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# New Yorkers Negatively Impacted by Hurricane Sandy: How Are They Faring Since?

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## **New Yorkers Negatively Impacted by Hurricane Sandy: How Are They Faring Since?**

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Hurricane Sandy, which hit New York City on October 29, 2012, was one of the worst weather-related disasters to hit New York City in decades. In far-flung parts of the city, the storm wreaked havoc on New York City residents and their communities. Some were stranded in their homes without power, others lost vehicles, belongings, or even their homes to catastrophic damage, and still others were injured or even lost their lives. And for some, the storm was a direct hit to the pocketbook, as the results of the storm caused them to lose pay or even their job altogether.

The extent of Hurricane Sandy's immediate impact was fairly well documented shortly after the storm. This brief focuses on what happened since. We find that a year after Hurricane Sandy landed in New York City, those who were negatively impacted by the storm are experiencing elevated levels of material hardships, independent of their disadvantages and hardships prior to the storm.

At the time Hurricane Sandy hit New York City, Columbia University and the Robin Hood Foundation were teaming up to launch the Poverty Tracker, an ambitious study tracking the fortunes of a representative sample of New York City residents. The Poverty Tracker surveys are fielded every three months with approximately 2,000 New York City residents, focusing on dynamics of income poverty, material hardship, and general health and wellbeing. In each survey, we ask about respondents' experiences in the past three months since we last talked to them, including difficulty or inability to meet needs related to: (1) food; (2) housing; (3) utilities; (4) medical care; and (5) running out of money between pay checks or pay cycles. In this brief, we compare the levels of hardships experienced by those who were impacted by the storm to those of New Yorkers who were spared direct impacts. In all analyses of hardships following the storm, we take account of prior levels of material hardship as well as demographic characteristics that may vary between those impacted by the storm and those who were not. For details on the Poverty Tracker study, as well as its purpose and initial results, please visit <http://povertytracker.robinhood.org>.

### *Defining Material Hardship*

Conventional poverty statistics compare the amount of a family's income over a given period, usually a year, to a specific poverty line or threshold representing what a family of that size and composition needs to get by over the year. Material hardship measures, in contrast, are a direct report of a family's inability to meet their basic needs. Below we briefly describe how the five types of hardships analyzed here are measured:

**FOOD** Did respondents often run out of food before having money to buy more? Did they often worry about food running out before there was money to buy more?

**HOUSING** Were respondents unable to pay rent or mortgage owed in the last year? Did they stay in a shelter, or move in with others for financial reasons?

**UTILITIES** Did respondents have their gas, electric or phone bills shut off because they did not have the money to pay them?

**MEDICAL** Did anyone in the household avoid seeking necessary medical care because of the cost?

**GENERAL FINANCIAL DIFFICULTIES** Did respondents often run out of money between income cycles?

Our primary models look at material hardship over the 12 months following Hurricane Sandy, but we also discuss some models which use data from the three-month, six-month, and nine-month surveys.

### *Defining Impact of Hurricane Sandy*

We looked at three primary measures of whether someone was negatively impacted by the storm:

(1) **Damage:** respondents were classified as having experienced damage if they responded ‘yes’ to at least two of three questions regarding significant damage to home, belongings, or vehicles.

(2) **Job:** respondents were classified as having a job-related impact if they reported either losing their job or losing pay due to the storm.

(3) **Injury:** respondents were classified as having an injury-related impact if they reported ‘yes’ to either experiencing an injury or knowing a family member/friend who was injured in the storm.

All models controlled for respondents’ material hardship in the 12 months prior to Hurricane Sandy. In addition to the pre-storm baseline hardship measure, we controlled for other demographic variables: education level, immigrant status, race, age, age-squared, borough of residence, presence of severe health issue, number of adults and children in the family, and the family’s income-to-needs ratio. In total, 1,651 respondents responded to at least one follow-up survey across the first four follow-up surveys. It is worth noting that the estimates presented here are *net* of respondents’ demographic characteristics and preexisting poverty and hardship. Raw, unadjusted differences between Sandy affected New Yorkers and unaffected New Yorkers are generally larger.

### *Who was negatively affected by Hurricane Sandy?*

Before turning to experiences of hardship in the year following Hurricane Sandy, we first present evidence on who was most likely to be impacted by the storm. We find that New Yorkers affected by Hurricane Sandy were not a random sample of the population – instead, more disadvantaged New Yorkers were more likely to be negatively affected by the storm.

Table 1 shows the likelihood that respondents experienced one of our three primary negative impacts of the storm by various demographic characteristics. In general, less-educated New Yorkers were more

likely to experience negative impacts of the storm, especially job losses and lost pay and damage to possessions. Differences by race were more muted, although Black and Hispanic New Yorkers were substantially more likely than White New Yorkers to have lost a job or pay because of the storm, while White New Yorkers were the most likely to have suffered damage to possessions. Immigrants were more likely than non-immigrants to have lost a job or pay. Queens and Bronx residents were the most likely to have lost a job or pay, while residents of Brooklyn, Queens, and Staten Island were most likely to have experienced damage to their possessions. Injury experiences were most common in Staten Island.

### *Hardship in the year following Hurricane Sandy*

Figure 1 shows the likelihood that New Yorkers experienced a material hardship in the year following the storm, after adjusting for demographic differences and prior levels of poverty, hardship, and health problems. We find that New Yorkers affected by the storm went on to have significantly more hardships a year later: New Yorkers impacted by the storm either in terms of income/job loss, significant damage to their possessions, or injury to themselves or family/friends had a 46% chance of experiencing hardship in the year after the storm, compared to only 40% of those who were not impacted by the storm. This is driven by differences between those who lost pay or a job versus those who did not and those who experienced significant damage to their possessions versus those who did not.

New Yorkers impacted by the storm also experienced more kinds of hardships over in the year following the storm (Figure 2). Across all three types of impacts, those who were impacted demonstrated significantly more hardships a year later.

Figures 3-7 show hardship rates for specific domains of material hardship. We begin with utility hardships, which are shown in Figure 3. New Yorkers losing a job or pay because of the storm were more likely than those who did not to have their utilities cut off in the year following the storm (15% versus 11%). New Yorkers who had significant damage to their possessions were even more likely to have utilities cut off relative to those with lesser or no damage (24% versus 11%). No relationship was found for injury storm impacts.

Turning to medical hardship (Figure 4), we see again that those with significant damage to their possessions had elevated levels of medical hardship (24% versus 18%) in the following year relative to those with lesser or no damage. New Yorkers who were injured or had family or friends who were injured or killed also had higher levels of medical hardship (26%) than those with no injury-related impacts (18%). There was not a strong relationship for job or pay losses.

Figure 5 shows similar estimates but for food hardship. Here we see that there are no material differences for losing a job or pay or experiencing significant damages. But those who were injured or who had a family member or friend who was injured or killed did experience more food hardship (17%) than those who did not (12%).

Figure 6 presents estimates for housing hardships. Here, those who experienced significant damage to their possessions showed elevated levels of housing hardship (28%) compared to those who did not

(21%). Differences by the other two types of storm impacts were not as large. Finally, in Figure 7, we show results for general financial hardship, and here we find little evidence experiences of the storm were related to material hardship.

### *Conclusion*

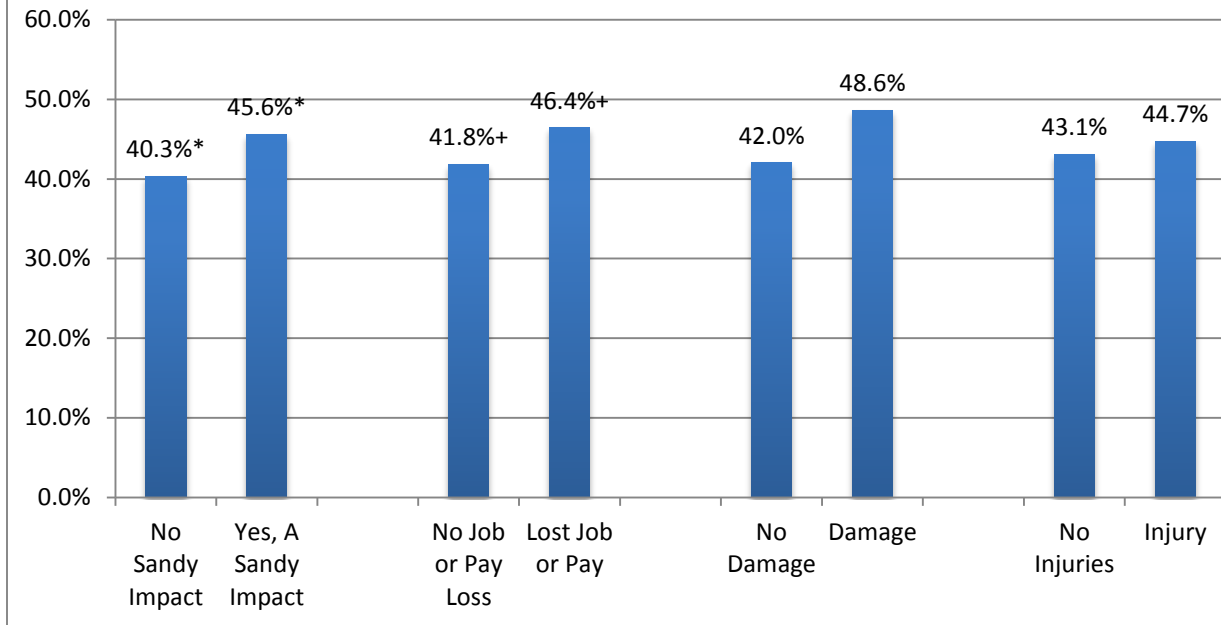
Overall then, our analyses of data from the Poverty Tracker revealed that disadvantaged New Yorkers were more likely to have been negatively affected by Hurricane Sandy. Even after taking account of initial disadvantages, those who were negatively impacted by the storm had elevated levels of hardship in the year following the storm, as well as greater numbers of hardships.

Thus, our results confirm that those New Yorkers who were hit hard by the storm remained vulnerable long after that storm had passed. As new data continues to come in, we will continue to monitor how these groups (and others) fare over time.

**Table 1: Impacts of Hurricane Sandy by Select Demographic Characteristics**

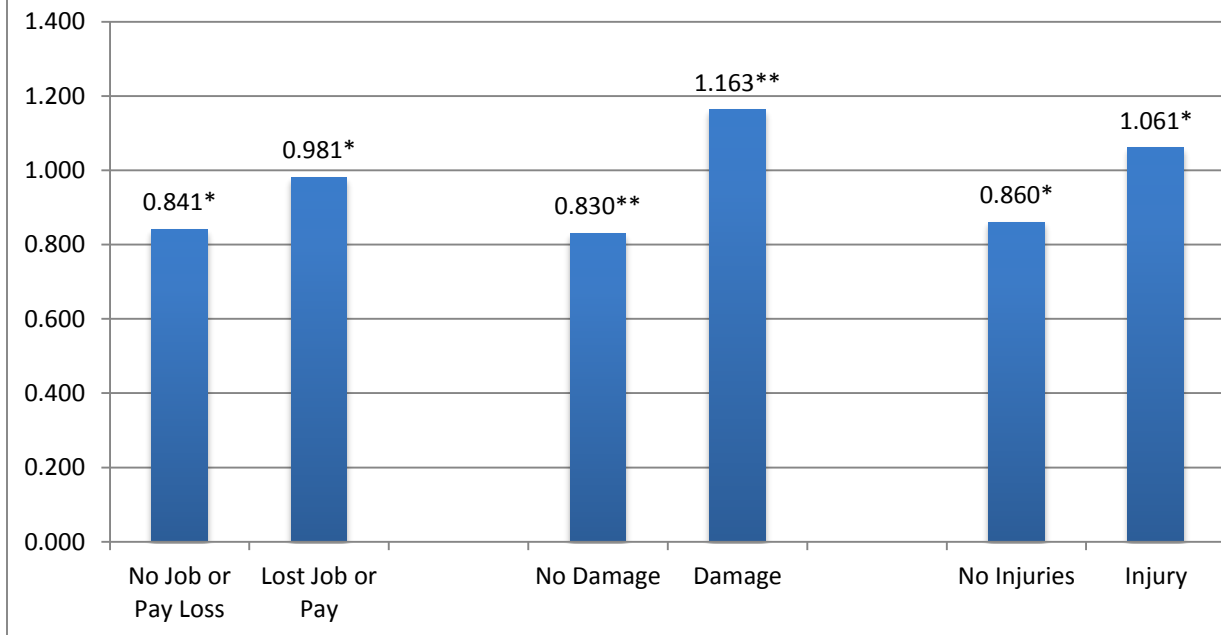
	Lost Job or Pay	Damage to Home, Belongings, or Vehicle	Injury or Family/Friends Injured
<b>No HS</b>	32.7%	32.6%	10.8%
<b>HS</b>	31.7%	27.5%	8.9%
<b>Some College</b>	27.7%	22.9%	10.5%
<b>Bachelors</b>	23.7%	24.2%	6.9%
<b>Graduate</b>	19.7%	21.9%	4.9%
<b>White</b>	17.8%	27.8%	8.3%
<b>Black</b>	30.7%	24.3%	8.9%
<b>Hispanic</b>	37.2%	20.7%	8.0%
<b>Immigrant</b>	34.0%	26.0%	7.8%
<b>Non-Immigrant</b>	23.3%	25.8%	9.3%
<b>Manhattan</b>	21.7%	19.3%	7.2%
<b>Brooklyn</b>	26.8%	30.9%	7.4%
<b>Bronx</b>	30.8%	13.3%	9.9%
<b>Queens</b>	30.7%	35.1%	7.7%
<b>Staten Island</b>	26.2%	37.0%	19.8%

**Figure 1: Rates of Hardship 1 Year After Sandy  
(Comparing Those Affected vs Unaffected by the Hurricane)**



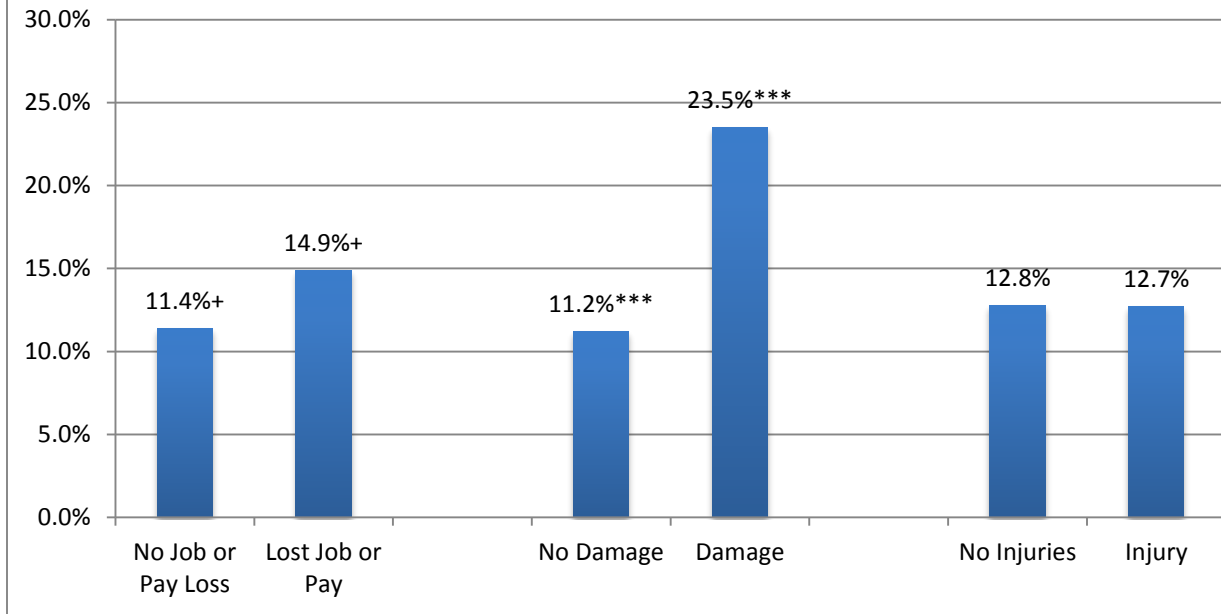
Note: \*\*\* p < .001; \*\* p < .01; \* p < .05; + p < .10

**Figure 2: Number of Hardships 1 Year After Sandy  
(Comparing Those Affected vs. Unaffected by the Hurricane)**



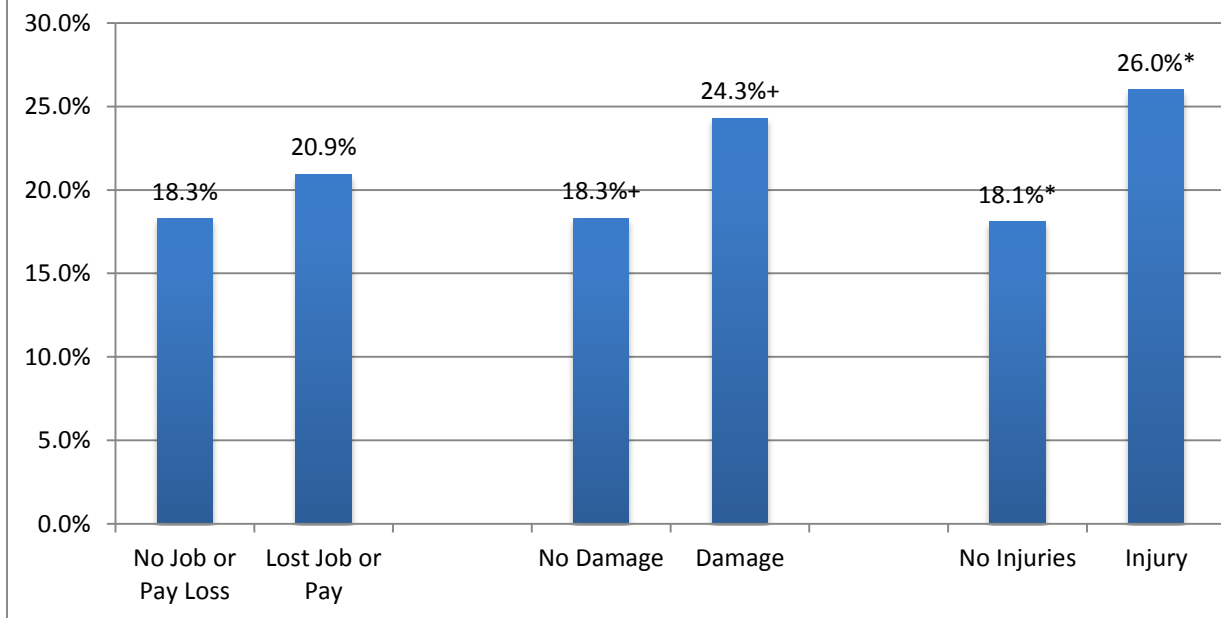
Note: \*\*\* p < .001; \*\* p < .01; \* p < .05; + p < .10

**Figure 3: Utilities Hardship 1 Year After Sandy  
(Comparing Those Affected vs. Unaffected by the Hurricane)**



Note: \*\*\* p < .001; \*\* p < .01; \* p < .05; + p < .10

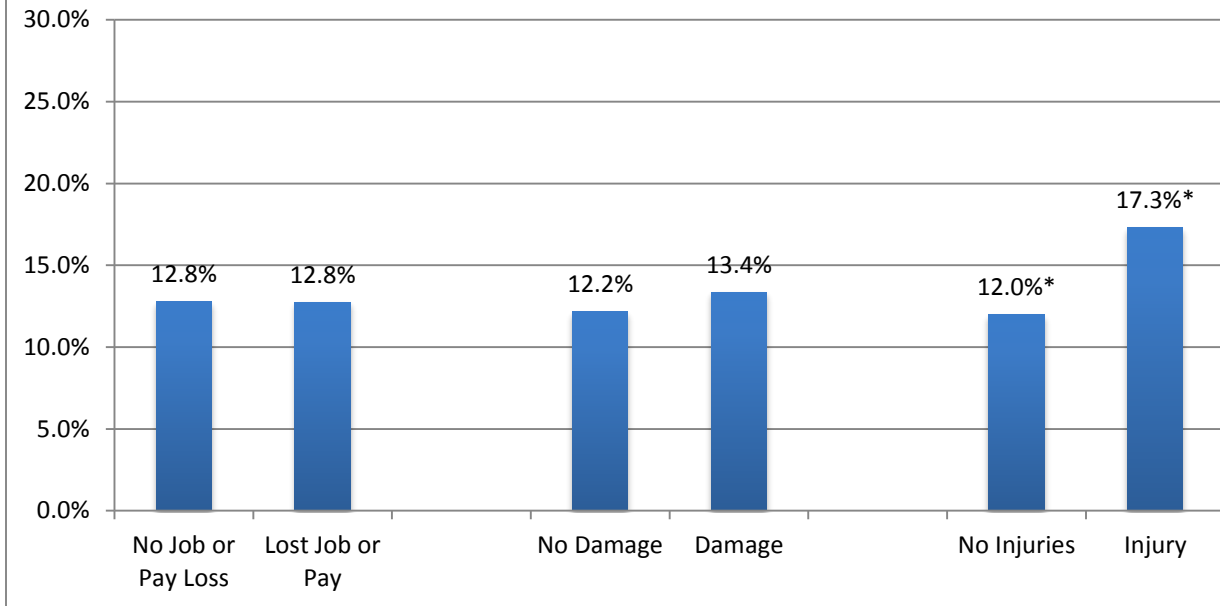
**Figure 4: Medical Hardship 1 Year After Sandy  
(Comparing Those Affected vs. Unaffected by the Hurricane)**



Note: \*\*\* p < .001; \*\* p < .01; \* p < .05; + p < .10

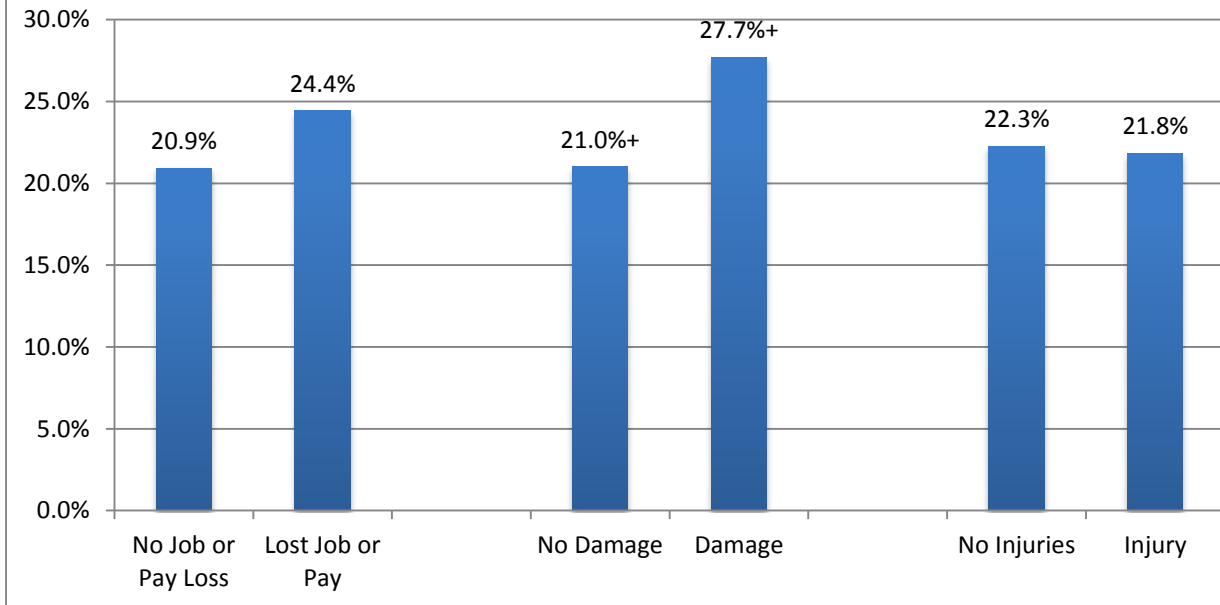


**Figure 5: Food Hardship 1 Year After Sandy  
(Comparing Those Affected vs. Unaffected by the Hurricane)**



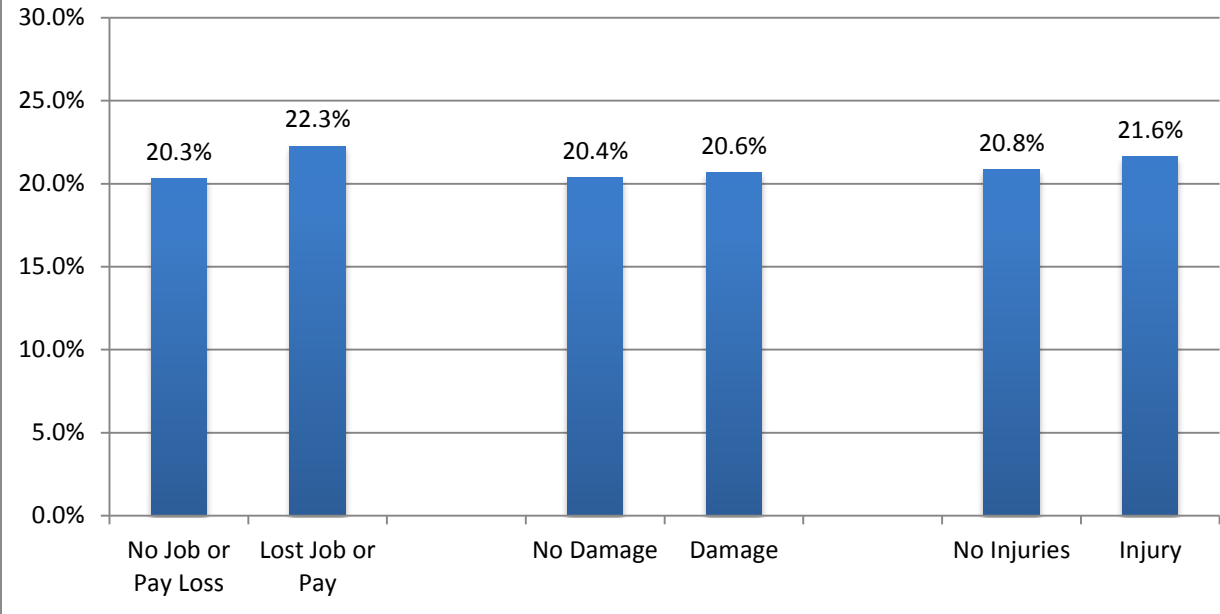
Note: \*\*\* p < .001; \*\* p < .01; \* p < .05; + p < .10

**Figure 6: Housing Hardship 1 Year After Sandy  
(Comparing Those Affected vs. Unaffected by the Hurricane)**



Note: \*\*\* p < .001; \*\* p < .01; \* p < .05; + p < .10

**Figure 7: Financial Hardship 1 Year After Sandy  
(Comparing Those Affected vs. Unaffected by the Hurricane)**



Note: \*\*\* p < .001; \*\* p < .01; \* p < .05; + p < .10