

# Stressing the Group: Social Identity and the Unfolding Dynamics of Responses to Stress

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Participants in the British Broadcasting Corporation (BBC) prison study were randomly assigned to high-status (guard) and low-status (prisoner) groups. Structural interventions increased the prisoners' sense of shared group identity and their willingness to challenge the power of the guards. Psychometric, physiological, behavioral, and observational data support the hypothesis that identity-based processes also affected participants' experience of stress. As prisoners' sense of shared identity increased, they provided each other with more social support and effectively resisted the adverse effects of situational stressors. As guards' sense of shared identity declined, they provided each other with less support and succumbed to stressors. Findings support an integrated social identity model of stress that addresses intragroup and intergroup dynamics of the stress process.

*Keywords:* stress, social identity, burnout, social support, bullying

In recent years, a new analysis of stress has been developed which argues that social identity is central to people's experiences of, and reactions to, social and environmental stressors (Branscombe, Schmitt, & Harvey, 1999; Haslam, 2004; Haslam, O'Brien, Jetten, Vormedal, & Penna, 2005; Terry, Carey, & Callan, 2001). Social identity refers to people's internalized sense of their membership in a particular group (Tajfel, 1972), and theorists have argued that when a given social identity is salient, this is a powerful motivator of social perception and behavior (e.g., Tajfel & Turner, 1979; Turner, Hogg, Oakes, Reicher, & Wetherell, 1987; Turner, Oakes, Haslam, & McGarty, 1994). Among other things, social psychological research has shown that salient social identities are a basis for social judgment, social influence, trust, and cooperation (for recent reviews, see Ellemers, Spears, & Doosje, 1999; Haslam, 2004; Haslam & Ellemers, 2005; Tyler & Blader, 2000). People thus tend to see the world from the perspective of fellow ingroup members, they are more likely to be influenced by ingroup members, and they are more likely to trust and cooperate with ingroup rather than outgroup members.

Applied to the analysis of stress, these ideas have led to a number of important predictions. First, if a person's social identity is salient, it is predicted that his or her appraisal of social stressors will be affected by the views and condition of his or her ingroup. Consistent with this hypothesis, it has been shown that social identity salience is a powerful determinant of whether a given

stressor is seen as self-threatening (i.e., *primary appraisal*; Lazarus, 1966; Lazarus & Folkman, 1984). For example, female sports scientists found the threat of a knee injury more stressful than the threat of a facial scar when their sporting identity was made salient, but the opposite pattern emerged when their gender identity was made salient (Levine, 1999; Levine & Reicher, 1996). In appraising a mathematical task, university students were also more likely to see the task as a positive challenge rather than a source of distress when information to this effect was provided by an ingroup rather than an outgroup source (Haslam, Jetten, O'Brien, & Jacobs, 2004).

Along related lines, social identity salience also serves as a basis for active coping processes (i.e., *secondary appraisal*; Lazarus & Folkman, 1984; Snyder & Ford, 1987). In particular, this is because social identity is a critical determinant of the dynamics of social support (Underwood, 2000). Specifically, when they are acting in terms of a shared group membership, people should be more likely to (a) provide other ingroup members with support, (b) receive support from fellow ingroup members in return, and (c) interpret proffered support in the manner and spirit in which it is intended (Levine, Cassidy, Brazier, & Reicher, 2002; Levine, Prosser, Evans, & Reicher, 2005; Reicher, Cassidy, Wolpert, Hopkins, & Levine, 2005). Evidence consistent with this hypothesis is provided by a number of correlational studies which suggest that a sense of shared social identity helps to buffer groups—especially those with low status—from adverse environmental exigencies. In particular, this has been found in studies of the work-related stress experienced by minority ethnic groups (James, 1995, 1997) and in studies of Black Americans' responses to discrimination and prejudice (Branscombe et al., 1999; Postmes & Branscombe, 2002). Studies of (a) hospital patients recovering from heart attacks and (b) bomb disposal experts and bar staff also support mediational models which suggest that shared social identity has a positive impact on stress because it serves as a basis for the receipt of effective support from ingroup members (e.g., one's family or work colleagues; Haslam, O'Brien, et al., 2005; see also S. Cohen

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We thank the participants as well as the staff of the British Broadcasting Corporation for their commitment to this research and for comments on the ideas in this article. The contribution and comments of Anne O'Brien, Lucy O'Sullivan, Jolanda Jetten, Andrew Livingstone, Tom Postmes, and John Turner are also gratefully acknowledged.

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& Wills, 1985). In addition, longitudinal research with members of different theater productions has found that social identification with a work group has a positive long-term impact on individuals' health, well-being, and morale because identity-based support protects individuals from burnout during the most testing phases of group activity (in the case of these theater groups, dress rehearsals and first performances; Haslam, Waghorn, O'Sullivan, Jetten, & O'Brien, 2005).

In a field in which theorizing is "dominated by individualistic approaches" (Folkman & Moskowitz, 2004, p. 758), such research can be seen as a constructive response to calls for researchers to pay greater heed to the role that group life plays in the psychology of stress (Aspinwall & Taylor, 1997; Cooper, Dewe, & O'Driscoll, 2001; Haslam, 2004; Jackson, Schwab, & Schuler, 1986; Pearlin, 1993). Nevertheless, it has a number of important limitations. In the first instance, like most stress research that has been informed by (social) psychological theory, it relies almost exclusively on individuals' self-reports of their stress experiences. Although the reliability of such measures is well-established, there are grounds questioning the ability of self-report measures to detect or capture nuances of the stress process (Cooper et al., 2001; Folkman & Moskowitz, 2004). Second, it is apparent that most of the research in this area has been survey based. This has proved useful as a means of identifying patterns of association between key variables (e.g., social identity and support) and for testing mediational models, but the failure to manipulate key variables experimentally (often as a result of ethical constraints; Haslam & McGarty, 2001) has meant that direct support for causal models is relatively thin on the ground. Third, even though a few longitudinal studies have allowed researchers to discount a subset of alternative causal hypotheses, these studies have tended to be conducted in relatively benign contexts, and, again, reliance on survey data has meant that there is little scope for the external validation of self-reports or for an examination of the stress process as it evolves in response to large-scale stressors unpredicted by the participants.

The present study attempted to redress these shortcomings through intensive examination of social interaction within a closed environment in which groups were exposed to a range of unexpected stressors. More specifically, the study environment was modeled on that used in the Stanford Prison Experiment (Haney, Banks, & Zimbardo, 1973). The aim of the study was not to simulate a prison (which, as in the Stanford study, would have been impossible on ethical and practical grounds) but rather to create an institution that resembled a prison in certain ways but also modeled important features of other hierarchical institutions (e.g., a school, an office, barracks; see Morgan, 1979) in order to investigate the behavior of groups that were unequal in terms of power, status, and resources. What is critical, then, is not that the study environment replicated a real prison (which no such environment ever could) but that it created inequalities between groups that were real to the participants. In particular, it was this feature that allowed key theoretical ideas to be tested in novel and meaningful ways.

On the basis of previous work that has contributed to a self-categorization model of the intragroup dynamics of stress (SCS; Haslam, 2004), one idea that was a particular focus for the study was that shared social identity provides a social psychological basis for individuals to transform the negative experience of particular stressors (i.e., distress) into a more positive and productive

social force (eustress; Suedfeld, 1997). This prediction follows from Tajfel and Turner's (1979) assertion that when low-status group members (a) are inclined to see themselves as group members (in particular, because group boundaries are impermeable and it is impossible to escape their group) and (b) see status relations as insecure (in the sense of being illegitimate and unstable) and have access to cognitive alternatives (a shared theory or ideology that identifies sources of illegitimacy and instability and explains how they could be altered), they will be encouraged to forgo strategies of individual mobility or social creativity and instead pursue a strategy of social change (Reicher, 1996; Tajfel, 1975).

When these arguments are extended, it is possible to elaborate a social identity model of the intergroup dynamics of stress (SIS) which specifies the way in which the strategic responses to status inequality explored within social identity theory (Tajfel & Turner, 1979) can be translated into a framework for understanding the basis of different coping responses to stress. Indeed, this translation makes perfect sense in light of the fact that social identity theory was formulated to account for variation in responses to social structural conditions that are aversive to self (i.e., stressful; e.g., see Branscombe et al., 1999; Haslam, 2004; Schmitt & Branscombe, 2002). The framework for the SIS model is represented schematically in Figure 1. In line with social identity theory (Tajfel & Turner, 1979), it presents an analysis that is grounded in structural and social psychological dynamics and that sees individual or collective coping styles as outcomes of those dynamics. More specifically, the model suggests that when individuals feel that a given social structure provides opportunities for them to escape stressors associated with their low status, they are unlikely to define themselves, and act, in terms of shared social identity and should seek to achieve positive outcomes for the self through a strategy of individual avoidance. When there are no such opportunities but status relations are secure (i.e., perceived as legitimate and stable), people who are subjected to status-related stressors should be more likely to display stress-related social creativity in the form of individual or collective denial. However, when opportunities for personal avoidance are precluded and status relations are insecure, shared social identification is more likely to dispose individuals to embrace cognitive alternatives that involve active and collective resistance to the stressors they face.

Critically, both SCS and SIS models (which together comprise an integrated social identity model of stress; ISIS) depart from individualistic analyses that see an individual's personality or coping style as universal determinants of stress outcomes. Yet despite their potential importance, the ideas that inform these models have not been explored in the research literature. In large part, this is because the logistical demands of setting up a study in order to examine them are daunting. Among other things, this is because such a study would ideally (a) involve exposure to real stressors rather than imagined ones, (b) allow for the possibility of both individual and collective action, and (c) examine group dynamics as they evolve over time (features that are increasingly absent from social psychological research; Haslam & McGarty, 2001; Levine, 2003).

In this respect, the BBC (British Broadcasting Corporation) prison study had the unique potential to provide insights into such processes and to integrate the analysis of stress with a broad and intensive examination of group functioning. In the study, 15 participants were randomly assigned to either a high- or a low-status

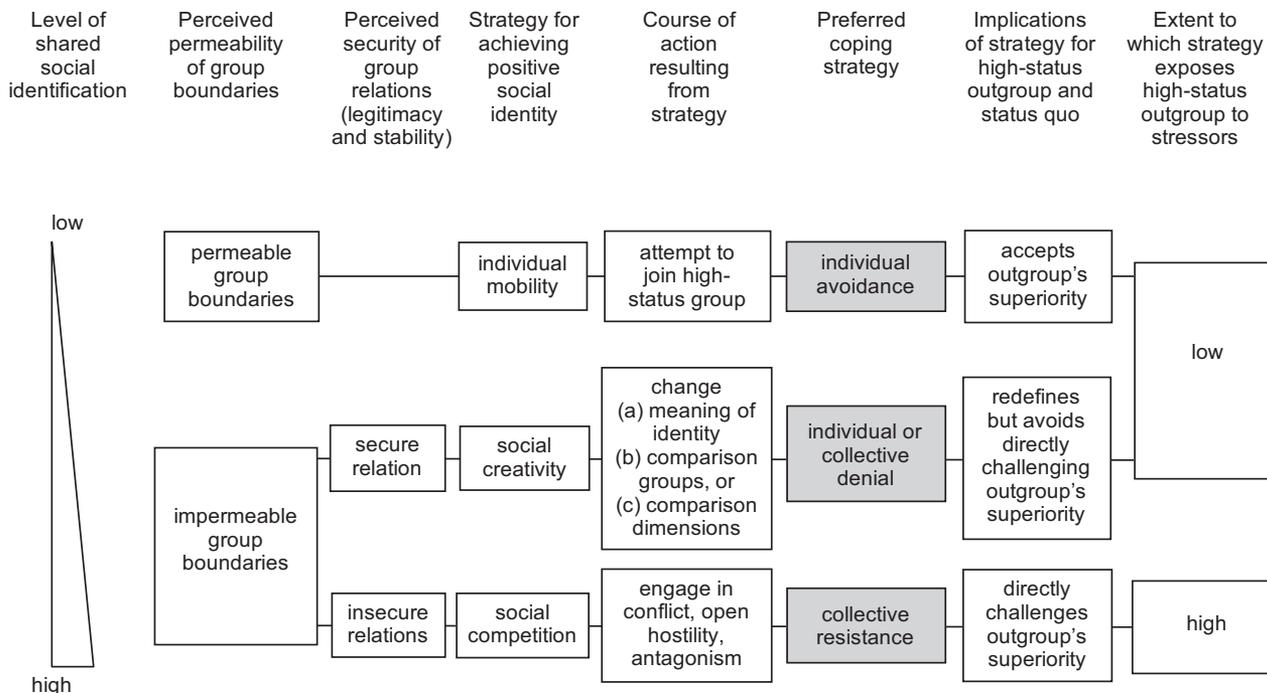


Figure 1. The social identity model of the intergroup dynamics of stress (SIS). Derived from social identity theory (Tajfel & Turner, 1979), this figure is a schematic representation of the relationship among perceived social structure, strategies for self-enhancement, and preferred coping strategies for members of low-status groups. When strategies of social competition expose the high-status outgroup to stressors, its members' coping strategies will also depend on their level of shared social identification. The model complements the self-categorization model of the intragroup dynamics of stress (SCS; Haslam, 2004; Haslam, O'Brien, et al., 2005). Together, these models of intragroup and intergroup dynamics constitute the integrated social identity model of stress (ISIS).

group (as “guards” or “prisoners,” respectively), and their behavior was studied closely over a period of 8 days. The goal of the research was to provide an integrated and intensive test of hypotheses articulated by social identity and self-categorization theories in social, clinical, and organizational domains, which was attempted by means of an experimental case study. This study manipulated factors that were predicted to impact the degree of social identification in the low-status (prisoner) group and examined their impact on the behavior of both groups as well as on the functioning of the organization as a whole. Results on key social psychological measures have been reported elsewhere (Haslam & Reicher, 2005; Reicher & Haslam, 2006b). In the present article, though, we focus on the novel stress-related aspects of the study.

A critical issue here was whether an increased sense of shared identification among the prisoners would buffer them from the strain associated with their low status—in particular, in the form of poor conditions and potential bullying from the high-status group (e.g., as reported by Haney et al., 1973). The conclusion commonly drawn from the Stanford Prison Study is that members of low-status, powerless groups inevitably conform to the role requirements of their position and become passive, helpless victims. In contrast, a major tenet of social identity theory (Tajfel & Turner, 1979) is that a sense of shared group membership is the psychological basis for such people to work together to confront problems associated with their inferior status and to try to bring about social

change in order to be rid of problems. Moreover, a shared sense of social identity—and the experience of acting in terms of that identity in order to address, and potentially overcome, sources of collective stress—should protect those individuals from a sense of desperation and helplessness (e.g., Seligman, 1975) and from the psychological consequences of personal victimhood (Branscombe et al., 1999).

In this regard, the study’s main hypothesis was as follows:

*Hypothesis 1:* As a sense of shared social identity increases among the low-status group (the prisoners), this identity will help to buffer the prisoners from the adverse effects of stressors that derive from intergroup inequality (e.g., restricted space, physical confinement, lack of control). In particular, this is because prisoners will increasingly provide each other with beneficial forms of social support that should serve as a basis for potential stressors (e.g., bullying from the high-status group) to be actively resisted (e.g., by challenging the high-status group, the guards).

However, as a corollary of this theory, the following was hypothesized:

*Hypothesis 2:* As the high-status group (the guards) is increasingly exposed to the resistance of low-status group members,

the effects of this stressor will, in turn, depend on the guards' level of social identification. In particular, the lower their sense of shared identity, the more high-status group members will fail to provide each other with beneficial forms of social support that might buffer them from potential stressors (e.g., acts of resistance from the low-status group) and the more likely they will be to suffer from psychological distress due to the increasing demands of maintaining a system of intergroup inequality.

In addition to allowing data relating to these hypotheses to be collected on multiple occasions, a further distinctive feature of the study was that it was possible to obtain data on a broad range of measures. In particular, in addition to self-report measures (e.g., of social identification, burnout, and bullying), saliva cortisol levels were measured throughout the study. Because the participants were under around-the-clock surveillance, it was also possible to triangulate psychometric and physiological measures with conclusions drawn from behavioral observation. In this regard, the study addresses what Cooper et al. (2001) identified as the main methodological problem to have dogged previous stress research—namely, its inability to conduct longitudinal multimeasure research that does justice to “the contextual richness of the stress-coping process” (p. 230).

## Method

### Ethics

The study aimed to create a system of intergroup inequality that was meaningful but was not harmful to participants either physically or mentally. In order to ensure that participants were not harmed, we built a range of safeguards into the study. These included (a) three-phase clinical, medical, and background screening to ensure that participants were neither psychologically vulnerable nor liable to put others at risk; (b) around-the-clock monitoring of participants by clinical psychologists; (c) on-call paramedic and security guards at all times; and (d) an independent five-person ethics committee that monitored proceedings throughout the study and had the power to change or terminate the study at any time. This panel was chaired by a British Member of Parliament and comprised representatives of key professional and human rights organizations.

### Participants and Procedure

Fifteen adult men participated in the study. They were drawn from a larger pool of 332 applicants to ensure diversity of age, social class, and ethnic backgrounds. All applicants completed a range of clinical and social measures. Scores on these measures are presented in Table 1. For ethical as well as theoretical reasons, those selected as participants were clinically better adjusted than the norm. On the one hand, this fact ensured that participants were unlikely to be a danger either to themselves or to others in the stressful environment of the study. On the other hand, this fact meant that any ensuing behaviors (e.g., high levels of stress or burnout) could not be explained as a function of individual characteristics which rendered participants more vulnerable than the population at large (cf. Sherif, 1956, 1966). Thus, as can be seen from the table, the selected participants were significantly less depressed, less anxious, and less isolated than the general pool of applicants, and in addition they had significantly higher personal self-esteem. Full assessments by a team of professional clinical psychologists also ensured that, at the point of their entry to the study, our participants were performing at better than normal levels on relevant measures of mental health and behavioral functioning.

Table 1  
*Participants' and Other Applicants' Scores on Screening Measures*

Measure	Selected participants	Other applicants	<i>t</i> (330)
Number	15	317	
Age	33	31	
Clinical			
Depression	2.03	2.53	2.23*
Paranoia	2.61	2.95	1.17
Aggressiveness	2.48	2.62	0.54
Anxiety	2.25	2.90	2.46**
Social isolation	1.93	2.65	2.81**
Personal self-esteem (R)	1.84	2.53	1.96*
Social			
Authoritarianism	2.81	2.93	0.50
Social dominance	2.10	2.40	0.67
Modern racism	2.30	2.60	0.98

Note. R = reverse scored.

\*  $p \leq .05$ . \*\*  $p \leq .01$ .

The selected participants were randomly divided into two groups of 5 guards and 10 prisoners, although (to offset the possibility of systematic differences due to the operation of the law of large numbers) this was done in such a way that the groups were matched on key individual-difference measures. This involved (a) creating groups of 3 people who were matched as far as possible on the social and clinical measures listed in Table 1 and then (b) randomly assigning 1 of the 3 to be a guard, and the other 2 to be prisoners.

The study was designed to create a hierarchical institution in which people would live for up to 10 days. It was conducted within a purpose-built environment, which was constructed inside Elstree Film Studios in North London (see Figure 2). In physical appearance, this environment resembled a prison. Thus, prisoners were initially allocated to lockable 3-person cells that were located, together with showers, off a central atrium. This main atrium was separated by a lockable partition from guards' quarters that comprised a dormitory, bathroom, and mess room. More broadly, though, this environment represented a general class of social organizations in which one group had more power and privilege than the other. For this reason, the institution had features that are not generally found in prisons—including the possibility of mobility between groups. To be more precise, 1 prisoner was held in reserve and not admitted into the prison until after another prisoner had been promoted to guard (see below).

The environment was designed in such a way that participants could be unobtrusively observed and heard (and video- and audio-recorded) wherever they were at all times. Comprehensive details of the procedures are presented in Haslam and Reicher (2002; see also Reicher & Haslam, 2006b) or are available from S. Alexander Haslam and Stephen Reicher. The following description outlines key features of the study that pertain to issues of social identity and stress.

At the start of the study, the guards were told that they had been assigned to their group on the basis of their reliability, trustworthiness, and initiative—attributes that had been assessed during preselection testing. However, they were also told that although this testing was reasonably reliable, it was not perfect and that it was possible that 1 or more prisoners had been misassigned and could therefore be promoted to guard. This information was also announced to the prisoners over a loudspeaker, and they were told that promotion decisions would be made by the guards on the basis of prisoners' perceived suitability for the guard role—on the basis of the diligence with which they performed a series of daily tasks and chores that guards assigned to them. In this way, at the start of the study, the boundaries between guard and prisoner groups were permeable (see also

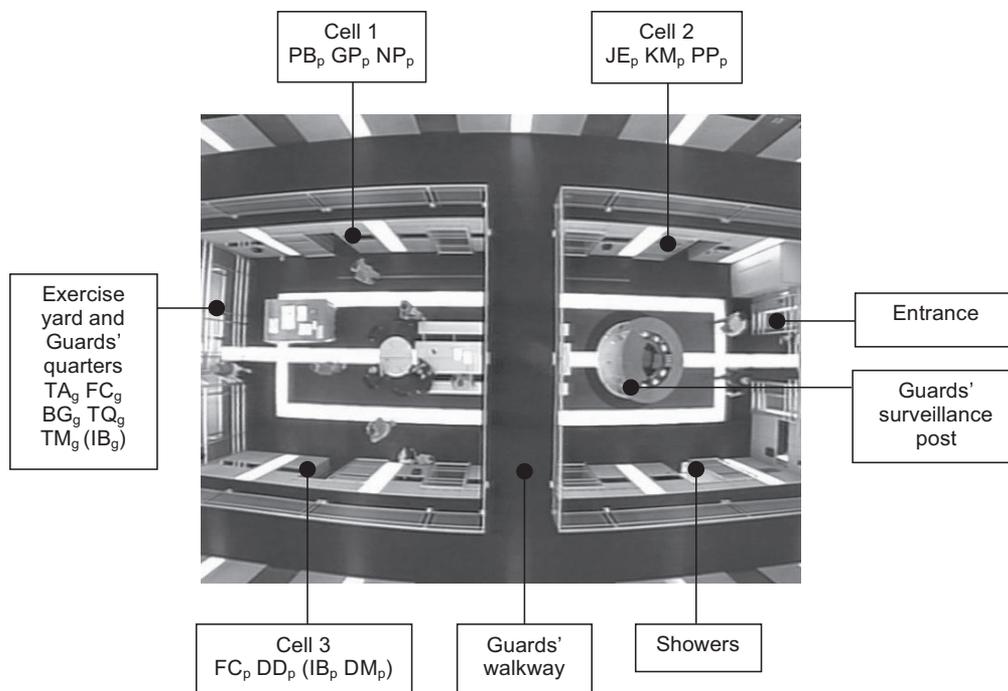


Figure 2. The prison environment from an overhead camera. p = prisoner; g = guard.

Ellemers, 1993; Ellemers, van Knippenberg, & Wilke, 1990; Wright, Taylor, & Moghaddam, 1990).

A promotion took place on Day 3. However, after this promotion, further promotion was ruled out, making group boundaries impermeable. On Day 5, a new prisoner with a professional background as a senior trade union negotiator was introduced into the prison. It was expected that he would introduce a new perspective to the prison based on notions of group-based negotiation, collective rights, and equal rights (i.e., a sense of cognitive alternatives suggesting the existing regime was both illegitimate and changeable). In this way, it was envisaged (a) that his introduction would enable the prisoners, and the participants more generally, to imagine a more equal set of social relations and (b) that he might provide skills necessary to organize collective action related to the achievement of such relations through social change (e.g., see Haslam, 2004).

Every day throughout the study, participants completed a battery of psychometric measures. However, to minimize response fatigue, we obtained all stress-related measures only on 2 days: Day 2 (when boundaries between groups were permeable and prisoners were expected to have relatively low levels of social identification) and Day 6 (when impermeable boundaries and exposure to cognitive alternatives were expected to lead prisoners to have relatively high levels of social identification).

### Stress-Related Measures

In addition to behavioral observation, there were two key psychometric measures of stress. The first was a 7-item measure of burnout based on that previously used by Haslam and colleagues (Haslam, O'Brien, et al., 2005; Haslam, Waghorn, et al., 2005), with subscales measuring the three core components of burnout identified by Jackson et al. (1986) and Maslach, Jackson, and Leiter (1996)<sup>1</sup>: (a) Exhaustion (measured by two items: "I feel energetic" [reverse-scored] and "I feel I am working too hard"), (b) Lack of Accomplishment (measured by two items: "I feel I accomplish many worthwhile things in my work here" [reverse-scored] and "I feel frustrated"), and (c) Callousness (measured by three items: "I don't really care what happens to the guards any more" "I don't really care what happens to

the prisoners any more" and "I feel I am becoming callous toward people"). The second was a single-item measure of participants' exposure to bullying from the outgroup ("Prisoners are bullied by the guards" or "Guards are bullied by the prisoners"). Responses on all items were completed on 7-point scales with appropriately labeled endpoints (1 = *do not agree at all*, 7 = *agree completely*). In addition, saliva swabs were self-administered, and cortisol levels were measured from these swabs as a physiological indicator of participants' stress levels (Katkin, Dermit, & Wine, 1993; Laudat et al., 1988).

### The Impact of Interventions on Social Identification

Evidence presented elsewhere (i.e., manipulation checks and qualitative data; Reicher & Haslam, 2006b) suggests that manipulations of permeabil-

<sup>1</sup> Previous studies in which versions of this scale have been used indicate that its items can be combined to form a reliable single scale (Gaffney & Haslam, 2002, reported  $\alpha = .67$  for a 6-item version; Haslam, O'Brien, et al., 2005, obtained  $\alpha = .68$  for a 5-item version). Gaffney and Haslam's (2002) study was conducted with a sample of care workers, and factor analysis indicated that three distinct subscales could also be extracted (accounting for 78.7% of variance). Item 5 and a variant of Items 6 and 7, "I don't really care what happens to my colleagues any more," loaded highest on Factor 1 (Callousness, explaining 33.9% of variance, loadings = .89, .87, respectively; scale  $\alpha = .82$ ). Items 3 and 4 loaded highest on Factor 2 (Lack of Accomplishment, explaining 24.8% of variance, loadings = .79, .86, respectively; scale  $\alpha = .67$ ). Items 1 and 2 loaded highest on Factor 3 (Exhaustion, explaining 20.1% of variance, loadings = .96, .51, respectively; scale  $\alpha = .68$ ). Consistent with this finding, in the present study, the global measure had borderline reliability (Day 2,  $\alpha = .62$ ; Day 6,  $\alpha = .59$ ), but the subscales were more coherent (Exhaustion Day 2,  $\alpha = .66$ ; Lack of Accomplishment Day 2,  $\alpha = .68$ ; Callousness Day 2,  $\alpha = .95$ ; Exhaustion Day 6,  $\alpha = .64$ ; Lack of Accomplishment Day 6,  $\alpha = .61$ ; Callousness Day 6,  $\alpha = .84$ ).

Table 2  
*Mean Stress-Related Measures as a Function of Group and Study Phase*

Measure	Guards		Prisoners	
	Day 2	Day 6	Day 2	Day 6
Social identification	1.00	0.17 <sup>a</sup>	0.63	1.29 <sup>a</sup>
Burnout	2.23 <sup>a</sup>	3.17 <sup>a,b</sup>	2.38	2.29 <sup>b</sup>
Exposure to bullying from outgroup	1.36 <sup>a</sup>	3.50 <sup>a,b</sup>	1.21	1.71 <sup>b</sup>
Cortisol ( $\sqrt{\text{mg/10 ml}}$ )	1.28 <sup>a</sup>	1.80 <sup>a</sup>	1.33 <sup>b</sup>	1.59 <sup>b</sup>

Note. Cells in the same row with the same superscript are significantly different ( $p < .10$ ).

ity and cognitive alternatives were effective. The impact of these manipulations on participants' social identification with their ingroup was assessed by means of a 6-item measure (e.g., "I identify with the [prisoners-guards]"; modeled after Doosje, Ellemers, & Spears, 1995). As Reicher and Haslam (2006b) reported, ingroup identification varied interactively as a function of group and phase,  $F(5, 55) = 3.05, p < .05, \eta^2 = .22$ . As predicted, social identification among the prisoners increased linearly as the study progressed,  $t(7) = 2.46, p < .05$ . On the other hand, identification among the guards declined as the study progressed but nonsignificantly,  $t(4) = -0.77, ns$ . Means for the two phases in which all stress measures were administered are presented in Table 2.

## Results

### Burnout

Participants' responses on the global measure of burnout were subjected to a 2 (group)  $\times$  2 (phase) analysis of variance (ANOVA), with repeated measures on the last factor.<sup>2</sup> This analysis revealed a significant and large effect<sup>3</sup> for phase,  $F(1, 11) = 3.46, p = .09, \eta^2 = .24$ , and a significant and large interaction between group and phase,  $F(1, 11) = 5.06, p < .05, \eta^2 = .32$ . As can be seen from the means in Table 2, this interaction mirrored changes in the two groups' social identification over time. This observation was supported by tests of simple effects that indicated that the guards experienced more burnout on Day 6 than on Day 2 and were more burnt out than the prisoners on Day 6. Thus, as the guards' sense of social identity declined, their burnout increased, but there was no such increase (indeed, a slight decline) in burnout among the prisoners.

In order to analyze this effect more closely, we subjected participants' responses on the three burnout subscales (Exhaustion, Lack of Accomplishment, Callousness) to a 2 (group)  $\times$  3 (subscale)  $\times$  2 (phase) ANOVA, with repeated measures on the last two factors. Means relating to this analysis are presented in Figure 3. In addition to the above effects, this analysis revealed a significant and large three-way interaction among group, phase, and subscale,  $F(1, 11) = 5.06, p < .05, \eta^2 = .40$ . This interaction was decomposed in two stages: first, by performing separate 2 (group)  $\times$  2 (phase) ANOVAs for each of the three subscales in turn and, second, by performing separate 2 (group)  $\times$  3 (subscale) ANOVAs for each of the two phases in turn.

The first stage of analysis revealed no effects for exhaustion or lack of accomplishment but a significant and large interaction between group and phase,  $F(1, 11) = 11.35, p < .01, \eta^2 = .50$ , for callousness. Tests of simple effects indicated that this effect arose from the fact that guards were significantly more callous on Day 6

than (a) the prisoners were at the same time and than (b) they had been on Day 2.

The second stage of analysis revealed, on Day 2, a significant and large effect for subscale,  $F(2, 22) = 10.02, p < .01, \eta^2 = .48$ , and a significant and large interaction between group and subscale,  $F(1, 11) = 3.41, p = .05, \eta^2 = .24$ , and, on Day 6, a significant and large effect for subscale,  $F(2, 22) = 10.02, p < .01, \eta^2 = .48$ , and a significant and large effect for group,  $F(1, 11) = 3.95, p = .07, \eta^2 = .26$ . The interaction between group and subscale on Day 2 arose from the fact that here the guards were more exhausted than the prisoners but had a greater sense of accomplishment (although only the first simple effect was significant) and, unlike the prisoners, were significantly more exhausted than callous. The main effect for group on Day 6 arose from the fact that the guards were generally more burnt out than the prisoners but primarily because they were significantly more callous.

### Bullying

Participants' judgments of the extent to which each group was exposed to bullying from the other group were subjected to a 2 (group)  $\times$  2 (phase) ANOVA, with repeated measures on both factors. This analysis revealed significant and large main effects for both group,  $F(1, 11) = 11.11, p < .01, \eta^2 = .46$ , and phase,  $F(1, 11) = 23.02, p < .01, \eta^2 = .64$ , indicating that groups were bullied more on Day 6 than on Day 2 and that guards were bullied more than prisoners. However, these two effects were conditioned by a significant and large interaction between group and phase,  $F(1, 11) = 11.37, p < .01, \eta^2 = .47$ . As can be seen from Table 2, this interaction took the same form as the interaction on the

<sup>2</sup> Given the interaction among participants, it could be argued that the group rather than the individual group member should be the unit of analysis here. For this reason, the present data were also analyzed using methods developed by McGarty and Smithson (2005) that do not require independence of observations. These analyses confirmed the reliability of all of the patterns reported below. However, for reasons of space and in light of the novelty of these methods, we accord with general usage by presenting statistics that are widely understood (and commonly used even when there is interaction among participants; Hoyle, Georgesen, & Webster, 2001; see also Haslam et al., 2006).

<sup>3</sup> Because of the small sample size,  $\alpha$  (for both primary and secondary analyses) was set at .10. In light of the low sample size, it is therefore useful to consider tests of statistical significance alongside measures of effect size. Following S. Cohen (1977, p. 283),  $\eta^2 > .14$  is indicative of a large effect.

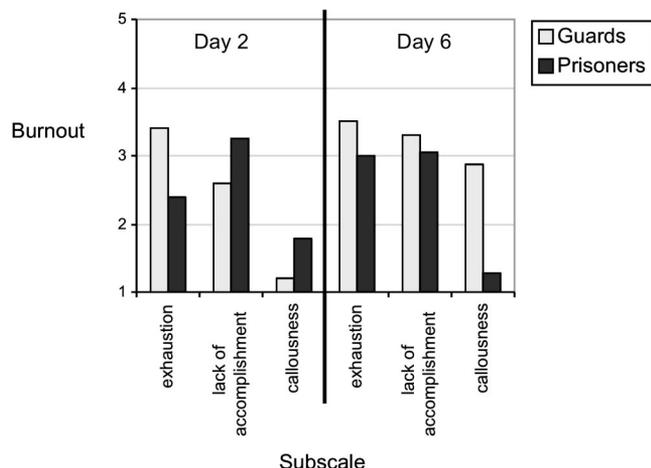


Figure 3. Burnout by subscale as a function of group and study phase.

burnout measure and again mirrored changes in the two groups' social identification. Thus, as the guards' sense of social identity declined, they were exposed to significantly more bullying, but there was no such increase in bullying of the prisoners. So, by Day 6, the prisoners had significantly higher social identification than the guards and were exposed to significantly less bullying.

### Cortisol

Measures of the amount of cortisol in participants' saliva were subjected to a 2 (group)  $\times$  2 (phase) ANOVA, with repeated measures on the second factor. This analysis revealed a significant and large main effect for phase,  $F(1, 11) = 31.40, p < .01, \eta^2 = .74$ , indicating that participants were more stressed on Day 6 than on Day 2. However, this effect was conditioned by a significant and large interaction between group and phase,  $F(1, 11) = 3.37, p = .09, \eta^2 = .23$ . Tests for simple effects revealed only significant differences between phases for both groups. However, as the means in Table 2 indicate, there was evidence that the increase was more marked for the guards than for the prisoners, an effect that is consistent with patterns observed on psychometric measures of burnout and bullying and with the observed variation in levels of social identification.

### Independent Viewers' Behavioral Observation

As noted above, one distinctive feature of the present research was that participants were filmed throughout the study, with some footage subsequently being shown on TV by the BBC. Upon first broadcast, each episode was watched by around 2 million people, but the program has subsequently been rebroadcast several times and has also been widely distributed as an educational video. As a result, in addition to the above observations, it is also possible to ask viewers of the programs to provide their own judgments of the participants' behavior.<sup>4</sup> However, potential problems with the observations of TV viewers are (a) that they are based on recollections of viewing experiences that may have become distorted over time and (b) that viewers may be unduly influenced by the commentary provided during the programs themselves (which had been cowritten by the program producers and the experimenters).

To address these problems, we produced two short videos that contained representative incidents from Day 2 and Day 6 but no commentary. These were then shown to a sample of 20 naive viewers (i.e., people who had not seen the original BBC broadcast). After each viewing, these observers were asked to evaluate the stress-related behavior of the guards and prisoners on a range of measures. First, exposure to bullying was now assessed using a three-item scale ("Were the prisoners/guards being belittled/humiliated/bullied by the guards/prisoners?"). This scale had high levels of reliability for observations of both prisoners and guards at both phases of the study (guards on Day 2:  $\alpha = .85$ ; guards on Day 6:  $\alpha = .65$ ; prisoners on Day 2:  $\alpha = .79$ ; prisoners on Day 6:  $\alpha = .97$ ). Second, on three additional measures, participants were asked to indicate whether the stress response of the participants was one of (a) avoidance, (b) denial, or (c) resistance. All responses were completed on 7-point scales with appropriately labeled endpoints (1 = *not at all*, 7 = *very much*). The reliability of raters was reasonably high (the mean interrater correlation across all measures was  $r = .66$ ; Cronbach's alpha [for raters rather than measures] = .97).

Means are presented in Table 3. Scores on each measure were subjected to 2 (group)  $\times$  2 (phase) ANOVAs, with repeated measures on both factors. These analyses revealed a significant and large main effect for phase on measures of observed burnout, bullying, and stress,  $F_s(1, 19) = 46.72, 139.43, \text{ and } 96.45$ , respectively, all  $p_s < .001$ ;  $\eta^2_s = .71, .88, \text{ and } .84$ , respectively. They also revealed a significant and large main effect for group on measures of observed group identification, support, burnout, exposure to bullying, and stress,  $F_s(1, 19) = 12.74, 18.98, 35.66, 51.61, \text{ and } 19.54$ , respectively, all  $p_s < .001$ ;  $\eta^2_s = .40, .50, .65, .73, \text{ and } .51$ , respectively. However, in addition to these effects, on every measure there was also a significant and large interaction between phase and group: social identification,  $F(1, 19) = 24.45, p < .001, \eta^2 = .56$ ; support,  $F(1, 19) = 14.51, p < .001, \eta^2 = .43$ ; burnout,  $F(1, 19) = 40.77, p < .001, \eta^2 = .68$ ; exposure to bullying,  $F(1, 19) = 100.98, p < .001, \eta^2 = .84$ ; and stress,  $F(1, 19) = 35.29, p < .001, \eta^2 = .65$ .

As can be seen from Table 3, follow-up tests to decompose these interactions indicated that they arose from a very similar pattern of differences on each measure. Specifically, compared with Day 2 and with the prisoners on Day 6, the guards on Day 6 were observed to have a weaker sense of shared identity, to provide each other with less support, to be more burned out, to be exposed to more bullying, and to be more stressed. Relative to Day 2, on Day 6 prisoners were also observed to have a stronger sense of social identity, to be exposed to more bullying, but also to provide each other with more support.

Ratings of the participants' strategies for responding to stress (avoidance, denial, and resistance) were subjected to a 2 (group)  $\times$  2 (phase)  $\times$  3 (strategy) ANOVA, with repeated measures on all factors. This analysis revealed a main effect for time,  $F(1, 19) = 20.33, p < .001, \eta^2 = .50$ , and interactions between both time and group,  $F(1, 19) = 5.64, p < .05, \eta^2 = .23$ , and strategy and group,  $F(1, 19) = 6.72, p < .01, \eta^2 = .26$ . However, all of these effects were qualified by a large three-way interaction among strategy,

<sup>4</sup> These data were collected but are not reported here, as the findings closely mirror those that emerge from naive viewers' ratings.

Table 3  
Independent Viewers' Estimates of Participants' Stress-Related State as a Function of Group and Study Phase

Measure	Guards		Prisoners	
	Day 2	Day 6	Day 2	Day 6
Social identification	5.45 <sup>a</sup>	4.40 <sup>a,b</sup>	5.15 <sup>c</sup>	6.40 <sup>b,c</sup>
Support	5.20 <sup>a</sup>	4.25 <sup>a,b</sup>	5.40 <sup>c</sup>	6.20 <sup>b,c</sup>
Burnout	1.95 <sup>a</sup>	5.60 <sup>a,b</sup>	2.25	2.45 <sup>b</sup>
Exposure to Bullying scale (humiliated, belittled, bullied)	2.20 <sup>a</sup>	6.22 <sup>a,b</sup>	1.92 <sup>c</sup>	2.73 <sup>b,c</sup>
Stress	2.30 <sup>a</sup>	6.10 <sup>a,b</sup>	2.60	3.15 <sup>b</sup>

Note. Cells in the same row with the same superscript are significantly different ( $p < .05$ ).

time, and group,  $F(1, 19) = 4.70, p < .02, \eta^2 = .20$ . Relevant means are presented in Figure 4. To decompose these effects, we conducted simple tests comparing the willingness of prisoners and guards to adopt each strategy across the two phases of the study. These tests indicated that compared with Day 2 and with the prisoners on Day 6, the guards on Day 6 were observed to display more avoidance, more denial, and less resistance. The prisoners were also observed to show more resistance on Day 6 than on Day 2.

**Behavioral Observation**

The quantitative data reported above are broadly consistent with our experimental hypotheses. Nevertheless, like other data of this form, they do not (and cannot) shed particularly clear light either on the ways in which participants made sense of our manipulations nor on the ways in which these impacted their perceptions, actions, and interactions and thereby contributed to the development of stress in the two participant groups. How exactly did a sense of shared identity (or lack thereof) affect the forms of support that participants did or did not offer to each other? What form did bullying take? How did burnout develop?

In this respect, a distinctive feature of the study is that we are able to make sense of, and add depth to, the quantitative data by referring to the content of conversations and the patterns of social

interaction that unfolded over the course of the study. Detailed accounts of the participants' behavior are presented elsewhere (Haslam & Reicher, 2002; Reicher & Haslam, 2006a), and, moreover, these can be corroborated by viewing relevant episodes of *The Experiment* (Koppel & Mirsky, 2002). The interactions described below, however, relate to key developments that bore on participants' exposure and response to stress. These center around an unfolding dynamic between the guards and the occupants of Cell 2 (2 of whom,  $JE_p$  and  $KM_p$ ,<sup>5</sup> were turned down for promotion) and for this reason do not provide insights into all participants' behavior. Nevertheless, we believe that the exchanges are representative of the emerging dynamics in the study as a whole, as this relationship had a central role in shaping events in the prison up to the point when the guards' regime was overthrown.

From conversations on Day 1, it was apparent that from the study's outset, the prisoners were dissatisfied with their inferior conditions—especially the poor food and limited resources compared with the guards. Such frustrations are illustrated in the following exchanges:

- PP<sub>p</sub>: Ain't even cooked properly, mate.
- GP<sub>p</sub>: You've got to laugh because if you didn't you would cry, wouldn't you?
- PP<sub>p</sub>: This food is shit. Fucking bollocks.
- JE<sub>p</sub>: Definitely not good.
- TQ<sub>g</sub>: But it does have a certain *je ne sais quoi*.
- GP<sub>p</sub>: It's a way to get you at your worst ebb. . . . There's nothing to look forward to, is there? You look forward to your tea or your lunch or whatever, don't you? But if you know it's going to be crap, there is nothing to look forward to, is there?
- NP<sub>p</sub>: I can't believe we don't get tea!
- GP<sub>p</sub>: That is out of order.
- NP<sub>p</sub>: No tea!

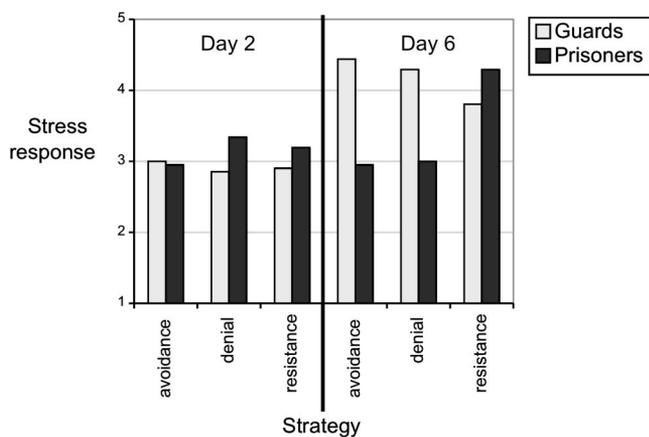


Figure 4. Independent observers' ratings of participants' stress responses as a function of group and study phase.

<sup>5</sup> A subscript *p* indicates a prisoner, and a subscript *g* indicates a guard.

PP<sub>p</sub>: They [the guards] come up with all these excuses of why I can't have a fag [cigarette] and they're all sitting out there waffling [talking].

JE<sub>p</sub>: I think it's part of the test.

PP<sub>p</sub>: No, but you see it's wrong because I'm the only one that this part of the test is formulated on.

JE<sub>p</sub>: No, I'll tell you what [PP], I think you're falling for it, mate.

PP<sub>p</sub>: I am falling for it—hook, line, and sinker. It wasn't in the fucking contract that I can't have a snout [a cigarette] when I want a snout.

[Desperate for a cigarette, PP<sub>p</sub> beats a ball on the door of the cell in frustration.]

Here, although the prisoners showed signs of distress, they also showed signs of resignation and were generally compliant. Rather than confront the sources of their dissatisfaction, their strategy was to try and ignore them or adapt to them: "You've got to laugh because if you didn't you would cry." They accepted their situation relatively passively and simply put up with the hardships they faced—with some clearly hoping to avoid them by being promoted to guards. This resignation led to a situation in which the guards felt little threat and were able to treat the prisoners' complaints more as banter than as a meaningful challenge. Thus, TQ<sub>g</sub> was relaxed and smiling throughout the above exchange and saw fit to respond with a comment that diminished and ironized the situation: "It does have a certain *je ne sais quoi*."

This is not to claim that the guards were comfortable with their authority. Indeed, in their very first conversation in their mess room, some guards (TQ<sub>g</sub> in particular) expressed disquiet at having power and a fear of wielding it. This conversation led to continuing debates about whether and how the guards' authority should be used. At times, the guards also openly undermined each other when it came to disciplining the prisoners. Nonetheless, this inability to develop a shared guard identity created few problems because the prisoners were similarly divided—with many seeking to improve their situation individually by seeking promotion. As JE<sub>p</sub> put it, "You guys can do what you like, but I'd like to be a guard because they get all the luxuries and we are not."

To sum up the situation, during the study's prepromotion stage, then, both the guards and prisoners displayed only moderate levels of shared identity—the former because of ambivalence about their role; the latter because they were more inclined to pursue individualistic strategies of personal advancement. The guards worked hard to make the prison system work, but they failed to orchestrate their efforts (e.g., by organizing duty rosters), in part because they did not trust each other or communicate effectively. As a consequence, they derived some sense of accomplishment from the fact that the prison system was maintained, but they were generally quite tired and fatigued. At the same time, though, the prisoners were doing little to improve their situation collectively. This meant they were not as physically tired as the guards but that, by the same token, they had no sense of shared purpose or accomplishment.

All of this changed dramatically once the promotion was announced and the group boundaries were rendered impermeable. Now prisoners could only improve their position by changing the overall prisoner-guard relationship. However, not only did the

promotion render the system impermeable, it also made it illegitimate. Prisoners would now be stuck in their groups regardless of how well they behaved. Moreover, the ambivalence of the guards about their role and hence their inability to meet role requirements (i.e., to organize themselves and act as guards) clearly undermined any justification for their superior status. It also led the prisoners to perceive the guards as weak and the system as open to challenge. In other words, there was a growing sense of cognitive alternatives that was further increased when the trade unionist was introduced to the study. Thus, all of the conditions for collective identification and collective resistance—impermeability of intergroup boundaries, illegitimacy of intergroup differences, and cognitive alternatives—fell into place after the promotion had been made.

Almost immediately after his promotion attempt failed and promotion was ruled out as a future possibility, JE<sub>p</sub> got together with his cellmates and started discussing how to challenge the system. As he put it, "You got to start something in here, mate." Together they decided to stage an event to test the guards out. At lunch that day, JE<sub>p</sub> threw his plate to the floor and exclaimed, "I'm sick and tired of this crap." Immediately TA<sub>g</sub> ordered all of the prisoners back to their cells with the exception of JE<sub>p</sub>. JE<sub>p</sub> refused as did his cellmate KM<sub>p</sub>, on the grounds that his shoes were giving him blisters and he wanted the problem remedied. As the guards began to cluster round KM<sub>p</sub> to remonstrate with him, they were further divided by the last of the 3 cellmates, PP<sub>p</sub>, who now also refused to return to his cell on the grounds that he had a right to a postmeal cigarette and would be denied it unless he stayed outside:

JE<sub>p</sub>: Let him have his cigarette.

PP<sub>p</sub>: Let's have a cigarette, have a snout, and we'll go back in our cell.

KM<sub>p</sub>: Yeah, done.

TQ<sub>g</sub>: That's it. We've reached an agreement.

BG<sub>g</sub>: That was handled totally wrong there, totally.

This interaction illustrates the way in which shared social identity (among the prisoners) is a basis for collective organization and collective efficacy, whereas lack of identity (among the guards) contributes to disorganization and inefficacy. The prisoners agreed on their aims and priorities. During the interaction, they come in at critical moments to support each other and to undermine the guards. Moreover, by this means, they work collectively to try (in this case, successfully) to remove the stressors they confront. So whereas previously PP<sub>p</sub> was distressed by his inability to have a cigarette whenever he wanted one, now he can more or less smoke when he likes. By contrast, the guards all have very different perspectives. At critical moments, they disagree with each other or else actively destabilize each other. As a result, they concede to the prisoners' demands and expose themselves to further stressors.

The psychological consequences of this dynamic were clear when prisoners and guards returned to their respective accommodation. When the prisoners went into their cells, they literally danced with joy. In PP<sub>p</sub>'s words, "That was fucking sweet, man." Having tested the guards and found them not to be up to the task, the prisoners immediately started planning yet more radical challenges. And, as these challenges escalated, so their mental state

improved. As PP<sub>p</sub> put it a few days later, "I'm having a great time, mate. I really am having a great time. I'm happy as a pig in shit. Tomorrow is going to be even funnier."

In contrast, when the guards returned to the mess room, they were clearly angry and despondent, and they immediately started bickering with each other:

TA<sub>g</sub>: This is only Day 4. They can see what happened today and now they know they can do whatever they want.

BG<sub>g</sub>: No, that's wrong.

TA<sub>g</sub>: Yes. Anytime they are out of their cell, they can start effing and blinding to each other. They can do whatever they want and there's nothing we can do about it.

Here then, it is apparent that although the presence of a strong sense of shared social identity among the prisoners was associated with coordination, positivity, and collective efficacy, its absence among the guards was associated with division, negativity, and collective inefficacy.

Indeed, what is striking here is how the talk and demeanor of the guards now mirrored that of the prisoners in the prepromotion phase—and vice versa. Now it was the prisoners who were relaxed, amused, and positive. It was the guards who were angry but hopeless and incapable of collectively resisting their stressors and were forced to live with them. On top of this, they were now physically and emotionally exhausted by trying (but failing) to run the system. They were more divided than ever about how they should do this and mutually recriminatory as things went further and further awry. And rather than support each other through these difficulties, they withdrew from intergroup engagement, leaving their colleagues to deal individually with the increasingly stressful task of managing the prisoners' ever-more intimidating behavior.

Moreover, as their inability to police the prison became more marked, the guards became more fearful and resentful of the prisoners. These emotions were reflected in a growing callousness toward the prisoners and a diminishing concern with their welfare. For example, on Day 4, in the middle of a discussion about how to deal with the rising problem of prisoner dissent, when a guard noted that it was time for the prisoners' compulsory "Privileges Hour" (during which prisoners were allowed out of their cells for recreation and exercise), another responded curtly, "Fuck their privileges hour."

All of these processes came to a head in the middle of the night on Day 6. The divisions among the guards led them to leave just a single person to deal with the prisoners while the rest sat in the guards' mess room. This set-up allowed the prisoners in Cell 2 to trick the lone guard into leaving their cell door open. Once again, the prisoners' coordination contrasted with the guards' division: One distracted the guard, another held the door, and a third slipped cardboard over the lock so it would not catch when the key was turned. Later, after they had teased the guard so mercilessly that he retreated, leaving them unguarded, the prisoners were able to break out of their cell and subsequently break into the guards' quarters. The other guards now came to the first guard's aid but too late, as the revolt made the status-based system both indefensible and unworkable.

Although some prisoners were concerned about what would happen next, they were generally quite pleased with this develop-

ment, especially those in Cell 2 who had orchestrated the revolt. The guards, on the other hand, were clearly left burnt out by their experience—not only were they fatigued, but they were also embittered and hard-hearted and evinced a profound sense of failure. Indeed, whereas all of the prisoners now voted to stay on in order to help create a new order in the prison, two of the guards—the two with the highest levels of self-reported burnout—now exercised their right to withdraw from the study. In explaining the decision to leave to their colleagues, 1 concluded, "In my mind, we had the resources to control them, and we fucked it up," whereas the other added, "If you think we're going to live together with that lot for the next week . . . I won't do it."

## Discussion

The above findings provide a body of rich and multifaceted evidence that supports the study's core stress-related hypotheses. Consistent with Hypothesis 1, it is apparent that as a sense of shared social identity increased among members of the low-status group (the prisoners), they displayed an increased capacity to cope with and challenge the stressors that they faced in the prisonlike environment (particularly in the form of inferior living conditions). On the other hand, and consistent with Hypothesis 2, the failure of the high-status group (the guards) to develop a sense of shared identity was associated with a decline in their ability to deal effectively with the stressors that they confronted (in particular, in the form of intimidation and bullying from the prisoners). Indeed, for the guards, the general situation closely resembled that described by Maslach and Leiter (1997) where "the loss of community is evident in greater conflict among people, less mutual support and respect, and a growing sense of isolation. A sense of belonging disappears [and] people work separately rather than together" (p. 49).

These hypotheses were supported by (a) self-report data that indicated that, after manipulations of permeability and security had been introduced, the prisoners identified more with their group than the guards did with theirs, were exposed to less bullying, and experienced less burnout (and, in particular, less callousness), and (b) cortisol levels that indicated that self-report measures were an authentic reflection of underlying physiological states.

Significantly, too, to the extent that there is any potential ambiguity about the meaning of these quantitative data (and there inevitably is; see Folkman & Moskowitz, 2004), this ambiguity could be resolved by referring to unfolding patterns of behavior in the study itself. In particular, such observation confirmed the central point that as their sense of shared social identity grew, the prisoners provided each other with more support and were actively able to resist the stressors they confronted—in part by creating stress for the guards (through acts of resistance that ranged from simple disobedience to overt bullying) and in part by changing the environment so as to remove stressors (e.g., lack of cigarettes). The guards, in turn, were less able to resist the stressors they confronted because they did not develop a strong sense of social identity and hence failed to work as a mutually supportive team. On top of all this, independent assessment of the participants' stress-related behavior indicated that these same patterns were apparent to observers who watched film footage from the study under controlled conditions.

These findings are important at both a methodological and a theoretical level. Methodologically, the fact that the hypotheses are supported by both qualitative and quantitative analysis and by data that are triangulated in multiple registers (physiological, self-report, and independent assessment) provides rare evidence that these different forms of stress assessment do indeed articulate with each other and provide insight into a common psychological reality. This correspondence is important, because previous research has typically used only one form of measure at one point in time, and correspondence among different measures (e.g., across studies) therefore tends to be assumed rather than demonstrated. And even though some studies do incorporate multiple measures of stress, to our knowledge, no previous work has revealed the capacity for such a broad array of measures to cohere over time in the process of providing a consistent developmental picture of the unfolding stress process. Indeed, this lack of triangulation has previously been identified as the most significant methodological limitation of stress research (e.g., Cooper et al., 2001, chap. 8; Hart & Cooper, 2001).

In this respect, it is worth noting further that the present findings are also consistent with results obtained on measures of key social constructs. In particular, the results speak to data reported by Reicher and Haslam (2006b), which show that the failure of the guards' regime was associated with a general rise in authoritarianism that was particularly marked among the guards themselves (as measured by agreement with items such as "Things would go better if people talked less and worked harder" and "Our social problems would be solved if, in one way or another, we could get rid of weak and dishonest people"; Altmeyer, 1996; Reynolds, Turner, Haslam, & Ryan, 2001). Rather than constituting a part of the guards' fixed personality, Reicher and Haslam (2006a, 2006b) argued that this authoritarianism represents a response to an increasing sense of powerlessness. Clearly, the increasing callousness of the guards (a pivotal component of their burnout; Jackson et al., 1986; Maslach et al., 1996) can be interpreted in a similar manner. Specifically, our findings suggest that, like authoritarianism, callousness is particularly likely to emerge among those individuals whose desire for a fulfilling and rewarding group life has been thwarted by historical developments (e.g., employees with high levels of organizational identification who are made redundant or whose employer goes bankrupt; Pines, 1993; Pratt, 2001). Similar observations have been made by historians charting the rise of antihumanitarian ideologies throughout history. These include Hobsbawm's (1995) influential analysis of the rise of fascism after the collapse of Germany's Weimar republic and de Tocqueville's (1835/1969) seminal discussion of the conditions of democracy in America and, more precisely, the way that the loss of faith in religious institutions and authority can give rise to antidemocratic tendencies and a form of cultural burnout. As de Tocqueville observed, "When there is no authority in religion or in politics, men are soon frightened by the limitless independence with which they are faced. They are worried and worn out by the constant restlessness of everything" (p. 444).

At a theoretical level, it is also apparent that the present research is in a position to contribute to debate concerning the developmental sequencing of burnout. Prior research in this area has centered on two models: Golembiewski and Munzenrider's (1984, 1988) phase model, which argues that callousness (depersonalization) precedes exhaustion and lack of accomplishment, and Leiter

and Maslach's (1988; Leiter, 1993) process model, which argues that exhaustion precedes callousness and lack of accomplishment. Conceived as a simple choice between these two formulations, the present findings are clearly more consistent with a model that places callousness toward the end of a developmental sequence (as does Leiter & Maslach's, 1988, model) rather than at its beginning (as does Golembiewski & Munzenrider's, 1988, model). Nevertheless, along lines more recently suggested by Leiter (1993; see also Cooper et al., 2001; Lee & Ashforth, 1993), the patterning of our data is consistent with the view that burnout reflects more than a simple sequencing of discrete phases. Instead, it may be better understood as a phenomenon whose various components are lent coherence by their underlying relationship to a social identity that proves more or less fulfilling (Haslam, 2004). More specifically, findings from the present study led us to hypothesize that it is the combination of exhaustion (arising from exertions on behalf of the group) and lack of accomplishment (arising from group failure) that inclines group members to become callous and which triggers full-blown burnout as a result. Clearly, though, the nature of our data does not allow us to draw strong conclusions about the relationship between these variables, and this is a model that needs to be explored further in future research.

More generally, though, our analysis is consistent with a theoretical model that places social identity at the heart of the stress process. In this respect, the principal value of the study is that it allows for an integrated examination of the relationship between social identity and a range of stress-related phenomena whose existence has previously been established only in discrete (and relatively self-contained) empirical studies. Thus, previous experimental and survey research has shown that social identity is (a) a determinant of stress appraisal (e.g., Haslam, O'Brien, et al., 2005; Levine & Reicher, 1996), (b) a basis for social support (e.g., Haslam et al., 2004; Levine et al., 2002, 2005; Postmes & Branscombe, 2002; Reicher, Cassidy, et al., 2005), (c) a protection for individual group members from burnout (e.g., Haslam, Waghorn, et al., 2005), and (d) a contribution to long-term well-being and group performance (e.g., Branscombe et al., 1999; Ellemers, de Gilder, & Haslam, 2004; Haslam, Powell, & Turner, 2000; Van Knippenberg & Ellemers, 2003). However, no single study has examined, or provided evidence of, these processes operating in tandem or examined them in a situation in which stressors are real, present, and nontrivial. Indeed, as Cooper et al. (2001) observed, this is a general failing of all stress research (outside that which uses animal models), and psychological theory as a whole is the worse for it.

In the case of the social identity approach, the truth of the latter statement is borne out by the fact that previous research has not been in a position to explore the dynamic between social identity and processes of coping and stress resistance. In the present study, though, it was possible to establish that structural factors, which bore on the strength of social identity, were central to the forms of coping response that participants evinced. In particular, when participants' sense of shared social identity was low (as it was for the prisoners at the start of the study and the guards toward the end), their preferred response to environmental stressors was much more likely to be one of avoidance, whereby they tried individually to escape those stressors, than it was when they had a greater sense of shared identity (as was the case for prisoners around the time of the revolt). Under these conditions of high social identification,

individuals were much more likely to work collectively to resist and confront those same stressors in the process of trying to bring about (and, in this case, actually achieve) social change. These findings are consistent with the social identity model of the intergroup dynamics of stress (the SIS model) presented in Figure 1. As noted in the introduction, such hypotheses are fully compatible with social identity theory (Tajfel & Turner, 1979; see also Haslam, 2004), but up to this point, they have been neither elaborated theoretically nor examined empirically.

### *Limitations and Concerns: Issues of Internal and External Validity*

Despite the capacity of the present study to provide novel and unique insights into important debates in the stress literature, it is nonetheless the case that elements of its design and findings inevitably raise concerns about both internal and external validity. In this respect, four issues that are particularly important relate to (a) the study's small sample size, (b) the representativeness of that sample, (c) the study's capacity to speak to issues that arise in applied contexts, and (d) the discrepancy between its findings and those previously reported in the literature (especially by Haney et al., 1973). Before concluding, we will address each of these in turn.

*Sample size.* An immediate concern with the present study relates to its relatively small sample size and the problems that this poses for external validity. Although this is an important observation, there are a number of reasons why we believe that this is not as significant a problem as it first appears to be. In the first instance, it is certainly correct to say that it would be a mistake to attempt to generalize from a study of 15 people to society (or other groups) in general. However, as we and others have argued elsewhere (e.g., Haslam & McGarty, 2003; Turner, 1981), this would be a problem in any study (even one with 20 times as many participants) as it constitutes naive empiricism. Instead, then, as in all research, the appropriate path to generalization is through theory. Accordingly, the primary value of the present study (like any other) lies in its capacity to reliably test a set of well worked out theoretically derived hypotheses. Generalization is then made on the basis of theory, not on the data itself. We would argue (a) that our study does provide a reliable test of this form (as evidenced by the results of statistical tests) and (b) that this evidence is consistent with a large body of theory in the social identity tradition (theory that has been supported in a range of other experimental and large-sample studies, albeit not as intensive as the present one; e.g., see Haslam, 2004, for a review). Indeed, looked at in this way, obtaining significant results with a small sample (whereby there is low statistical power; J. Cohen, 1977) can be more informative than would be the case if the sample had been much larger.

It is also the case—as any review of the history of psychology testifies (e.g., Hothersall, 1984)—that case study methodology of the form used here has the potential to play a particularly important role in theory development and in-depth theoretical specification of the form attempted in the present research (Bolgar, 1965; Reicher, 1984; Shaughnessy & Zechmeister, 1994). Of course, this is not to deny the value of large-sample studies but rather to argue that there is value in complementing these with empirical work that uses other methodologies (Haslam & McGarty, 2003). More

generally, then, it is important to see the present article not as a stand-alone contribution but as one very important and hitherto missing piece that fits into a far larger jigsaw.

*Sample representativeness.* Elaborating on the previous point, a further concern is that the sample of participants who took part in this study may not have been representative of the general population. This is a potential problem because for ethical and other reasons (in particular, the need for clinical screening and for the participants to be self-selected), the participants were not drawn randomly from either the general population or the population of applicants. Having said that, the data presented in Table 1 suggest that our sample was, if anything, better adjusted than the norm and therefore less liable to suffer from mental distress. For this reason, conditions that produce (or indeed alleviate) stress in this population are likely to have a greater impact on a normal population. As noted above, the use of such a self-handicapping strategy was deliberate and intended to ensure that any findings could not be attributed to the individual characteristics of our participants (see Sherif, 1956, 1966, for a similar rationale). Therefore, if anything, our analysis underestimates the general importance of social processes for understanding phenomena such as conflict, resistance and, in the present case, stress.

None of this is to deny that selection bias necessarily remains a potential issue in studies of this form (e.g., as it was in the Stanford Prison Study and in Milgram's, 1974, obedience studies; see Carnahan & McFarland, in press). Yet even if it is the case that our sample differed from the general population in some key respect that we did not screen for in advance (e.g., being more or less prone to stress, more or less callous), it is hard to see how this could account for our findings in any straightforward manner. In particular, this is because responses on key measures (e.g., social identification, burnout, bullying) varied interactively as a function of assigned group and study phase. At the very least, then, any alternative explanation of our findings needs to account for these patterns of interaction, and, by definition, a univariate analysis cannot do this.

*Applied relevance.* Issues of external validity also arise, however, in relation to more general questions of applicability. How can a study of the behavior of a group of men in a simulated prison provide insights that are relevant to a broader understanding of stress in applied contexts? Indeed, are the above findings even relevant to models of prisoner behavior, given that many features of the study's design (in particular, the possibility of promotion from prisoner to guard) are unrepresentative of situations commonly encountered in prison settings? A key point to reemphasize here is that although the basic paradigm we used was based on that of the Stanford Prison Study (Haney et al., 1973), the study was not primarily designed with a view to shedding light on the dynamics of prison life. Not least, this is because the theoretical ideas that we were testing have far broader relevance. As a result, the model of stress that we propose is by no means restricted to prisons—and indeed this is not even a primary context to which we would seek to generalize our analysis.

Instead, then, as noted in the introduction and elsewhere (Haslam & Reicher, 2005, in press; Reicher & Haslam, 2006b), the study environment was intended to be representative in theoretically relevant respects of a general class of institutions (e.g., schools, offices, barracks, factories) in which one group has more power and privilege than another. In order for us to test our ideas,

the critical theoretical condition that needed to be met was therefore that there were status and power differences between the groups and that these were psychologically real and engaging for the participants.

We believe that this condition was satisfied to a greater degree than in most other psychological research that has investigated these issues (and we further believe that our observational data were of particular value in showing this to be the case). But again, having satisfied this condition, it is on the basis of theory that we seek to make claims for the study's relevance. In this respect, as we have seen above, our theoretical approach points to the way that structural conditions (such as permeability) impact social identity and intergroup relations and the role that these psychological constructs play in people's experiences and responses to stress. In line with the many other studies that have addressed these issues (each of which has limitations of its own), we would contend that this approach holds out important messages for dealings not just between guards and prisoners but for the sorts of relationships that pertain between, for example, management and staff, bosses and workers, teachers and students, officers and other ranks (e.g., see Haslam & Ellemers, 2005; Haslam & Reicher, in press). Indeed, as we have already suggested, in many ways our theoretical analysis and findings are more applicable to these everyday institutions (where promotion as a form of permeability is a realistic prospect) than to a prison that, superficially, the study most directly resembles. In short, on the basis of the analysis that the present research supports, we would argue that where any group in a hierarchical organization encounters problems of social identity, its members are likely to encounter problems of stress.

*Correspondence with previous findings.* Even if the above points are conceded, one further potential sticking point is the apparent disparity between the findings reported above and those that have been observed in previous research—most notably the Stanford Prison Study (Haney et al., 1973). As almost every psychology undergraduate and college student knows, in that study, it was the guards who brutalized and bullied the prisoners, and the prisoners who in turn displayed signs of chronic stress and psychopathology. Why did our guards and prisoners behave so very differently? And how, if at all, can the findings of the two studies be reconciled?

Our argument in this article concerns the relationship between group identification and reactions to stressors. Our hypotheses suggests that identification has a moderating role: Members of groups with a strong sense of shared social identity will be buffered against the negative effects of stressors, whereas members of groups with a weak sense of shared identity will not. The guards in our study demonstrated the latter case. They failed to develop a shared social identity because of both differences in understanding of their role and fears about the consequences of taking on that role. As a result, they were stressed, bullied, and burnt out.

The guards in the Stanford study demonstrated the former case. They did develop a shared social identity in part, we would argue, as a result of the role that Zimbardo (1989) himself played as prison superintendent in clarifying group norms and alleviating fears about acting in terms of those norms. In particular, as we have observed elsewhere (Haslam & Reicher, 2005; Reicher & Haslam, 2006b), this identity-instilling role is seen in his briefing of the guards, which contained the following instructions:

You can create a notion of arbitrariness, that their life is totally controlled by us. . . . They'll have no privacy at all . . . they'll be sleeping in rooms with bars on them, there'll be constant surveillance, nothing they do will go unobserved, they'll have no freedom of action, they can do nothing, say nothing that we don't permit. . . . We're going to take away their individuality in various ways. (Zimbardo, 1989)

In terms of the analysis developed in the present article, the use of "we" here is very telling (Donnellon, 1996). It suggests that Zimbardo (1989) assumed a leadership position that served to make the guards comfortable with their identity in a way that those in the BBC study never were (for a fuller treatment of this point, see Haslam & Reicher, 2005; Reicher & Haslam, 2006a).

Because of their shared social identity, it appears that Zimbardo's (1989) guards acted in concert, supported each other, and were buffered against any stressors they encountered. They showed few signs of being burnt out or stressed, and, if anything, they were perpetrators rather than victims of bullying. In this way, the contrast in outcomes between the Stanford study and our own reinforces rather than weakens our theoretical claim that social identification moderates the impact of organizational stressors. Moreover, it shows that stress, like other psychological states, cannot be explained simply as a result of roles per se (e.g., having a subordinate position in an organization or a particular occupation; Martin, 1997; Statt, 1994) but rather derives from the way that social identity (or lack of) allows (or does not allow) those roles to be lived out.

#### *Implications and Directions for Future Research*

For a field that has tended to see stress very much as an individual-level phenomenon, we believe that the present findings and analysis have a range of profound implications. At the most general level, they make the point that it can be a mistake to ground one's appreciation of the stress process—and one's responses to stress-related problems—in the psychology of individuals as individuals (Haslam, 2004). Formal clinical assessment and scores on standard clinical tests indicated that all of the participants in this study were normal, well-adjusted, healthy adults. All had considerable prior experience of exposure to, and management of, stress. Moreover, it was neither their predetermined resilience nor their prior experience that primarily determined their responses to stress in this study. Instead, these were largely determined by their group memberships and the capacity for those groups to furnish them and their colleagues with a sense of shared identity and purpose in the situation that they found themselves. The existence of this social identity was a source of strength and resilience for the prisoners just as its absence was a basis for weakness and disintegration among the guards; Turner, 2005). United, the prisoners overcame their stress; divided, the guards buckled.

At an applied level, these findings suggest that practitioners who are interested in understanding and managing the stress process and its outcomes would, at the very least, be well-advised to complement individual-based analysis and interventions with activities that are targeted at a group level. Indeed, as Ganster and Murphy (2000) noted, a failure to do this can mean not only that key phenomena are misunderstood but also that the locus of attention (and blame) shifts from social-structural factors to indi-

vidual dysfunction and pathology. Rather than attempting to deal with stress-related problems at this personalized level (by which time one is likely to be addressing the consequences of stress, not its causes), the present analysis suggests that an alternative is to create viable, fulfilling, and sustainable groups that provide their members with the psychological and material resources to manage stress effectively and appropriately. This, of course, is no easy task, and an appreciation of its dimensions requires engagement with thorny issues of leadership, power, and intergroup relations (for a fuller discussion, see Haslam, 2004; Haslam, Eggins, & Reynolds, 2003; Reicher, Haslam, & Hopkins, 2005; Turner, 2005).

Clearly, this assertion also calls for further research to explore these social dimensions of the stress process more closely. Ideally, this will involve studies that improve on the present study in a range of ways—for example, by incorporating superior measures, larger samples, and enhanced experimental control. There is, of course, no requirement for such research to be conducted on the same scale as the present study. Nevertheless, there is a pressing need for future research in this area to retain commitment to the analysis of intense, ongoing social interaction. However, in this respect, it is important to acknowledge that the process of conducting (and publishing) research that can test a properly social psychological theory of stress (and related topics) presents empirical, practical, and professional challenges that militate against certain forms of progress. The stark reality is, for example, that in the time taken to see the present research through to its present form, it would have been possible to conduct a great many more small-scale studies that would have encountered far fewer obstacles at every stage in the research process (e.g., ethical, financial, logistical, methodological, statistical, professional). In our view, then, although they were unusually extreme in the present case, the pragmatic concerns that direct researchers away from the dynamics of full-blown social interaction place a major brake on practical and theoretical progress (Haslam & McGarty, 2001). Indeed, the methodological, professional, and commercial pragmatics of disembodied individualism can be seen to have played a major role in determining the forms of psychological analysis that prevail in the field (Folkman & Moskowitz, 2004). Progress therefore requires not only the identification of worthwhile intellectual projects but greater political and professional will (within the research community as a whole) to expand the boundaries of contemporary research practice.

### Conclusion

Looked at as a whole, the present study provides a powerful and vivid exploration of the role that group processes play in the psychology of stress. In this respect, the main contribution of the article is to flesh out an emerging appreciation of the critical role that social identity and self-categorization processes play in this phenomenon.

More ambitiously, though, the study opens the door to a theoretical analysis in which the social psychology of stress is seen as an essential dimension of the broader process of social change (the issue that motivated the development of social identity theory; Tajfel, 1978; Tajfel & Turner, 1979; see also Reicher, 1996; Turner, 2006). Specifically, we see that (a) exposure to stressors and (b) the formulation of individual or collective responses to

them are essential drivers of those social processes whereby the status quo is either reinforced or challenged. We see too, that, as Tajfel and Turner (1979) argued, social identities and the sustainability of the groups to which they relate provide the social psychological underpinnings of this dynamic. Indeed, in the simplest terms, we would argue that sustainable group life (and the sense of community that this provides) is central to both stress and social change because this determines both (a) whether stressors change people (for the worse) or people attempt to change stressors (for the better) and (b) whether the stress process as a whole is experienced as positive and enabling (eustressing) or negative and disabling (distressing).

As we have noted, more work needs to be done in order to establish the validity of the above arguments. However, the present study serves an important function not only in fleshing this analysis out (in a way that other studies have been unable to) but also in advancing a model that is both internally coherent and plausible.

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Received February 1, 2005

Revision received August 31, 2005

Accepted September 1, 2005 ■