

# Recovering From Strain and Enduring Pain: Multiple Group Memberships Promote Resilience in the Face of Physical Challenges

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## Abstract

Recent research suggests that multiple group memberships can be a source of resilience in the face of various life challenges (e.g., illness, injury, life transitions, performance demands). In two studies the authors examined whether multiple group memberships promote resilience in the face of novel physical challenges. They found that belonging to multiple groups was associated with faster heart rate recovery for novice bobsleigh, luge, and skeleton athletes (Study 1) and that the salience of a greater number of group memberships led to greater endurance on a cold-pressor task (Study 2). Importantly, these effects were unchanged when controlling for individual differences in responses to the challenge, challenge perceptions, and group membership importance. The authors argue that multiple group memberships reflect an important psychological resource from which individuals draw strength when faced with life challenges and speculate as to the mechanisms underlying this effect.

## Keywords

social identity, stress and coping, health, well-being, motivation and performance, psychological resource

On a daily basis, we are presented with many challenges that need to be tackled. Life challenges such as illness, injury, and life transitions, but also more mundane everyday performance demands (e.g., taking tests or public speaking) have the potential to be both physically and psychologically stressful. Yet many individuals recover and endure showing considerable resilience after exposure to these challenges. What are the factors that contribute to this resilience? In the present research we examined one possible source: multiple group memberships. We argue that even though there is now considerable evidence showing that multiple group memberships contribute in important ways to resilience, there are still many unanswered questions. For example, is it the case that multiple group memberships also enhance resilience after being confronted with a novel stressor? And importantly, what is it that multiple group memberships provide that produces these beneficial effects?

Before delving deeper into these questions, it is important to be clear about what we mean by resilience. Resilience has generally been defined as an individual's ability to bounce back psychologically (e.g., low levels of depression and anxiety; Bonanno, 2004; Bonanno, Galea, Bucciarelli, & Vlahov, 2006) and physiologically (e.g., quicker cardiovascular recovery; Waugh, Tugade, & Fredrickson, 2008) following exposure to stressors. In contrast to this individual difference approach, recent work by Leipold and Greve (2009) suggests that resilience should also be conceptualized as an outcome in and of itself. Here, we adopt this latter conceptualization of resilience

because this allows for an examination of factors such as multiple group membership that enable individuals to show resilience in the face of various life challenges. In this research we operationalized resilience in terms of two physical responses—cardiovascular recovery (e.g., Waugh et al., 2008) and pain endurance (e.g., Smith et al., 2009).

## Multiple Groups Promote Resilience

Considerable evidence exists for the relationship between multiple group memberships (e.g., social networks of friends, family, club memberships) and well-being in the face of illness, injury, and life transitions. For instance, Boden-Albala, Litwak, Elkind, Rundek, and Sacco (2005) found that stroke survivors who had many meaningful social relationships were less likely than those who had fewer social relationships to have another stroke within a 5-year period. Relationships between multiple group memberships and well-being have also been observed among individuals responding to memory loss associated with

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dementia (Jetten, Haslam, Pugliese, Tonks, & Haslam, 2010) and those who manage acquired brain injury (Jones et al., in press). In these cases maintaining more old group memberships or gaining new group memberships is associated with the ability to psychologically adapt to the functional changes that accompany illness and injury. That is, multiple group memberships appear to be associated with enhanced resilience to cope with difficult life challenges (for a review, see S. A. Haslam, Jetten, Postmes, & Haslam, 2009).

But it is not just serious health conditions that are affected by the number of groups that people belong to. Cohen and colleagues have shown that increased social network diversity is linked to reduced susceptibility to the common cold (Cohen, Doyle, Turner, Alper, & Skoner, 2003). Furthermore, belonging to multiple groups is also associated with reduced depression and distress and increased positive affect for university students and healthy adults faced with performance demands and important life transitions (Brook, Garcia, & Fleming, 2008; Iyer, Jetten, Tsivrikos, Postmes, & Haslam, 2009; Linville, 1985, 1987; Thoits, 1983). Indeed it appears that the effect of multiple group memberships is quite sizable, as individuals who decide to join a group “cut their risk of dying in the next year in half” (Putnam, 2000, p. 331). Taken together, this evidence suggests that having multiple group memberships buffers against the negative physiological effects of illness and injury as well as enabling the psychological management of illness, injury, change, and performance-based strain.

Although the idea that multiple groups enhance resilience for individuals facing different life challenges is not new, to our knowledge the majority of the studies that have examined this relationship have been correlational. Furthermore, there are only a handful of longitudinal studies (e.g., Iyer et al., 2009) and experimental studies (e.g., Cohen et al., 2003) in the field. Even though these longitudinal and experimental studies provide greater certainty that multiple group memberships *cause* improvements in health and well-being, most of these studies unfortunately do not examine what it is that multiple group memberships provide that leads to these beneficial effects. As a result, many researchers conclude their work with the recommendation to examine exactly *how* social networks and multiple group membership affect our health and well-being (e.g., Cohen & Janicki-Deverts, 2009).

In this research we focus on two issues that may pave the way to answer this bigger “how” question. First, it is not clear whether beneficial effects are caused by multiple group memberships or are from having the opportunity to come to grips with the challenge over time. Indeed, there is evidence to suggest that most people adjust, overcome, or even improve after facing serious life challenges (i.e., posttraumatic growth; Tedeschi & Calhoun, 2004). It is therefore necessary to show that having multiple groups has immediate effects on individuals’ responses to the challenges that they face. Second, to understand how multiple group memberships enhance resilience, we may need to tease apart and isolate the different beneficial components. One way of doing that is by stripping the context as much as possible from the most obvious benefits that

we know that group memberships provide—social support. We asked whether we might still observe enhanced resilience if we merely make multiple group memberships salient. By focusing on the salience of multiple group memberships, we would also be able to resolve another issue that has caused confusion in past research. Many of the studies that show the relationship between multiple groups and resilience vary in their measurement. For example, individuals might be asked to reflect on the groups, networks, roles, relationships, or personal characteristics that define them. This makes it difficult to tease out the unique effects of multiple group memberships. To avoid some of this conceptual confusion we operationalized multiple group memberships more cleanly by focusing only on social groups (Tajfel & Turner, 1979) and by systematically varying the number of social groups that are salient. If we find enhanced resilience after exposure to multiple group memberships in such “minimal contexts,” we will be able to conclude with greater certainty that even though social support may enhance resilience, this may not be necessary for resilience. The mere cognitive salience of group memberships may be sufficient.

## The Present Research

The aim of the present research was to demonstrate that multiple group memberships have immediate effects on individuals’ responses to the challenges that they may face. We also examined whether the mere salience of multiple group membership would produce enhanced resilience. Two studies were conducted in which individuals were faced with the performance demands associated with novel physical challenges. We argued that multiple group memberships might promote resilient responses in the face of these types of challenges in two ways. First, having multiple group memberships might quell the effects of stress, leading to quicker heart rate recovery in the face of a novel physical challenge. Second, the number of salient groups might quell the effects of pain, leading to greater endurance when faced with a novel physical challenge. If recovery and endurance are influenced by an increasing number of groups, we are in a stronger position to claim that multiple group memberships in and of themselves promote resilience when faced with different life challenges.

## Study 1

Study 1 was a correlational field study that examined the impact of multiple group memberships on recovery. The extent to which novice athletes belonged to “many groups” was measured before they completed a novel physical challenge involving participation in one of three winter ice sports for the first time. It was expected that athletes who reported having multiple groups would recover more quickly from this challenge, as indexed by faster decreases in heart rate. We also assessed individual-level differences in risk taking, behavioral inhibition, and behavioral activation to rule out these factors as explanations for individuals’ responses to this challenge.

## Participants

Participants were 12 members (2 women, 10 men,  $M_{age} = 30.00$ ,  $SD = 3.88$ ) of the British Royal Air Force (RAF). Participants were a randomly selected subset of the novice athletes taking part in a 5-day ice camp training session for the RAF's three winter sports teams: bobsleigh ( $n = 7$ ), luge ( $n = 3$ ), and skeleton ( $n = 2$ ).<sup>1</sup> All novices had passed a physical fitness test before their participation in the ice camp.

## Procedure, Materials, and Measures

The evening before the first training session, novices completed a profile questionnaire including standard personality measures and other evaluations on scales from 1 (*strongly disagree*) to 7 (*strongly agree*). These included measures of belonging to multiple groups (one item adapted from Iyer et al., 2009: "I belong to many groups";  $M = 4.50$ ,  $SD = 1.62$ ), risk-taking tendencies (adapted from Meertens & Lion, 2008; three items,  $\alpha = .62$ ; e.g., "I usually view risks as a challenge";  $M = 4.47$ ,  $SD = 1.07$ ), behavioral inhibition (BIS; Carver & White, 1994; 7 items;  $\alpha = .84$ ; e.g., "If I think something unpleasant is going to happen I usually get pretty 'worked up'";  $M = 3.95$ ,  $SD = 1.06$ ), and behavioral activation (BAS fun-seeking scale; Carver & White, 1994; four items;  $\alpha = .68$ ; e.g., "I crave excitement and new sensations";  $M = 4.97$ ,  $SD = 1.51$ ).

For 3 days of the novice ice camp, participants were fitted with Polar Vantage NV heart rate monitors at the start of each training session. Participants affixed the heart rate band across their chest underneath their clothing and affixed the wrist watch monitor to their wrist. Participants were instructed to start the wrist watch 5 minutes before they started each run and to leave the watch running for 5 minutes after they had completed a run. Because of variability in run times and participant error, data were recorded for 2 minutes before and 2 minutes after each run. Participants attempted two to three runs per training session. It took approximately 1 minute to complete a run. Participants' heart rate during the activity ( $M = 158.60$ ,  $SD = 25.74$ ) was subtracted from their heart rate 1 minute after the activity ( $M = 148.87$ ,  $SD = 28.31$ ) to compute an index of recovery. Lower scores indicate that participants' heart rate dropped more quickly after the activity demonstrating quicker heart rate recovery. We examined recovery after the first run on the 1st day of the training camp. Supplementary analyses controlled for participants' baseline activity heart rate, which was taken 2 minutes before the first run on the 1st day of the training camp ( $M = 125.80$ ,  $SD = 25.82$ ), as well as individual differences in risk-taking tendencies and responses to challenges (i.e., behavioral inhibition, behavioral activation).

## Results and Discussion

As hypothesized, having many groups was associated with quicker recovery 1 minute after the first run on the 2nd day of the training camp,  $r = -.72$ ,  $p = .009$ .<sup>2</sup> This effect was

unchanged even after partialling out novices' baseline activity heart rate,  $r_p = -.77$ ,  $p = .005$  and behavioral activation ( $r_p = -.64$ ,  $p = .033$ ). Importantly, recovery was not significantly related to participants' risk-taking tendencies ( $r = .25$ ,  $p = .43$ ), behavioral inhibition ( $r = .15$ ,  $p = .65$ ), or behavioral activation ( $r = -.43$ ,  $p = .17$ ). This suggests that having multiple groups has a beneficial effect on individuals' physical responses when faced with a novel physical challenge.

Although this finding provides evidence that multiple group membership enhances recovery when confronted with a novel challenge, it also raises the question of what participants were thinking of when they indicated their agreement to the question "I belong to many groups." Indeed, the novice athletes in the present study could have been thinking about any number or types of group memberships. Furthermore, even though we controlled for some of the individual differences that could affect recovery, our list of variables controlled for was not exhaustive. As such, it may still be possible that a third variable was responsible for the correlation between multiple group membership and recovery. A second study addressed these concerns by manipulating the number of groups participants focused on and by controlling the type of groups that were made salient. We also focused on another indicator of individuals' resilience in the face of challenge: pain endurance.

## Study 2

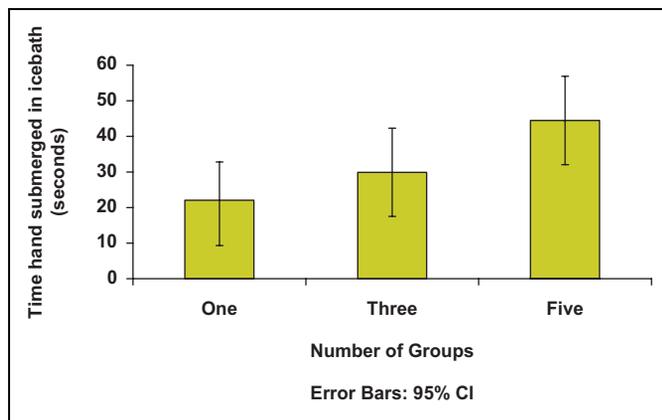
Study 2 was an experimental study that examined the causal relationship between multiple group memberships and endurance. The number of salient groups was manipulated before participants completed an aversive physical challenge (i.e., cold pressor task). It was expected that the more groups individuals thought about, the greater their endurance, as indicated by the amount of time they spent with their hand submerged in icy water. We also assessed individual-level differences in task perceptions (i.e., perceptions of the task as easy, challenging, enjoyable) and group importance to rule out these factors as explanations for individuals' responses to this challenge.

## Participants

Participants were 56 students (34 female, 22 male) at a large Australian university. Participants were approximately 23 years old ( $M = 23.25$ ,  $SD = 7.08$ ) and described their ethnicity as White Australian ( $n = 22$ ), Chinese ( $n = 19$ ), or Other (e.g., Filipino, Greek, Indian, Japanese, South Asian, Taiwanese, Thai, Vietnamese;  $n = 15$ ). Participants received \$10 Australian as compensation.

## Procedure, Materials, and Measures

Participants were randomly assigned to one of three conditions where they were asked to categorize themselves in terms of either one ( $n = 18$ ), three ( $n = 19$ ) or five ( $n = 19$ ) different groups based on social category membership (i.e., age, gender, nationality, major, occupation).<sup>3</sup> Participants rated the



**Figure 1.** The effect of the number of groups on the amount of time the nondominant hand was submerged in the ice bath (in seconds)

importance of these groups for themselves on a scale from 1 *strongly disagree* to 7 *strongly agree* (i.e., “My group is important to me”) and were asked to write about the importance of this group to them by responding to the instruction, “Now take a moment to think about your [group]. In a few words, please describe why your [group] is important or unimportant to you.” Participants categorized, rated, and wrote about one group before moving onto the next group (if applicable) and the group(s) presented were also randomized within conditions. On average, participants rated all groups as important, and importance did not differ as a function of the number of groups presented,  $M = 5.60$ ,  $SD = 0.91$ ,  $F(2, 53) = 1.04$ ,  $p = .36$ .

After this manipulation, participants were introduced to a cold-pressor task whereby they were asked to submerge their nondominant hand, up to their wrist, into a bucket of ice water kept at a temperature between 0 and 2 degrees Celsius (for a review of this task, see Mitchell, MacDonald, & Brodie, 2004). The amount of time (in seconds) that participants kept their arm in the ice water was unobtrusively timed by the experimenter and served as the measure of endurance ( $M = 32.32$  s,  $SD = 28.07$  s). Once participants had completed this task, they were given a final questionnaire in which they evaluated the cold-pressor task on a number of dimensions (i.e., “How [evaluation] did you find the task you just completed?”; easy:  $M = 4.86$ ,  $SD = 1.53$ , enjoyable:  $M = 3.71$ ,  $SD = 1.78$ , challenging:  $M = 4.75$ ,  $SD = 1.91$ ). After completing the questionnaire, participants were thanked, paid, and debriefed.

## Results and Discussion

A single factor between-subjects analysis of variance, with the number of groups as the between-subjects factor, found an effect for the number of groups on endurance,  $F(2, 53) = 3.31$ ,  $p = .04$ ,  $\eta_p^2 = .11$ . Participants kept their arm submerged in the ice bath significantly longer after reflecting on five groups ( $M = 44.47$  s,  $SD = 36.27$  s) relative to participants who reflected on one group ( $M = 22.89$  s,  $SD = 11.24$  s;  $p = .02$ ) and marginally longer than participants who reflected on three groups ( $M = 29.89$  s,  $SD = 26.57$  s;  $p = .10$ ; see Figure 1).

There was no difference in the amount of time participants who reflected on one or three groups kept their hand submerged ( $p = .38$ ). Importantly, this finding was unchanged after controlling for perceived group importance and task evaluations. We conclude that the number of groups that were made salient had both immediate and causal effects on endurance when faced with an aversive physical challenge.

## General Discussion

Individuals are continually faced with a variety of challenges in their daily lives. In two studies we found evidence that when contending with novel and aversive physical challenges, multiple group memberships had an impact on individuals’ resilience. When faced with a novel challenge, we found that having multiple group memberships enhanced resilience measured as heart rate recovery (Study 1). In addition, we provide the first demonstration that variation in the *salience* of the number of group memberships causally affects individuals’ immediate responses to these challenges. The greater the number of group memberships made salient, the more participants endured pain (Study 2). By adopting a systematic and experimental approach, we were able to isolate one of the components that promotes these beneficial effects. More generally, this experimental approach opens up new ways of examining how group memberships contribute to resilience in the future.

This research also complements and extends previous work in another way. We have known for some time that multiple group memberships may be associated with enhanced health and well-being such as increased positive affect (e.g., Brook et al., 2008), physical and mental activity (e.g., C. Haslam et al., 2010), and social capital (i.e., social, emotional, and economic support; Putnam, 2000). However, this is the first demonstration that multiple group memberships provide a unique contribution to resilience.

The question that remains then is how group memberships promote resilience. We propose that multiple group memberships act as a psychological resource in the face of life challenges. We know that the identities derived from different group memberships give us grounding and help us to develop a sense of belonging, purpose, and meaning (Baumeister & Leary, 1995; Correll & Park, 2005; S. A. Haslam et al., 2009; Simon, 2003; Tajfel & Turner, 1979). Identities allow us to understand ourselves not just as individuals (as “I” and “me”) but as part of a larger collective. Indeed, there is now considerable evidence to suggest that group membership provides an important buffer and counteracts the negative well-being effects of stressors ranging from facing group-based discrimination (e.g., Branscombe, Schmitt, & Harvey, 1999) to organizational stress (S. A. Haslam, O’Brien, Jetten, Vormedal, & Penna, 2005) and important life-transitions (Iyer et al., 2009). With the present research, we take the first step in establishing the process underlying these beneficial effects. In showing that the mere salience of an increasing number of groups is associated with increases in endurance, we can argue that mere group membership provides a unique resource that is relatively

separate from other benefits that group membership may provide (e.g., positive affect, enhanced activity, and social support).

An alternative explanation for the Study 2 findings could be that with increasing number of groups that participants were asked to write about, they also increased the amount of time focusing on the self. That is, endurance could be because of greater self-awareness and increased introspection and not necessarily the salience of an increased number of group membership. However, this alternative explanation can be ruled out by some of our recent research findings. We added three conditions to the design used in Study 2 and found that focusing on one, three, or five self-relevant preferences (e.g., movies, favorite food) did not affect endurance. However, in this recent study, we did replicate the present finding that focusing on one, three, or five group memberships incrementally increases endurance (Jones & Jetten, 2010). These additional findings provide greater confidence that our effects are because of resources provided by the salience of an increasing number of social group memberships.

Yet we are not arguing that the self is not implicated in this process. Rather, we believe that the salience of multiple groups may act as a resource because of what they give to the self. Recent research has already provided some evidence that the effect of multiple group memberships on well-being is partially mediated by personal identity strength (Jetten et al., 2010). However, future research should examine the mediating role of other resources that multiple group membership may provide such as self-efficacy (e.g., Schwarzer, 1992), self-esteem (e.g., Heatherton & Polivy, 1991; Rosenberg, 1965), and self-concept clarity (e.g., Campbell et al., 1996; also see Baray, Postmes, & Jetten, 2009), as these variables can help us to further understand why the salience of multiple groups act as a resource. It may be that multiple group memberships enable individuals to recover from and endure in the face of challenges because they strengthen personal agency, self-evaluations, and/or self-knowledge.

## Conclusion

When faced with the various challenges that life throws our way, the salience of our multiple group memberships may be one of the psychological resources that promote psychological and physical resilience. The sheer number of group memberships that individuals have access to appears to be key in providing them with the strength to recover from and endure different challenges. By showing that multiple group membership salience may already be sufficient to produce beneficial effects, a whole new spectrum of possibilities for the study of health and well-being is opened up.

## Notes

1. On Day 1 athletes watched the sport being completed (i.e., skeleton, luge) or went down in the bobsleigh with an experienced driver. On Days 2 to 4, athletes completed the sport themselves. On Day 5

athletes participated in a race day. heart rate data were collected from participants on Days 2 through 4.

2. Even though this pattern was reduced in magnitude, we also observed the hypothesized relationship 2 minutes after the first run on the 1st day of training camp,  $r = -.55, p = .09$ , 1 minute after the first run on the 2nd day of the training camp,  $r = -.42, p = .19$ , and 2 minutes after the first run on the 2nd day of the training camp,  $r = -.62, p = .044$ . By the 3rd day of the training camp this pattern was not found. However, it should be noted that on Day 4 only the skeleton and luge novice athletes finished their runs without crashing and that just fewer than half of the bobsleigh athletes ( $n = 3$ ) opted out. It should also be noted that these patterns were not observed on the second and third runs on the 3 days for which we have measurements. This, coupled with the diminished effects for the first run on the 2nd day, suggests that practice effects may have made the task less arousing as the training sessions progressed.
3. Social categories were used because they reflect groups to which most individuals belong and for which the provision of alternative resources such as affect, activity, or support is relatively lower compared to groups based on relationships (e.g., friendship, family) or roles (e.g., employee) or other groups (e.g., teams).

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