

How Fare the Displaced and Returned Residents of New Orleans?

Results of an Innovative Pilot Survey

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When Hurricane Katrina came through the Gulf in August 2005, it displaced almost the entire population of New Orleans, scattering residents across the region, state, and country. By the fall of 2006, almost half the residents had returned, and almost two-thirds had returned by the fall of 2007, nearly two years after the hurricane. These return rates were very close to early estimates produced by RAND researchers, which highlighted the important effects of flooding and housing damage on return rates. A question remained, however: Which residents have returned and which have not, and how are these people affected by the trauma caused by such a massive displacement?

To help answer this question, RAND researchers fielded an innovative pilot survey in the fall of 2006—the Displaced New Orleans Residents Pilot Survey (DNORPS). The goal was to establish the feasibility of identifying a representative sample of pre-Katrina residents of New Orleans, determine the likely success of efforts to track and interview this sample in a major longitudinal study, and ultimately to launch the full-scale version—the Displaced New Orleans Residents Survey (DNORS), currently under way. The researchers also sought to gain insights into the recovery of the New Orleans population by examining rates of displaced residents returning to the city and the well-being of displaced residents.

What Is DNORPS?

DNORPS is an area-based probability sample of pre-Katrina dwellings in the City of New Orleans, where the dwellings were stratified based on three levels of flood depth on August 31, 2005—no flooding, up to four feet, and four feet or more

Key findings:

- Results from the Displaced New Orleans Residents Pilot Study (DNORPS) show that rates of return and mental illness vary by sociodemographic factors, particularly race.
- Housing damage is strongly associated with higher levels of mental illness and accounts for ongoing displacement.
- Fielding the DNORPS shows that it is possible to study this hard-to-survey population and that a full-scale survey is feasible; the challenge is in locating cases.
- The Displaced New Orleans Residents Survey (DNORS), being fielded in 2009–2010, will fill a gap in existing surveys of displaced residents, both complementing and supplementing them.

(see Figure 1). The first stratum, areas with no flooding, included about 29 percent of all dwellings in New Orleans. The second stratum, areas with less than four feet of flooding, accounted for about 20 percent of all dwellings. Finally, areas with four or more feet of flooding composed the third stratum, which included 51 percent of dwellings. Flood depth was directly tied to housing damage in previous RAND work and, thus, represents a potentially crucial factor shaping residents' ability and choice about whether to return to the city and in understanding financial and other dimensions of well-being.

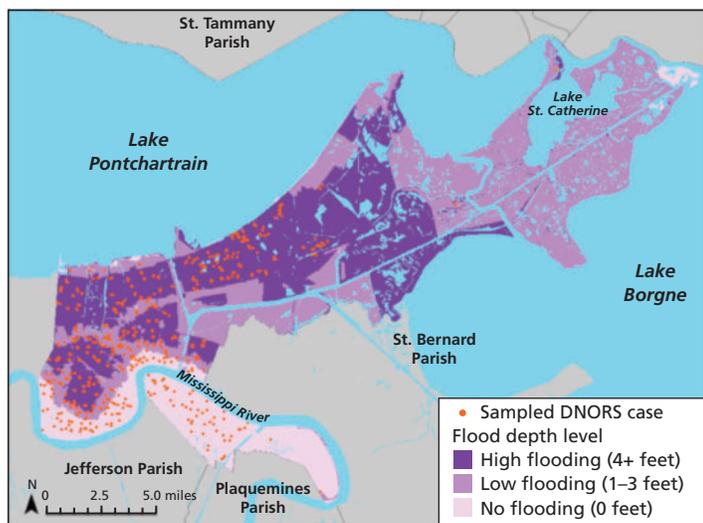
The survey questionnaire collected demographic information; information about evacuation and resettlement experience, including when

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Figure 1
City of New Orleans, Stratified by Levels of Flood Depth



each person left New Orleans, their current place of residence and, if they currently resided in New Orleans, when they moved back to the city, and the likelihood that each person would be living in New Orleans in one year's time; information about each household resident's pre-Katrina and current employment, marital, and health status; and information on mental health. The survey used the six-question K6 scale of nonspecific mental illness to screen for anxiety and mood disorders in the past 30 days.

What Insights Did DNORPS Data Provide on the Recovery?

RAND researchers analyzed the data for insights on the population's recovery. Using the data, researchers estimated that New Orleans would ultimately regain more than two-thirds of its displaced residents. In the fall of 2006, approximately one-half of residents had returned to New Orleans, and nearly all those planned to stay.

Analysis also found essentially no variation in this high likelihood of remaining in the city by flood zone, which is remarkable given the vastly different living environments of flooded and nonflooded residents. At the same time, among the 51 percent of residents who had not yet returned, the likelihood of moving back was modest. Of those still displaced, the majority (61 percent) had no plans to return within a year of the interview (i.e., within two years following the hurricane).

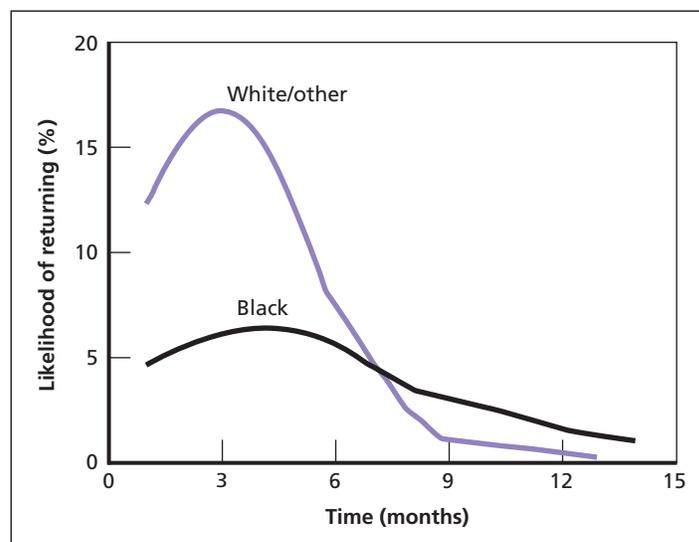
Interestingly, the likelihood of returning was higher among residents in flooded parts of the city, which likely reflects the effects of unfinished reconstruction efforts, such as repairing or replacing damaged housing and waiting for neighborhood infrastructure to be reestablished. In

unflooded parts of the city, few additional displaced residents were likely to return if they had not done so already. The results suggest that perhaps the most effective way to help displaced New Orleanians return to the city is to increase the availability of low-cost housing to renters who are still away from the city but would like to return.

The researchers also looked at how the pace of return varied by race, socioeconomic status, and education. The pace of return among blacks was much slower—but more steady—than for whites, as shown in Figure 2, which plots the likelihood, over time, of returning to the city among those living away. For whites, it peaked three months after Katrina and then declined very rapidly over the subsequent six months. It remained close to zero for whites after month 9 (May 2006), indicating that few, if any, whites who had not returned to the city by that time were likely to do so. For blacks, however, the likelihood of returning peaked at about five months following the hurricane and declined relatively modestly over the subsequent months. By the end of the study period, for displaced blacks, the likelihood of returning, although low, was considerably higher than for whites, indicating that blacks continued to return to the city in small numbers. The researchers found that differences in housing damage experienced by blacks and whites largely accounted for the race disparity in return rates.

Finally, the researchers used the DNORPS data to better understand mental illness among New Orleanians who experienced Katrina and its aftermath. They found very high levels of mental illness among the population: Nearly 40 percent had probable mental illness one year after the storm, and half of these illnesses were classified as severe. These rates were substantially higher than rates of mental

Figure 2
Rates of Return, by Race



illness prior to Hurricane Katrina in the Gulf States region. According to the National Comorbidity Survey Replication study conducted between 2001 and 2003, rates of severe, moderate, and any mental illness were estimated at 6 percent, 10 percent, and 16 percent, respectively. The high levels of mental illness suggest that the prevalence of mental illness may not have declined in the year following the hurricane—a finding that differs from the pattern described in most previous research on mental illness following disasters.

While the researchers found disparities between blacks and whites in terms of mental illness prevalence and severity, the disparities were largely accounted for by other factors—in particular, the effect of severe damage to individuals’ homes. This effect may have been economic, because, for most families who owned their homes, equity in their property represented their largest wealth component. Uninsured property losses from flooding were thus potentially devastating, while flood insurance was unlikely to have been sufficient to cover household contents or the loss of use of a home. Apart from the financial losses, survivors whose housing was severely damaged or destroyed may have been unable to return to their neighborhoods or even to the city, which may have affected their social ties, employment, and other factors.

Why Is DNORS Important?

Studying population change in New Orleans after Hurricane Katrina and the well-being of New Orleanians who experienced Katrina has been challenging because valid and generalizable results require data that are representative of everyone

and outcome measures that are relevant for describing the post-hurricane experience. Some population groups are difficult to find. For example, it is harder to track and interview those who have resettled away from New Orleans, and, furthermore, national studies that do include displaced New Orleans residents may not track relevant outcomes and may provide only a brief window for examining their circumstances.

Building on the experience from the pilot study, DNORS will fill a gap in the current set of surveys that examine New Orleans’ displaced residents, falling between early, small-scale surveys of evacuees, medium-scale, regionally representative ones, and larger-scale national ones (see table). DNORS complements and supplements these other surveys, capturing individuals who experienced Katrina but left the area and examining more outcomes of interest for a broader range of the displaced population.

How Feasible Is It to Identify a Representative Sample?

The DNORPS was fielded in the fall of 2006 with a sample size of 344 households, a number driven by the budget; 325 households were determined to be eligible (the remaining households were vacant or had no surviving members). The researchers located 212 households, or about two-thirds of those eligible, and completed interviews for 147 of them, providing information on a total of 386 individuals. There were few systematic differences in fieldwork outcomes by demographic factors, socioeconomic status, and housing characteristics across any of the fieldwork stages.

DNORPS Complements and Supplements Other Surveys

| Type | Example | Description of Example Surveys |
|--|---|---|
| Small-scale surveys of evacuees | Gallup, CNN, and <i>USA Today</i> survey of evacuees and families in Red Cross shelters; Columbia University School of Public Health surveys of families in Federal Emergency Management Agency housing units | Provide useful information in immediate aftermath on specific populations but are not cross-sectional and lack representative sample frames |
| Medium-scale regional surveys | Louisiana Health and Population Survey, Kaiser Post-Katrina Baseline Survey, Second Kaiser Post-Katrina Survey | Provide representative data on New Orleans and region, including new residents, but lack information on displaced residents outside the region and are not cross-sectional and, thus, are unable to track changes in individual and family outcomes |
| Medium-scale area-based longitudinal surveys | RAND Corporation DNORS | Provides key insights into location and well-being of New Orleans residents who experienced Katrina and has well-designed sampling plan, focuses on a much larger number of Katrina-related outcomes and on both those who return and those who do not return, and provides longitudinal data on individuals and families over time |
| Large-scale national surveys | Current Population Survey, American Community Survey | Have well-designed samples and high response rates, provide key insights into location and well-being of representative samples of displaced New Orleans residents, and offer comparisons with national population but focus on a limited number of outcomes and provide only a snapshot, with no data after the one-year mark |

Once the sampled respondents were contacted, cooperation rates were very high—approaching 90 percent. The main challenge in implementing DNORPS was in *locating* respondents; the researchers were unable to locate 113 households. For virtually all of those cases, there were open leads that could have been pursued had budget constraints not prevented it. Thus, the main challenge in improving the fieldwork results and in launching a full-scale study of this population is locating a high fraction of sampled cases.

Conclusions

Results from fielding the DNORPS have yielded some important insights. The overall implication of the results for the future population of New Orleans is likely only very modest growth from the return of still-displaced residents. The city will continue its post-Katrina trend of being older, whiter, and more highly educated and of having fewer families, children, and people out of the labor force; displaced residents will continue to suffer from mental illness caused by the trauma of Katrina and the displacement experience. While socioeconomic disparities show up in the rate of return and mental illness findings, both sets of findings appear to be driven by the level of housing damage.

The DNORS fills a gap in the existing surveys of displaced New Orleans residents, both supplementing and complementing currently available data. It is feasible to survey this difficult-to-find population, and the pilot survey has laid the foundations for the full-scale survey now under way; lessons learned from the pilot show that the key challenge will be identifying, locating, and contacting a high fraction of sampled cases.

Overall, DNORPS results provide a useful foundation for launching a larger-scale panel survey of displaced New Orleans residents to study the social and economic well-being of this population over the coming years. But beyond that, the findings may also be relevant to studying the effects of human-caused disasters (such as a large-scale terrorist attack) or natural disasters in other settings (such as major earthquakes). Longitudinal studies are useful for providing an ongoing assessment of the population effects of a disaster. They allow researchers to determine for whom the disaster is an experience from which they will never recover—and for whom ongoing support is essential—and to identify individuals for whom the disaster may have been a life-altering experience for the better. ■

This research brief summarizes research reported in four journal articles:

Sastry, Narayan, “Tracing the Effects of Hurricane Katrina on the Population of New Orleans: The Displaced New Orleans Residents Pilot Study,” *Sociological Methods and Research*, Vol. 38, No. 1, August 2009, pp. 171–196.

Sastry, Narayan, “Displaced New Orleans Residents in the Aftermath of Hurricane Katrina: Results from a Pilot Survey,” *Organization and Environment*, Vol. 22, No. 4, December 2009, pp. 395–409.

Fussell, Elizabeth, Narayan Sastry, and Mark VanLandingham, “Race, Socioeconomic Status, and Return Migration to New Orleans After Hurricane Katrina,” *Population and Environment*, online, December 11, 2009.

Sastry, Narayan, and Mark VanLandingham, “One Year Later: Mental Illness Prevalence and Disparities Among New Orleans Residents Displaced by Hurricane Katrina,” *American Journal of Public Health*, Vol. 99, No. S3, November 2009, pp. S725–S731.

This research brief describes work conducted within RAND Labor and Population and the RAND Gulf States Policy Institute, a collaboration among the RAND Corporation and seven Gulf states universities to support hurricane recovery and long-term economic development in Louisiana, Mississippi, and Alabama. This research brief was written by Paul Steinberg. The RAND Corporation is a nonprofit research organization providing objective analysis and effective solutions that address the challenges facing the public and private sectors around the world. RAND’s publications do not necessarily reflect the opinions of its research clients and sponsors. RAND® is a registered trademark.

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