



The impact of housing displacement on the mental health of low-income parents after Hurricane Katrina



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ABSTRACT

Previous studies in the aftermath of natural disasters have demonstrated relationships between four dimensions of displacement – geographic distance from the predisaster community, type of postdisaster housing, number of postdisaster moves, and time spent in temporary housing – and adverse psychological outcomes. However, to date no study has explored how these dimensions operate in tandem. The literature is further limited by a reliance on postdisaster data. We addressed these limitations in a study of low-income parents, predominantly non-Hispanic Black single mothers, who survived Hurricane Katrina and who completed pre and postdisaster assessments ($N = 392$). Using latent profile analysis, we demonstrated three profiles of displacement experiences within the sample: (1) returned, characterized by return to a predisaster community; (2) relocated, characterized by relocation to a new community, and (3) unstably housed, characterized by long periods in temporary housing and multiple moves. Using regression analyses, we assessed the relationship between displacement profiles and three mental health outcomes (general psychological distress, posttraumatic stress, and perceived stress), controlling for predisaster characteristics and mental health indices and hurricane-related experiences. Relative to participants in the returned profile, those in the relocated profile had significantly higher general psychological distress and perceived stress, and those in the unstably housed profile had significantly higher perceived stress. Based on these results, we suggest interventions and policies that reduce postdisaster housing instability and prioritize mental health services in communities receiving evacuees.

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Hurricane Katrina, which made landfall near New Orleans, Louisiana on August 29, 2005, caused an unprecedented population displacement. The Hurricane's storm surge inundated coastal communities and caused multiple failures of the protective levees surrounding the City of New Orleans. Floodwaters covered 80% of the City's land and damaged nearly three quarters of residents' homes (Kates et al., 2006). The slow removal of storm debris impeded residents' returns; the least damaged neighborhoods were opened to re-occupancy in late September 2005, but the most devastated neighborhoods were not opened until as late as May 2006. Consequently, the City had recovered only about 50% of its pre-Hurricane population by mid-2006 (Frey et al., 2007). Residents' returns to the City were gradual and unequal by race and class (Fussell et al., 2010).

The disaster wrought by Hurricane Katrina had mental health consequences for all affected residents of the Gulf Coast, but

especially for New Orleans's residents (e.g., Abramson et al., 2008; Kessler et al., 2008; Sastry and VanLandingham, 2009). For example, a large epidemiological study found that the prevalence of anxiety-mood disorders and posttraumatic stress disorder among New Orleans's predisaster residents was higher than among those from other affected areas in Louisiana, Alabama, and Mississippi (Galea et al., 2008a, b). While stress affects mental health through multiple and interacting pathways, housing stability was found to play an important role after Hurricane Katrina (Abramson et al., 2010).

1. Conceptual framework

We adopt the conservation of resources (COR) theory (Hobfoll, 1989, 2001) to explain the relationship between disaster-induced displacement and stress. COR theory proposes that individuals seek to conserve resources, specifically valued objects, conditions, personal traits, and energy. Examples of these resources are, respectively, personal transportation, time for adequate sleep, feelings of wellbeing, and stamina. When resources are threatened

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or lost, individuals draw on existing resources to minimize losses. Resource loss produces stress, but stress is attenuated by successful conservation strategies and exacerbated by unsuccessful adaptations (Hobfoll, 2001). In its application to disaster research, the COR framework distinguishes the trauma of the disaster event from the loss of resources that often accompany disasters (e.g., Freedy et al., 1994; Kaniasty and Norris, 1993).

This distinction between disaster trauma and loss of resources parallels the distinction between primary and secondary disaster stressors. Primary disaster stressors, i.e., stressors experienced during the disaster and its immediate aftermath, including injuries, lack of food, water, medical care, and bereavement, are consistently associated with poorer postdisaster mental health and post-traumatic stress (e.g., Norris et al., 2002). However, the losses produced by a disaster often produce chronic or secondary stressors, e.g., property loss and damage, poor living conditions, disruptions in employment, school, healthcare access, social supports, and routines, which are associated with elevated stress and depression (e.g., Lê et al., 2013). Many of these losses occur when disaster survivors are displaced (Lock et al., 2012; Porter and Haslam, 2005). In the current study, we focus on displacement, a secondary stressor, as a predictor of postdisaster mental health. In doing so, we conceptualize displacement as multidimensional, involving temporal, geographic, mobility, and housing dimensions.

Displacement is likely to affect mental health through several pathways, none of which have been studied systematically. Displacement often disrupts the social support systems that mediate the mental health impacts of primary disaster stressors (e.g., Lê et al., 2013; Lowe et al., 2010). Further, displacement alters regular routines associated with homes, jobs, physical activity, participation in social organizations, and healthcare access (Abramson et al., 2010). It may also introduce additional stressors when housing conditions are crowded or evacuees feel socially isolated, in danger, or that they are victims of discrimination (Riad and Norris, 1996; Weems et al., 2007). These all suggest that displaced residents are likely to experience more secondary stressors than those who have returned to their homes or communities, and that displacement experiences may be associated with different levels of resource loss (Lock et al., 2012).

In a systematic review of recent studies of postdisaster displacement, eight out of ten showed elevated levels of psychological symptoms (general psychological distress, depression, and posttraumatic stress) among participants who had relocated, compared to those who returned to their predisaster communities (Uscher-Pines, 2009). Although none of these studies included survivors of Hurricane Katrina, research suggests links between relocation and mental health in this case as well. For example, using a 2007 population-based survey of southern Mississippi residents in the 23 counties affected by Hurricane Katrina, Galea et al. (2008a, b) found that an inventory of postdisaster stressors, which includes an indicator of displacement, predicted PTSD net of demographic characteristics and hurricane-related traumatic events. Sastry and VanLandingham's (2009) population-based post-Katrina study of New Orleans residents found probable mental illness was six times more likely among respondents whose homes were unlivable compared to those with livable homes, suggesting, but not explicitly demonstrating, an association between displacement and post-disaster mental health. Finally, Abramson et al. (2008) found that in their sample of residents of emergency housing or housing tracts in Louisiana and Mississippi with major damage from Hurricane Katrina, living outside of one's pre-Katrina community was associated with poorer mental health. All of these results are consistent with the expectation that displacement is associated with poor mental health, but none conclusively demonstrates this relationship.

The extant literature on the mental health impacts of displacement suffers from two additional limitations. First, it relies mostly on postdisaster data. Studies that include predisaster data show that predisaster functioning is one of the strongest predictors of postdisaster mental health (e.g., Norris et al., 2002). Lacking predisaster psychological controls, postdisaster studies are likely to overestimate the influence of displacement experiences on post-disaster psychological outcomes. Postdisaster samples might also be biased due to selective population losses (Galea et al., 2008a, b; Norris, 2006). For example, study recruitment efforts might not reach persons who have relocated far from their predisaster communities, excluding the distinct mental health effects of displacement for this group. Only three out of 24 articles reviewed by Uscher-Pines (2009) used a pre-post event longitudinal study design.

A second limitation is the focus on whether disaster survivors were displaced or not, when displacement is better conceptualized as a multi-dimensional phenomenon. At least four dimensions of displacement are shown to be associated with postdisaster mental health. First, the geographic distance of a person from their predisaster community affects mental health. A study of Hurricane Katrina evacuees, for example, found stronger associations between serious mental illness and relocation across parish lines than relocation within a parish (Hori and Schafer, 2010). Second, the type of housing to which residents relocated influences outcomes (Riad and Norris, 1996). For example, DeSalvo et al. (2007) found that after Hurricane Katrina, Tulane University employees who had stayed with friends or in a hotel during the evacuation had higher prevalence of posttraumatic stress than those who stayed with relatives, as did those who were living in a new home or a temporary trailer at the time of the survey. Third, disaster survivors who move more often experience more symptoms. For example, individuals who moved a greater number of times in the aftermath of a volcano disaster in Japan had significantly higher posttraumatic stress (Goto et al., 2006). Fourth, survivors who spend more time in interim housing experience more symptoms. In this vein, New Orleans' residents who had relocated for longer periods of time after Hurricane Katrina had higher levels of posttraumatic stress (DeSalvo et al., 2007). Although each of these dimensions is associated with poorer mental health outcomes, they have not been explored simultaneously.

To our knowledge, our study is the first to explore profiles of postdisaster displacement and their relation to mental health outcomes. Our study redresses each of these shortcomings of previous research and extends our knowledge of the effects of displacement on mental health.

2. Current study

We explore how displacement experiences shape postdisaster mental health through analysis of low-income parents, predominantly non-Hispanic Black single mothers, who participated in a New Orleans-based study prior to Hurricane Katrina. Approximately a year after the hurricane, over 80% of participants were located and reassessed. At the postdisaster follow-up, we collected data on four dimensions of displacement – geographic distance, housing type, number of moves, and time in interim housing. Our first aim in the data analysis was to conduct a latent profile analysis (LPA), a person-centered statistical approach, to identify displacement profiles based on these four dimensions. We expect that the four dimensions of displacement operate in tandem. For example, a participant who relocates to a different state will also be in a new home, while one who returns to her predisaster community may either be in a new home or predisaster home. Likewise, a participant who moved several times after the disaster is likely to have spent more time in interim housing than one who only moved

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