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ABSTRACT

This review provides an overview and new integration of recent research that has formed the basis of a social identity explanation of supportive collective behaviour among survivors in emergencies and disasters. I describe a model in which a sense of common fate in the emergency or disaster is the source of an emergent shared social identity among survivors, which in turn provides the motivation to give social support to others affected. In addition, by drawing on the concept of relational transformation in psychological crowds, I show how an emergent shared social identity can engender a range of further behavioural and cognitive consequences that contribute to collective self-organisation in emergencies, including increases in expected support, coordination of behaviour, and collective efficacy. It will be argued that the model can been applied to explaining how potentially dangerous crowd events avoid disaster: shared social identity operates as the basis of spontaneous self-organisation in these cases, as in many emergencies and disasters.

Key words: Emergencies, disasters, social identity, social support, common fate.

INTRODUCTION

Studies of the evacuation of the World Trade Center towers on 9/11 illustrate a number of features common to emergencies and disasters. First, those evacuating the building mostly cooperated and attempted to provide each other with *social support* (Averill et al., 2005; Gershon, Magda, Riley, & Sherman, 2012; Proulx & Fahy, 2003) – sometimes involving a risk to personal safety. Second, despite moments of hesitation and disagreement, these evacuees typically behaved *"as one"*; the evacuation was characterised by self-organisation and coordination (Connell, 2001). Third, this cooperative and self-organised collective behaviour occurred even when there was *no common group membership prior to the emergency* (Solnit, 2009).

Mass emergencies like 9/11 are defined by the following: first, there is a threat of death (whether real or perceived); second, this threat affects a large number of people at once; and third, there is a limited opportunity to escape to safety (Quarantelli, 2001). For present purposes, a *disaster* shares the first two criteria, but is characterised by limited access to resources, not limited opportunity to escape. Collective responses to these kinds of events are often described as "panic" (Fahy, Proulx, & Aiman, 2012; Sheppard, Rubin, Wardman, & Wessley, 2006), implying uncontrolled and selfish behaviour. It is true that some emergency evacuations are characterised by individualistic behaviour and hence lack of coordination (Chertkoff & Kushigian, 1999; Frey, Savage, & Torgler, 2010; Muir, Bottomley, & Marrison, 1996). In addition, rather than people coming together as one, in some disasters social cleavages remain or become sharpened (Kaniasty & Norris, 1999). Furthermore, the level of collective support found in emergencies and disasters varies between events (Mawson, 2007), and within the same event, both over time and between individuals (Drury, Reicher, & Cocking, 2009a). However, given that in much of everyday life, particularly in Western and neoliberal societies, people are overwhelmingly positioned as individuals acting on the basis

of personal self-interest (Fairclough, 2013; Wagner, 1995), the repeated finding that people, in fact, act collectively in events where personal self-interest is threatened requires explanation.

This relative prevalence of collective behaviour (and specifically social support) in emergencies and disasters, but also the fact that there is some variability in the extent of that collective behaviour, together suggest the relevance of the social identity approach as an explanatory framework, because this approach specifies the contextual conditions in which people act as members of groups. In this review article, I will provide an overview and integration of recent research that has served to develop a social identity model of collective behaviour in emergencies and disasters. Specifically, following self-categorisation theory (Turner, 1982, 1985; Turner, Hogg, Oakes, Reicher, & Wetherell, 1987; Turner, Oakes, Haslam, & McGarty, 1994), I will argue that collective behaviour is possible in ad hoc crowds in an emergency or disaster through participants sharing an (emergent) social identity in the event. I will suggest that this shared social identity is also the basis of the motivation to support others affected by the emergency, and that the source of shared identity in these situations is the comparative context – specifically the common fate experienced by survivors. In this account, variability in the level of collective behaviour across different emergencies and disasters can be (partly) explained by variation in the level of shared social identification.

In addition to these basic group processes, I will suggest other mechanisms that follow, directly and indirectly, from shared social identity in emergencies and disasters. Importantly, as well as the motivation to provide support, shared identity leads people to *expect* support from others who share their social category membership, as well as to trust these others to behave in the collective interest. Expected support is a crucial hinge for a variety of behavioural and psychological outcomes. As well as these predicted direct and indirect

effects of shared identity, the behaviour of relevant others can be a powerful (unintended) influence; when people with whom we share social identity express fear, or flee, or support others, this is likely to affect whether we do the same.

After first specifying the scope and object of investigation, I will briefly review the major theoretical explanations for collective behaviour in emergencies and disasters. The research evidence for and against these different explanations will be used to suggest some of the principles that make up the social identity model I lay out in the following section. I will then describe experimental and field studies carried out by myself and colleagues that supports this social identity model. Next, I draw upon Reicher's concept of relational transformation in psychological crowds (Neville & Reicher, 2011; Reicher, 2011) to derive some mediating processes and further outcomes in the social identity model (i.e., expected support, trust, coordination of behaviour, efficacy, safety perceptions). I then describe how the social identity approach explains how unintended influence operates in crowds during emergencies. Before outlining the limitations of this programme of work and some possible future directions, I will show how the social identity model has been applied to explaining how disaster is sometimes avoided in potentially dangerous crowd events.

Defining the scope: What needs to be explained?

There is a substantial research literature on, and a number of theoretical explanations for, bystander (non-)intervention (e.g., Darley & Latané, 1968; Latané & Darley, 1970; Piliavin, Dovidio, Gaertner, & Clark, 1981; see Levine & Manning, 2013). While some of the principles and concepts established in this body of work can be carried over to explain the phenomena of interest in the present review, there are key differences. Most importantly, the literature on bystander helping and emergency intervention focuses on those situations where the person helping is not him- or herself in danger or need. This is different from a mass emergency, in which both helper and helped are (potential) victims. Helping behaviour within

a mass emergency, by contrast to typical bystander interventions, means a potential cost or risk to the helper as well as the helped.

There is also a literature, both psychological and sociological, on "convergence" behaviour at disasters (e.g., Fritz & Williams, 1957; see also Solnit, 2009). This is the phenomenon whereby people unaffected by the disaster descend on the scene (or donate items) to try to give support. While this collective phenomenon is important for understanding, and planning for, broader patterns of behaviour around such events, it is outside the scope of the present article because it is different from the problem of explaining collective behaviour among those within, and threatened by, the emergency or disaster.

Finally, there are other literatures that will also not be discussed here, for similar reasons of scope and relevance, including the literature on individual variation in decision-making among survivors (including research on freezing; e.g., Leach, 2004),[1] the clinical literature on mental health responses (such as PTSD and anxiety) to emergencies (e.g., Norris, Friedman, Watson, Byrne, Diaz, & Kaniasty, 2002), the literature on organisational resilience in disasters (Tierney & Trainor, 2004), and the literature on the communication of risks and warnings in emergencies (e.g., Rogers, Amlôt, Rubin, Wessely, & Krieger, 2007). In short, what this review seeks to explain is the collective aspects of survivor behaviour in emergencies and disasters, and in particular how and when forms of social support occur within an event. Hence the focus here is on crowd behaviour and psychology.

BEHAVIOUR IN EMERGENCIES AND DISASTERS: THEORIES AND EVIDENCE

The "panic" tradition

[1] There is an important distinction between those theories that set out to explain variation between individuals in responses to emergencies (such as that of Leach, 2004) and those individual-mechanism focused theories that set out to explain collective responses (such as that of Mawson, 2007).

The scientific study of mass emergency behaviour was first prompted by a concern in the military that soldiers were losing discipline when under attack by the enemy (e.g., Schultz, 1965; Strauss, 1944). These early explanations drew upon the crowd psychology of Gustave Le Bon (1895/1965) to explain what they saw as the delusionary beliefs, excessive emotion, and uncontrolled fleeing behaviour in these troops (Bendersky, 2007). On the one hand, such "mass panic" in a crowd was understood as the dissolution of existing social bonds (Freud, 1921/1985); when people were overcome by fear, it was argued, individualistic (competitive) flight impulses supersede socialised group norms (Quarantelli, 1954, 1957). On the other hand, the concept of "contagion" was employed by a number of these theorists to explain how these excessive fears and uncontrolled behaviours became shared, with crowds being considered a particularly susceptible channel for such uncritical transmission processes (e.g., McDougall, 1920; Ross, 1908).

Four kinds of problems with the notion of "mass panic" can be discussed. The first has to do with how one judges a behaviour as panic, with its implication of irrationality. Within an emergency, people often have very limited information, and so what appears post hoc and from an external perspective to be an overreaction (such as running frantically following a bomb blast) might be reasonable and proportionate from the perspective of those involved (Sime, 1990).

Second, the term "panic" is not used consistently. The term is common in mass media and lay descriptions of behavioural responses to emergencies (Fahy et al., 2012), and can refer to sudden fear and associated sensations, such as racing heart, sweating, and shaking; and researchers use the term to refer to (uncontrolled) fleeing behaviour, and/or possible

feelings underlying this behaviour, and/or outcomes of this behaviour (such as crushes) (Sime, 1990; Quarantelli, 2001).[2]

The third problem is that many studies of emergencies that meet all the conditions for crowd panic (threat, a crowd, and only limited escape), find little evidence for it. These include Janis's (1951) study of behavioural reactions to the Hiroshima bombing, and Sheppard et al.'s (2006) analysis of the 1995 Sarin attack in Tokyo, the 9/11 World Trade Center attack, anthrax incidents in the USA in 2001, the July 7th London bombings, and chemical weapons attacks during World War I. Though mass panic has been called a "disaster myth" by sociologists (e.g., Wenger, Dykes, Sebok, & Neff, 1975), these studies reporting an absence of panic do not in themselves falsify the mass panic concept, of course; like Popper's (1959) example of the white swan, there may still be counter-examples. A review of public responses to bombing raids during World War II by Jones, Woolven, Durodié, and Wessley (2006) concludes that mass panic is "rare" and where it occurs is only short-lived.

The fourth problem with the concept of "mass panic" is the fact that, as noted earlier, one of the most frequently observed behavioural responses in emergencies is the very opposite to that which "panic" theories would predict. The evidence of widespread supportive behaviours undermines the notions of both individualistic flight and mindless contagion as default responses. For example, in contrast to the dominant representations of the aftermath of Hurricane Katrina as a descent into barbarism (Tierney, Bevc, & Kuligowski, 2006), Rodríguez, Trainor, and Quarantelli (2006) document how survivors commandeered boats to rescue their neighbours, improvised communal shelters, and located supplies for others. While these examples refer to a disaster rather than an escape situation, studies of emergency

[2] A related issue here is that the term *panic* can also be used as a blaming device and criticism (Cocking & Drury, 2014) – hence its usefulness as a form of social critique in the concept of a moral panic (Cohen, 1972).

evacuations also find evidence that those affected attempt to help, including at the Beverly Hills Supper Club fire of 1977 (Johnson, 1988), the 2003 Station nightclub fire (Aguirre, Torres, Gill, & Hotchkiss, 2011), and the 1997 Umbria-Marche earthquake (Prati, Catufi, & Pietrantoni, 2012). A recent interview study of 125 survivors from a range of emergencies and disasters across different European countries found that the most common behaviour people reported witnessing was helping (Grimm, Hulse, Preiss, & Schmidt, 2014). Moreover, as well as this evidence of help, there is also evidence of cooperation and order more broadly. For example, Chertkoff and Kushigian (1999) describe the 1993 evacuation of the World Trade Center as calm and with a smooth flow of people down the stairs; most people gave support to others, despite the darkness, smoke, and uncertainty.

While social support is common, this is not the case in all emergency evacuations, and there is also some variation over time and within events. A way is needed to conceptualise and explain behaviour in those mass emergencies that do not go so well, without accepting the problematic assumptions of "mass panic". One approach is to argue that when panic does occur it is not a *crowd* phenomenon but rather is limited to small numbers of individuals – for example, just "1/124 (0.8%)" of people at the World Trade Center evacuation "panicked" (Blake, Galea, Westeng & Dixon, 2004, p. 5). Another approach is more behavioural, which avoids the inherent problems of judging whether or not a response is irrational – for example, seeking to identify the psychological and situational conditions under which people push others aside (rather than cooperating). Thus Chertkoff and Kushigian (1999) compared emergency evacuations that went well with those that went badly; they suggest that those emergencies where pushing and trampling was more likely are characterised by severe restrictions on passage space and evacuees having only limited knowledge about exits.

Even in cases where there is pushing and shoving, however, the responsibility of the crowd for fatalities in emergencies has been overstated. Two of the most widely cited

emergencies that ended in tragedy are the fire at Chicago's Iroquois Theatre in 1903, in which nearly 600 people died, and the Cocoanut Grove theatre fire of 1942, where nearly 500 people died. In both cases, a number of sources have claimed that the deaths were due primarily to the escape behaviour of the crowd (e.g., Forsyth, 1999). However, Chertkoff and Kushigian's (1999) systematic re-examination of both events concluded that in neither case was the verdict "death by mass panic" justified. In the Cocoanut Grove theatre fire, for example, while some people were knocked aside and stepped on in the rush to try to get out, most people died not from the behaviour of others, but from fumes and a fireball as a result of being trapped inside a building with inadequate exits.

Social norms: Rules and roles

Sociological normative approaches stress that, in both mundane social situations and emergencies, behaviour is structured by social norms that guide and constrain what people do, ensuring sociality and delimiting individual competition (Aguirre, 2005). Emergent norm theory (Turner & Killian, 1972) suggests that some of these norms are constructed within the emergency itself (Aguirre, Wenger, & Vigo, 1998; Connell, 2001) but also that pre-existing roles and rules also continue to operate, even in "extraordinary" events (McPhail, 1991).

Evidence for normative approaches includes the finding that men attempted to help women more than vice versa (i.e., gender role conformity) in the crush at a concert by the rock group, *The Who* (Johnson, 1987), and the greater assistance offered to the elderly and infirm than the able-bodied in the Beverly Hills Supper Club fire (Feinberg & Johnson, 2001). Frey et al.'s (2010) comparison of behaviour during the sinking of the Titanic with that during the sinking of the Lusitania reported data consistent with the claim that social norms (such as "women and children first") operate in escape emergencies only when there is relatively little time pressure; when time pressure is strong, Frey et al. argue, individual competition predominates. However, Johnson's (1988) study of the Beverly Hills Supper

Club fire, in which 165 people died, found that while competition increased when danger of death was closer, behaviour was still constrained by norms and family roles.

The usefulness of a normative approach is that it seems to explain a range of different evacuation behaviours (not just social support) as meaningful and socially determined. For example, Donald and Canter's (1990, 1992) study of the King's Cross disaster of 1987, in which 31 people died in a fire in the underground station, showed how fatal use of familiar exits rather than fire exits reflected conformity to established place rules for many of those trying to escape. The risk of the normative approach is that, without further specification, it merely re-describes behaviour (as in Turner & Killian's, 1972, account of a "panic" norm; see p. 81). In terms of process, the questions that need to be addressed are: which norms, when, and why? Social psychological theories, such as self-categorisation theory (Turner et al., 1987), suggest that we are each aware of many different norms, corresponding to our different group memberships. Some of these norms might be in competition with each other. From a psychological perspective, normative approaches require supplementation with explanations of norm-activation and social identity salience.

Existing interpersonal bonds

In addition to the role of social norms, Johnson's (1987, 1988) studies suggested that family and friend relationships among survivors structured responses and were the basis of much of the social support provided. Thus people often tried to remain in their existing affiliation groups during the evacuation of the Beverly Hills Supper Club, even if it delayed their own exit (Cornwell, 2003; Feinberg & Johnson, 2001). A more psychological version of this kind of explanation is provided by Mawson (2005, 2007). His affiliation approach suggests that, in the face of threat, we are motivated to seek the familiar rather than simply exit, because the presence of familiar others (i.e., affiliates) has a calming effect, working against a "fight or flight" reaction.

An example of evidence for the affiliation approach is provided by Sime's (1983) study of the fire at the Summerland leisure complex on the Isle of Man in 1973, in which 50 people died. Statistical analysis of accounts collected from survivors shortly after the fire suggested that people in family groups tried to exit as groups, not as individuals, whereas groups made up of both strangers and affiliates made less effort to stay together. A more recent test, however, found less support for the predictions of the affiliation approach. A survey of survivors of the December 2013 Haiyan (Philippines) typhoon found evidence of widespread solidarity with strangers, even in the presence of threat and in the absence of attachment figures (Bartolucci & Magni, 2017), conditions which, according to Mawson (2005, 2007), should have led to mass panic.

The emphasis on existing social bonds in these accounts of behaviour in emergencies is in line with the major framework – in both theory and policy – for explaining sociality following disasters: social capital (e.g., Twigger-Ross, Coates, Deeming, Orr, Ramsden, & Stafford, 2011). This concept refers to (interpersonal) networks of trust that facilitate coordinated action (for a critical analysis of the use of the concept of social capital in relation to disasters, see Uekusa, 2017). However, while there is much evidence that existing social bonds are important in shaping behaviour in crowds (and communities) in emergencies, such social bonds are not always necessary to explain collective behaviour. In many major incidents, the crowd comprises strangers as well as affiliates, yet still there is evidence of widespread helping and other forms of social coordination among these strangers (Clarke, 2002). There is also substantial evidence to suggest that, as well as existing relationships structuring behaviour, new relationships are formed within emergencies, based on the common experience of the emergency itself.

Emergent groupness

A number of researchers have suggested that the basis of widespread helping in emergencies and disasters is what we might call "emergent groupness" (e.g., Clarke, 2002; Jencson, 2001; Jong, Whitehouse, Kavanagh, & Lane, 2015; Paton & Irons, 2016; Solnit, 2009; Walker-Springett, Butler, & Adger, 2017). Fritz (1961/1996) was among the first sociologists to suggest this; his observation of the "Blitz spirit" in London during World War II led him to argue that, in a disaster, social boundaries dissolve – groups who previously saw themselves as different now saw themselves as one. Fritz referred to this as the "therapeutic community" of sufferers, while Barton (1969) termed it the "altruistic community". "Disaster community" is another term for this phenomenon (e.g., Wright, Ursano, Bartone, & Ingraham, 1990).

In a nuanced review of the relevant evidence, Kaniasty and Norris (1999) point out that these "post disaster democracies" do not occur in all disasters, and, where they do occur, the disaster community does not distribute aid equally, with structural differences in advantage often being reproduced and even exacerbated. Recent survey work in social psychology has suggested that, where there is already salient inequality, advantaged majority group members may be less ready than disadvantaged minorities to see all as a single group (Vezzali, Andrighetto, Drury, Di Bernardo, & Cadamuro, 2017). Despite these caveats, there is agreement among a number of researchers on the importance of emergent groupness in emergencies and disasters, both phenomenologically and in terms of behaviours. The idea of groupness as the basis for social support in emergencies also resonates with the social identity approach, in particular with self-categorisation theory, as I discuss next.

A SOCIAL IDENTITY MODEL OF COLLECTIVE BEHAVIOUR IN EMERGENCIES AND DISASTERS

A basic principle of self-categorisation theory (SCT; Turner, 1982, 1985; Turner et al., 1987; Turner et al., 1994) is that collective behaviour is possible when there is a shared social identity. Reicher's (1984, 1987) research on the St Pauls riot showed that this principle could

be used to explain normative crowd behaviour in novel situations. Subsequent research, again on riots, showed that the fact of sharing social identity with others in a novel and dangerous crowd event could be the basis of displaying solidarity towards them (Reicher, 1996). These points are relevant to the case of mass emergency behaviour, since here too there is a novel and dangerous crowd situation where there is a need for social support. The social identity model of collective behaviour in emergencies and disasters thus suggests that shared social identity is the basis of action to provide support to others; it adds that the basis of this shared identity is the common fate shared by those in an emergency.

Antecedents of shared social identity. The assemblage of people facing an emergency may already see themselves as members of a single social category; or they may see themselves as part of separate groups within the crowd; or they may see themselves simply as individuals or in dyads unconnected with any others present. In other words, the *physical* crowd of people co-present may contain one or more than one *psychological crowds* (Reicher, 2011), or none at all. However, the shared nature of the fire, bombing, or other threat can operate to make these people see themselves as grouped together as one. In Gestalt terms, the social "figure and ground" shifts from *"me in relation to other individuals"* to *"us in relation to the emergency".* Thus *common fate* operates as a form of comparative fit, enhancing perceptions of within-group similarity and clarifying group boundaries (Turner, 1981) in relation to the emergency. It is the basis of emergent shared social identity with others in the same situation. The process is similar to that described by Reicher (1996) and Stott (Stott & Reicher, 1998; Stott & Drury, 1999, 2000) in studies of crowd conflict where indiscriminate police action creates more inclusive ingroup boundaries in a crowd. However, in the case of an emergency, the "other" which serves to define survivors as one is not an outgroup but the emergency itself.

Consequences of shared social identity. Once the boundaries of concern have been extended from the personal self to a collective self – which might be defined as "those of us affected by the emergency" – this shared social identity motivates helping, cooperation, and also broader forms of solidarity such as courtesy. In this account, it is assumed that we normally orient to, and care about, "our" own wellbeing. However, since who "we" are varies as a function of level of self-categorisation, so too do self-interest and other motivations.

The proposition that shared identity increases supportive behaviour towards ingroup members is one that has previously been inferred from research and theory on common ingroup identity (e.g., Gaertner & Dovidio, 2012). Although this kind of approach has principally been applied to understanding intergroup relations (Gaertner, Mann, Murrell, & Dovidio, 1989), it has also been used to predict intragroup behaviour. For example, in social dilemmas, a common level of self-categorisation has been shown to constrain personal resource use (Kramer & Brewer, 1984) and to increase concern for, and contributions to, the collective interest (Wit & Kerr, 2002). The notion that shared identity increases helping for those in need has previously been shown in Levine's experimental studies of bystander intervention literature, again based on SCT (Levine & Crowther, 2008; Levine, Prosser, Evans, & Reicher, 2005; Slater et al., 2013). However, the social identity model described here differs from these similar SCT-based approaches in that it applies to ingroup-supportive behaviour in events where there is time pressure and threat, and it suggests that the common identity in question is one specific to, and emergent of, that threatening context.

The first research evidence for the social identity model is described in the next section, which is organised in three parts, reflecting three methodological strands: experimental studies; a case study of the July 7th 2005 London bombings; and a comparative design interview study.

EVIDENCE FOR THE ROLE OF SHARED SOCIAL IDENTITY IN EMERGENCIES AND DISASTERS

The rationale for a mixed-methods approach, combining different research designs to approach the question of collective behaviour in emergencies from different angles, was that of methodological triangulation (Denzin, 1970). Rather than working sequentially, using qualitative research to develop hypotheses for quantitative tests, as in some mixed-methods approaches, our aim was to carry out complementary strands of research activity in parallel. Quantitative hypotheses were present from the start, being derived from the basic tenets of self-categorisation theory (as explained above). The qualitatively-based studies did indeed serve to suggest new hypotheses, but these only became clear after the experimental work had already started. Hence, in the narrative below, we present the experimental evidence first.

Experimental evidence

We developed an experimental paradigm to test the hypothesis that, in an emergency evacuation, where there is a salient shared social identity there will be greater social support for strangers and fewer individually competitive behaviours than when there is no (or low) salient shared social identity. We created a computer visualisation of a fire in, and evacuation from, an underground rail station, using similar simulation techniques to those employed in computer games (Drury, Cocking, Reicher et al., 2009). Participants seated at a computer viewed and controlled a character moving through the station, with commentary describing a fire breaking out and the need to evacuate as quickly as possible. The scene was populated by other individuals, who could be presented as members of the participant's own group or simply as other people, to vary the level of shared social identity. The urgency of the escape was represented by a "danger bar", indicating how long the participant had to escape death. During the evacuation, the participant received requests for help from four fallen characters (acceding to which would delay their own exit) and had unlimited opportunities to push other

characters aside on the crowded escalators. Both helping and pushing could be carried out through the press of a single key. Thus the paradigm included behavioural measures, as well as self-report measures including identification with the crowd, liking of the characters, and concern for others.

In one study (N = 72), we randomly assigned student participants to low versus high shared identification conditions. In the low identification condition, we asked participants to think of themselves in terms of their personal identity and we described the crowd in the simulation as "tourists, shoppers, and commuters", in the high identification condition, we asked participants to think of themselves in terms of their identity as students and we described the crowd as "fellow students." However, our manipulation checks found that levels of identification with the crowd were close to the scale mid-point across conditions – possibly because the manipulation was not engaging enough – which meant that we could not test for group differences. Nevertheless, regression analyses showed that identification with the crowd predicted the number of helping behaviours and (negatively) the number of times other characters were pushed aside, in line with the social identity explanation. In addition, concern for others mediated the relationship between social identification and helping behaviour.

In a further study (N = 40), student participants were defined either as part of a crowd of shoppers (low identification condition) or fans of the same football team (high identification condition).[3] As expected, there was significantly more help offered in high-identification (M = 0.70, SD = 0.29) than in low-identification (M = 0.48, SD = 0.27) conditions. As predicted,

[3] There is clearly a potential confound in designs such as these, which use social groups that have well-established stereotypes, as a way of operationalising shared identity. Our decision to use such groups was based on the reasoning that minimal groups might be less engaging for these kinds of experiments. In the case of the second experiment described here, while it is true that the "football fan" identity has a number of associations, it is not clear that it is particularly associated with a norm of helping behaviour.

low-identification participants also pushed more (M = 18.39, SD = 12.20) than did high-identification participants (M = 9.26, SD = 8.54).

These simulation experiments provide some prima facie evidence that shared social identity in an emergency increases supportive behaviours and reduces competitive behaviours, compared to when there is no shared social identity. While there is a history of social psychology studies of escape behaviours using laboratory methods (e.g., Chertkoff, Kushigian, & McCool, 1996; Gross, Kelley, Kruglanski, & Patch, 1972; Mintz, 1951), some of these were conducted at a time when ethics committees had less sway, and therefore real threats (of pain) could easily be included in the design to add realism (e.g., Kelley, Condry, Dahlke, & Hill, 1965; Klein, 1976). Our own designs did not include any threats (real or bogus), and so lack the key element that defines an emergency and which can be expected to impact on helping behaviour. The low ecological validity of the design therefore meant that real-world studies were also necessary.

A further issue is that, when these experiments were designed, we were still operating with a somewhat static conception of the role of social identity processes in emergencies. We assumed that people in crowds without a shared social identity remained that way throughout the emergency. However, our studies of real-life emergencies indicated that a more *dynamic* account was required, more in line with the ideas on "emergent groupness" described above. The best example is our study of survivor behaviours during the July 7th 2005 London bombings, for in this case the crowd (of commuters) had no shared social identity prior to the explosions but behaved as if they did immediately afterwards.

Collective behaviour in the July 7th London bombings

On July 7th 2005, four bombs exploded on the London transport system, three on underground trains and one on a bus. Fifty-six people were killed (including the four

bombers) and over 700 were injured. Those who survived on the tube trains were left underground, literally and figuratively in the dark for a significant period of time before they emerged or the emergency services reached them (London Assembly, 2006). While a number of studies have examined post-traumatic stress among the survivors (e.g., Brewin, Scragg, Robertson, Thompson, d'Ardenne, & Ehlers, 2008) and subsequent behaviours among Londoners more generally (e.g., Rubin, Brewin, Greenberg et al., 2007), our own study was unique in that it was concerned with the social-psychological question of how survivors *behaved* – and specifically the extent to which they behaved supportively and as a group – in the bombed trains in the immediate aftermath of the explosions (Drury, Cocking, & Reicher, 2009b; see also Cocking, Drury, & Reicher, 2009, and Cocking, 2013).

The high profile of the event meant that there was considerable media coverage in the days afterwards, including many statements from survivors quoted in the press. There was also an inquest by the London Assembly (2006), which included some extremely detailed (and harrowing) accounts from those who survived. Our study made use of these as well as survivor accounts in other secondary sources, many of which were produced in the day or so after the events. Our estimate of the number of different survivors in our secondary data-base was 90 survivors, plus 56 witnesses.[4] These secondary sources varied in quality and did not always refer to the issues that interested us. Therefore, we also needed to carry out primary data collection so we could ask survivors not only what they did (and what they saw other people do), but also what their relationship with others in the train carriages was like, what motivated them, and whether they felt in danger. We interviewed 12 survivors face-to-face and obtained written responses to our questions from a further seven. All the material was coded and analysed using a theory-driven version of thematic analysis.

[4] All sources were checked and cross-referenced to make sure we were not double-counting.

We found that, overwhelmingly, and consistently across the different data sources, survivors described witnessing (and receiving) help, and many described giving help – including giving reassurance, sharing water, physically supporting people as they evacuated, checking that others were OK, and even tying tourniquets. Only a small number described personally selfish behaviours (such as pushing others). While there is an obvious possibility of bias, in that people may report their own behaviour in a positive light, arguably this applies less when reporting the behaviours of others.[5] We were therefore confident that supportive behaviour was common amongst survivors.

One possible explanation for the prevalence of supportive behaviour in this emergency is that survivors felt that the danger had passed: since the explosions were over, perhaps it was no longer subjectively an escape situation. If this was the case, then survivors would calculate that there was little cost or risk attached to giving help. However, in both the interviews and the secondary data, there was clear evidence of a continuing perceived danger of death. Qualitatively, survivors referred to concern that the tunnel would collapse, that the rail was live, that there would be a secondary device; quantitatively, only one interviewee (and none of those quoted contemporaneously) said they did not feel in danger of death, while 12 interviewees (and 70 of those quoted spontaneously) said they did feel in such danger.

A second possible explanation for the prevalence of supportive behaviour is in terms of existing interpersonal bonds (Johnson, 1988; Mawson, 2007). However, the explosions took place during morning rush hour. Therefore, most people on the trains and bus were commuters rather than families or groups of friends. In our data, only 12 survivors said they were with people they knew, while 63 said they were among strangers.

[5] Though it might be argued that shared social identity means that the same bias would transfer to the group level.

We examined the secondary sources for references from survivors to a sense of unity with others in the carriages, which we took as evidence of shared social identity. While numbers reporting this (26) were small in absolute terms, numbers reporting disunity were much smaller (0). The interviews allowed us to examine this question of shared identity more directly. When we asked people about their experience prior to the explosions, a number of interviewees described competition and feelings of separateness in relation to other individual users of the underground railway. With reference to their relationship with others in the carriages immediately after the explosion, however, 11 respondents were explicit that there was a strong sense of unity – or "we-ness" (cf. Dovidio, Piliavin, Gaertner, Schroeder, & Clark, 1991) – in the crowd (i.e., that they felt it themselves and/or that they saw it in others), and only one spoke about disunity. They also used rich vocabulary to describe the experience, including "unity", "together", "similarity", "affinity", "part of a group", "everybody, didn't matter what colour or nationality", "you thought these people knew each other", and "teamness".

Moreover, this experience of unity seemed to be associated with social support. In the secondary sources, 14 of the 26 survivors who reported feeling unity also reported helping (each more than once). Of our eleven respondents in the primary sources who described experiencing unity, ten described helping others.

Where respondents offered an explanation for the feeling of unity, they attributed it to their shared experience of threat and danger (five interviewees); the "we" in the "we-talk" (cf. Smith, Gavin, & Sharp, 2015) was in relation to the explosion:

> I felt that we're all in the same boat together [ ][6] and then for the feelings that I was feeling could well have been felt by them as well 'cos I don't think any normal human

[6] Square brackets indicate text edited out to save space.

being could just calmly sat there going oh yeah this is great [ ] it was a stressful situation and we were all in it together and the best way to get out of it was to help each other … yeah so I felt exactly I felt quite close to the people near me. (Interview 1)

Thus common fate seemed to be the basis of a new shared social identity for these survivors.

As a case study, the London bombings analysis was limited in its ability to provide evidence about the role of common fate and shared social identity. In the first place, due to the difficulty of getting people to talk about such distressing experiences, the interview part of the dataset was small. Second, the dataset as a whole was low in variability (for example, reports of help were overwhelming), which meant that it was difficult to make comparisons and show the effects associated with different levels of key variables. What was needed to provide a better examination of the social identity approach to mass emergency behaviour was a study using a comparative design.

The comparative design study

For our comparative design study (Drury, Cocking, & Reicher, 2009a), we sought to interview survivors of different emergencies, by placing advertisements in UK national newspapers. We also snowballed an initial sample and tried to contact people who had been involved in one well-known disaster, the Hillsborough, UK, football stadium crush (1989) and one local near-disaster, the Big Beach Boutique 2 music event in Brighton, UK (2002).

We originally intended to test a simple social identity hypothesis that crowds with (a given) shared social identity would display social support behaviours whereas crowds with low or no shared social identity would display individualistic (competitive or "panic") behaviour. However, the stories people told us were complex. Rather than a shared social identity in the crowd prior to the emergency being the basis of helping behaviour, as with the

London bombings there was evidence in many cases that this sense of shared identity emerged *within* the event. This time, however, there was some variability among participants on a number of dimensions of interest, which allowed us to make comparisons.

Twenty-one participants (11 male, 10 female) took part in the study, with experiences of 11 different events, including fires, sinking ships, crowd crushes, and evacuations from buildings. Most were genuine emergencies (sinking of the Jupiter, sinking of the Oceanos, Hillsborough football stadium disaster, Accra [Ghana] football stadium crush, Bradford football stadium fire, fire at Sonesta Hotel [Cambridge, Massachusetts], Harrods bomb), some were false alarms (Canary Wharf and Frankfurt tower block emergency evacuations), and one was a "near-disaster" (Big Beach Boutique 2 music event), but in each case there was perceived danger of death, a crowd, and an apparently time-limited exit. Due again to the difficulty in getting people to talk about distressing events, the number is small for a quantitative analysis, though within an acceptable range for a qualitative interview study.

We used an interview schedule and form of analysis similar to the one used in the London bombings study. Shared social identification was again operationalised in terms of references to feelings of "unity" or "togetherness" with the rest of the crowd; and common fate was operationalised in terms of references to shared danger. We included as "helping" such behaviours as helping people to their feet, moving objects so that others could escape more quickly, giving encouragement, sharing bottles of water, and giving information and advice. Behaviours defined as personally selfish included barging or pushing others aside, ignoring others in need, trying to step in ahead of others, and ignoring pleas for help. We distinguished helping from more everyday forms of cooperative or "orderly" conduct (cf.

Reicher & Haslam, 2010) including order and calm,[7] adherence to everyday rules, maintenance of social roles, and courtesy vs discourtesy. Each of these could contribute to an organised, coordinated evacuation.

While there was evidence for identification with the crowd in most of the survivors interviewed, there was also some variability in these reports. We asked an independent judge to sort the accounts into two groups: those interviewees who said their unity with the crowd was low (or who were vague) (n = 9), and those who were explicit that it was high (n = 12).[8] We excluded from the operational definition of high-identifiers those who referred only to "unity" with the small group of known affiliates that they were already with.

As with the London bombings study (Drury et al., 2009b), people sometimes talked about "panic" in different ways over the course of the interview; yet when this was unpacked by asking people what they meant by "panic", the same people often described helping behaviour alongside their fear (Cocking & Drury, 2014). Across the sample as a whole, most interviewees (17, or 81%) reported observing multiple instances of helping among other survivors. However, whereas most people who identified with the crowd (10, or 66%) reported giving help (and together reported 14 separate instances of such help), only a minority of people who did not identify with the crowd (3, or 33%) reported giving help (and they reported a total of seven separate instances of giving help).[9] A similar pattern obtained for the "orderly" behaviours – see Table 1, below.

[7] In retrospect, the linking of "calmness" with orderliness is problematic, because it suggests that emotionality is the issue. It is possible for a relatively unemotional crowd to block a door if their exit is uncoordinated (Mintz, 1951), and for a frightened or angry crowd to display self-organisation.

[8] These levels of unity varied within events as well as between them; for example, two interviewees at the Big Beach Boutique 2 were classified as low and two others at the same event were classified as high.

[9] While the numbers for personally selfish behaviours were the reverse of predictions, the numbers were so low that the comparison is probably meaningless: low-identifiers 0% of interviewees (0 instances), high-identifiers 8% (1 instance).

---Insert Table 1 about here---

While the analysis focused on level of self-categorisation, the data on orderliness can also be used to suggest how existing commitments (norms, values, roles) might operate in emergency contexts – something missing, as noted above, in sociological accounts of norms in emergencies (e.g., Johnson, 1987). Thus perhaps those survivors classified as high in shared social identification were more likely than others to report conforming to norms and acting within roles during the events because more identification with a social category defined only in terms of the emergency meant greater conformity to norms and roles thought to be generic to "we-ness".

Some of our interviewees reported feeling unity with the crowd before the event. However, all except one of those with this prior sense of identification reported that their feeling of unity increased, either in strength or, as in the following example, in inclusiveness, in response to the emergency:

> I think everyone would accept that one had really gone beyond the definition of identifying the person as a as a supporter of football, at this point, they're just human beings struggling, to be fair. I don't think anyone saw Liverpool fans and Notts Forest fans [ ] People stopped being supporters of a football team and were just people.
>
> (Hillsborough interview 2)

Across the sample as whole, most survivors reported both feeling in danger and perceiving this feeling to be shared across the crowd. Importantly, however, and as expected, reports of shared danger were slightly more numerous for high-identification (11, or 92% of the interviewees) than low-identification (6, or 66%) survivors. Moreover, some high-identification participants explicitly explained the feeling of unity in terms of the shared fate of the crowd as a whole.

It is largely in the nature of research studies on emergencies and disasters that sampling and control procedures cannot normally be implemented in the same way as for studies of many other topics. There are therefore caveats to be borne in mind when interpreting these results: the interviewees were self-selecting and may not be typical of those who survived these events; some of the interviews took place years after the events, and so memory[10] as well as self-presentational biases may be operating. Nevertheless, there is a pattern to these results that reinforces and extends the findings of the studies described earlier (Drury et al., 2009b; Drury, Cocking, Reicher et al., 2009). In summary, comparing accounts of those who experienced a strong versus a weak sense of identity with other survivors across different emergency events suggests that common fate was an antecedent of shared identification, and that providing support and more general orderly behaviour were some of the consequences. Therefore, the study suggests that variability in social support and other forms of collective behaviour in emergencies can be explained by variability in the perception of common fate (or other contextual features positioning people as a group) and hence in shared social identity.

Convergent evidence

Convergent evidence from research on disasters for the proposition that comparative context creates a new shared social identity among those affected by an emergency, and for the proposition that shared identity increases supportive behaviour for ingroup members, is provided in recent research on some of the consequences of the earthquakes which took place in the north Italian region of Emilia-Romagna in 2012. In a study by Vezzali, Cadamuro, Versari, Giovannini, and Trifiletti (2015), Italian and migrant schoolchildren completed a questionnaire six months after the earthquakes. Among Italians, perceived exposure to the

[10] Though some research suggests that extreme events (e.g., earthquakes) are remembered better when there is personal involvement (Neisser, 1996; Prati et al., 2012).

disaster was positively associated with representing self and others affected as part of a single group. Vezzali et al. (2015) used the notion "altruism born of suffering" (Staub & Vollhardt, 2006; Vollhardt, 2009)[11] to explain why experiencing the disaster led to shared identification and support, paralleling the notion of common fate in the social identity approach. Among migrant children, perceived disaster exposure was not associated with one-group representation, which may have been due to the enduring salience of status differences between groups (Vezzali et al., 2017). A second study, this time on adults in the same affected population, found that disaster exposure led to a single group representation in the minority group (Andrighetto, Vezzali, Bergamini, Nadi, & Giovannini, 2016). Both studies found that perceiving others affected by the emergency as a single group predicted helping motivations.

The scope of these earthquake studies differs from our studies described above (Drury et al., 2009a, 2009b) in that their focus was not on crowd behaviour within the emergency itself, but rather the effects within a wider social group after the event. Nevertheless, parallels in hypothesised processes are clear. A second analysis of the data from schoolchildren was carried out specifically to combine hypotheses from the two strands of work (Vezzali, Drury, Cadamuro, & Versari, 2016). The children reported posttraumatic stress symptoms caused by the earthquake. As these stresses were experienced collectively, we reasoned that they would operate as a common fate. Indeed, level of symptoms predicted inclusion of the other in the

[11] Staub and Vollhardt (2006) note that numerous studies have found a correlation between involvement in suffering and helping behaviour, including many from the disaster literature. Vollhardt (2009) suggests that the experience of suffering provides a new motivation and proposes that mechanisms could include empathy, perceived common fate, and shared social identification with other victims.

self (IOS),[12] and IOS predicted one-group representation of all children affected by the quake. IOS also predicted contact intentions, and one-group representation predicted helping intentions towards other affected children. While these data were only correlational, the proposal model made more theoretical sense than different arrangements of the same variables, and was found to provide better fit than four alternative models.

This section has described the first set of studies we carried out to investigate the role of social identity processes in mass emergency behaviour. Using different methodologies (experimental, interview, and archive), there was a pattern of consistent support for the notion that shared social identity is the basis of providing support to others within a mass emergency, and that the emergency itself, through the experience of common fate, is the basis for that (emergent) shared social identity. In addition, survey studies of post-disaster identification processes and support behaviours provide convergent evidence for these social identity hypotheses. In the next section, I flesh out the social identity model of collective behaviour in emergencies and disasters by deriving mediators and further outcomes.

MEDIATORS AND FURTHER OUTCOMES

Figure 1 shows an expanded version of the basic social identity model, including more specification of the mechanisms underlying collective behaviour in emergencies as well as

[12] This study took IOS as a measure of identity-fusion. Identity-fusion has been predicted, and found, to lead to greater self-sacrificial behaviours for others (Gómez et al., 2011; Swann et al., 2014) and has been used to explain supportive convergence behaviour in an emergency (Buhrmester, Fraser, Lanman, Whitehouse, & Swann, 2015). The concepts of identity-fusion and social identification are similar, and conceptually it might be argued that identity-fusion itself can imply some degree of social categorisation in that one or more individuals are being grouped with self and distinguished from other individuals. It is also worth noting that personally self-sacrificial behaviours were found among some of the survivors of the July 7th London bombings, which we explained in terms of shared social identity, not identity-fusion (Drury et al., 2009b).

some further outcomes (Drury, 2012). Some of these variables were assumed, but not examined or sufficiently derived, in the 2009 studies described above – in particular the role of *expected support*. Previous research on disasters suggests that this belief is crucial. For example, Norris and Kaniasty (1996) carried out a two-wave survey study of people affected by Hurricane Hugo (1989) and a similar two-wave survey of those affected by Hurricane Andrew (1992). Both studies were conducted in the months following the disasters and allowed a cross-lagged analysis to examine the role of (received) social support in disaster recovery. Both analyses were found to be consistent with a mediation model in which the stress engendered by the disaster was mitigated less by support itself than by *perceived* support.

--- Insert Figure 1 about here ---

Because our concern was specifically with collective behaviour in ad hoc crowds, the sources for the expansion of the social identity model were Reicher's account of psychological transformation in crowds (Neville & Reicher, 2011; Reicher, 2011) as well as our earlier work on empowerment in collective action (Drury & Reicher, 1999, 2005, 2009; Reicher, 1996; Stott & Drury, 1999). Reicher (2011) describes three psychological transformations that can occur in crowds. The *cognitive* transformation is the shift from own values, goals, and standards of behaviour to *shared* values, goals, and standards. The *relational* transformation refers to how one responds and behaves to other people who share the identity. The relational transformation has two dimensions. First, in terms of *solidarity*: as well as the motivation to *provide* support and routine civility ("orderliness", cooperation), shared identity leads people to *expect* support from others who share their social category membership. Second, in terms of *validation*: shared social identity means that people will expect and seek agreement with those in the same group and will trust their judgements. The *affective* transformation is based on the cognitive and relational transformations. Both shared

goals and expected support increase the sense of efficacy or empowerment, and hence the ability to coordinate actions, and to collectively regulate behaviour in others to ensure there is a properly normative collective response (think for example of a crowd needing to remove the door from a bombed underground train, or the 9/11 evacuees descending the stairs in lockstep). Expected support, and the actions that flow from that support, can be expected to contribute to crowd members reaching safety, and hence to their wellbeing. This account has elsewhere been referred to as a model of collective psychosocial *resilience* (e.g., Drury, 2012; Williams & Drury, 2009) and can be seen as part of the "social cure" approach (Haslam, Jetten, Cruwys, Dingle, & Haslam, 2018) because these group processes, based on shared social identity, are adaptive for group survival in emergencies.

Many of these ideas were systematically and successfully tested in a cross-sectional survey of a representative sample of survivors of an earthquake and tsunami that took place in Chile in 2010 (Drury, Brown, González, & Miranda, 2015). In 2012, the MIDE UC Measurement Centre at the Pontificia Universidad Católica de Chile was conducting a survey of solidarity behaviours among Chileans and allowed us to add to their questionnaire items representing variables in the social identity model. This quantitative design therefore allowed us to test for predictive relations and indirect effects, and take measures of overall model fit.

The earthquake in question occurred offshore in the Maule river region, around 360 kilometres south-west of Santiago, the capital. It resulted in a tsunami, with reported maximum wave heights of up to 10 metres in some locations, which hit the coast 35 minutes after the earthquake and caused flash floods (Lorito et al., 2011). According to some sources, most of the 521 fatalities were due to the earthquake, while 124 were due to the tsunami (Fritz et al., 2011), with many more people being seriously injured. Around 500,000 buildings were severely damaged, and nine per cent of the population in the affected areas lost their homes. There were nationwide disruptions to power, roads, and telephone and other

communications networks. There was "looting"[13] of supermarkets in some coastal towns and cities as people searched for water and food. With the emergency services overwhelmed, solidarity behaviours were essential for survival and recovery among those affected by these events.

In the study, the initial sample consisted of 1354 adults (50.4% women; age range 18 to 64 years), living in the cities of Antofagasta, Viña del Mar, Valparaíso, Concepción, Talcahuano, and Temuco. The sampling method was random probabilistic, stratified by socioeconomic status, gender and age. The questionnaire was administered face-to-face in Spanish by trained interviewers. From this initial sample, we selected participants in districts that were directly affected by the earthquake and/or tsunami and had experienced some threat, leaving 1240 cases in the final sample.

We took measures of two types of behavioural outcome (providing emotional support and participating in coordinated activities to provide support to the community) and one related cognitive outcome (collective efficacy). Within the measure of participation in coordinated activities we included collective regulation behaviours (such as working together to prevent looters), because these items worked best as a single factor. In the structural equation model we tested, the antecedents were first disaster exposure and then common fate. The next level variable was social identification with those affected by the emergency, and the final mediator was expected support.[14] Where possible, we used or adapted established measures (e.g., social identification; Doosje, Branscombe, Spears & Manstead, 1998). For

[13] I problematize the term *looting* in this context because it is often used to lump opportunistic burglaries together with incidents where survivors take goods from abandoned shops for their own survival (see Tierney et al., 2006).

[14] Shared goals were also included as a parallel mediator to expected support, but we did not use these in the final model below because they did not fit well. On reflection, it was decided that this measure lacked construct validity as the items did not appear to map on clearly to the concept in question.

other items, we based the wording on both the concepts as specified in the social identity model and on statements from participants in our previous interview studies.

--- Insert Figure 2 about here ---

Confirmatory factor analysis established the coherence of the measurement model. The full model was run with two controls (socio-economic status and gender), and was found to have adequate fit. As Figure 2 shows, disaster exposure predicted common fate, and common fate predicted social identification with others affected by the disaster. Social identification predicted giving emotional social support as well as expected support. Social identification did not directly predict participation in coordinated social support or collective efficacy; but indirectly (through expected support), it was associated with both of these outcome variables. Unlike providing support to other individuals, which can stem directly from identification with them (Levine et al., 2005), coordination and collective efficacy are contingent upon the co-action of others (Drury, 2012; Drury & Reicher, 1999).

This section described evidence that shared social identity in a disaster is the basis not only of providing social support, but also of *expectations* of social support from others, which in turn increases both collective efficacy and participation in coordinated support activities. In the next section, I consider a further role for social identity processes in mass emergency behaviour, focusing on responses to others' behaviour.

UNINTENDED SOCIAL INFLUENCE: FOLLOWING OTHERS' BEHAVIOUR WITHIN AN EMERGENCY

In an emergency, survivors' emotional and behavioural responses are likely to be influenced not only by the experience of threat, but also by the reactions of other survivors. In general, we use others' emotions to provide us with information about shared situations, which can lead to shared emotions; and we are more motivated to employ this social appraisal process

under conditions of uncertainty (Bruder, Fischer, & Manstead, 2014). We can infer from this point that, in an emergency, seeing others being anxious (or calm) will often lead people to feel the same. Extending the principle, it seems likely that when people see fellow survivors provide social support (or being neglectful) in an emergency, this can convey information (about expectations), and therefore increase the likelihood that they too will give support (or be neglectful). Likewise, the sight of people fleeing (or discounting a signal of threat) can influence the extent to which others also flee as well as specific exit routes taken (or instead delay their exit). In short, others' reactions in emergencies and disasters can operate as sources of unintended social influence, leading to shared behaviours.

Most accounts of collective behaviour in emergencies say something about this kind of unintended social influence. In early work, the concept of contagion was a dominant explanation (e.g., Le Bon, 1895/1965; McDougall, 1920; see Bendersky, 2007). The problem with the concept of contagion is that it suggests that influence is indiscriminate or mindless, and so it cannot explain evidence of social group boundaries in influence (Reicher, 1984; Warren & Power, 2015).

A less "irrationalising" way of conceptualising unintended influence in ad hoc crowds is that of heuristics. On many occasions, observing the behaviour of the majority of people is a good guide for how one should behave (Boyd & Richerson, 2005; Gigerenzer, 2008). Self-categorisation theory adds to the notion of heuristics the suggestion that we are more likely to take others as exemplars for our own conduct when we share a social identity with them (Turner et al., 1987). Applying this to novel crowd events, Reicher (1984) suggests that people will look to others as a guide to their own behaviour insofar as these others are clearly a member of the individual's social category and as long as their behaviour does not contradict existing group norms (see also Turner, 1982). In the case of disasters, it can be argued that the prevalence of supportive behaviours in such events may be a function of both

the extent to which people perceive these behaviours as common in others and the extent to which these others are perceived as members of one's ingroup.

Kugihara's (2001) experimental simulation of an emergency evacuation showed that the larger the group, the more likely participants were to behave the same way as others (aggressive or concessive response), because the salience of the (aggressive or concessive) norm was stronger in a larger group than in a smaller one. Although this study was argued to support a social identity explanation, it did not include measures of social identification. By contrast, our own research has included social identification measures in order to examine how shared social identity in a crowd operates to moderate (i.e., strengthen) the effect of observing (ingroup) others' (supportive) behaviour on one's own behaviour.

In the Maule earthquake study described above (Drury et al., 2016), we took measures of participants' observations of others' behaviour. Initially, we were interested in these descriptively, but it soon became clear that they were significant predictors of the collective behaviour outcomes – stronger than shared social identification, in fact (see Figure 2). Specifically, reports of observing emotional social support predicted reports of providing emotional social support; and the more that people reported observing others' coordinated social support, the more likely they themselves were to report involvement in providing coordinated social support. There were also significant effects across the different supportive behaviours (see Figure 2). In a cross-sectional study such as this, clearly it is difficult to exclude alternative interpretations of these pathways. Thus, it is likely that when people gave others social support, they probably saw (or were more likely to notice) others doing the same. (This alternative is probably more true of coordinated support, where the very act of giving support brings people into contact with others giving support.) However, we can at least say that the pathways we report here made as much theoretical and statistical sense as any other pathway.

In order to test the moderation hypothesis, we examined whether the links between observation and own behaviour were greater when participants identified with those they observed. A Wald moderation test was carried out, splitting the sample between low identifiers, operationally defined as those below the mean score (3.97) of the social identification scale (n = 440), and high-identifiers (n = 800), comprising those who scored higher the mean.

----Insert Figure 3 about here----

Overall, the predicted moderation effect was significant. As Figure 3 shows, the links between observed coordinated social support and both providing emotional social support and providing coordinated social support were stronger amongst the high identifiers than amongst low identifiers. The link between observed emotional social support and giving emotional social support was marginally stronger for low identifiers, however, whereas the link between observed emotional social support and participation in coordinated social support was non-significant in both cases.

The role of unintended social influence in the crowd is important in understanding not only the prevalence of support in an emergency but also the decision to flee (Nilsson & Johansson, 2009). One of the main reasons that people die in fires is that they are slow to make the judgement that they are in danger – sometimes because they assume the alarm to be false (Proulx, 2007). In such events, others' responses are the effective signal that there is (or is not) real danger – as illustrated in the classic 'smoke-filled room' experiment by Latané and Darley (1968);[15] and following their action can be the difference between life and death.

[15] The results of the famous smoke-filled room experiment by Latané and Darley (1968) were interpreted to suggest that others' non-responses indicated to participants that the smoke was not dangerous. However, Darley and Latané's (1968) parallel study, using a (less ambiguous) epileptic seizure as the emergency, led to the

With students, I have recently piloted a simple study that reproduces and attempts to explain the well-established observation that people are more likely to ignore fire alarms if those around them do the same.[16] In the lecture scenario presented to participants, an alarm sounds. In one condition the crowd immediately exits, while in the other condition the crowd ignores the alarm. As expected, participants largely followed the crowd (rather than the alarm). However, we also included a moderator measure – social identification with the particular crowd – and we were able to show that this effect of following the crowd was significantly greater when there was high identification with these others (and in fact it disappeared when identification was low). The argument here is not that groups are bad; rather, it is particular identity-contents, or norms (in this case, complacency), that may be bad (cf. Reicher, Spears, Postmes, & Kende, 2016). The implication is that, in emergency preparation and response, fire wardens and everyone who understand the risks of fire can set an example to others.

In this section, I argued that although unintended influence is a major factor in mass emergency behaviour, there is evidence that this influence is not unthinking and that people are more likely to look to the example of others when those others are relevant than when they are not. Ingroup membership is an important criterion for self-relevance and can help to explain both "resilient" collective behaviours (such as social support) as well as less adaptive ones (such as ignoring fire alarms).

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conclusion that diffusion of responsibility was the reason for non-response. Subsequent developments of their explanatory framework for bystander non-intervention concentrated on diffusion of responsibility through group size rather than social appraisal processes (see Levine & Manning, 2013, for a review).

[16] The following video of collective inaction in response to an alarm is well-known in fire safety training: https://www.youtube.com/watch?v=MtX-10c3fT0

FROM DISASTER TO PREVENTION

The social identity model delineated here has implications for group processes not only in emergencies but also for potentially dangerous crowd events that risk *becoming* emergencies. In many mass gatherings the crowd is so large that those managing the event rely on cooperation and self-organisation within the crowd for a safe event. In these cases, the model described above would suggest that shared social identity would be the basis of behaviours and expectations within the crowd that can contribute to an experience of safety.

A 'near-disaster' at Big Beach Boutique 2

Big Beach Boutique 2 (BBB2), a free dance music event held on Brighton beach in 2002, was one of the incidents examined in our comparative design study (Drury et al., 2009a). We revisited it with a larger sample and multiple data sources to address a number of questions, one of which was why the event was not quite the disaster that some had feared (Drury, Novelli, & Stott, 2015). Certainly, it had the ingredients. First, the crowd was too large, both for the space allocated and for the number of safety and security personnel involved. The event organisers planned for a crowd of 65,000, but 250,000 people crammed onto the beach. Second, as a result there was an obvious strain on facilities, including the blockage of emergency exit routes. And third, some of the behaviour of the crowd appeared to be dangerous, including some people climbing up lighting rigs. Further, when the tide started to come in, there was a fear of crushing as people moved up the beach and a sizeable minority evacuated. Media and police sources described the event as a "near disaster" (e.g., McVeigh & Townsend, 2002). However, according to Brighton and Hove City Council's Policy and Resources Committee, there were 150 minor injuries, and 15 people were taken to hospital, which does not seem especially high for a crowd event of this size.

We collected contemporaneous archive materials (including news reports, message board materials, and official documentation) and, some time after the event, carried out interviews with both attendees (n = 10) and crowd safety professionals (including stewards and police; n = 10). Qualitative analysis of this material suggested a positive atmosphere and widespread supportive behaviour in the crowd. We also ran a small questionnaire survey, again some time after the event. We used social media, word of mouth (since the event was a local one), and snowballing to recruit people who had attended the event (N = 48).[17] Both qualitative and quantitative analyses suggested that perceptions of safety among the party-goers were strong. Analysis of the survey showed that social identification with the crowd predicted feeling safe directly, as well as indirectly through both expectations of support and trust in others in the crowd to deal with an emergency.

Both crowd members and some of the crowd safety professionals stated that collective self-regulation and spontaneous self-organisation in the crowd, often based on dance culture norms, were crucial in preventing disaster. Examples included the orderliness of the evacuation, people forming circles round others to protect their privacy when urinating, helping people up who had fallen, and instances of managing drunken behaviour in others. Some of the crowd safety professionals also described how they worked with, not against, these crowd norms and values – for example using the DJ (rather than official authority figures) to persuade people to come down from the lighting rigs.

How social identification moderates the effect of crowd density at the Hajj, Mecca

Some of the limitations of the Big Beach Boutique 2 study – a small primary dataset and reliance on post-hoc interviews – were overcome in our study of crowd processes at the Hajj

[17] The questionnaire respondents were a different sample from the interview study. In both samples, many of the respondents were people who regularly attended dance music events at the time of BBB2.

(Alnabulsi & Drury, 2014), which was undertaken as part of Hani Alnabulsi's PhD research (Alnabulsi, 2015). Taking part in the annual Hajj or pilgrimage to Makkah[18] in Saudi Arabia is one of the five pillars of Islam and so is expected of all able-bodied and financially solvent Muslims at least once in their lifetime. The official number of pilgrims who attended Hajj in 2012, when the study took place, was over three million. The Hajj involves rituals at specified spiritual locations during a certain five-day period each year. Given the number of people seeking to be in the same locations at the same time, the density of the crowd is a potential threat to safety. Indeed, the Hajj event is most prominent in the news in the West when there is a fatal crowd crush among pilgrims. Thus, crowd density was one explanation for the disaster in 2006 when 346 pilgrims died as they attempted to "stone the devil" at Jamaraat Bridge (Helbing, Johansson, & Al-Abideen, 2007).

Our study therefore focused on the relation between crowd density, shared social identity with the Hajj crowd, and reported safety among pilgrims. The study took place at the Al-Masjid Al Haram, or Holy Mosque, in Makkah. The Holy Mosque contains the Ka'aba, a small black cube-shaped building which to Muslims is the holiest site on earth. During Hajj, pilgrims attend the Holy Mosque for daily prayers throughout their time in Makkah. At the beginning and end of the pilgrimage, they must also perform *tawaf* inside the Mosque, in which they circumambulate the Ka'aba seven times in an anti-clockwise direction. Using a team of research assistants who spoke different languages, we surveyed 1194 pilgrims as they assembled in and around the Holy Mosque. We sampled by the main language groups broadly in proportion to their representation at the Hajj: 420 (35%) were speakers of Arabic, 150 (13%) of Malay, 150 (13%) of Urdu, 120 (10%) of French, 120 (10%) of Persian, 120 (10%) of Turkish, and 114 (9%) of English. Each research assistant was instructed to approach a quota of people who spoke his own language. The research assistants identified

[18] The English spelling is *Mecca*.

language groups by mingling with the crowd, which allowed them to hear people's voices and notice other cultural markers.

The research assistants were trained to use the industry standard measure of crowd density (e.g., Still, 2014), which is to estimate from sight the number of people per square metre (ppm^2) around each participant. The questionnaire measures for social identification with the crowd were constructed for this study based on our previous work and included items such as "I feel that I am part of this crowd" and "I feel at one with the people around me". We took a number of other measures, similar to those used in the BBB2 study described above, including feeling safe (e.g., "I feel safe on the Hajj") and perceived (or expected) support (e.g., "If I need help, other pilgrims would help me").

We reasoned that as levels of density increased in the crowd, this should be associated with a reduction in subjective feelings of safety. As expected, the relationship with safety was negative. However, we also expected, and found, this relationship to be moderated by identification with the crowd. Simple slopes analysis (see Figure 4) showed that, at relatively low levels of identification with the crowd, as density increased so safety decreased. However, at high levels of identification with the crowd, as density increased so safety actually increased. We reasoned that those who felt greater safety when the number of fellow pilgrims around them was greater were people who trusted these pilgrims to act with care and concern, and to support, protect and respect them. Thus, based on the social identity model, we predicted and found the same indirect effect of social identification on feeling safe via perceptions of support as found in Big Beach Boutique 2.

--- Insert Figure 4 about here ---

Of course, participants' statements that they feel safe are not the same thing as objective measures of safety. Indeed, the feeling of safety in numbers might lead high-identification

individuals to gravitate to the densest areas of the crowd (Novelli, Drury, Reicher, & Stott, 2013), increasing risk. Moreover, we should not expect a linear effect of increasing density on subjective safety for those high in identification with the crowd; at a certain level (> 5ppm^2), crowd density becomes dangerous. Above this level, people lose the ability to move independently (Fruin, 2002) let alone to be considerate or give support to others; and any minor collision can be amplified in a wave effect, leading to a fatal crowd crush (Still, 2014), Nevertheless, the key point to emerge from the Hajj study was an explanation for how an event that routinely reaches levels of density that most experts would regard as dangerous has involved relatively few fatalities over the years. As with Big Beach Boutique 2, the weight of the evidence strongly suggests that this has to do with the spontaneous orderliness of the crowd, based on a shared identity.

LIMITATIONS AND FUTURE WORK

There are many challenges in studying emergencies and disasters, and it seems likely that these challenges are among the reasons that the topic has been neglected in social psychology. Indeed, until recently, many of the pioneering developments in the field have been left to other disciplines, especially sociology. Difficulties of access affect the quality and quantity of data that can be gathered. Thus most studies of emergencies and disasters, like those described here, are not able to gather data in the immediate context of the event. We have made extensive use of post hoc interviews. These can provide powerful experiential accounts, but are likely to involve issues of social desirability and accountability, as well as memory (see Cocking & Drury, 2014). In some of our studies, the use of naturalistic secondary data, sometimes produced immediately after the event, helps to mitigate some of these negative features, although such data may not address topics of interest (such as shared social identity). Use of archival material is rare in social psychology; the consistency of data

is relatively low, but external validity can be relatively high, whereas our controlled studies (simulation experiments) were the opposite of this.

Because of the unpredictability of most emergencies and disasters, few studies in the field employ a before-after design (a rare example is Wickes, Zahnow, Taylor, & Piquero's, 2015, impressive panel study of the effects of flooding). Therefore, like the studies described here, most research on collective behaviour in emergencies and disasters is essentially correlational. In the model and in the studies described in this review, we have treated shared social identity as prior to behaviour. But equally theoretically plausible are causal relationships from observed behaviour to social identification; other people's behaviour in the interests of the group can tell us that we share social category membership with them; and behaving supportively towards others in a group can tell us that we are part of that group (cf. Bokszczanin, 2012). The notion of identity as outcome as well as cause of action is consistent with our findings in the collective action domain (e.g., Drury & Reicher, 2000).

Notwithstanding the design limitations that are inevitable in research on this topic, there are a number of issues that could fruitfully be addressed in relation to the theoretical account described here. One question is that of the factors that moderate social identity processes in emergencies and disasters. Some research suggests that people outside the event respond with less support to a human-made disaster than a natural one (Zagefka, Noor, Brown, de Moura, & Hopthrow, 2011); but how attribution interacts with level of self-categorisation among survivors themselves has not yet been examined. Another question concerns cross-cultural variations in responses. In collectivist countries (like Japan), there are chronically strong small group (family) ties, whereas in individualist countries (like the USA) such ties are weaker and therefore people in emergencies are perhaps more likely to demonstrate the contextual variability and flexibility of self-categorisation described by SCT and found in the

studies described in this review.[19] However, this is not something that has been systematically examined.

The issue of social identity as a strategic resource in emergencies and disasters is a further avenue for future research. This is an area in which some promising work has already begun. The argument here is that if shared social identity is the basis of adaptive behaviours in an emergency crowd, then those involved in actual or potential emergencies should actively seek to facilitate, strengthen, and promote shared social identity. This should be the case both for survivors and for those professional organisations working to respond to disasters.

Carter's work has demonstrated this principle of strategically mobilising a shared identity in the case of emergency responders in chemical, biological, radiological, and chemical (CBRN) incident mass decontamination (Carter, Drury, Amlôt, Rubin, & Williams, 2013, 2014, 2015; Carter, Drury, Rubin, Williams, & Amlôt, 2015). Field survey, experimental visualisation, and quasi-experimental studies all showed that when responders' communication was open, helpful, and respectful, this legitimised the responders' actions and served to create shared social identification with responders themselves (cf. Stott, Adang, Livingstone, & Schreiber, 2008), as well as enhancing unity within the crowd around the norm of compliance with the procedure. The finding that these changed practices led to faster and more efficient decontamination in an emergency, where speed is of the essence, suggests that proactively creating shared social identity can help save lives.

With regard to survivors themselves strategically promoting shared identity, Paton and Irons's (2016) study of wildfires suggests that common fate may not have an automatic effect in creating unity and that people need to be motivated to talk to others about shared issues so

[19] Thanks to Viv Vignoles for this point.

that they are *seen* as shared. The notion of talking a shared identity into being (cf. Postmes, Haslam & Swaab, 2005; Postmes, Baray, Halsam, Morton & Swaab, 2006), and the role of leaders (or identity entrepreneurs; Reicher, Haslam, & Hopkins, 2005) and organised groups in this process, may be particularly important in those kinds of disasters where there is an ongoing or repeated risk. It is well established that flooding can create a sense of community (e.g., Twigger-Ross et al., 2011); but in the months following a flood, this "altruistic community" may run out of both energy and resources (Kaniasty & Norris, 1999); and secondary stressors (Lock, Rubin, Murray, Rogers, Amlôt, & Williams, 2012) may become more salient as people try to get repairs made to their home. There is a need for shared social identity just at a time when the contextual affordances for such an identity may be diminished.

Recent work by Ntontis on community response to the 2015-2016 floods in York has suggested how active community members try to promote shared social identity to facilitate emotional social support in the present and enhance collective preparedness for future floods. On the one hand, a cross-sectional survey found that common fate predicted shared social identity with those affected by the flood which in turn predicted expected support, collective efficacy, and support given – as in our earlier work on the Maule earthquake (Ntontis, Drury, Amlôt, Rubin, Williams, & Saavedra-Morales, 2017). On the other hand, an interview study carried out some months after the floods suggested that those affected by the floods used a range of criteria to define themselves as a group (e.g., not just common fate in relation to the flood but also shared experience of secondary stressors afterwards), and actively posited a group identity in various ways to keep the new community alive, including invoking a shared history and through organising meetings, Facebook groups, and commemorations (Ntontis, Drury, Amlôt, Rubin, & Williams, 2018).

CONCLUSIONS

Over and above perceived danger and physical factors such as width of exits, group size, physical (in)ability to help (Aguirre et al., 1998; Chertkoff et al., 1996; Johnson, 1987), relationships with others in the crowd are a major determinant of what people do in an emergency. There are dangers in groups. The attempt to stay with others and act collectively may slow the individual down and even impede crowd flow; and some group norms can be dangerous. Yet, usually in these situations, groupness confers benefits and individualism increases risk. The more that everyone in a crowd acts as an individual, the more likely it is that exits will be blocked as people fail to coordinate (Mintz, 1951). In liberating us from the restrictions of individuality (Turner et al., 1987), shared social identity in a crowd can therefore be a crucial adaptive resource. Mass emergencies happen to crowds and in crowds. They can also *create* crowds. These crowds have in the past been seen as conduits of irrationality. Recent research suggests that, through sharing social identity, crowds do indeed act as conduits - for shared emotions, cognitions, and behaviours that can be described as forms of solidarity. In the context of an emergency, these solidarity behaviours can contribute to collective self-organisation and hence to safety, survival, and wellbeing.

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