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### Social Science Research



# The resilience of neighborhood social processes: A case study of the 2011 Brisbane flood



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#### ABSTRACT

Social disorganization theories position neighborhood social capital and collective efficacy as key social processes that should facilitate community resilience in the aftermath of disaster. Yet limited evidence demonstrates that these social processes are themselves resilient with some studies showing that disaster can fracture even once cohesive neighborhoods. In this paper we assess the stability of neighborhood level collective efficacy and social capital before and after a disaster. We use multilevel structural equation modeling and draw on census and longitudinal survey data collected from over 4000 residents living in 148 neighborhoods in Brisbane, Australia before and after a significant flood event. We examine what happens to social capital and collective efficacy in flooded and non-flooded neighborhoods and assess whether demographic shifts are associated with change and/or stability in these processes. We find strong evidence that these processes operate similarly across flooded and not flooded communities. Our findings also reveal significant stability for our measures of social capital across time, while collective efficacy increases post flood across all neighborhoods, but more so in flooded neighborhoods. Neighborhood demographics have limited effect on patterns of stability or change in these social processes. We discuss the theoretical and practical implications of these findings for our understanding of neighborhood resilience in the wake of disaster.

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#### 1. Introduction

With increases in the number and intensity of extreme weather events predicted for the coming decades (Huppert and Sparks, 2006; Van Aalst, 2006), there is a pressing need to ensure that vulnerable areas are prepared for the associated short- and long- term effects of these disasters. Scholarship highlights the key role of a community's social and structural resources and their association with disaster resilience. Geographic communities with high levels of social capital, collective efficacy and access to socio-economic resources are hypothesized to fare significantly better in the post-disaster context (Norris et al., 2008). Policy makers and practitioners have taken note of this. Implementation plans for disaster preparedness often aim to build community resilience in the pre-disaster context in an effort to minimize disaster vulnerability

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and promote effective collective responses should disaster hit (Cutter et al., 2010). In fact, building or augmenting 'collective readiness' in disaster quiescence has become a major policy initiative around the globe. But will this work? Even if local social processes can be enhanced before a disaster, how resilient are these social resources in the context of an actual disaster? The evidence in support of strategies to augment the social processes associated with collective readiness is far from conclusive.

Though levels of neighborhood poverty are relatively stable over time, most residents living in persistently disadvantaged neighborhoods still prioritize community safety and security and can work together to solve local problems (Sampson, 2012; Sampson et al., 1997). Thus while the resources necessary to reduce neighborhood disadvantage are vast and part of a long-term project, enhancing neighborhood social processes by increasing available community social capital or strengthening a community's collective efficacy, is potentially achievable through shorter-term initiatives. However, we know little about the conditions that promote, sustain or deteriorate neighborhood social processes. Certainly cross-sectional research reveals that communities with high levels of social capital and collective efficacy have fewer self-reported health issues, higher levels of well-being and experience less crime and disorder (Browning and Cagney, 2002; Drukker et al., 2003; Hendryx and Ahern, 2001; Israel et al., 2001; Kawachi et al., 1997; Mazerolle et al., 2010; Noguera, 2001; Sampson et al., 1997), but few studies consider the durability of these neighborhood processes over time under normal conditions (for exceptions see Markowitz et al., 2001; Sampson, 2012; Steenbeek and Hipp, 2011). No study has examined the durability of these processes across communities after a significant shock, despite their theorized importance to well-being in the post disaster context (Breton, 2001; Kimhi and Shamai, 2004; Magis, 2010; Norris et al., 2008). Thus social processes remain the "black box" of the social sciences (Sampson, 2012:46) and we simply do not know if the social processes deemed necessary for disaster recovery and resilience can stand up to exogenous threats.

To better understand how local neighborhoods can successfully navigate their recovery from natural disasters and to provide an evidence base for policy and practice, we need to first assess the stability of key neighborhood processes over time and their durability in response to neighborhood stressors like natural disasters. This is the central aim of the current research. Drawing on census and longitudinal survey data collected from over 4000 residents before and after a significant flood event in Brisbane, Australia, we consider the sustained impact of the flood on neighborhood social capital and collective efficacy processes across 148 neighborhoods.

Our novel study addresses a significant lacuna in neighborhood effects research. Although there is a strong association between neighborhood social capital, collective efficacy and a range of social outcomes, our understanding of how these social processes *evolve* over time remains limited (Sampson, 2012). Access to pre- and post-disaster measures of neighborhood social processes therefore offers a unique opportunity to examine their stability and assess the degree to which they hold up under considerable stress. Importantly, our study provides an evidence base for disaster preparedness policy. Disaster policy initiatives cannot readily impact intractable neighborhood poverty, however, if neighborhood social processes can be augmented to withstand stressors, policy initiatives to build these processes may assist even structurally disadvantaged communities to more effectively respond to the local problems and challenges that accompany disaster. Further, by identifying the neighborhood demographic changes that weaken or strengthen these social processes over time, we can consider ways to mitigate the impact of population shifts (that occur after a disaster) on levels of social capital and collective efficacy in the post disaster context.

In what follows we provide a brief review of the neighborhood processes central to our study: social capital and collective efficacy. We discuss the limited scholarship that has considered stability and change in these neighborhood processes in the broader social science literature and in the disaster literature. As we are interested in the resilience of neighborhood social processes over time, we focus our discussion predominantly on those studies that have investigated these processes at the level of the neighborhood or local geographic community. We then provide further information on the Brisbane flood event and describe the ACCS survey, our variables of interest and our analytic strategy. We conclude with an overview of our results and the implications of our study for understanding stability and change in community social processes both prior to disaster and in its aftermath.

#### 2. Literature review

The geographic concentration of social problems is well documented in the literature. Since the mid-1800's, scholarship has demonstrated the clustering of crime, delinquency, child health, well-being and disease (Brooks-Gunn et al., 1993; Diez-Roux et al., 1997; Lochner et al., 2003; Sampson et al., 1997; Shaw and McKay, 1942). Several consistent findings characterize this body of work (Sampson, 2012; Sampson et al., 2002). To begin, we know neither poverty nor wealth is randomly distributed across a city's landscape. In many cities there is significant socio-economic clustering alongside racial/ethnic segregation, with disproportionate numbers of minority residents living in poorer areas (Krivo and Peterson, 2000; Peterson and Krivo, 1999; Peterson et al., 2010). Further, a range of social problems characterizing these poor and segregated communities serve to reinforce their disadvantage (Krivo and Peterson, 2000; Peterson and Krivo, 1999). At the same time, more affluent areas enjoy substantial educational and employment opportunities that facilitate continued prosperity (Sampson et al., 2002).

Natural disasters are also geographically clustered but they impact all neighborhoods in an *ecologically* vulnerable area irrespective of socio-economic resources (Beck, 1992). Sociological definitions of disaster suggest that they are discrete events observable in a specific time and place and characterized by physical damages and losses coupled with disruptions in routine community functioning (Kreps, 1984:312). They are also events that require "unplanned courses of action" in order to respond

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