Implicit and explicit homonegativity as moderated by self-presentation concerns and sexual orientation

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Investigated whether the relation between implicit and explicit attitude measures is affected by self-presentation concerns. In Experiment 1, 70 high-school students made evaluative ratings of pictures of homosexual and heterosexual couples. Self-presentation was manipulated by either instructing participants that the study concerned attitudes regarding sexual orientation (socially sensitive) or attitudes regarding age (less sensitive). The age-instruction led to increased homonegativity but not to a stronger correlation with an Implicit Association Test with homo/heterosexual couples. Concerns regarding the construct validity of the IAT were alleviated in Experiment 2, where heterosexual ($n = 30$) but not homosexual ($n = 30$) participants showed implicit homonegativity. The findings are problematic for the interpretation of low implicit/explicit attitude correspondence as being primarily an effect of self-presentation concerns.

Key words: Attitudes, implicit, IAT, sexual prejudice

An important topic in recent social-cognitive research is the relation between explicit and implicit attitude measures. In explicit attitude measures a participant is simply asked about his or her evaluation of a social object. Implicit attitude measures tap the attitude without directly asking the participant about his or her evaluation (e.g. Greenwald et al., 2002). However, research on attitudes often reports a weak correspondence between implicit and explicit attitude measures. In fact, a major reason for why the study of implicit attitudes is considered

so critical is that research involving explicit measures, requiring respondents to actually report their attitudes, has shown self-presentation concerns to affect attitude expression (Fazio & Olson, 2003). Self-presentation concerns have to do with the alteration of a response before report, either for personal purposes (one does not accept one's attitude) or for social purposes (one does not want others to know about one's attitude). When motivated and capable of adjusting a reported attitude towards a particular target, respondents will compensate, or even overcompensate, for a more negative real attitude. Self-presentation is believed to be a major factor behind the weak correspondence between implicit and explicit indicators of attitudes towards socially sensitive attitude objects (Fazio & Olson, 2003): Implicit and explicit attitude measures only yield similar results when self-presentation concerns are low. When self-presentation concerns are high, implicit and explicit attitude measures yield discrepant results (due to their distorting effects on explicit measures). The present research examines this moderating effect of self-presentation on the relation between implicit and explicit attitude measures. In the following we refer to this as the *separate slopes hypothesis*: a stronger correlation between implicit and explicit attitude measures when self-presentation concerns are low than when self-presentation concerns are high. We measure attitudes to homosexuality because it is reasonable to expect that explicit attitude measurements in this domain are affected by self-presentation, allowing a sensitive test of the separate slopes hypothesis.

Implicit attitude measures are generally methods where respondents are not asked to report their attitudes but where these are inferred by e.g. response latencies or memory biases. Since such responses are less controllable they should be less affected by self-presentation concerns. Interest in the measurement of implicit attitudes has surged recently (Fazio & Olson, 2003) and there are now several different methods available. Their psychometric properties are still being investigated, particularly issues concerning validity and temporal stability, and there are also questions regarding what cognitive processes mediate the responses in each type of measure. The two most widely used implicit methods in attitude research are priming measures and the Implicit Association Test (IAT, Greenwald, McGhee, & Schwartz, 1998). The IAT gives a measure of the relative strength of association between a target concept and an attribute dimension. Stimuli representing the target concept (e.g. homosexuality) and an opposing category (heterosexuality), and stimuli representing the attribute dimension (e.g. good vs. bad) are presented on a computer screen. In the critical part of the test the participant's task is to categorize stimulus items into one of two combined categories that share response key (e.g. "homosexual + good" and "heterosexual + bad"). Participants then

perform a second task where key assignments are switched so that "homosexual + bad" and "heterosexual + good" share a common response. The difference in reaction time between the two response mappings is used as a measure of the relative association of the concepts. In the example above, shorter latencies for "homosexual + bad" would be taken to indicate implicit homonegativity.

The IAT has some advantages to other measures of implicit attitudes used in experimental social psychology, and it has been the preferred method in the few published studies on implicit and explicit attitudes towards homosexuals that exist to date (e.g. Banse, Seise, & Zerbes, 2001; Jellison, McConnell, & Gabriel, 2004; Seise, Banse, & Neyer, 2002; Steffens, in press; Steffens & Buchner, 2003). Compared to affective priming (Fazio, Jackson, Dunton, & Williams, 1995) and semantic priming (Wittenbrink, Judd, & Park, 1997) the IAT produces larger and more robust effects, resulting in more reliable measures of individual differences. Like the priming techniques it has withstood several threats to internal validity (Dasgupta, McGhee, Greenwald & Banaji, 2000; Greenwald et al., 2002; Ottaway, Hayden, & Oakes, 2001). However, the measurement of implicit attitudes is a relatively new endeavor and concerns regarding construct validity are still being raised (Fazio & Olson, 2003). Measures should therefore be taken to secure the validity, and previous studies on implicit attitudes towards homosexuals (Banse, Seise, & Zerbes, 2001) have been successful in this matter.

Explicit attitude measures should be distorted in a socially desirable direction only when they concern socially sensitive topics. Homosexuality is such a topic; heterosexuality represents the social norm and people with a homosexual orientation are generally negatively evaluated (Herek, 2002). This could explain why Steffens (in press) only found moderate correlations between implicit and explicit attitude measures towards gay men and lesbians. Banse, Seise and Zerbes (2001) and Gabriel, Banse and Hug (2004) specifically tested the hypothesis that motivation to control prejudice (i.e. self-presentation concerns) moderates the relation between implicit and explicit attitudes towards homosexuals. Banse et al. (2001) used a version of Dunton and Fazio's (1997) Motivation to Control Prejudiced Reactions Scale, adapted for the purpose of measuring individual differences in motivation to control expression of homonegativity. They found that participants characterized by strong implicit homonegativity and weak motivation to control expression of homonegativity reported the strongest explicit homonegativity, but failed to find the significant interaction effect between level of implicit negativity and level of motivation to control prejudice reported in research on Fazio's MODE-theory (e.g. Fazio & Olson, 2003), referring to lack of power as a possible explanation. Accordingly, Banse et al. concluded that motivation to control expression of

homonegativity is a part of the explicit attitude compound but did not claim it to be a moderator of the implicit-explicit correspondence. In Gabriel et al.'s (2004) study, however, a significant interaction effect was found, supporting the MODE model: Participants high in motivation to control prejudice showed a lower correlation between explicit and implicit attitude measures than participants low in motivation to control prejudice.

At present, then, the results are inconclusive and it is unclear whether motivation to control prejudice (i.e. self-presentation) moderates the relation between explicit and implicit attitude measures. The current study therefore further investigates the relation between implicit and explicit indicators of attitudes towards homosexuals and the role of self-presentation concerns as a possible moderator of their correspondence. Here, however, we use a new methodological approach where self-presentation is manipulated directly rather than being measured with a questionnaire of motivation to control prejudice. Our first experiment compares implicit attitudes as measured by the IAT with a self-report questionnaire of homonegativity and a picture rating measure where heterosexual and homosexual couples are evaluated. To manipulate self-presentation concerns the latter test is presented either as a test of attitudes towards couples of different age-groups or as a test of attitudes towards couples with different sexual orientations, an approach that to our knowledge has not been used in previous research. Expression of negative attitudes towards homosexuals is socially sensitive, and it can be assumed that people are motivated to avoid making blatantly negative judgments in this domain. If self presentation concerns influence the explicit expression of attitudes towards homosexuals, ratings should be more negative in the age-group condition, where the socially sensitive subject is not salient, than in the sexual orientation condition where it is salient. By the same token, the correspondence to IAT should be stronger when self-presentation concerns are low, and weaker when self-presentation concerns are high. Explicit measures are more vulnerable to deliberate alteration, and self presentation should decrease the strength of implicit-explicit correspondence. That is, implicit homonegativity as measured by the IAT should be more strongly correlated with responses to the picture rating measure in the age-group condition than responses to the picture rating measure in the sexual orientation condition (the separate slopes hypothesis).

Experiment 1

Method

Participants

The sample consisted of 70 students recruited at a high-school in Sweden, all volunteering to participate without payment. 54.29% were male and 37.14% female (8.57% missing values); mean age was 17.89 (SD = 1.07). Regarding their sexual orientation, 75.70% of the participants stated that they were heterosexual and 15.70% that they were homosexual (8.60% missing values).

Materials

Stimuli in the IAT consisted of 20 words and 20 pictures. Half of the words were positive (like "hero" and "honest") and half were negative (like "misery" and "cancer"), evaluative categories being matched on word length. All pictures portrayed two individuals involved in romantic situations (such as hugging, kissing or marrying). Half of the pictures portrayed different-sex individuals and half same-sex individuals (both male-male and female-female); different-sex and same-sex pictures were matched on content (i.e. same number of marriages, same number of hugs and so on). The same pictures were used in the picture rating measure (PRM) (described below).

The Homophobia Scale is a paper and pencil test intended to measure affective, behavioural and cognitive components of homophobia (Wright, Adams, & Bernat, 1999) and was used as an explicit test of homonegativity. It consists of 25 statements that are rated on a 5 point scale (1 = totally disagree, 3 = neutral, 5 = totally agree). Example statements are: "I would get upset if I found out that a close friend was homosexual", "I avoid homosexual individuals", "I feel that a homosexual person cannot be trusted". Responses were averaged for each participant, yielding a total homophobia score (higher values corresponded to more homophobia). In the present sample the scale had acceptable reliability (α = .76).

A Macintosh computer running PsyScope 1.2 software was used to implement the IAT and the picture rating measure (PRM). Stimuli were presented on a 15-inch monitor with a refresh rate of 75 Hz.

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Procedure

Participants were tested individually and they completed the IAT, the PRM and the Homophobia Scale in this order. The whole session lasted about 20 minutes.

IAT. Any given trial in the IAT started with the presentation of a stimulus (e.g. same-sex picture) in a central position on a computer screen together with the labels for each response key (e.g. "homosexual" and "heterosexual") in the upper left and upper right part of the screen, respectively. The participant's task was to classify the stimuli as rapidly as possible by using one of two response buttons (the "S" or "L" key on the computer keyboard). As soon as a response had been made the next trial followed after an intertrial interval (ITI) of 500 ms.

Table 1

Tasks and Key Assignments for the IAT

Task	Stimuli	Response mapping	
		"S" key	"L" key
1. Practice target concept discrimination	Different-sex pictures Same-sex pictures	Homosexual	Heterosexual
2. Practice attribute discrimination	Positive words Negative words	Negative	Positive
3. Combined target concept and attribute discrimination	Different-sex pictures Same-sex pictures Positive words Negative words	Homosexual Negative	Heterosexual Positive
4. Combined target concept and attribute discrimination	Different-sex pictures Same-sex pictures Positive words Negative words	Heterosexual Negative	Homosexual Positive

The IAT consisted of the four tasks shown in Table 1, each preceded by an instruction that emphasized speed and accuracy. The purpose of tasks 1 and 2 was to familiarize respondents with the target concept dimension and the attribute dimension by requiring them to categorize

same-sex and different-sex pictures as "homosexual" or "heterosexual", and to categorize positive and negative words as "positive" or "negative", respectively. Tasks 3 and 4 yielded the measurements of interest. Here, same-sex pictures, different-sex pictures, positive words, and negative words were mixed from trial to trial and participants had to make combined target concept and attitude discriminations. The task was to categorize pictures as "heterosexual" or "homosexual", and to categorize words as "positive" or "negative". Thus, each response key corresponded to an end pole of the target concept dimension as well as an end pole on the attribute dimension (e.g. homosexual and negative, or heterosexual and positive). An IAT effect exists if RTs are longer in task 4 than in task 3. The order of tasks 3 and 4 was counterbalanced between participants. Participants completed 20 trials in task 1 and 2 and 40 trials in tasks 3 and 4.

PRM. In the picture rating measure (PRM) same-sex and different-sex pictures were presented centrally on the screen together with a labelled rating scale that ranged from 1 (*very negative*) to 5 (*very positive*). Each stimulus remained on the screen until a response had been made and the next trial followed after an ITI of 1000 ms. Stimuli were presented in a new random order for each participant. Attention to the target concept was manipulated between participants by means of two different instruction conditions, to which participants were randomly assigned. Half of the participants were told that the purpose of the PRM was to measure their attitudes towards homosexual and heterosexual couples (the attend to homosexuality group). Half of the participants were told that the purpose of the PRM was to measure their attitudes towards young and old couples (the attend to age group). Both groups were instructed that the task was to rate each picture and that there was no time pressure. Responses were averaged across same-sex and different-sex pictures. Participants were thoroughly debriefed immediately after the experiment.

Data analysis

Measurements from the IAT were used to calculate IAT D scores as recommended by Greenwald, Nosek and Banaji (2003). Trials with longer latencies than 10,000 ms (0.38% trials on average) were excluded from further analysis. Participants for whom more than 10% of trials had shorter latencies than 300 ms were eliminated (0 participants). Measurements from trials with errors (8.66% trials on average) where replaced with the subject's mean latency plus the value 600, separately for each IAT condition (i.e. separately for conditions 3 and 4 in Table 1). IAT D scores where then calculated for each participant by subtracting the

mean reaction time in the homosexual negative / heterosexual positive condition from the mean reaction time in the heterosexual negative / homosexual positive condition and by dividing this difference by the standard deviation of all reaction times. So a positive IAT D score indicates implicit homonegativity.

On the PRM there were no missing values, but 8.57% of participants had missing values on the Homophobia Scale due to data collection problems.

Results and Discussion

Averaged picture ratings from the PRM were entered in a two-way Repeated Measures ANOVA with picture type (2: different-sex, same-sex) as a within subjects factor and group (2: attend to homosexuality, attend to age) as a between subjects factor. This analysis showed a significant picture type by group interaction, $F(1, 68) = 5.16$, $p < .05$, $\eta^2 = .07$. Follow up analyses revealed that the main effect of picture type was significant in both groups, but stronger in the attend to age group, $F(1, 33) = 24.03$, $p < .05$, $\eta^2 = .42$, than in the attend to homosexuality group, $F(1, 35) = 7.03$, $p < .05$, $\eta^2 = .17$. As shown in Figure 1, same-sex pictures were generally rated as more negative than different-sex pictures, this difference being larger in the attend to age group. The instruction thus influenced ratings in the predicted direction.
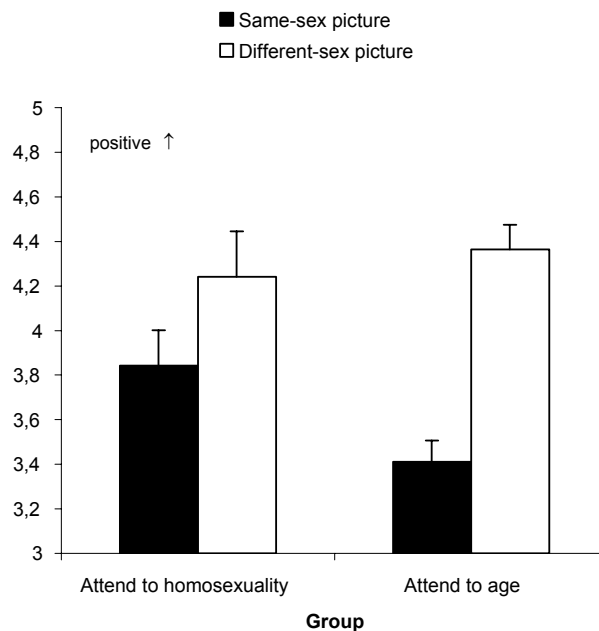

Figure 1. Picture rating means across instruction conditions. Error bars show the standard error of the mean.

The IAT revealed implicit homonegativity: The mean of IAT D scores was significantly larger than 0.00. Participants responded faster in the homosexual negative / heterosexual positive condition than in the heterosexual negative / homosexual positive condition, $t(69) = 9.74$, $p < .05$, $M = 0.44$.

Our main aim was to test the separate slopes hypothesis. Averaged picture ratings were used to compute *PRM index*, in which ratings of same-sex pictures were subtracted from ratings of different-sex pictures. A positive PRM index would indicate that an individual rated same-sex pictures as more negative than different-sex pictures. To test the separate slopes hypothesis we calculated an ANOVA with IAT D as the dependent variable, group (2: attend to homosexuality, attend to age) as a fixed between subjects factor and PRM index as a continuous covariate. A moderating effect of group on the relation between PRM index and IAT D should result in a group by PRM index interaction. No such interaction was found however, $F(1, 66) = 1.01$, $p = .32$, $\eta^2 = .02$. As shown in Figure 2, the linear relation between IAT D and PRM index is of about the same magnitude in both the attend to age group and the attend to homosexuality group.
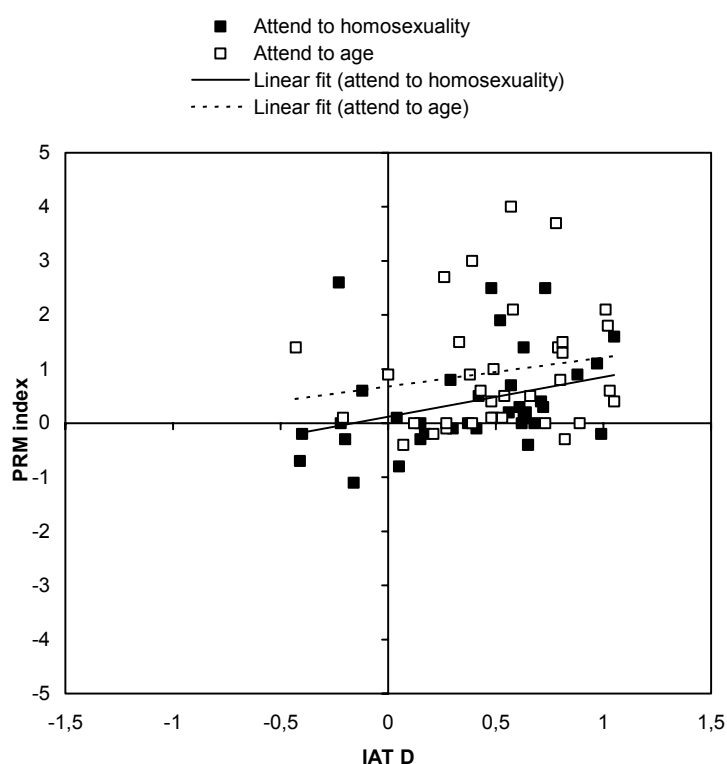

Figure 2. Correlations between IAT D scores and PRM index for the attend to age and the attend to homosexuality group.

Since the type of instruction given for the PRM did not moderate the relation between the IAT index and the PRM index, the attend to age and the attend to homosexuality groups were analyzed together. Both the PRM index and the Homophobia Scale ratings were transformed into z-scores, separately for the attend to homosexuality vs. the attend to age group so that differing group levels would not affect the correlations. Correlation analyses revealed that IAT D correlated $r = .26$ ($p < .05$) with the PRM index and $r = .27$ ($p < .05$) with the Homophobia Scale. Further, the Homophobia Scale correlated $r = .62$ ($p < .05$) with the PRM index. In terms of Cohen's (1988) effect size conventions the relation between the Homophobia Scale and the PRM index was "large" while the relations between the Homophobia Scale and the IAT index and the relation between the PRM index and the IAT index were close to "medium".

To summarize, we found no support for the separate slopes hypothesis. But an alternative explanation remains to be examined: the possibility of unsatisfactory construct validity in the current implementation of the IAT.

Experiment 2

The results of experiment 1 raised concerns regarding the construct validity of the current IAT. To investigate this issue further, the known group approach was employed. Following Banse et al. (2001) it was assumed that heterosexual and homosexual participants differ in social identity as an effect of their sexual orientation, and their attitudes were contrasted predicting that the former would be more negative to homosexuals than the latter simply since they represent an outgroup. In other words, if this is true and if the IAT measures attitudes towards homosexuals, negativity scores for the two groups should differ. But if the IAT measures only social knowledge – prevalent cultural beliefs regarding homosexuality and heterosexuality – the means should not differ, since it can be assumed that both groups are equally aware of these cultural beliefs.

Method

Participants

The sample consisted of 30 heterosexual and 30 homosexual individuals all recruited at the Swedish Federation for Lesbian, Gay, Bisexual and Transgender Rights in a city in Sweden. All participants volunteered to take part in the study without payment. Regarding age, 56.67%

were between 0 and 30 years, 28.33% were between 31 and 40 years, 10.00% were between 41 and 50 years, and 5.00% were between 51 and 60 years. Participants consisted of 50% female and 50% male individuals and heterosexual and homosexual groups were matched on age group and male/female ratio.

Materials and procedure

The IAT was the same as in experiment 1. All participants were finally debriefed.

Data analysis

IAT D scores were calculated as in experiment 1. Again, no subjects had longer latencies than 10,000 ms on more than 10% of trials (on averaged there where 0.73% reaction times that qualified as such). On average subjects had 0.05% latencies shorter than 300 ms, and made 7.79% errors. None of the other variables in the analysis had missing values.

Results and Discussion

IAT D scores were entered in a one-way ANOVA with Sexual orientation (2: heterosexual group, homosexual group) as a between subjects factor. As predicted we found a significant main effect of sexual orientation, $F(1, 54) = 4.97$, $p < .05$, $\eta^2 = .08$. Heterosexual participants had higher IAT D scores ($M = 0.38$, $SEM = 0.09$) than homosexual participants ($M = 0.08$, $SEM = 0.09$). Follow up analyses revealed that IAT D scores were significantly different from zero in heterosexual participants, $t(29)=4.32$, $p < .05$, but not in homosexual participants, $t(29) = 0.84$, $p = .41$. Heterosexual participants thus showed more implicit homonegativity than heterosexual participants. Adding sex as an additional between subjects factor did not produce a main effect of sex, $F(1, 56) = 1.58$, p $= .21$, $\eta^2 = .03$, and no interaction between sexual orientation and sex, $F(1, 56) = 0.46$, $p = .50$, $\eta^2 = .01$.

Since only heterosexually oriented participants showed implicit homonegativity, we join previous authors (Banse et al., 2001; Steffens, in press) with their IATs in being inclined to conclude that our implementation of the IAT is a valid instrument for measuring implicit attitudes towards homosexuals.

General Discussion

In their 2001 study Banse, Seise and Zerbes failed to find the significant interaction effect between level of implicit negativity and level of motivation to control prejudice reported in research on Fazio's MODE-theory (e.g. Fazio & Olson, 2003). Referring to lack of power as a possible explanation, they concluded that motivation to control expression of homonegativity is a part of the explicit attitude compound but did not claim it to be a moderator of the implicit-explicit correspondence.

The current study had sufficient sensitivity to detect an interaction effect, as evidenced by the effect of instruction on picture evaluations, but failed to do so. The correspondence between PRM and IAT was not moderated by self-presentation concerns. The main effect of instruction on picture evaluations, ratings being significantly more positive in the attend to homosexuality condition than in the attend to age condition, suggests that participants were motivated to alter their explicit responses and had the opportunity to do so. But the correlation between the IAT and the PRM was not stronger in the attend to age condition than in the attend to homosexuality condition. In this study social desirability was not measured as an individual difference variable but was manipulated directly by different instructions to the PRM. This, and the fact that stimuli consisted of pictures of same-sex and different-sex couples in both the IAT and the PRM measure, should if anything have lead to stronger correspondence than in Banse et al.'s (2001) study. Therefore the current findings are problematic for the interpretation of low correspondence between implicit and explicit attitude measures as being primarily an effect of self-presentation concerns.

Rather than as Banse et al. (2001) suggest a single attitude composite one may also interpret our results similarly to Steffens (in press) who concluded that implicit attitudes toward homosexual men and women are not identical to, but still related to, explicit ones. Nosek (2004; see also Wilson, Lindsey, & Schooler, 2000) develops this theoretical position further, claiming that comparisons of implicit and explicit measures suggest that they tap related but distinct attitude constructs, and that both may have important implications for social perception, judgment and action. In other words, implicit and explicit attitudes are not just interchangeable assessments of the same construct, they do have a common component but each retain unique components that are not simply attributable to method variance. Further, the relationship between them appears to be complex, as recently reported by Nosek (2004) in a large study of moderators of the relationship between implicit and explicit attitudes. For attitudes towards homosexuality, measured by an IAT and a feeling thermometer, three different moderating factors were identified. Low self-presentation

concerns, high attitude strength and high perceived self-group discrepancy (the feeling that one's attitude differs from the cultural norm) all increased correspondence. The moderating effect of self-presentation is particularly interesting in this context, considering that Banse et al. (2001) reported no effect of motivation to control prejudice on the implicit-explicit correspondence when the explicit measure was an affective self-report scale where participants were asked to report their feeling towards homosexuals engaged in activities such as kissing nearby you. Only when a cognitive attitude self report was used, asking questions about what should be allowed or not allowed for homosexuals, participants with high implicit homonegativity and low motivation to control expression of such attitudes made the most negative explicit attitude reports. So these results appear to be inconsistent, and since no cognitive attitude measure was included in Nosek's study more research is needed before any strong conclusions can be drawn. We look forward to future endeavors in this area.

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