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Running head: SOCIAL IDENTITY THREAT AND AFFIRMATION

The Threat vs. Challenge of Car Parking for Women:

How Self- and Group Affirmation Affect Cardiovascular Responses.

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Abstract

This study examines cardiovascular responses indicating challenge (vs. threat) during motivated performance of women under social identity threat. Low gender identified women should primarily be concerned with their personal identity and self-worth, leading them to benefit from self-affirmation under social identity threat. Highly identified women, conversely, should care more for the value of their group and benefit more from group affirmation. Among 64 female participants social identity threat was induced by emphasizing gender differences in car parking ability. Then, participants received an opportunity to affirm the self or the group and worked on a car-parking task. During this task, cardiovascular challenge versus threat responses were assessed according to the biopsychosocial model (Blascovich, 2008). Results confirmed predictions by showing that self-affirmation elicited cardiovascular patterns indicating challenge in low identifiers, while group affirmation elicited challenge in high identifiers. Theoretical implications for work on social identity are discussed.

Word count abstract: 145

Key Words: Social identity; cardiovascular threat and challenge; group affirmation; self-affirmation; gender identification

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The Threat vs. Challenge of Car Parking for Women: How Self- and Group Affirmation Affect Cardiovascular Responses.

Feedback that threatens the positive distinctiveness of one's group can activate social identity threat (Branscombe, Ellemers, Spears, & Doosje, 1999; Ellemers, Spears, & Doosje, 2002; Steele, Spencer, & Aronson, 2002; Tajfel & Turner, 1986). For example, priming individuals with negative group-related stereotypes (e.g., women are poor drivers, African Americans are unintelligent) or reminding them of the cultural marginalization of their group impacts upon the self-concept because the way individuals define the self or are seen by others is at least in part based on these groups. Previous work revealed that individuals who experience social identity threat show maladaptive cardiovascular threat responses that are associated with declined health and impaired performance (Blascovich, 2008; Blascovich, Spencer, Quinn, & Steele, 2001; Scheepers, 2009; Vick, Seery, Blascovich, & Weisbuch, 2008). The current study aims to determine how members of devalued groups can manage such threats to their identity. We compare two coping strategies that have been proposed in previous work, namely self-affirmation (stimulating individuals to focus on positive parts of their personal identity) and group affirmation (inviting individuals to focus on positive group characteristics) and propose that the impact of these two strategies depends on the degree to which people identify with their group. That is, whereas low identifiers are more likely to cope effectively with social identity threat through self-affirmation, high identifiers should cope more effectively with threat by affirming their group. To reliably assess the adaptiveness of each coping strategy, we measured cardiovascular markers of threat and challenge derived from the biopsychosocial model (Blascovich, 2008; Blascovich & Tomaka, 1996) among women performing a task in which their gender group is negatively stereotyped (i.e., car parking).

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Social Identity Threat

Research on social identity shows that being in a context in which one's group is devalued by negative stereotypes, low performance outcomes or negative treatment undermines positive group distinctiveness and is experienced as a threat to the self-concept (see Branscombe et al., 1999, for an overview). Social identity threat is a negative state that lowers psychological well-being and triggers physiological stress responses such as increased cortisol levels and blood pressure (Blascovich et al., 2001; Clark, Anderson, Clark, & Williams, 1999; Matheson & Cole, 2004; Scheepers & Ellemers, 2005). Moreover, members of devalued groups are often unable to efficiently cope with threats to social identity, leading them to focus on managing negative emotions or to avoid situations in which their identity might be scrutinized altogether (Crocker, Major, & Steele, 1998). For example, confronting individuals with negative stereotypes about their group activates a need to regulate emotional responses (Johns, Inzlicht, & Schmader, 2008; Wraga, Helt, Jacobs, & Sullivan, 2007) and to monitor one's performance in order to avoid failure (Forbes, Schmader, & Allen, 2008; Seibt & Förster, 2004). This self-regulation, in turn, taxes working memory capacity, reducing performance in a wide variety of cognitive, social and sensorimotor tasks (for an overview see Schmader, Johns, & Forbes, 2008). Moreover, it has been found that social identity threats can motivate women to avoid leadership roles and quantitative performance domains (Davies, Spencer, Quinn, & Gerhardstein, 2002; Davies, Spencer, & Steele, 2005) and induce ethnic minority students to disengage from their academic goals and self-segregate into academic contexts in which their identity is not stigmatized (Crocker et al., 1998; Osborne, 1995). As such, social identity threat tends to trigger maladaptive coping

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responses that paradoxically lead to an even stronger reduction in the outcomes and status of members of socially devalued groups.

Threat vs. Challenge

The biopsychosocial (BPS) model (Blascovich, 2008; Blascovich & Mendes, 2000; Blascovich & Tomaka, 1996) has been a guiding framework for research examining the cardiovascular correlates of social identity threat (Blascovich et al., 2001; Scheepers, 2009; Vick et al., 2008). According to the BPS model, challenge and threat motivational states develop during "motivated performance situations" (e.g., car parking, doing a math test) and are determined by the evaluation of this situation in terms of demands (required effort, uncertainty, danger) and resources (skills, dispositions, support). Individuals who evaluate their personal resources as approaching or exceeding task demands show a *challenge* motivational state whereas individuals who perceive situational demands as exceeding their personal resources show a *threat* motivational state.

The BPS model distinguishes between threat and challenge motivational states on the basis of cardiac performance (cardiac output [CO]: the amount of blood pumped from the heart per minute) and vascular resistance (total peripheral resistance [TPR]: net resistance in the vasculature) relative to a baseline measurement. Although both threat and challenge require a certain level of task engagement (indicated by increased heart rate [HR]), challenge yields the most efficient mobilization of energy which is indicated by relatively high cardiac performance (CO) and relatively low vascular resistance (TPR). This cardiac profile has been related to facilitated performance (Blascovich, Seery, Mugridge, Norris, & Weisbuch, 2004; Kassam, Koslov, Mendes, 2009; Mendes, Blascovich, Hunter, Lickel, & Jost, 2007). Threat motivation, by contrast, is marked by relatively low cardiac performance (CO) and

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relatively high vascular resistance (TPR) which can, in the long term, lead to impaired health (Blascovich, 2008).

Recent research has revealed that when individuals experience social identity threat they indeed display cardiovascular responses indicative of threat. For example, Vick and colleagues (2008) showed cardiovascular reactivity indicative of threat in women performing a math task while primed with social identity threat. Moreover, in an intergroup context in which status relations were likely to change, Scheepers (2009) found cardiovascular reactivity indicative of threat among members of the high status group who might lose their status but cardiovascular responses indicative of challenge among members of the low status group who might gain status.

In terms of the BPS model, individuals who experience threat feel unable to manage the demands of social identity threatening contexts, and perceive these situations as exceeding their personal resources. We argue, however, that perceptions of social identity threat can be altered in such a way that they elicit challenge (see also Alter, Aronson, Darley, Rodriguez, & Ruble, 2010). The current study addresses this issue by comparing how two strategies designed to reduce social identity threat, namely self-affirmation (Steele, 1988) and group affirmation (Derks, Van Laar, & Ellemers, 2009; Glasford, Dovidio, & Pratto, 2009; Sherman, Kinias, Major, Kim, & Prenovost, 2007), impact on cardiovascular performance under social identity threat.

Turning Social Identity Threat into Challenge

Recent work has established that social identity threat can be reduced by distracting people from their stigmatized identity and focusing them on valued aspects of their *personal* identity instead (i.e., self-affirmation, Steele, 1988). Self-affirmation has been shown to effectively reduce the negative effects of social identity threat on psychological well-being and performance (Cohen, Garcia, Apfel, & Master, 2006;

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Glasford et al., 2009; Martens, Johns, Greenberg, & Schimel, 2006; Sherman & Cohen, 2002). No research to date has, however, examined whether self-affirmation is able to transform the malign cardiovascular threat response that is triggered by social identity threat into the more adaptive cardiovascular challenge response. The current study will focus on this prediction.

Importantly, we go further, aiming to extend self-affirmation theory by testing whether a focus on personal identity through self-affirmation is an effective tool for improing coping ability for all group members, or whether some group members benefit more from affirmations of their social identity instead. Specifically, recent research suggests that social identity threat raises qualitatively different concerns in group members depending on the degree to which they psychologically identify with their group (Branscombe et al., 1999; Ellemers et al., 2002; Shapiro & Neuberg, 2007; Van Laar, Levin, & Sinclair, 2008). When low identifiers are confronted with negative group stereotypes, they experience *categorization* threat: a fear of being categorized by others as part of the (negatively evaluated) group, and concern about how this will affect their personal standing. Given that self-affirmation specifically targets personal identity concerns by approaching people as valued individuals, we predict that it will effectively increase low identifiers' ability to cope with social identity threat and induce cardiovascular performance indicative of challenge.

However, when high identifiers are confronted with negative stereotypes, they experience *group value* threat (Branscombe et al., 1999) and worry about the positive distinctiveness of their group. Self-affirmation does not directly address this threat as it induces them to focus on personal value, in a performance situation where their group's value is still called into question. Recently, researchers have begun

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to show that, although many threats can be targeted by affirming relatively random aspects of the self that are unrelated to the threat, some types of threat require specific forms of self-affirmation. For example, Knowles and colleagues found that people who experienced belonging threat typically target these threats by affirming that they do belong, rather than by self-affirming in other domains (Knowles, Lucas, Molden, Gardner, & Dean, 2010). In the same vein, Stapel and Van Der Linde (2010) found that different types of affirmation (i.e., value affirmation vs. self-worth affirmation) produce different effects (i.e., increasing self-clarity vs. self-esteem), and are therefore effective in reducing different types of threat (i.e., dissonance threats vs. threatening upward comparisons). Building on these recent developments, the current study aims to extend self-affirmation theory by testing whether high identifiers are more able to deal with social identity threat on the level of their social identity - re-affirming the value of the group ('group affirmation'; Derks et al., 2009; Glasford et al., 2009; Sherman et al., 2007) - rather than on the level of their personal identity (i.e., by re-affirming the value of the personal self).

In terms of cardiovascular responses then, whereas self-affirmation should preserve the cardiovascular threat pattern associated with social identity threat in high identifiers, group affirmation should turn this threat into challenge. For low identifiers, however, we predict that self-affirmation is the primary strategy to help them turn social identity threat into challenge. Group affirmation is unlikely to effectively target the categorization threat experienced by low identifiers, leading them to continue to show cardiovascular responses indicating social identity threat after group affirmation.

The Present Research

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We assessed cardiovascular response patterns signifying threat and challenge to compare the effects of self- and group affirmation on the ability of high vs. low identified women to cope with social identity threat. To create a motivated performance situation that was sufficiently engaging (which, according to the BPS model, is required for triggering physiological threat vs. challenge responses) we studied social identity threat in the context of the negative stereotype concerning women's ability to parallel park. Women are widely stereotyped to be poor drivers (Berger, 1986) and a recent study has even shown that activating this negative stereotype doubles the likelihood that women in a driving simulator run over pedestrians (Yeung & Von Hippel, 2008). In the current study this negative stereotype of women was activated to induce social identity threat after which women's cardiovascular threat vs. challenge responses were measured while they were working on a car-parking computer game.

Method

Participants

Sixty-four female students (M_{age} = 20) from Leiden University were primed with social identity threat relating to women's car parking ability and randomly assigned to the self-affirmation or group affirmation condition. All participants were in possession of a driver's license and received 8 euros for participation. The cardiovascular data of one participant were lost due to equipment malfunction.

Cardiovascular Measures

Cardiovascular (CV) responses were measured continuously via electrocardiography (EKG), impedance-cardiography (ICG), and blood pressure using a Biopac MP150 system (Biopac Systems Inc., Goleta, CA). Electrocardiography was measured with an ECG100 module and a Lead I electrode configuration. ICG was

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measured with the NICO100c module, together with four spot electrodes, two of which were placed at the back of the neck, and two on the lower back. ICG provides a measure of stroke volume (SV: the amount of blood pumped by the heart at a given heartbeat) which was calculated using the Kubicek formula (Sherwood et al., 1990). Identification of the B-point in the ICG waveform was based on the method described by Lozano and colleagues (2007). CO was calculated by multiplying SV with HR (derived from the EKG). Mean arterial pressure (MAP) was measured every 15 seconds with a NIBP100A module, using a wrist sensor that was placed over the radial artery of the participant's non-dominant hand. Together with CO, MAP is used to calculate TPR as follows: TPR = (MAP/CO) x 80. Physiological data was recorded and edited with *Acqknowledge* software (Biopac Systems Inc., Goleta, CA) and scored using *VU AMS* software (Free University, Amsterdam, the Netherlands).

Procedure

Upon arrival in the lab and before social identity threat was induced, participants completed a short questionnaire (presented as unrelated to the main study) assessing pre-existing levels of gender identification (nine items on nine-point scales, $\alpha = .87$, e.g., "Being a woman is important to me" and "I identify with other women", 1 = completely disagree – 9 = completely agree, $M = 5.33$, $SD = .78$). Then, the sensors for physiological recording were applied, and participants were placed in front of a computer that provided all experimental instructions. Five minutes of baseline CV responses were recorded while participants sat quietly.

Participants were then informed that they would participate in two unrelated studies. In 'Study 1', participants were asked to take a (bogus) test measuring their 'emotion estimation ability'. The test presented participants with pictures of male and female emotional faces and participants were asked to identify the emotion and its

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intensity. This task was later used to provide positive personal or group affirming feedback on a performance dimension unrelated to the focal task (see below).

Then, participants were introduced to ‘Study 2’, which concerned the relation between gender, physiological responses and car-parking performance. To bolster the cover story and prime their gender identity, participants were asked to indicate their gender and to provide detailed information about their driving experience. Next, the car-parking task was introduced, which consisted of a computer task that required participants to parallel park a car at a curb between two other cars, using the four arrow keys on the keyboard. Participants were prompted to do this as quickly as possible without bumping into other cars. Moreover, we stressed that ability at this task was highly predictive of real-life car-parking performance. To ensure sufficient experience with the task, participants were given two four-minute practice trials during which they could familiarize themselves with the task. It was explicitly stated that their performance on these practice trials would not be recorded.

To induce social identity threat, after the first practice trial participants were given a short break while they watched a 3-minute video clip on www.youtube.com that supposedly showed them how *not* to park. The video clip, which was very visibly entitled “Yeah, it’s a woman”, depicted a very clumsy and unsuccessful attempt to parallel park a car, intended to unobtrusively prime the negative stereotype of the parking ability of women. Afterwards, participants were told that in the current study the goal was to compare the parking performance of men and women. Then, they were given a second practice opportunity lasting four minutes.

Manipulation of affirmation level. While participants were again given a short break, they were asked by the computer to participate in a future study on ‘emotion estimation ability’ (the test completed in ‘Study 1’). We informed them that, for a

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future study, we were looking for participants who scored high on this ability. In the *self-affirmation* condition we provided positive individual feedback by informing participants that their personal high performance in the test had nominated them for participation in this study. In the *group affirmation* condition we provided positive feedback about their group by informing participants that due to the high performance of women found in previous studies they were nominated for participation in this study because of their gender.[1]

Threat/Challenge assessment: Subsequently, participants performed the actual car-parking task in which they were given unlimited time to park one car.[2] This was the motivated performance situation used for the CV responses. Upon completion of the task the sensors for physiological recording were removed and participants were debriefed and thanked for their participation.

Results

Analytical Strategy

To examine changes in CV responses between baseline and the car-parking task, reactivity scores were calculated by subtracting mean levels of HR, CO and TPR during the last baseline minute from mean levels of HR, CO and TPR during the first minute of the task (Blascovich et al., 2001).[3 4] As intended, there were no baseline differences in CV performance between conditions or between low and high identifiers (all F's < 1.64).

Hierarchical regression in two steps was used to predict CV reactivity (Aiken & West, 1991). In step 1, we entered the dummy-coded affirmation level manipulation (0 = self-affirmation, 1 = group affirmation) and group identification (continuous, standardized). In step 2, the interaction between group identification and affirmation level was entered. Significant interaction effects were interpreted by

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calculating simple slopes and regions of significance for low (-1 *SD*) and high (+1 *SD*) identifiers and for the self-affirmation and group affirmation conditions (Preacher, Curran, & Bauer, 2006).

Cardiovascular Measures

During the parking task, participants displayed significant increases in HR from baseline level, indicating overall task engagement (M = 7.61; SD = 8.40), $t(62)$ = -7.19, $p < .001$. There were no effects of identification or affirmation level on HR reactivity (all F's < 1).

As hypothesized, the interaction between group identification and affirmation level was significant for CO, B = .103, SE = .05, $F(1, 58)$ = 4.09, p = .05, semi-partial r^2 = .06, and TPR, B = -562.40, SE = 273.31, $F(1, 58)$ = 4.23, p = .04, semi-partial r^2 = .07 (no other effects were significant). As shown in Figure 1, in line with the hypotheses low identifiers were relatively challenged (high cardiac performance, low vascular resistance) in the self-affirmation condition but relatively threatened (low cardiac performance, high vascular resistance) in the group affirmation condition. By contrast, high identifiers were relatively challenged (high cardiac performance, low vascular resistance) in the group affirmation condition but relatively threatened (low cardiac performance, high vascular resistance) in the self-affirmation condition.

Simple slope analyses revealed that both interactions were driven by high identifiers responding differently to self- versus group affirmation, and by differential responses of low versus high identifiers to group affirmation. High identifiers were more challenged in the group affirmation condition than in the self-affirmation condition, as indicated by higher CO (B = 0.16, SE = 0.07, $t[58]$ = 2.23, p = 0.03; region of significance: > M + 0.59 SD), and lower TPR (B = -840.90, SE = 383.20, $t[58]$ = -2.1944, p = 0.03, region of significance: > M + 0.64 SD). Moreover, group

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affirmation resulted in more challenge (and less threat) for high identifiers than low identifiers, as indicated by their higher CO (B = 0.029, SE = 0.01, t[58] = 2.63, p = 0.01), and (marginally) lower TPR (B = -295.64, SE = 174.88, t[58] = -1.69, p = 0.096). Finally, self-affirmation resulted in more challenge for low identifiers than high identifiers, as indicated by higher CO among low identifiers in this condition (B = -0.074, SE = 0.04, -1.90, p = 0.06). This effect was not statistically reliable for TPR (B = 266.75, SE =210.04), t[58] = 1.27, p = 0.21). For low identifiers there were no reliable effects of self- vs. group affirmation on CO and TPR (ts < .75, ps < .46).

Discussion

The present study is the first that directly compares the effects of self- and group affirmation on cardiovascular responses indicating threat vs. challenge among women experiencing social identity threat. Whereas previous work has mainly studied the outcomes of social identity threat on emotions, performance and working memory, we used the BPS model of threat and challenge to directly measure the physiological responses indicating different motivational states when confronted with a devaluation of one's group. Our results reveal that self-affirmation is primarily an effective strategy to improve coping with social identity concerns among less identified members of devalued groups. Their cardiovascular responses showed that after self-affirmation low identified women were challenged and felt they could cope with the car-parking task even though their group was negatively stereotyped in that domain. Highly identified women, however, did not benefit from this intervention. Their cardiovascular data showed that self-affirmation elicited a cardiovascular response indicating threat. This finding is important as it suggests that – in a setting that explicitly focuses on gender differences - highly identified women still experience threat after affirmation of their personal identity. This suggests that their concern for

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their social identity makes them suffer from the negative stereotypes about their group, regardless of how they feel about their personal identity.

Notably, the current study was the first to reveal that group affirmation is the strategy that most effectively turns threat into challenge among highly identified group members. When highly identified women received group-affirming information that buffered their social identity, their cardiovascular response during the car-parking task indicated that they experienced this task as a challenge. Thus while self-affirmation did nothing to change their appraisal of the car-parking task as threatening, group affirmation led to a challenge response in their attempts to cope with the demands of the task despite the negative gender stereotypes that were primed in the experimental setting. Meanwhile, group affirmation did nothing to alleviate the maladaptive cardiovascular threat response elicited in low identifiers, suggesting that they continued to experience categorization threat after being affirmed on the basis of their gender group membership rather than as individuals.

The current study not only introduces cardiovascular challenge (vs. threat) to indicate the ability to cope with social identity threat, but also bears on previous work on self-affirmation in relation to social identity threat. By highlighting the moderating effect of group identification, this study shows that low and high identifiers differ in the type of concerns that are elicited when their group is portrayed in a negative way and hence require affirmation targeting the identity level that is threatened (Shapiro & Neuberg, 2007; Van Laar et al., 2008). The finding that under social identity threat high identifiers only exhibit challenge after having had the opportunity to affirm their social identity corroborates our reasoning that for them negative stereotypes elicit a concern for the value of *their group*. By contrast, results for low identifiers revealed that they only became challenged after an opportunity to affirm their personal identity,

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indicating that they were mostly concerned about the negative implications of group-based stereotypes for their *personal* standing. As such, this study adds to a growing body of work that suggests that some types of self-threat (e.g., belonging threat, dissonance threat, group value threat) need to be targeted with specific types of affirmation as an appropriate resource to cope with such threat (Knowles et al., 2010; Stapel & Van Der Linde, 2010).

The present study is not without its limitations. First, due to the labor intensity of CV measurements, we decided not to include a no affirmation control condition in the current study, also because previous research on the effects of self-affirmation (e.g., Cohen et al., 2006; Koole & Van Knippenberg, 2007; Martens et al., 2006; Sherman & Cohen, 2002) and group affirmation (Derks, Van Laar & Ellemers, 2006; 2009; Sherman et al., 2007) has convincingly demonstrated the beneficial effects of both strategies relative to a situation with no affirmation. However, even though we clearly established that the effects of self-affirmation differ from those of group-affirmation - which was the main goal of this study - the current design does not allow us to determine for instance whether group affirmation is ineffective for low identifiers as it does not help to turn social identity threat into challenge, or whether low identifiers actually suffer from group affirmation in that they experience more threat due to the group affirmation manipulation than would be the case in the absence of such affirmation. Future research might therefore extend the present findings by examining cardiovascular responses to self- vs. group affirmation under social identity threat in comparison to a no affirmation control condition.

A second possible limitation of the current study is that we used a specific type of affirmation, namely by providing positive feedback on an unrelated performance dimension. Previous research on self- and group affirmation has used a variety of

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different affirmation manipulations (for a review see McQueen and Klein, 2006), ranging from affirmation of important personal values (e.g., Martens et al., 2006; Sherman et al., 2007), and giving positive feedback (Derks et al., 2009; Koole & Van Knippenberg, 2007), to inviting participants to consider and write about their positive traits (Stapel & Van Der Linde, 2010). While we have no reason to expect there to be important differences between the ability of these different types of affirmation to restore self- or group-image after social identity threat, this could be investigated in future work.

The present results have important implications for women and ethnic minorities in work and educational settings as they qualify previous work showing for instance that individual self-affirmation exercises conducted in the performance context reduce social identity threat among members of negatively stereotyped groups (Cohen et al., 2006). Our research suggests that such exercises will not be optimally efficient in facilitating highly identified members of stigmatized groups to cope with the stress that results from social identity threat. Instead, highly identified women and ethnic minorities need to be able to focus on affirming their group's identity in order to optimize their coping responses in performance settings that devalue their group. Rather than distracting all group members from their negatively stereotyped social identity by focusing on their individual values, skills, or abilities, targeting the specific concerns that group devaluation elicits in low vs. highly identified members (i.e., personal vs. social identity concerns), or doing both when it is unknown which identity levels is most relevant to the individuals concerned is more likely to enable both low and high identifiers to cope with the stress of a stigmatized social identity.

The connection that has been made between motivational threat vs. challenge states and health outcomes such as hypertension, cardiovascular disease and decreased

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immune function further adds to the importance of these findings. Previous work already revealed a link between stigmatization, social identity threat and negative health outcomes (Blascovich, 2008; Blascovich et al., 2001; Clark et al., 1999; Pascoe & Smart Richman, 2009). The present results imply that offering members of negatively stereotyped groups the type of identity affirmation that addresses their specific identity concerns can moderate the relationship between social identity threat and health status. That is, self- and group affirmation allow members of negatively stereotyped groups such as women and ethnic minorities to deal with otherwise threatening performance settings in a way that is not only likely to promote their feelings of control and efficacy while working on demanding tasks, but also their physical health. Moreover, the chronic experience of challenge (rather than threat) will carry these health benefits over time (Dienstbier, 1989). As such, enabling targets of prejudice and stigmatization to bolster the identity that is most salient to them when encountering social identity threat provides them with the tools they need to effectively cope with stigmatization and negative stereotypes and to accomplish positive life outcomes.

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Footnotes

[1] Although we did not administer manipulation checks in the current study, we know from similar existing studies in which self- and group affirmation were induced in this way that this manipulation typically affects how participants rate their personal vs. group ability on the alternative performance dimension. In four experiments (Derks et al., 2009) we found that personal ability on the affirmation dimension was rated to be higher after self-affirmation than after group affirmation and no affirmation, and that group ability was rated as higher after group affirmation than after self-affirmation and no affirmation. Moreover, whereas self-affirmation increased participants' self-focus (higher use of self-related pronouns), group affirmation increased participants' group focus (higher use of group-related pronouns). Importantly, these manipulations were found not to affect the perceived personal and group ability in the domain in which participants were negatively stereotyped.

[2]Due to a programming error, the parking task scores of 18 participants were lost. Even if performance outcomes were not the focus of the current study, regression analyses of the parking performance scores of the remaining 46 participants were conducted to check for effects of gender identification and affirmation level on parking performance. This did not yield any significant effects (all *F's* < 1). This may be due to the low statistical power associated with the small number of participants included in this analysis. Additionally, in hindsight we think our inability to demonstrate performance effects on this task might be due to the fact that we did not control for pre-existing individual differences in parking task performance. In most studies in which reliable effects of social identity threat on performance have been found, researchers either pre-selected a homogeneous group of participants with high

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ability in the stereotyped domain (e.g., Spencer, Steele, & Quinn, 1999; Martens et al., 2006) or statistically controlled for pre-existing performance differences (e.g., Steele & Aronson, 1995) thereby removing much individual difference variance and freeing up true variance related to effects of the manipulations. Because in the current study we neither selected participants based on their car parking performance nor did we record their performance prior to the parking task we are unable to control for individual differences, hereby limiting the chances of finding reliable performance effects. We think this is a plausible explanation because in the mean time other researchers in our lab who have used the parking task we developed for this study and included a pre-measure of individual differences on this task, did observe performance differences due to experimental manipulations, but only after controlling for these pre-existing differences.

[3] Participants with extreme scores on CO or TPR (> 3 *SD* above or below the mean) were excluded from the analyses of that specific CV response. Based on this criterion, one participant was dropped from the analyses of CO responses, and a second from the analyses of TPR responses.

[4] Eight participants completed the parking task within 60 seconds. For these participants CV responses were calculated during the time they needed to complete the parking task (the shortest time period was 31 seconds). Including time to completion as a covariate in the analyses of CV reactivity did not alter the results.

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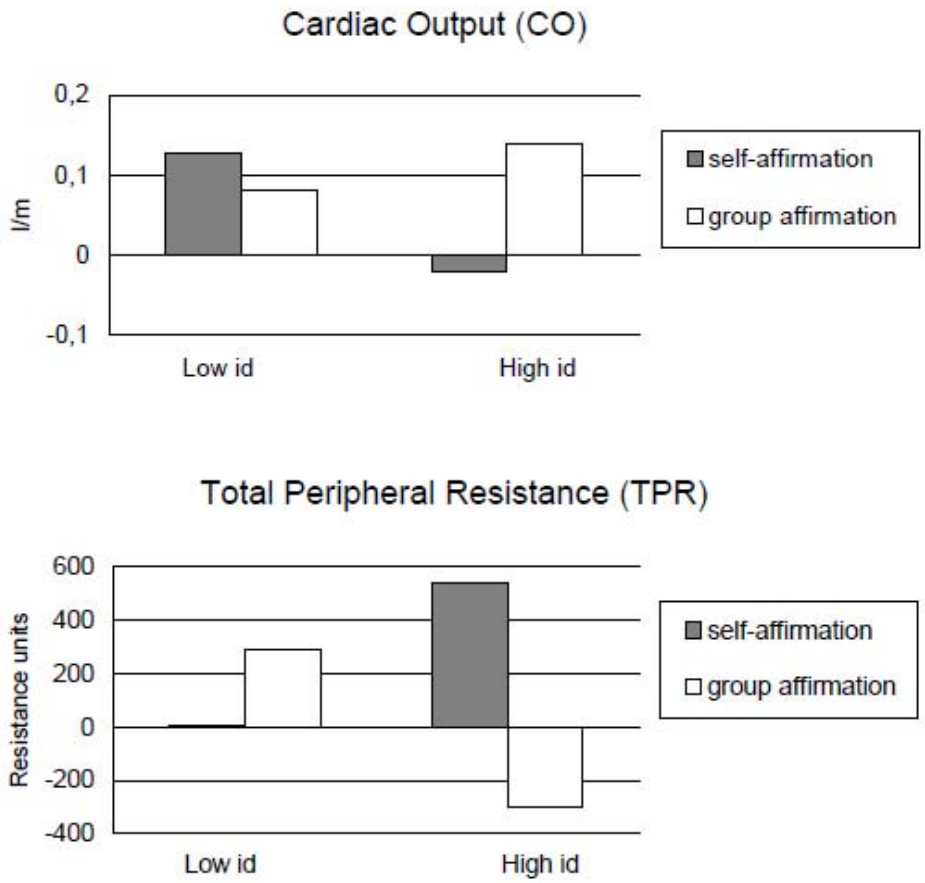
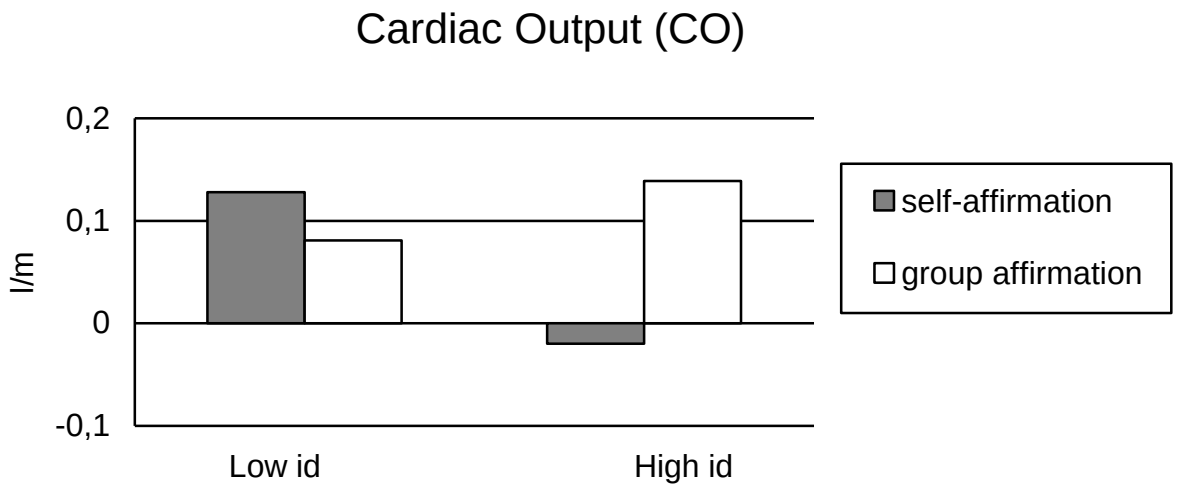
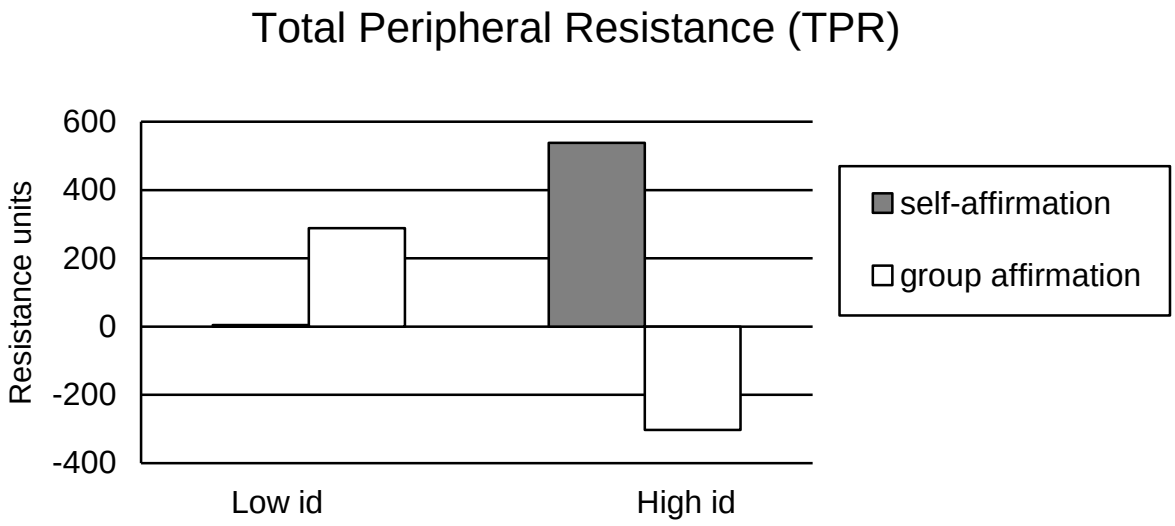
Figure Captions

Figure 1. CO and TPR-reactivity during the car-parking task for low (-1 *SD*) and high (+1 *SD*) identifiers in the self- and group affirmation conditions.

Figure 1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