

MIGRATION AND FAMILY SEPARATION EXPERIENCES OF NEW ORLEANS CHILDREN AFTER HURRICANE KATRINA

Background

In August 2005, Hurricane Katrina struck the City of New Orleans. The scale of the disaster was immense. Eighty percent of the city was flooded; 71% of the housing stock was damaged, 56% with major or severe damage (U.S. Department of Housing and Urban Development, 2006). Of the 1,400 people who died in Louisiana as a result of the hurricane, over half were from New Orleans (Bergal et al., 2007). Residents experienced a 5-week mandatory evacuation, although many experienced a much longer period of displacement (Fussell, Sastry, & VanLandingham, 2010).

The mental health consequences of the disaster have received a lot of attention (Galea et al., 2007; Kessler, Galea, Jones, & Parker, 2006; Sastry & VanLandingham, 2009) but much of this work focuses on adults. Children's exposure to disaster can have negative psychological and behavioral effects as well. Studies have found Hurricane Katrina exposure associated with increased aggression, bullying, PTSD and other emotional difficulties in children (Marques, Walkers, Gengenheimer, Bensel, & Overstreet, 2010; Marsee, 2008; Roberts, Mitchell, Witman, & Taffaro, 2010; Terranova, Boxer, & Morris, 2009). Disaster can affect children directly, through trauma exposure that decreases feelings of control and interrupts provision of resources for basic needs. It also can affect children indirectly, by affecting their parents, or disrupting social networks and social resources (e.g., schools) that provide a positive developmental context.

One potential exacerbating factor for negative child outcomes after disaster is family displacement and separation. Family displacement and separation are more prevalent during disasters as family members utilize different evacuation strategies, or evacuation destinations are unable to accommodate the intact household (Haney, Elliott, & Fussell, 2007). Even in families not experiencing disaster, instability in family structure and in residential location are linked with child behavioral and emotional problems (Brown, 2006; Haynie & South, 2005; Haynie, South, & Bose, 2006; South, Haynie, & Bose, 2005). In disaster-affected families, displacement experiences have been found to partially mediate the relationship between disaster exposure and adolescent depressive symptoms (Wickrama & Kaspar, 2007).

Research indicates that household breakup in the year after Katrina was far more prevalent among households from New Orleans compared to those in other U.S. Metropolitan areas (36.9% vs. 14.2%) (Rendall, 2009). Unfortunately we have little population-level knowledge of the extent or consequences of these experiences for children from New Orleans. Anecdotal information suggests that, after Hurricane Katrina, some parents sent their children back to New Orleans prior to their own return, so that their children could continue with schooling in the same location as before the storm (Nossiter, 2006; Swerczek & Powell II, 2005). However, it is also likely that some parents chose to return to the city in advance of their children, in order to initiate housing repair or return to employment.

Population-based studies quantifying the extent of these experiences among the children of New Orleans, as well as their links with child health, are important for understating disaster effects on

children's outcomes. Further, although disasters on the scale of Hurricane Katrina are rare, such knowledge is important for future post-disaster planning of child services by government officials and child-serving agencies.

Using data from the Displaced New Orleans Resident Survey, I have two goals in this paper. First, I will describe the patterns of migration and family separation among children from New Orleans affected by Hurricane Katrina, and whether migration and separation varied according to child characteristics (e.g., age) or household characteristics (e.g., socioeconomic status [SES] or level of structural damage). Second, I will explore whether migration and family separation experiences are related to child health. The results of this analysis will provide a population-level picture of the migration experiences of New Orleans children affected by Hurricane Katrina. Further, results can also provide information regarding how various migration patterns are related to child health outcomes.

METHODS

Data

The analysis in this paper is based on data from the Displaced New Orleans Residents Survey (DNORS), which was fielded in 2009–2010. The aim of DNORS was to collect information four years after Katrina on a representative sample of individuals who resided in New Orleans prior to the hurricane—regardless of where these individuals resided at the time of the interview. Respondents were interviewed by telephone or in person in New Orleans and throughout the U.S.

DNORS drew a representative sample of pre-Katrina residences in New Orleans. Fieldwork focused on identifying, tracing, and interviewing individuals who lived in the sampled residences at the time of Katrina, using mail, telephone, and in-person contacts, as well as an extensive array of electronic database searches and state-of-the-art tracing techniques. Up to two individuals were interviewed in each household. The first was a household respondent who was an adult knowledgeable about all the people who lived in the dwelling prior to Katrina. The second was a respondent randomly selected from all adults in the pre-Katrina household (this person could therefore be the household respondent). For female adult respondents, a complete listing was obtained of all their biological and adoptive children and detailed questions were asked on up to three of these children (a random sample of three children if she had more than three). Interviews were completed with 1,743 respondents.

The DNORS questionnaire obtained a roster of all pre-Katrina household residents and collected information on their evacuation and resettlement experience, current location, plans to return to or remain in New Orleans, and health and well-being. Information was also collected on residents' basic demographic and socioeconomic characteristics and on housing characteristics and damage.

Analysis Sample

The sample will consist of all children (age <18) residing in sampled households where one of their parents is the respondent to the adult DNORS interview. In the 145 households sampled in the pilot survey, there were 69 children (representing a population of 90,172) who met these criteria. Given the larger overall sample size in the full survey (n=1,387 households), I expect the sample size will be much greater (data have not yet been released).

Measures

Migration patterns. Children's migration patterns will be characterized along two dimensions. First, a nominal variable will capture child migratory experiences: never left New Orleans, left New Orleans but returned, and left New Orleans and didn't return. Second, among those children experiencing displacement, length of displacement will be examined.

Family separation. Family separation experiences will also be characterized in a number of ways, and will be based on the experiences of the child relative to their parent respondent. If two parents are in the household, then separation from either will be counted. *Separation during out-migration (yes/no)* will be determined based on whether the child and parent(s) left the city, left on the same date, and whether their destination was the same. Similarly, *separation during return migration* will be determined based on whether the child and parent(s) both returned to the city and whether they returned on the same date. The qualities of return migration separation experiences will further be characterized according to the order in which the child and parent(s) returned: child first or parent first.

Child demographic characteristics. A number of individual-level demographic characteristics will be examined as possible determinants of migration and separation experiences. Child relationship to index respondent (son or daughter / grandchild / other), gender (male/female), age, and race (Black / other) will all be explored as potential predictors of migration and family separation experiences.

Household characteristics. Four household characteristics that could impact both child health and ability to return migrate will be considered. First, monthly *household income* in the month prior to the storm will be used as a proxy for household SES. Second, extent of *housing damage* (destroyed or uninhabitable / damaged but inhabitable / not damaged) will be examined. Third, household size will be determined based on the roster of household residents reported by the index respondent. Fourth, household type (nuclear family versus other) will be examined, based on the index respondent's report of the child's relationship with each other member of the household.

Health Outcomes. Child health, reported by the child's parent, will be based on *change in health status* after the storm (improved/ the same /worse). This variable will be derived by comparing reports of the child's overall health at the time of the survey versus before Katrina (both answered on a 5-point ordinal scale).

Analysis Plan

All analyses will be conducted in Stata 10.0, applying sampling weights and standard error corrections to account for multi-stage sample design. I will begin by examining the distributions of all analysis variables (frequencies, means/standard deviations). Next I will apply bivariate analyses (chi-square and ANOVA) to examine: (a) whether migration and family separation experiences vary according to individual or household characteristics; (b) whether children's health status varies by individual or household characteristics; and (c) whether children's health status varies by migration and family separation experiences. Lastly, if there is a statistically significant association between child health and migration/family separation experiences, I will utilize multivariable multinomial logistic regression to test this relationship net of individual and household characteristics.

Expected Findings

There are a number of expected findings for this study. First, I expect that migration and family separation experiences will vary by children's demographic characteristics. For example, I expect that family separation will be more prevalent for older age groups and for males compared to females. The former is based on the premise that younger children are more dependent on their caretakers than older children and adolescents; the latter is based on gender differences in parental monitoring and unsupervised activities permitted by parents (Lovegreen & Trapl, 2003). Second, I expect that migration and family separation experiences will vary by household characteristics, with family separation to be *less likely* among lower income households and those with more damaged housing. This prediction is based on knowledge of demographic differences in return migration among New Orleans residents (Fussell, et al., 2010). My third expectation is that family separation and persistent displacement (defined as never returning to New Orleans) will be negatively associated with health outcomes, even after controlling for individual and household characteristics. This expectation is based on prior research with families which have found mobility and instability in family structure related to worse health outcomes (Brown, 2006; Haynie & South, 2005; Haynie, et al., 2006; South, et al., 2005).

Preliminary Analyses

I have conducted preliminary analyses using data from the pilot project (DNORPS). At the time of the Pilot survey (2006), only about 36% of children under age 18 had returned to New Orleans. About 12% of these children experienced separation from the index respondent during evacuation, and about 16% experienced separation during return migration. Trends toward differences in these experiences across demographic groups are apparent in the data, but the small sample size (n=95) limits my ability to statistically test such differences. For example, during evacuation, adolescents were much more likely than younger children to experience separation (29% 15-18 year olds, 11% 9-14 year olds, 5% 0-8 year olds), although males were only slightly more likely than females to experience separation (13% vs. 10%). Of those children who experienced separation in return migration, 82% returned after the index respondent while 18% returned before the respondent. Approximately 44% were reported by the index respondent to be worse off overall after the storm. Children who experienced persistent displacement had steeper health declines after the storm compared to those who had return migrated (-1.07 vs. -0.30). The proposed analysis, using the full dataset, will allow me to examine migration and family separation experiences over a longer follow-up period, and will be better suited for hypothesis testing given greater sample size and thus power.

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