Compensatory nonconformity: Self-uncertainty and low implicit self-esteem increase adoption and expression of minority opinions

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HIGHLIGHTS

► Self-uncertainty and low implicit self-esteem increase expression of minority opinions.
► This effect is most pronounced among low implicit, high explicit self-esteem people.
► Self-irrelevant forms of uncertainty do not affect minority opinion expression.
► Self-uncertainty does not affect expression of majority opinions.

Abstract

The present studies tested whether people, particularly those who are most vulnerable to self-threats as indicated by low implicit self-esteem, adopt and express minority opinions to compensate for self-uncertainty. In Studies 1 through 3, low implicit self-esteem participants who were made to feel uncertain about themselves (versus uncertain about a self-irrelevant issue in Study 1, certain about themselves in Study 2, or uncertain about their group memberships in Study 3) expressed more disagreement with others' opinions. Additionally, Study 3 demonstrated that this effect is specific to minority opinions and does not emerge on majority opinions. In Study 4, the relation between self-uncertainty and disagreement with others' opinions was strongest among participants with both low implicit and high explicit self-esteem, who respond to self-threats in particularly defensive ways.

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Introduction

Why are people so often influenced by the opinions of the majority on controversial social and political issues? What entices people to watch popular television shows, listen to “mainstream” music, or adopt ubiquitous fashion trends? What causes adolescents to succumb to peer pressure? For decades, social psychologists have been interested in the various reasons that people conform to others’ opinions, judgments, and behaviors. Among them are fears of social isolation (Asch, 1956; Bassili, 2003), motives to hold the correct opinion (Sherif, 1936), and the need to increase one’s self-esteem (Pool, Wood, & Leck, 1998).

Recently, the question of why people sometimes express or hold minority opinions has also received empirical attention (for a review, see Rios, 2012). Some research suggests that minority opinion expression arises from a desire to improve group norms (Packer, 2008). Other studies have shown that individuals are especially compelled to voice minority opinions when they have a strong moral or attitudinal stance toward the issue at hand (Hornsey, Majkut, Terry, & McKimmie, 2003; Matthes, Morrison, & Schemer, 2010). The present research addresses the possibility that minority opinions can serve not only prosocial motives to help one’s group or to express a morally “correct” opinion, but also more self-interested motives — specifically, to defend against the threat of uncertainty about the self. In the present studies, we argue that self-uncertainty can motivate people, especially those who are vulnerable to self-threats and predisposed to respond to these threats in defensive ways, to adopt and express minority opinions.¹

Self-uncertainty and implicit self-esteem

Self-uncertainty is a psychological state that involves feeling uncertain about oneself, one’s life, and one’s future (DeCremer & Sedikides, 2005; Hogg, 2007; Hogg, Sherman, Diersehuis, Maitner, & Moffitt, 2007). For example, people may feel uncertain about whether they possess a given personality trait, what their long-term career aspirations are, or what they value most in life. Manipulations designed to increase self-uncertainty...
self-uncertainty have been shown to lower self-concept clarity (i.e., the perception of having a clear sense of self; Hogg et al., 2007) but not self-esteem or overall mood (McGregor, Zanna, Holmes, & Spencer, 2001). Moreover, although individual differences in self-esteem and self-concept clarity tend to covary negatively, these constructs are considered distinct (Campbell, 1990; Campbell et al., 1996; see also DeMarree, Petty, & Briñol, 2007).

Recent research has found that people compensate for feelings of uncertainty about themselves by claiming conviction in other areas of their lives. According to this research, individuals who are induced to feel self-uncertain subsequently report more crystallized attitudes toward social issues (McGregor et al., 2001) and are more likely to advocate their beliefs (Gal & Rucker, 2010). In addition, self-uncertainty causes individuals to identify more strongly with important groups such as their country and political party (Hogg et al., 2007). Thus, at least in Western cultures, individuals appear motivated to respond to self-uncertainty in defensive ways (McGregor, 2004), so as to restore certainty about “who they are.”

The effects of self-uncertainty on compensatory strategies should be most pronounced among people who are most vulnerable to self-threats generally — for example, people who have low implicit self-esteem (McGregor & Jordan, 2007). When low implicit self-esteem individuals experience threat, they try to mask or deny their negative feelings through defensive thoughts and behaviors (e.g., claiming to hold strong attitudes, being narcissistic, disengaging following task failure), especially when their sense of self is called into question (Greenwald & Farnham, 2000; Gregg & Sedikides, 2010; McGregor & Jordan, 2007; Zeigler-Hill, 2006). Individuals with high implicit self-esteem, by contrast, seem to genuinely feel positively about themselves and for this reason are buffered from threats to the self-concept. Thus, individuals with high implicit self-esteem do not tend to respond to self-threats in defensive ways (Jordan, Spencer, Zanna, Hoshino-Browne, & Correll, 2003).

**Effects on minority opinions**

Previous research has shown that self-uncertainty increases attitude strength (McGregor et al., 2001) and advocacy of one’s beliefs (Gal & Rucker, 2010). But how might self-uncertainty affect defensive individuals’ willingness to voice minority opinions in particular? One possibility is that self-uncertainty inhibits people from adopting and expressing minority opinions. Being similar to and fitting in with others are fundamental human motives (Baumeister & Leary, 1995; Brewer, 1991). Indeed, as noted earlier, people identify with groups in part to alleviate uncertainty about themselves (Hogg et al., 2007). Because group identification is often associated with adherence to group norms (Terry & Hogg, 1996), people might be expected to show a reduced tendency to adopt and express minority viewpoints under conditions of self-uncertainty. That is, individuals who are made to feel self-uncertain could attempt to repair these feelings by assuring themselves that they are like most members of their ingroup, perhaps especially if they are low in implicit self-esteem.

Based on research on the self-concept and identity, however, we propose that self-uncertainty may actually increase tendencies to adopt and express minority opinions, at least among those with low implicit self-esteem. People are motivated not only to fit in with and be similar to their peers, but also to be unique (Brewer, 1991). According to research by McGuire and colleagues, one’s self-characteristics (e.g., traits, physical features) become more central to one’s identity to the extent that they distinguish one from others (McGuire & McGuire, 1988; McGuire, McGuire, Child, & Fujikawa, 1987). For instance, a man’s gender identity is more important to him when he is surrounded by women than when he is surrounded by other men, and a redhead is more likely than a brunette to describe herself in terms of her hair color because red hair is less common in the population (McGuire & Padawer-Singer, 1976). This phenomenon extends to judgments of other people as well as oneself. Participants in one set of studies believed that others’ distinctive characteristics (e.g., snake owner) were more diagnostic of their self-concepts than were their non-distinctive characteristics (e.g., dog owner) (Nelson & Miller, 1995).

Because minority opinions by definition make one unique, they may be viewed as a way to communicate one’s true self-characteristics to oneself and others. As a result, expressing or adopting minority opinions could be perceived as a means of restoring one’s self-definition under uncertainty, particularly for people who tend to be most affected by self-uncertainty (e.g., those with low implicit self-esteem). Supporting this idea, a recent set of studies showed that people who received random feedback that they held minority opinions evinced higher self-concept clarity than did those who received random feedback that they held majority opinions (Morrison & Wheeler, 2010). These studies, though informative, do not establish that people whose self-certainty has been threatened will be motivated to adopt and express minority opinions. That is, it remains to be seen whether people, especially those low in implicit self-esteem, are more inclined to adopt and express minority opinions when they are induced to feel self-uncertain than when they are not so induced.

Not all forms of self-uncertainty are likely to prompt people to embrace minority opinions, however. People can feel uncertain not only about their individual lives and characteristics, but also about their social relationships and group memberships (Morrison, Johnson, & Wheeler, 2012); Uncertainty about oneself as an individual may be especially likely to motivate the adoption and expression of minority opinions, which as noted above are considered more self-diagnostic than majority opinions (Morrison & Wheeler, 2010). Uncertainty about oneself as a group member, on the other hand, may attenuate the hypothesized effects on minority opinions, as people who feel unsure of whether they fit in with others should not want to make themselves unique (see Williams, Cheung, & Choi, 2000).

**Overview of research**

In Studies 1 through 3, we tested the general prediction that self-uncertainty would increase adoption and expression of minority opinions among individuals with low implicit self-esteem. Participants in Studies 1 and 2 were made to feel either self-uncertain or not, prior to indicating their opinions about a language task (Study 1) or modern art (Study 2). In both studies, we hypothesized that participants in the self-uncertainty condition would be more likely than participants in the control condition to express disagreement with others’ opinions, especially if they had low implicit self-esteem. Participants in Study 3 were made to feel uncertain about themselves as either individuals or group members, prior to being told that they would take part in an online chat with two “other people” who either had the same opinion or a different opinion than they did on a controversial issue. Thus, participants believed that they held either a majority or minority opinion. Participants then wrote an “opening statement” for the online chat as a measure of opinion expression. We hypothesized that low implicit self-esteem participants would express their minority opinions to a greater extent in the self-uncertainty condition than in the group-uncertainty condition, but that their expression of majority opinions would not differ by condition.

In Study 4, we tested whether explicit self-esteem would moderate the relation between self-uncertainty, implicit self-esteem, and minority opinion expression. Participants were primed with self-uncertainty or self-certainty, prior to reporting their opinions about modern art. Previous research has shown that people with the combination of high explicit and low implicit self-esteem respond particularly defensively to self-threats (Jordan et al., 2003; see also Bosson et al., 2008). We thus hypothesized that participants primed with self-uncertainty would be more likely than those primed with self-certainty to express disagreement with others’ opinions, but especially if they were both high in explicit and low in implicit self-esteem.
Study 1

Our goals for Study 1 were twofold: to show (1) that self-uncertainty increases minority opinion expression, and (2) that the effect is most pronounced among individuals with low implicit self-esteem. Participants were exposed to a manipulation of either self-uncertainty or general (self-irrelevant) uncertainty, prior to rating a tedious language task that “other participants” allegedly had rated very positively. We predicted that low implicit self-esteem participants in the self-uncertainty condition, relative to those in the general uncertainty condition, would provide less positive ratings of the task — in other words, that they would be more likely to express a minority opinion.

Method

Participants

Fifty-five university students and staff members (18 men, 37 women; \(M_{\text{age}} = 20.70, SD = 4.55\)) participated in this study in exchange for $5 or partial course credit. Participants were randomly assigned to either the self-uncertainty (n = 28) or general uncertainty (n = 27) condition.

Four participants were omitted because they expressed suspicion that the study involved the effects of uncertainty on expression of different opinions. The remaining 51 individuals were retained in the final sample.

Procedure and materials

Participants were run in groups of up to four. Upon arrival to the laboratory, they were greeted by a female experimenter, who seated them at one of several divided computer work stations. The experimenter informed participants that the purpose of the study was to investigate the factors that influence people’s perceptions of themselves.

Participants first completed several personality surveys to bolster the cover story of the experiment. Next, they completed the experimental manipulation. In the self-uncertainty condition, participants wrote a brief essay about the three aspects of themselves, their lives, and their futures that made them feel most uncertain. In the general uncertainty condition, participants wrote a brief essay about the three aspects of a current event (e.g., a social issue, a celebrity scandal) that made them feel most uncertain. Previous research has shown that the self-uncertainty task induces uncertainty about one’s self-concept, whereas the general uncertainty task does not (see Morrison & Johnson, 2011).

After the manipulation, participants completed the language task about which they would express their opinions later on, and which they were told was being pilot tested by a team of cognitive psychology researchers. The task was a word completion exercise in which participants generated solutions to twenty incomplete word fragments (e.g., “...I C ...” could be completed with “nice” or “rich,” among other words). The task took most participants three to five minutes to complete, and it provided the basis for our dependent measure.

Participants were then instructed to report on a rating sheet how interesting and enjoyable they found the language task, using 11-point scales (1 = not at all, 11 = extremely). Participants’ responses to these two questions were averaged into a composite (r = .80, \(p < .001\); \(M = 9.17, SD = 1.57\)). The ostensible purpose of the rating sheet was to provide feedback to the researchers, as the language task was allegedly only a pilot study. In reality, however, participants’ ratings served as the measure of conformity to the opinions of the eleven “other participants” who had already filled out the sheet. All of these “participants” had given the task very high ratings (an average of 9.5 out of 11), and five of them had written positive comments (e.g., “Fun, like a puzzle,” “Much better than the typical experiment”).

The rating sheet and comments were borrowed from Galinsky et al. (2008).

At the end of the study, participants completed a demographic survey, which contained the question, “How much do you like your name in total?” (1 = not at all, 5 = very much; \(M = 3.84, SD = 1.08\)). This question served as the measure of implicit self-esteem and has been validated in previous research (Gebauer, Riketta, Broemer, & Maio, 2008). Participants’ implicit self-esteem scores were not affected by experimental condition, \(F < 1\).

Results

It was hypothesized that low implicit self-esteem participants would diverge more from the “other participants’” opinions in the self-uncertainty condition than in the general uncertainty condition. To test this hypothesis, participants’ language task ratings — with higher scores reflecting more conformity to the “other participants’” opinions — were submitted to a condition × implicit self-esteem (mean-centered continuous variable) multiple regression analysis. The self-uncertainty condition was coded as −1 and the general uncertainty condition as 1, and implicit self-esteem was mean-centered, to reduce multicolinearity concerns. The lower-order effects of condition and implicit self-esteem were entered and interpreted in the first block of the analysis. The two-way interaction term was added to and interpreted in the second block of the analysis (Cohen, Cohen, West, & Aiken, 2003).

The predicted interaction between condition and implicit self-esteem was the only significant effect to emerge (\(B = -0.38, SE = 0.22\), \(t(47) = -2.66, p = .01\) (see Fig. 1). Decomposition of the interaction at 1 SD above and below the sample mean for implicit self-esteem revealed that low implicit self-esteem individuals conformed less to the “other people’s” opinions in the self-uncertainty than general uncertainty condition (\(B = .69, SE = .33\), \(t(47) = 2.11, p = .04\). By contrast, high implicit self-esteem individuals conformed marginally more to the “other people’s” opinions in the self-uncertainty than general uncertainty condition (\(B = -0.55, SE = .33\), \(t(47) = -1.69, p < .10\). Additional simple slopes analyses indicated that the relationship between implicit self-esteem and conformity was positive and significant in the self-uncertainty condition (\(B = .83, SE = .31\), \(t(47) = 2.70, p = .01\), but not in the general uncertainty condition (\(B = -0.32, SE = .30\), \(t(47) = -1.05, p = .30\).

Discussion

The results of Study 1 provide initial evidence that the effect of self-uncertainty on disagreement with others — in this case, the opinions of “previous participants” about a language task — is especially pronounced among participants with low implicit self-esteem, who are most vulnerable to self-threats. However, because these participants still rated the language task positively (just not as positively as did the “other participants”), it is unclear whether they were truly expressing minority opinions. To address this issue, Study 2 used a paradigm that assessed the number of times participants disagreed with (i.e., expressed the opposite opinion as) other people. In addition, Study 2 sought to determine whether these findings would replicate with self-certainty instead of general uncertainty as a control condition, and in a context in which participants anticipated having an actual group discussion about their opinions.

In a pretest, 20 students from the same population completed the language task and, without seeing any feedback from “other participants,” rated how interesting and enjoyable they found it (\(r = .97, p < .001\)). Their average rating of the task (\(M = 7.45, SD = 2.45\)) was significantly lower than the average of 9.5 on the rating sheet used in Study 1, one sample \(t(19) = 3.74, p = .001\). Thus, the ratings and comments of the “other participants” in Study 1 were likely more positive than participants’ private opinions about the task.
Forty-six social science majors at a local community college (21 men, 25 women; Mage = 23.7, SD = 9.12) participated in this experiment in exchange for partial course credit. Each participant was randomly assigned to either the self-uncertainty condition (n = 22) or the self-certainty condition (n = 24). Two participants who doubted the veracity of the “other participants’” art preferences were dropped from the analyses, as was one participant who did not follow the instructions for the experimental manipulation (i.e., who was assigned to the self-certainty condition but wrote about self-uncertainty instead). The remaining 43 individuals were retained in the final sample.

Procedure and materials
Participants arrived at the laboratory in groups of three and were greeted by a female experimenter, who seated them in one of three separate rooms. The experimenter informed each participant that the purpose of the experiment was to learn more about the relationship between personal experiences and preferences for art. The first part of the study was presented as a “personal experiences” task but actually was the self-uncertainty manipulation. Specifically, participants wrote a brief essay about the three aspects of themselves, their lives, and their futures that made them either most uncertain (self-uncertainty condition) or most certain (self-certainty condition). They were given as much time as they needed to complete this task.

After writing their essays, participants were informed that the next part of the study concerned their preferences for modern art. They then received a folder containing five different pairs of paintings, which had been printed from websites featuring the work of well-known 20th century artists (e.g., Pollock, Kandinsky). The paintings had been pretested to ensure that there were no differences in perceived attractiveness within the pairs. Participants were also given a rating sheet so that they could indicate which painting in each pair (labeled “A” and “B”) they preferred. However, the rating sheet had already been “completed” by two “other participants,” ostensibly in order to save paper. These ratings were printed in different ink colors and writing styles to maximize the chances that participants would believe they were real. On each of the five pairs, the two other participants had indicated identical preferences (for a similar procedure, see Stephens, Markus, & Townsend, 2007).

Participants were instructed to indicate their own preferences alongside the others and were told that they would discuss their expressed preferences in a group once everyone in their session had completed the rating sheets. This was done to make the opinion expression appear more public and consequential. The dependent variable of interest was the proportion of times they indicated a different preference from that of the two previous participants (possible range from 0 to 1; M = .43, SD = .15). Thus, higher scores corresponded to more frequent disagreement with the majority.

A week before the lab experiment, participants had completed a measure of implicit self-esteem on the Internet (Kitayama & Karasawa, 1997). Specifically, participants rated the attractiveness of each letter of the English-language alphabet on a five-point scale (1 = not at all attractive, 5 = extremely attractive). At the end of the session, they were asked to provide their first and last initials. Implicit self-esteem was calculated as the difference between participants’ own ratings of their two initials (averaged together) and the mean rating of participants who did not have those initials in their names (Kitayama & Karasawa, 1997; see also Dijksterhuis, 2004). Higher scores indicated higher levels of implicit self-esteem (M = .57, SD = .99).

Results
It was hypothesized that participants who were low in implicit self-esteem and were primed with self-uncertainty would disagree with the “other people’s” preferences more frequently than those primed with self-certainty. To test this hypothesis, the proportion of times participants disagreed with the others was submitted to a condition (−1 = self-uncertainty, 1 = self-certainty) × implicit self-esteem (centered continuous variable) multiple regression analysis as in Study 1 (Aiken & West, 1991).

Overall, participants expressed more minority opinions in the self-uncertainty condition than in the self-certainty condition (B = .055, SE = .022), t(40) = 2.42, p = .02. However, the effect of condition was qualified by the predicted interaction with implicit self-esteem (B = −.048, SE = .023), t(39) = −2.08, p < .05 (see Fig. 2). Consistent with predictions, participants with low implicit self-esteem (1 SD below the mean) expressed more minority opinions in the self-uncertainty than self-certainty condition (B = .10, SE = .032), t(39) = 3.23, p < .01. The minority opinion expression scores of participants with high implicit self-esteem (1 SD above the mean) did not differ by condition (B = .009, SE = .031), t(1) = 1, ns. No other simple slopes were significant (ps > .11).

Discussion
The results of Study 2 replicated the results of Study 1 on a different task, and in a context in which participants thought they would have to voice their opinions in a group discussion. That is, low implicit self-esteem participants who were made to feel self-uncertain (versus self-certain) disagreed more frequently with “other people’s” ratings of modern art prior to the discussion, which never occurred. In theory, however, participants in Study 2 could have reported minority opinions on the rating sheet but expressed majority opinions during the group discussion (had it actually taken place). Thus, one goal of Study 3 was to determine whether the findings would hold when participants were led to believe that their responses would be made public to the other “group members.”
A second goal of Study 3 was to show that self-uncertainty and low implicit self-esteem increase minority opinion expression but do not affect majority opinion expression. Such findings would be consistent with the notion that the opinion expression occurs in the service of asserting one’s uniqueness. To this end, participants in Study 3 were told that they either had a minority or majority opinion, prior to expressing their opinion as part of an ostensibly group discussion.

A third goal of Study 3 was to examine more closely the conditions under which self-uncertainty and low implicit self-esteem lead to minority opinion expression. As noted earlier, human beings are motivated to both fit in with and be unique from others (Brewer, 1991). Some forms of uncertainty (e.g., about the self as an individual) might be especially likely to trigger uniqueness-related behaviors such as minority opinion expression, which are considered diagnostic of one’s true self (McGuire & McGuire, 1988; Morrison & Wheeler, 2010). Other forms of self-uncertainty (e.g., about the self as a group member), however, might not have the same effect. Indeed, people who are concerned about fitting in should not be motivated to differentiate themselves from the majority (Williams et al., 2000). To test this explicitly, in Study 3 we manipulated either uncertainty about the individual self (e.g., personal traits and characteristics) or uncertainty about the social self (e.g., group memberships). It was predicted that uncertainty about the individual self, but not uncertainty about the social self, would motivate low implicit self-esteem people to express minority opinions.

Study 3

Participants in Study 3 completed a manipulation of uncertainty about either the self as an individual or the self as a group member. Additionally, they were led to believe that they would take part in an online chat about a controversial issue with two “other people,” and that they held either a majority or minority opinion on the issue. It was hypothesized that participants who believed they held a minority opinion would express these opinions to a greater extent in the self-uncertainty condition than in the group-uncertainty condition, especially if they scored low on a measure of implicit self-esteem. No differences were hypothesized for majority opinion expression.

Method

Participants

Eighty-seven individuals (35 men, 71 women; M_{age} = 36.1, SD = 11.3) from various parts of the United States were recruited from a database of people who had indicated an interest in participating in paid online studies. To be eligible, participants must have reported that they opposed Proposition 174, the issue described below. Participants were randomly assigned to either the self-uncertainty condition (n = 46) or the group-uncertainty condition (n = 41), and to either the minority opinion (n = 42) or majority opinion (n = 45) condition. They received $2 from PayPal as compensation.

Five participants were omitted because they suspected that they would not actually be participating in the online chat, and two participants were omitted because they did not complete the uncertainty manipulation. The remaining 80 individuals were retained in the final sample.

Procedure and materials

The study was described as an online chat in which participants would discuss a controversial social issue with two “other people” in the same session. Participants completed all experimental materials on the Internet. First, they completed a demographic survey, which included the single-item measure of implicit self-esteem from Study 1 (M = 5.51, SD = 1.33).

Next, participants completed the uncertainty manipulation. In the self-uncertainty condition, participants wrote an essay about the three aspects of their lives that made them feel most uncertain about themselves as individuals. Thus, the manipulation was very similar to that used in Studies 1 and 2, except that participants were told explicitly to focus on uncertainty about their individual selves. To help participants complete this task, the following text appeared at the end of the instructions: “For example, you may be uncertain whether you possess a particular trait or characteristic, or you may be uncertain of what career you want to pursue in the future.”

In the group-uncertainty condition, participants wrote an essay about the three aspects of their lives that made them feel most uncertain about their social groups (see Morrison et al., 2012). To help participants complete this task, the following text appeared at the end of the instructions: “For example, you may be uncertain whether you fit in with others at work or school, or you may have just moved to a new dorm/apartment in which you do not yet know a lot of people.”

After the uncertainty manipulation, participants read a description of their discussion topic. The discussion topic was the fictitious Proposition 174, which proposed to re-allocate 75% of funding for the National Institute of Health (NIH) away from a gastrointestinal disease that supposedly affected one in seven people, toward a futile campaign to increase the number of “Buckle Up” billboards on highways (Ratner & Miller, 2001; see also Morrison, 2011). The proposition was described to make all participants opposed to it. For example, the description noted that existing “Buckle Up” campaigns have not shown increased seat belt utilization rates, and that the proposed funding re-allocation would slow down the NIH research “tremendously.” Indeed, when participants were asked to report their attitude toward the proposition on a 9-point scale (1 = very strongly opposed, 9 = very strongly in favor), the mean attitude was significantly below the midpoint (M = 2.00, SD = 1.07), t(79) = -25.14, p < .001.

Participants then viewed the attitudes of their two “discussion partners” toward Proposition 174, which constituted the minority/majority opinion manipulation. Participants in the majority opinion condition were told that their discussion partners’ attitudes were “very strongly opposed” (1) and “strongly opposed” (2), whereas participants in the minority opinion condition were told that their discussion partners’ attitudes were “very strongly in favor” (9) and “strongly in favor” (8).

Next, participants were instructed to write a few sentences about what they thought would happen during the online chat. Their responses were coded for suspicion: participants who reported suspicion that their “discussion partners” were not real or that the chat would actually not take place were omitted.

1 In Studies 1, 3, and 4, participants completed the dependent measure immediately after the experimental manipulation. However, the results of these studies were identical to those of Study 2, in which participants completed three minutes of filler material between the manipulation and the dependent measure. This suggests that the effects of self-uncertainty on opinion expression emerge regardless of whether the opinion is expressed after a delay (see also Hogg et al., 2007).
Participants were also instructed to write an opening statement for the online chat, which they were told would be submitted to their discussion partners. Specifically, they were asked to explain whether they thought Proposition 174 was a good or bad thing and why (Packer & Chasteen, 2010; see also Morrison, 2011). Participants’ responses on the opening statement served as the dependent measure in this study.

Two independent judges, each blind to experimental condition, coded participants’ opening statements for their expressed opinions on Proposition 174 using the same 9-point scale on which participants had reported their own attitudes (1 = very strongly opposed, 9 = very strongly in favor). Because the judges’ ratings were strongly correlated (r = .74, p < .001), they were averaged to form a single measure, with lower scores indicating greater opposition to the proposal (M = 2.47, SD = 1.11).

At the end of the study, participants were fully debriefed as to the purpose and hypothesis.

Results

We predicted that self-uncertainty (vs. group-uncertainty) would make participants with low implicit self-esteem diverge to a greater extent from others’ opinions on Proposition 174 when they believed others supported it (i.e., when they believed they held a minority opinion). Conversely, we predicted that self-uncertainty and implicit self-esteem would have no effects on opinion expression when participants believed others opposed Proposition 174 (i.e., when they believed they held a majority opinion). To test these predictions, participants’ coded opinions from their opening statements were submitted to an uncertainty condition (−1 = self-uncertainty, 1 = group-uncertainty) × opinion condition (−1 = minority opinion, 1 = majority opinion) × implicit self-esteem (centered continuous variable) multiple regression analysis (Aiken & West, 1991). The main effects were entered and interpreted in the first block, the two-way interaction terms in the second block, and the three-way interaction term in the third block of the analysis (Cohen et al., 2003).

The two-way interaction between opinion condition and implicit self-esteem was significant (B = .20, SE = .10), t(71) = 1.98, p = .05 (see Fig. 3). The pattern of the interaction suggested that participants with low implicit SE expressed more opposition to Proposition 174 when they held a minority than majority opinion.

The results of Study 3 demonstrated that low implicit self-esteem people expressed minority opinions to a greater extent, and expressed majority opinions to an equal extent, under self-uncertainty compared to group-uncertainty. Thus, the effects of self-uncertainty on minority opinion expression are specific to uncertainty about the individual self; uncertainty about one’s social self does not prompt people to express more disagreement with others. These findings are consistent with the notion that group-uncertainty does not increase people’s motives to be unique, but self-uncertainty does.

Discussion

The results of Study 3 demonstrated that low implicit self-esteem people expressed minority opinions to a greater extent, expressed majority opinions to an equal extent, and expressed uncertainty condition × opinion condition interaction was significant (B = 20, SE = 10), t(71) = 1.98, p = .05 (see Fig. 3). This interaction was decomposed by examining the two-way interactions between uncertainty condition and implicit self-esteem in the minority and majority opinion conditions separately. The condition × implicit self-esteem interaction was significant in the minority opinion condition (B = −.59, SE = .26), t(71) = −2.23, p < .03. In the majority opinion condition, neither the interaction nor the lower-order effects of condition or implicit self-esteem reached significance (ps > .15).

Simple slopes analyses at 1 SD above and below the mean implicit self-esteem score revealed that low implicit self-esteem participants who believed the other participants supported Proposition 174 (i.e., who believed they held a minority opinion) expressed more opposition to Proposition 174 after being primed with self-uncertainty than group-uncertainty (B = 1.21, SE = .45), t(71) = 2.69, p < .01. By contrast, high implicit self-esteem participants who believed they held a minority opinion did not differ in their expressed opinions toward Proposition 174 as a function of condition (B = −.25, SE = .52), t < 1, ns. Additional analyses indicated that low implicit self-esteem was associated with greater expressed opposition to Proposition 174 in the self-uncertainty condition (B = .58, SE = .23), t(71) = 2.56, p = .01, but not in the group-uncertainty condition (B = −.01, SE = .14), t < 1, ns.

4 When initial attitudes toward Proposition 174 were included as a covariate in the analysis, the three-way interaction between uncertainty condition, opinion condition, and implicit self-esteem still emerged (B = .18, SE = .094), t(71) = 1.93, p = .058. Additionally, there was no uncertainty condition × opinion condition × implicit self-esteem interaction on initial attitudes toward Proposition 174 (B = .04, SE = .10), t(72) > 1, ns.
in the face of threat or uncertainty (Bosson et al., 2008; Jordan et al., 2003; McGregor, Nail, Marigold, & Kang, 2005; Schmeichel et al., 2009). If minority opinions serve as a means of compensating for uncertainty about the self, then the effects of self-uncertainty should be strongest among those with defensive high self-esteem. The rationale for this prediction is that whereas individuals who have low implicit self-esteem are especially bothered by threats to the self (McGregor & Jordan, 2007), those who also have high explicit self-esteem are especially motivated to compensate for such threats by reacting in defensive ways (Bosson et al., 2008; Jordan et al., 2003; McGregor et al., 2005; Schmeichel et al., 2009).

An additional goal of Study 4 was to see if our results would generalize to a different manipulation of self-uncertainty. To this end, participants in Study 4 received false feedback about the consistency (or lack thereof) in their personalities, rather than writing an essay about the aspects of their lives that made them uncertain.

**Study 4**

Participants in Study 4 received false feedback that their responses to a series of personality surveys were either inconsistent (self-uncertainty condition) or consistent (self-certainty condition). They then indicated their preferences for five different pairs of paintings, which had already been rated by two “previous participants” who agreed with one another each time. Both implicit and explicit self-esteem were measured in a separate session to ensure that participants’ scores on these measures would not affect, or be affected by, their responses to the experimental manipulation. It was hypothesized that participants with high explicit but low implicit self-esteem (i.e., participants with defensive high self-esteem) would disagree with the others’ preferences more frequently when they believed they had inconsistent (versus consistent) personality profiles.

**Method**

**Participants**

One hundred and forty-four individuals (56 men, 88 women; M\(_{\text{age}}\) = 33.2, SD = 10.3) were recruited from a similar email list as in Study 3 to participate in an experiment on “personality and artistic preferences.” They were entered into a drawing to win one of several $25 gift certificates to a major online retailer in exchange for completing the first session of the study, and they received a $5 gift certificate to the same retailer in exchange for completing the second session of the study.

Eleven suspicious participants — ten who suspected that the "other people's" art preferences were not real and one who doubted the veracity of the personality feedback — were removed from analyses. In addition, four participants who took more than an hour to complete the second session of the study were omitted, as they likely did not complete the study in a single sitting and thus may not have been affected by the uncertainty prime.\(^5\) The remaining 129 individuals were retained in the final sample; they were randomly assigned to either the self-uncertainty condition (n = 70) or the self-certainty condition (n = 59).

**Procedure and materials**

The experiment was administered online and consisted of two separate sessions, administered one week apart. In the first session, participants were told that they would complete several questionnaires, so that the researchers could create a customized personality profile for them to view during the next session. One of the questionnaires was the Rosenberg (1965) self-esteem scale (e.g., “I feel that I have a number of good qualities”), which served as the explicit self-esteem measure. After reverse coding items where necessary, participants’ responses were averaged into a composite (α = .88; M = 3.73, SD = .78). Participants also completed the name-letter task used in Study 2 as a measure of implicit self-esteem (Kiyata & Karasawa, 1997; M = .48, SD = 1.07). The explicit and implicit self-esteem measures were marginally correlated (r = .16, p < .08).

In the second session, participants were each given a “personality profile” upon logging into the study, allegedly based on their data from the first session. The content of the profile, taken from Morrison and Johnson (2011), was designed to manipulate feelings of either self-certainty or self-uncertainty. Participants in the self-certainty [self-uncertainty] condition read: “The consistency of your responses is [not] high enough to construct a clear picture of who you are. For your information, this is not uncommon. Sixty percent of the time the computer program we use to compute the consistency of individuals’ personalities is able [unable] to construct a clear profile.” In neither condition did participants actually receive a personality profile; they simply read that their profile was either consistent or inconsistent. This manipulation has been shown in previous research to influence people’s subjective sense of self-certainty (Morrison & Johnson, 2011).

After viewing the statement about the consistency of their personality profiles, participants completed an art preferences task similar to that used in Study 2. Prior to beginning the task, participants read that their preferences would be revealed to the next two people who completed the study; thus, they were led to believe that they were actually expressing their opinions to others. The task involved viewing 10 pairs of paintings one by one and indicating which painting within each pair (labeled 1 and 2) they preferred. The preferences of the “last two participants in the study” were provided beneath each pair, and were identical to one another on the first five pairs of paintings. The last five pairs, on which the “other participants” disagreed with one another three times and agreed with one another twice, were included to minimize suspicion and were not analyzed. The dependent variable was the proportion of times participants indicated a different preference from that of the two “other participants” (ranging from 0 to 1, with higher scores reflecting higher levels of disagreement; M = .41, SD = .20).

At the end of the experiment, participants completed open-ended suspicion probes assessing whether they thought the purpose of the study was, whether they thought any of the tasks were related, and whether anything they did on one task affected what they did on another task. Participants were omitted from analyses if, at any point during these probes, they expressed suspicion that their personality profiles, the preferences of the “other participants,” or both were not real.

**Results**

It was predicted that among participants high (but not low) in explicit self-esteem, those with low implicit self-esteem would disagree with the “other participants’” preferences more frequently in the self-uncertainty than self-certainty condition. In other words, self-uncertain participants were expected to express majority opinions less frequently than self-certain participants to the extent that they had defensive high self-esteem. This prediction was tested by submitting participants’ disagreement scores to an explicit self-esteem \( \times \) condition \( (−1 = \text{self-uncertainty, } 1 = \text{self-certainty}) \) \( \times \) implicit self-esteem regression analysis, with both self-esteem measures centered and treated as continuous variables.

The only significant effect to emerge was the hypothesized three-way interaction \((B = .047, SE = .024), t(120) = 1.97, p = .05\) (see Fig. 4). Decomposition of this effect indicated that condition and implicit self-esteem, while significant in isolation, did not interact to predict disagreement among participants with high explicit self-esteem \((B = .045, SE = .025), t(120) = 1.78, p < .08\) but not among participants with low explicit...
self-esteem ($B = -0.028, SE = .025$), $t(120) = -1.11, p = .27$. Consistent with predictions, participants high in explicit but low in implicit self-esteem disagreed with the “other participants’” opinions more frequently after receiving feedback that their personalities were inconsistent, versus consistent ($B = -0.079, SE = .04$), $t(120) = -1.97, p = .05$. However, as expected, the disagreement scores of participants high in both explicit and implicit self-esteem (i.e., genuine high self-esteem) did not vary as a function of their personality feedback ($B = .017, SE = .034$), $t < 1, ns$. In addition, implicit self-esteem negatively predicted disagreement among high explicit self-esteem participants primed with self-uncertainty ($B = -0.083, SE = .037$), $t(120) = -2.24, p < .03$, but not among high explicit self-esteem participants primed with self-certainty ($B = .007, SE = .034$), $t < 1, ns$.

Discussion

Overall, the results of Study 4 demonstrated that the combination of low implicit and high explicit self-esteem leads people to express minority opinions more often upon being faced with self-uncertainty, relative to self-certainty. By using a different self-uncertainty manipulation (personality feedback instead of an essay), these results reinforce the findings from Studies 1 through 3. In addition, these results suggest that people who score low on implicit but high on explicit measures of self-esteem (i.e., people who have defensive high self-esteem) are more willing to express minority opinions under self-uncertainty than self-certainty. Because having high explicit self-esteem motivates those with low implicit self-esteem to act on threats to the self, the fact that the present results were strongest among defensive high self-esteem people further strengthens the claim that minority opinions can represent an attempt to compensate for such threats.

General discussion

The present studies support the prediction that uncertainty about the self-concept increases willingness to hold and express minority opinions, especially among people who are vulnerable to self-threats (i.e., who have low implicit self-esteem). The results emerged on several different measures, including ratings of novel stimuli (e.g., art) and willingness to express one’s opinion in a discussion of a controversial issue. The variety of dependent measures not only increases the generality of the present findings; it also suggests that self-uncertainty makes people more willing to voice those minority opinions that they already hold, as well as to strategically adopt minority opinions.

Specifically, Study 3 examined opinion expression on a controversial issue to which participants were moderately or strongly opposed to begin with. In this context, participants were somewhat bound to their original position on the issue. That is, they expressed greater opposition to Proposition 174 when they learned that others favored it, but they did not reverse their opinions entirely when they learned that others also opposed it (i.e., they did not become more favorable toward the proposition for the sake of expressing a minority opinion).

By contrast, Studies 1, 2, and 4 assessed participants’ stated preferences for stimuli about which they may not have had strong initial opinions. In these contexts, participants were likely not as constrained by their original attitudes toward the stimuli. As such, Studies 1, 2, and 4 introduce the possibility that self-uncertain individuals may sometimes choose to become opinion minorities on novel issues in order to defend the self-concept.

Notably, Study 4 demonstrated that people who score low on implicit but high on explicit measures of self-esteem (i.e., people who have defensive high self-esteem) are particularly likely to adopt minority opinions under self-uncertainty. Although some previous research has shown that low implicit self-esteem individuals respond defensively to threats to the self (McGregor & Jordan, 2007), this is not always the case (see Bosson et al., 2008). Indeed, it may be that whereas low implicit self-esteem reflects a vulnerability to self-threats, high explicit self-esteem reflects a motivation to act on such threats (Jordan et al., 2003; McGregor et al., 2005; Schmeichel et al., 2008). Thus, the fact that the present results were strongest among people with the combination of low implicit and high explicit self-esteem further strengthens the claim that minority opinions can represent a defensive attempt to compensate for threats to the self-concept.

Uncertainty about the world in general and uncertainty about one’s social groups or relationships do not increase willingness to hold and express minority opinions. This suggests that the uncertainty must pertain to the individual self in order to motivate people to assert their uniqueness — for example, by diverging from others’ opinions. Moreover, as Study 3 demonstrated, the effects of self-uncertainty and implicit self-esteem emerge on minority opinions but not majority opinions. Because minority opinions are more self-diagnostic than majority opinions (Morrison & Wheeler, 2010), low implicit self-esteem people whose certainty has been threatened turn to minority opinions in particular to restore their sense of self.

Minority opinions and the self

The present studies advance understanding of how the self-concept can influence people’s occasional tendencies to hold and voice minority opinions. A small but growing body of recent research suggests that people often dissent from the majority due to a desire to positively influence their group’s norms — that is, to do what they believe is best for the group (Packer, 2008). Although prosocial motives to help the ingroup are an important predictor of minority opinion expression, the present work suggests that minority opinions sometimes have little to do with people’s feelings about their group and may instead stem from self-interest. Specifically, people may hold and express such opinions to try to shield themselves from the threat of self-uncertainty, without any intended or actual benefit to the group or its norms.

The present findings also suggest some ways to extend previous research on self-uncertainty. For example, previous work has found that self-uncertainty causes individuals to identify more strongly with their social groups (Hogg et al., 2007), especially radical groups that advocate extreme positions (Hogg, Meehan, & Farquharson, 2010) and distinct groups that do not overlap with other aspects of one’s identity (Grant & Hogg, 2012). One interpretation of these findings is that radical and distinct groups are considered unique and non-mainstream in society. Thus, people may identify with such

![Fig. 4. Proportion of minority opinions as a function of explicit self-esteem (± 1 SD), condition (self-uncertainty vs. self-certainty), and implicit self-esteem (± 1 SD), Study 4.](image-url)
groups in order to satisfy their needs for both belongingness and distinctiveness (see Hornsey & Jetten, 2004). Considering the present studies, it may be that just as self-uncertainty makes people more likely to express and hold minority opinions, self-uncertainty also makes people more committed to the unique groups to which they belong (e.g., vegans, punk rockers), but not to more mainstream groups (e.g., ice cream lovers, pop music fans). This would be an interesting direction for future research.

**Boundary conditions**

In the present studies, the self-uncertainty manipulations primarily involved threats to the individual self-concept. That is, participants were asked to reflect on the aspects of their personal characteristics, lives, and futures that made them feel uncertain. In Study 3, however, uncertainty about the individual self was directly compared to uncertainty about the social self (i.e., reflecting on the aspects of one’s group membership that induced uncertainty). When low implicit self-esteem participants were primed with uncertainty about their social selves, they did not become more likely to express minority opinions, perhaps because such social uncertainties attenuated their motives to be unique from others. Consistent with this finding, some previous work suggests that social threats (e.g., being socially excluded) do not increase—and in fact, may even decrease—minority opinion expression (Williams et al., 2000).

A related possibility is that the effects of self-uncertainty on minority opinions are culturally bound, and that they depend on whether one’s self-construal is independent or interdependent (Markus & Kitayama, 1991). For example, people whose self-definitions are based on social relationships and group memberships (i.e., members of interdependent cultures such as East Asia) might not see minority opinions as a means of restoring their sense of self, as interdependent cultures tend to be associated with conformity rather than uniqueness (Kim & Markus, 1999). In addition, people from interdependent cultures might not be as affected by uncertainty about the individual self as people whose self-definitions are based on traits and characteristics (i.e., members of independent cultures such as North America) (Morrison & Johnson, 2011). Indeed, among those with interdependent self-construals, uncertainty about social groups and relationships may be especially distressing (Morrison et al., 2012). Thus, individual-level self-uncertainty should prompt the adoption and expression of minority opinions primarily among members of independent cultures, because it is for these people that individual-level self-uncertainty is most threatening and minority opinions are most separative.

**Consequences for group outcomes**

One potentially fruitful avenue for future research would be to investigate the implications of uncertainty-induced minority opinions for group processes. Exposure to diverse viewpoints has been linked to a variety of positive group outcomes, including increases in creativity (Nemeth, 1986) and greater complexity of thought (Antonio et al., 2004). Conversely, the suppression of diverse opinions in groups can lead to the closed-mindedness and decision-making errors associated with groupthink (Janis, 1982). In light of these findings, could people who express dissent from the majority out of a motivation to resolve uncertainty (see Packer, 2008). On the other hand, it may be that simply hearing a self-uncertain individual express dissent, regardless of his or her underlying motive (i.e., to benefit the self or the group), stimulates group decision-making, so long as the expressed opinion is authentic (Nemeth, Brown, & Rogers, 2001). Exploring these issues would have implications for how self-uncertainty might ultimately affect entire groups.

**Conclusion**

The present studies provide a novel perspective on when individuals will versus will not adopt and express minority opinions. In particular, they move beyond previous research that has largely concentrated on group-related predictors, and instead introduce intrapersonal predictors: the psychological state of self-uncertainty and vulnerability to self-threats as indicated by low implicit self-esteem. In so doing, these studies suggest that individuals low in implicit self-esteem adopt and express minority opinions in order to compensate for a threatened sense of self-certainty, especially if they are also high in explicit self-esteem (i.e., motivated to respond defensively to self-threats). Notably, then, such opinions can stem as much from a compensatory desire to protect the individual self-concept as from a genuine desire to promote collective welfare, or from a genuine certainty in one’s opinion. As a result, those who appear to have strong certainty by deviating from the majority may be those who ironically most lack certainty about themselves.

**References**


