procedure (exposure to pictures and neutral descriptions) that was implemented by Flores et al. (2018) was effective in reducing prejudice toward transsexual people. Therefore, it is interesting whether the manipulation examined in this study was less effective due to its content or whether this effect differs between various target groups (perhaps depending on the similarity of the outgroup).

The CS-EXPO condition had a similar effect size to the CS condition. This is a remarkable effect, as the counterstereotypicality of this manipulation was not confirmed via manipulation check. It seems the participants did not consider the features chosen based on the research and pilot study to be stereotypical as intended. However, it is possible that a different effect was achieved, similar to the Obama effect (Columb & Plant, 2011), as the manipulation presented outgroup members in a primarily positive light (happy, committed to their family life, etc.). This effect was unplanned and must be verified in a future study. It is also possible that the manipulation used allowed the participants to find the presented targets as more familiar and more accustomed to, as they have revealed more information about them, which might have resulted in a more significant prejudice reduction effect as suggested by Pettigrew and Tropp (2006), who showed that more intense intergroup contact pairs with lower prejudice.

Although all the manipulations were effective, the CS condition seems to have the most potential for future interventions. The material was not target-specific, and as Vasiljevic and Crisp (2013) show, it can most likely be generalised to various outgroups. Although the CS-EXPO condition was effective, it did not work as intended, and it is most likely target-specific (however, it is yet to be confirmed). Although the EXPO condition worked as assumed, it had a very weak effect and is most likely target-specific. When faced with similar (or weaker) effects, investing in a method that most likely addresses multiple groups targeted with prejudice (as shown in past studies) is the more economically sound solution.

Future Directions and Limitations

In future research, the low statistical power of between-condition comparison should be addressed. Also, it is essential to explore the mechanism of effectiveness of the CS-EXPO condition further, for example, by assessing the perceived familiarity of the target. It would also be essential to include other prejudice measures to verify the generalizability of the prejudice reduction effects of all conditions and accurately evaluate the manipulations' total effect.

The presented study is an initial investigation of different procedures of prejudice reduction. The most crucial limitation was the small sample size, which did not allow for accurate between-condition comparisons. Furthermore, the sample was not representative, which might have influenced the results. It is important to note that the study was conducted online, and as discussed in the Methods section, some people cheated during the experiment. Although attention checks were used and email addresses were evaluated, it is possible that some unreliable records were not identified.

The presented experiment examined the effect of three different prejudice reduction techniques. Although all three were effective, the CS material is the most promising for future interventions. It is important to note that this experiment is an introductory exploration and should be re-run on a larger sample in the future.

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