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ORIGINAL ARTICLE

Rebuild or Relocate? Resilience and Postdisaster Decision-Making After Hurricane Sandy

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Abstract Hurricane Sandy struck the east coast of the United States on October 29, 2012, devastating communities in its path. In the aftermath, New York implemented a home buyout program designed to facilitate the permanent relocation of residents out of areas considered to be at risk for future hazards. While home buyout programs are becoming popular as policy tools for disaster mitigation, little is known about what factors influence homeowners to participate in or reject these programs. This study used mixed methods to assess the relationship between community resilience and the relocation decision in two heavily damaged communities in which the majority of residents made different decisions regarding whether or not to pursue a buyout. The sample was composed of residents from Oakwood Beach and Rockaway Park, both working-class communities in New York City, who participated via a community survey ($N = 133$) and/or in-depth interviews ($N = 28$). Results suggested that community resilience moderated the relationship between community of residence and the buyout decision, leading to opposite responses on the buyout decision. Contextual community factors, including the history of natural disasters, local cultural norms, and sense of place, were instrumental in explaining these different responses. Implications for disaster policy are discussed.

Keywords Hurricane Sandy · Postdisaster relocation · Community resilience · Home buyout · Disaster recovery · Climate adaptation

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Introduction

Natural disasters can have catastrophic impacts on communities. In severe cases, disaster survivors whose homes have been destroyed may choose or be forced to relocate. This was the decision faced by many residents of New York whose homes or communities were damaged by Hurricane Sandy, which struck the east coast of the United States on October 29, 2012. The storm devastated coastal areas of New York, damaging or destroying an estimated 300,000 homes and claiming 60 lives in the state (Associated Press 2012). In the aftermath of this disaster, the State of New York implemented a home buyout plan designed to permanently relocate residents out of hazard-prone areas and transform portions of the state's coastal flood zones into preservation land (New York State Homes and Community Renewal 2013). Media reports around the time of the plan's inception indicated that residents had mixed responses; some voiced an eagerness to participate in the home buyout program and relocate, while others expressed strong opposition to the idea of relocation (Knafo 2013; Roy 2013). Interestingly, while the decision to rebuild or relocate is an individual- or household-level decision, these decisions appeared to have been made collectively in two communities affected by Sandy.

Predictors and Impacts of Home Buyout-Related Relocation

Home buyout programs are designed to facilitate the permanent relocation of residents out of areas that are

considered to be at risk for future hazards. Previous studies have suggested a number of factors that may influence the decision of whether or not to participate in a buyout program, though there have been relatively few studies on this issue to date. These factors include one's level of trust in those running the buyout program (de Vries and Fraser 2012), the degree to which the program is perceived as having actively engaged the community (Fraser et al. 2006; Knobloch 2005), and the community's past history of disasters (Knobloch 2005; Perry and Lindell 1997). Economic factors may also play a role. The availability of jobs and the level of funding offered by the buyout program are cited in the literature as impacting relocation decisions (Fraser et al. 2006; Hunter 2005). The degree of damage to housing, which is often correlated with lower-cost, lower quality housing, was identified as a factor in relocation after Hurricanes Katrina and Rita (Myers et al. 2008), while structural factors such as poverty may compel residents to participate in buyout programs (Green and Olshansky 2012).

While home buyout programs offer many potential benefits as disaster mitigation policy tools, previous studies have suggested that the process of postdisaster relocation, more generally, may have negative impacts on residents. The limited number of existing studies that have examined the mid- and long-term impacts of postdisaster relocation have indicated that the relocation process may expose disaster victims to a broad array of challenges, including psychological distress (Blaze and Shwalb 2009), medically unexplained physical symptoms (Yzermans et al. 2005), economic hardship (Hori and Schafer 2009), and disruptions in social networks (Sanders et al. 2003). These effects appear to be influenced by the duration (Blaze and Shwalb 2009; Yzermans et al. 2005), distance (Hori and Schafer 2009; Kessler et al. 2008), and context (Riad and Norris 1996) of the relocation.

At present, policy and practice related to home buyout programs are outpacing research. Critical gaps remain in our understanding of the process surrounding home buyout programs and buyout decision-making, and these issues must be carefully considered if we are to fully understand the impacts of home buyout programs on households and communities. These questions will be increasingly important to researchers and practitioners as the effects of climate change are felt in heavily populated areas (Scannell and Gifford 2011), and more communities are faced with the prospect of relocation.

Community Resilience and Postdisaster Relocation

The two communities included in this study were selected in part because they displayed *collective* responses to the prospect of a buyout. In examining the question of what community-level factors may have influenced their decisions, previous studies have suggested that concepts that are often regarded as components of community resilience, including sense of community and attachment to place, may play a role (Henry 2013; Kick et al. 2011). As such, the concept of community resilience emerges as a possible consideration in understanding relocation and rebuilding decisions in disaster-affected communities.

While the literature offers many definitions of resilience (Manyena 2006), a relatively small number of frameworks have been developed that directly address community resilience in a disaster context. Two of the more well-known frameworks are the disaster resilience of place (DROP) model (Cutter et al. 2008) and Norris et al.'s (2008) framework in which community resilience arises from a set of networked adaptive capacities. A third framework, presented in the Communities Advancing Resilience Toolkit (CART; Pfefferbaum et al. 2013; Pfefferbaum et al. 2011) reflects key components of the first two frameworks (including measures reflective of sense of community and sense of place), and is designed specifically as a participatory tool for assessing and enhancing community resilience against disasters. The framework is designed around four domains of community resilience: Connection & Caring, Transformative Potential, Disaster Management, and Resources. The Connection & Caring domain is closely related to social capital, encompassing constructs such as relatedness, social support, community participation, fairness, and shared values. Transformative Potential reflects a community's ability to frame collective experiences, and to identify, discuss, and address issues and challenges that arise. Disaster Management is a measure of a community's capacity to prepare for, respond to, and recover from disasters. Finally, the Resources domain includes all resources contained in or available to the community, including physical, informational, human, and financial resources.

The Present Study

Postdisaster relocation may reduce exposure to future hazards, but it also has the potential to expose disaster victims to a broad array of challenges. When we consider participation in home buyout programs as a special case of postdisaster relocation, the question arises of why homeowners who are given the option of pursuing a buyout choose to pursue or reject that option. The literature on this topic is limited; however, previous studies have suggested a few community-level (e.g., the relationship between the affected community and buyout administrators, the level of community involvement in the buyout process) and individual-level (e.g., social and economic) factors that may influence buyout decisions. Still, a number of important

gaps remain in our understanding of this process. Additionally, while a significant body of research has explored the influence of community resilience in disaster-affected communities, no studies, to our knowledge, have examined this relationship in the context of buyout programs.

The present study addressed this gap in the disaster relocation literature by exploring the relationship between community resilience and relocation decisions related to New York's home buyout plan. Resilience is assessed using the CART resilience model. Using a comparative, mixed-methods design, this study compared the experiences and perceptions of two coastal communities (Oakwood Beach and Rockaway Park) that were eligible for New York's Home Buyout Program for the purpose of gaining insight into what factors influence the decision to pursue or reject buyouts. Specifically, we were interested in (1) determining whether associations between the CART resilience domains and individuals' intent to accept a buyout were dependent upon their community of residence, and (2) assessing why, given demographic similarities and a similar threat level for future hazards, residents from one community largely chose to relocate and while residents of another community largely chose to stay.

Methods

Description of Selected Communities

The communities included in this study were selected because of their demographic and geographic similarities, their similar experiences of Hurricane Sandy, and because they displayed collective responses to the relocation question. The first community, Oakwood Beach, is a residential neighborhood on the eastern shore of Staten Island. The second community, Rockaway Park, is located on the Rockaway Peninsula in Queens. Both communities are beach communities in New York City that suffered catastrophic damage from Sandy, including significant flooding and several fatalities. While these communities share many similarities, they responded very differently to the proposed buyout plan; residents of Oakwood Beach chose, largely, to pursue the buyout, while residents of Rockaway Park chose, largely, to remain in their community.

Table 1 presents a demographic comparison of the two study communities. Although Rockaway Park is racially more diverse and has considerably more renters than Oakwood Beach,[1] there are a number of similarities. Housing in both communities consists primarily of one- or two-family homes. Both communities can be considered working class communities, with similar per-capita incomes and a large percentage of government employees. Median home values are also similar (though higher in Rockaway Park), and indicate that these are relatively affordable neighborhoods in the New York City market, especially for detached homes. Finally, both communities are fairly stable, with 83.3 % of homes in Oakwood Beach and 59.5 % of homes in Rockaway Park being occupied by the same persons for more than 10 years.

[1] The racial diversity and rental figures for Rockaway Park are influenced by a large low-income housing development that is located in the neighborhood.

Participants

Participants in this study included individuals who participated only in a survey ($n = 150$), individuals who participated in both a survey *and* an interview ($n = 23$, bringing the total number of survey participants to 173), and a small number of individuals who participated only in an interview ($n = 5$, bringing the full sample size to 178). In this article, we focus on responses from participants who either intended to accept or reject a buyout at the time of data collection ($N = 133$). This represents a subset of the full sample of survey participants ($N = 173$), which also included residents who were undecided about the buyout at the time of data collection.

The sub-sample included 49 men and 84 women, with an average age of 54 (median: 64; *SD*: 13.9; range 18–88). Survey participants had lived in their neighborhoods for an average of 24.4 years (median: 21; *SD*: 16.48; range 1–63). Interview participants included 14 men and 14 women who participated in a total of 24 interviews (including four couples who participated in joint interviews). Demographic characteristics of survey and interview participants are detailed in Table 2.

Measures

Quantitative Measures

The survey instrument was adapted from the CART community survey tool and reflected the four CART resilience domains (Pfefferbaum et al. 2011; see Table 3). Cronbach's alphas were calculated to determine the reliability of items included in each domain. Overall reliability for the CART core community resilience items (19 items covering each of the four CART domains) was excellent at .86. The values of each resilience domain varied, with the highest for Community Competence and Transformative Potential (alpha = .79) and the lowest for Resources (alpha = .67). However, the true reliability of the Resources scale may be underestimated due to the small number of items included in the scale (Eisinga et al. 2013).

Table 1 Demographic comparison of Oakwood Beach and Rockaway Park

	Community	
	Oakwood Beach	Rockaway Park
Total population	3206	3988
Race		
White	97.9 % (2673)	83.4 % (3324)
Other	8.7 % (190)	14.8 % (587)
Hispanic origin (of any race)	6.6 % (212)	9.7 % (387)
Income and employment		
Per capita income	36,116	35,412
% Government workers	22.7	26.6
Housing		
% Homes owner-occupied	89.5	56
% Homes with same occupant(s) >10 years	83.3	59.5
Median home value	$443,300	594,000

Source: United States Census Bureau. All data are from 2010 unless otherwise noted. Neighborhood data reflects census data for census tracts 128.05 (Oakwood Beach) and 934.02 (Rockaway Park), which are reasonable approximations of community boundaries

Table 2 Demographic characteristics of survey and interview participants by neighborhood

	Oakwood Beach	Rockaway Park
Survey participants		
Age	52.7	55.1
Gender		
Male	27 (47.4 %)	22 (28.9 %)
Female	30 (52.6 %)	54 (71.1 %)
Tenure (in years)	19.3	28.3
Race		
White	50 (90.9 %)	73 (96.1 %)
Other	5 (9.1 %)	3 (3.9 %)
Interview participants		
Participant type		
Community leader	3	2
Community member	10	12
Policy maker	1	0
Gender		
Male	7	7
Female	7	7

Values that differ from the total N represent missing data. Percentages are based on the total number of valid values

Adjustments were made to the standard CART survey. For a subset of questions drawn from the original CART survey instrument, participants were asked to respond both retrospectively (considering their situation before Sandy) and based on their situation at the time of the survey (between seven and ten months after Sandy) to gauge perceived changes since the storm. There were also additions to the CART survey, including a section designed to capture participants' experiences of and since Hurricane Sandy (e.g., *People in my community received the help they needed after Hurricane Sandy*, *My community will completely recover from Hurricane Sandy*); four items to assess exposure to the storm; and eight items to assess participants' perceptions and opinions of the buyout plan (e.g., *If people have the option of taking the buyout, they should*, *The buyout plan is bad for my community*). With the exception of four open-ended questions related to eligibility for, interest in, and concerns about the buyout plan and four binary questions about exposure to the storm, responses were assessed on a 5-point Likert scale, ranging from *strongly disagree* to *strongly agree*. The resulting survey contained 94 items and took approximately 20 min to complete. The survey was piloted in Oakwood Beach, resulting in minor adjustments.

Qualitative Measures

For the qualitative interviews, participants were asked to describe their neighborhood, their experience of Hurricane Sandy, their perspective on how life and the community had changed since the storm, and their opinions on the buyout program. Policy makers and community leaders were asked more detailed questions about the buyout plan and its potential impacts on the community, the community's response to the buyout plan, and, in the case of community leaders, questions about their organization and its role in the community. All interviews were semi-structured and conducted in person.

Table 3 Items included in CART resilience domains and covariates

CART resilience domains	
Connection & Caring (alpha = .79)	People in my community feel like they belong to the community
	My community treats people fairly no matter what their background is
	People in my community have friendships with their neighbors
	People in my community are committed to the well-being of the community
	People in my community have hope about the future
	People in my community help each other
Transformative Potential (alpha = .79)	My community has effective leaders
	My community works with organizations and agencies outside of the community to get things done
	People in my community communicate with leaders who can help improve the community
	People in my community discuss issues so they can improve the community
	People in my community work together to improve the community
	My community develops skills and finds resources to solve its problems and reach its goals
	My community has priorities and sets goals for the future
Disaster Management (alpha = .69)	My community tries to prevent disasters
	My community actively prepares for future disasters
	My community can provide emergency services during a disaster
	My community has services and programs to help people after a disaster
Resources (alpha = .67)	People in my community are able to get the services they need
	My community has the resources it needs to take care of community problems
Covariates	
Exposure index (0–2)	Did you ever feel like your life was in danger during the hurricane?
	Was your home severely damaged by the storm?
Tenure	Length of residence in years
Children	Binary variable indicating whether or not there were children under 18 in the household
Gender	Binary variable indicating gender of respondent (male/female). (Note: the survey instrument included four gender categories, but all residents self-identified as either male or female)
Age	Age of respondent in years
Race	Binary variable classified as white/all other races

Procedures

Survey Procedure

Survey participants were recruited using a two-step sampling method that included door-to-door surveying ($N = 146$) and surveying at local community events ($N = 27$). Door-to-door surveys were collected using the following process: a single address within each neighborhood was selected at random. Using the randomly selected address as a starting point, the first author approached every third house and asked the person who answered the door to participate in the survey (if the person was under 18, she asked if an adult resident of the home was available to participate). If a home was unapproachable (e.g., gated or uninhabitable), the adjacent home was approached and the pattern continued. When possible, homes were approached twice, and at different times of day. If there was no answer on the second attempt, that address was removed from the sample. The overall response rate across both neighborhoods was 34.8 %, with 146 households agreeing to complete the survey out of 419 households that were approached (with response rates of 31 % in Oakwood Beach and 39 % in Rockaway Park). Additional surveys were completed via convenience sampling at Sandy-related events and community meetings. All surveys were conducted in person. Informed consent was obtained prior to the initiation of the survey. Survey participants were not compensated.

Interview Procedure

Community interview participants were recruited primarily through the surveying process. Since the number of interviews in each community was limited, the first author attempted to select interview participants who indicated an interest in sharing their perspectives or experiences beyond the questions that were covered in the survey as well as

participants who seemed more reserved, and attempted to balance the interviews in terms of age and gender. In addition to the community interviews, key informant interviews were conducted with community leaders in both communities. Interviews were scheduled and conducted at times that were convenient for the participants, and participants were consented prior to participation. Interview participants received a gift card in the amount of $20.00 as compensation.

Data Analysis

Quantitative Data Analysis

Quantitative data were used to analyze the role of community resilience in the buyout decision. In preparation for these analyses, multiple imputation (MI) procedures (Graham 2009) were used to impute missing values in the original dataset. MI is a well-accepted method for imputing missing values with reasonable predictions of those values, and has been shown to perform very well with small samples (Graham and Schafer 1999) and with multiple missing data mechanisms (Sinharay et al. 2001). A total of 2.62 % of values were missing in the dataset, ranging from 0 missing values to 11.3 % (questions with more than 6 % of values missing included *My community has priorities and sets goals for the future, Did you ever feel like your life was in danger during the hurricane,* and *People in my community have hope about the future*.), and data were determined to be missing completely at random (Little's MCAR test: ($\chi^2 = 335.69$, $df = 317$, $p = .23$). MI allowed the full sample size to be maintained for analysis. The Fully Conditional Specification method was used in IBM SPSS Statistics 21 software to impute five sets of missing values. Unless otherwise noted, all quantitative analyses were conducted using the multiply imputed dataset, and results reported below represent pooled values, as calculated by SPSS.

Quantitative data were analyzed using *t*-tests and Chi-square tests for comparisons across communities. Logistic regressions were used to assess the role of resilience in influencing the buyout decision. For the regression analyses, the dependent variable was the participant's intended buyout decision (accept or reject). Independent variables included the CART resilience domains. Covariates included: exposure, tenure, children in the home, gender, age, and race (see Table 3).

Qualitative Data Analysis

Qualitative data analyses were used to expand on the findings from the quantitative data. Specifically, two a priori themes were identified that complement the quantitative portion of this study. The first theme, *the experience of previous disasters*, was selected because the literature has suggested that repeated exposure to hazards may play a role in influencing relocation decisions (Knobloch 2005; Perry and Lindell 1997), and because data from this study suggested that this may be an important distinguishing feature for the two target communities. The second theme, *sense of place and local culture*, was selected to further explore concepts related to connection to place and the distinctive local cultures of each community.

Qualitative data (including responses to open-ended survey questions, field notes, and interviews) were coded according to these a priori themes, with a focus on within-case analysis (Patton 2002). Each theme was then analyzed using grounded theory methodology (Corbin and Strauss 2008). An inductive process of open coding was used to organize data into initial categories. A process of axial coding was then used to organize categories into higher-level (thematic) concepts. Memos were used to draw out and develop emerging themes, including references to the broader historical and cultural context in which the hurricane took place. This process resulted in a series of subthemes nested within each a priori theme, representing findings from the qualitative data in each community. All qualitative analyses were conducted manually by the lead author. Discrepancies were discussed with the second author until consensus was reached.

Results

Sample Characteristics

In understanding the results presented in the following sections, it is helpful to review some descriptive data on the experience and impacts of Sandy in each neighborhood. While Sandy was devastating in both communities, the majority of the damage caused by the storm in Oakwood Beach was a result of flooding (participants reported having up to five feet of water in their main floor, not including the basement). Rockaway Park also experienced significant flooding, with participants reporting up to six feet of water in their main floor, though on the whole, flood damage was less extensive than in Oakwood Beach. Rockaway Park, however, faced additional hazards in the form of large fires that broke out across the Rockaway peninsula during the storm. These differences in the experience of the storm were important in participants' responses related to exposure. When asked, for example, whether they ever felt their life was in danger during Sandy, residents of Oakwood Beach who answered affirmatively referenced the floods, while residents of Rockaway Park more frequently cited

Table 4 CART domain scores by community

	Community			
	Oakwood Beach	Rockaway Park	*t*	*df*
Connection & caring	4.26	4.35	−.93	131
	(.54)	(.51)		
Transformative potential	3.68	3.67	.13	131
	(.60)	(.64)		
Disaster management	3.44	3.13	2.23*	131
	(.72)	(.87)		
Resources	3.43	3.13	1.87	131
	(.89)	(.88)		

* $p \leq .05$. Standard errors appear in parentheses below means. All values represent pooled values from the imputed dataset

the fires. Chi-square tests of independence were performed to examine the relationship between the items included in the exposure index (*Did you ever feel like your life was in danger during the hurricane?* and *Was your home severely damaged by the storm?*) and community of residence. Results indicated that the communities did not differ in terms of the number of residents who felt their lives had been in danger [$\chi^2(1, N = 118) = 1.20, p = .27$], though residents of Oakwood Beach were significantly more likely to report that their home had been severely damaged [$\chi^2(1, N = 131) = 12.39, p < .01$].

In addition, to address our overarching question of why one of the target communities chose to rebuild while the other chose to relocate, it is helpful to review the distribution of responses in each community to the question, *Would you take the buyout offer?* As expected, the majority of participants in Oakwood Beach responded that they would take the buyout (86.0 % responded *Yes*; 14.0 % responded *No*), while the majority of residents in Rockaway Park responded by saying that they would not take the buyout (85.5 % responded *No;* 14.5 % responded *Yes)*. A Chi-square test of independence confirmed that residents of Oakwood Beach were significantly more likely than residents of Rockaway Park to state that they intended to accept the buyout [$\chi^2(1, N = 133) = 67.23, p < .01$].[2]

Community Resilience and the Buyout Decision

We began by comparing the two communities on the CART resilience domains. This comparison revealed relatively high levels of resilience in both communities. No significant differences were found on measures of Connection & Caring, Transformative Potential, or Resources. However, Oakwood Beach scored significantly higher than Rockaway Park on Disaster Management (Oakwood Beach: $M = 3.44$, $SE = .72$; Rockaway Park: $M = 3.13$, $SE = .87$), indicating greater confidence in the community's ability to prepare for and respond to a disaster (see Table 4 for a comparison of CART domain scores by community).

Next, logistic regressions were used to analyze the CART resilience domains as predictors of the buyout decision (*Would you take the buyout offer?*) for residents who responded either *Yes* or *No*. The reference category for the outcome variable was *No*, indicating respondents who said they would not take a buyout. In order to conduct the analyses, a consistent set of covariates (tenure, age, race, children, gender, and exposure), and the main effects for the CART resilience domains and community of residence (dummy coded, 0 = Oakwood Beach, 1 = Rockaway Park) were entered into a logistic regression (bivariate correlations are displayed in Table 5). Since we were interested in the interaction between the resilience measures and community of residence, an interaction variable between each of the resilience measures and community of residence was created and entered into the regression. The CART resilience domains were analyzed in two separate regression models. A single analysis was considered, but not used due to the sample size and concerns about multicollinearity. Pairing the CART domains into two separate models increased the tolerance statistics, and the specific pairings used maximized the potential for increased tolerance while limiting the chance of a Type 1 error. Resilience measures were centered for tests of moderation.

Table 6a displays the results from the first model, which regressed Connection & Caring and Disaster Management on the buyout decision. The results indicated a significant main effect of community of residence (OR = .01), indicating that the odds of accepting the buyout (versus rejecting it) were decreased by a factor of .01 by being a resident of Rockaway Park (i.e., residents of Oakwood Beach were more likely to accept the buyout). There were no significant main effects for any of the covariates. There was a main effect of Connection & Caring, and also a significant interaction between Connection & Caring and community. This indicates that the association between Connection & Caring and the buyout decision was dependent upon community of residence.

Probing of the interaction between Connection & Caring and community produced the pattern presented in Fig. 1a. Higher perceived Connection & Caring (one standard deviation above the mean) was associated with being more likely to take the buyout in Oakwood Beach ($b = 2.13$, $p < .001$; OR = 8.41), and more likely to reject the buyout in Rockaway Park ($b = -1.44$, $p < .001$; OR = .24).

[2] Chi-square tests of independence were conducted using the original dataset.

Table 5 Correlation matrix

	1	2	3	4	5	6	7	8	9	10	11
1. Connection & caring	1.00										
2. Transformative potential	.46**	1.00									
3. Disaster management	.35**	.49**	1.00								
4. Resources	.27**	.36**	.46**	1.00							
5. Exposure	.01	.06	−.09	.06	1.00						
6. Tenure	.03	−.04	−.24**	−.16	.12	1.00					
7. Children	.08	.09	.14	.21*	.10	−.22*	1.00				
8. Gender	−.02	.03	.26**	.15	.03	−.09	−.02	1.00			
9. Age	−.04	−.13	−.02	−.07	−.10	.34**	.35**	.04	1.00		
10. Race	−.17	−.10	.09	.17	−.06	−.19*	.21*	.02	−.04	1.00	
11. Community	.08	−.01	−.19*	−.17	−.12	.29**	.02	−.21*	.88	−.12	1.00

* $p \leq .05$, ** $p \leq .01$. All values represent pooled values from the imputed dataset

Table 6 Logistic regression analysis of the buyout decision as a function of community resilience, with community as a moderator

	a) Model 1			b) Model 2		
	Responded "No" (reference category) to "Would you take the buyout?" versus "Yes"			Responded "No" (reference category) to "Would you take the buyout?" versus "Yes"		
	OR	95 % CI	SE	OR	95 % CI	SE
Intercept			1.87			1.53
Exposure	2.15	.68–6.79	.59	2.69	.94–7.77	.54
Tenure	.99	.95–1.03	.02	1.00	.96–1.05	.02
Children in home	1.13	.22–5.77	.82	.80	.18–3.47	.74
Gender (Female)	1.73	.45–6.66	.69	1.53	.42–5.12	.66
Age	.99	.94–1.04	.03	.98	.93–1.03	.03
Race (non-white)	9.59	.55–166.55	1.46	38.64**	2.40–621.7	1.42
Community (Rockaway)	.01**	.00–.04	.98	.01**	.00–.05	.80
Connection & caring	8.39*	1.00–70.30	1.08			
Disaster management	.67	.14–3.20	.80			
Community * connection & caring	.03*	.00–.50	1.47			
Community * disaster management	.15	.02–1.30	1.11			
Transformative potential				7.92*	1.30–48.26	.92
Resources				1.22	.43–3.47	.53
Community * transformative potential				.06*	.01–.55	1.14
Community * resources				.23*	.06–.99	.74

Model 1: $R^2 = .73$ (Nagelkerkle). Model $\chi^2(11) = 104.63$. * $p \leq .05$, ** $p \leq .01$. Model 2: $R^2 = .69$ (Nagelkerkle). Model $\chi^2(11) = 97.24$. * $p \leq .05$, ** $p \leq .01$. All values represent pooled values from the imputed dataset. *OR* Odds ratio. The odds ratio is the exponential function of the regression coefficient (e^b). Odds ratios <1 represent negative β values, indicating that a one-unit increase in the predictor is associated with a decrease in the odds of participating in the buyout. Odds ratios >1 represent positive β values, indicating that a one-unit increase in the predictor is associated with an increase in the odds of participating in the buyout. *CI* Confidence interval of the odds ratio. *SE* Standard error of the regression coefficient

The results of the second model, which regressed Transformative Potential and Resources on the buyout decision, are displayed in Table 6b. The results indicated a significant main effect of community (OR = .01). There was also a significant main effect of race (OR = 38.64), indicating that the odds of accepting the buyout (versus rejecting it) were increased by over a factor of 38 for residents who self-identified as a race other than White. Looking at the resilience measures, we find a significant main effect of Transformative Potential, and a significant

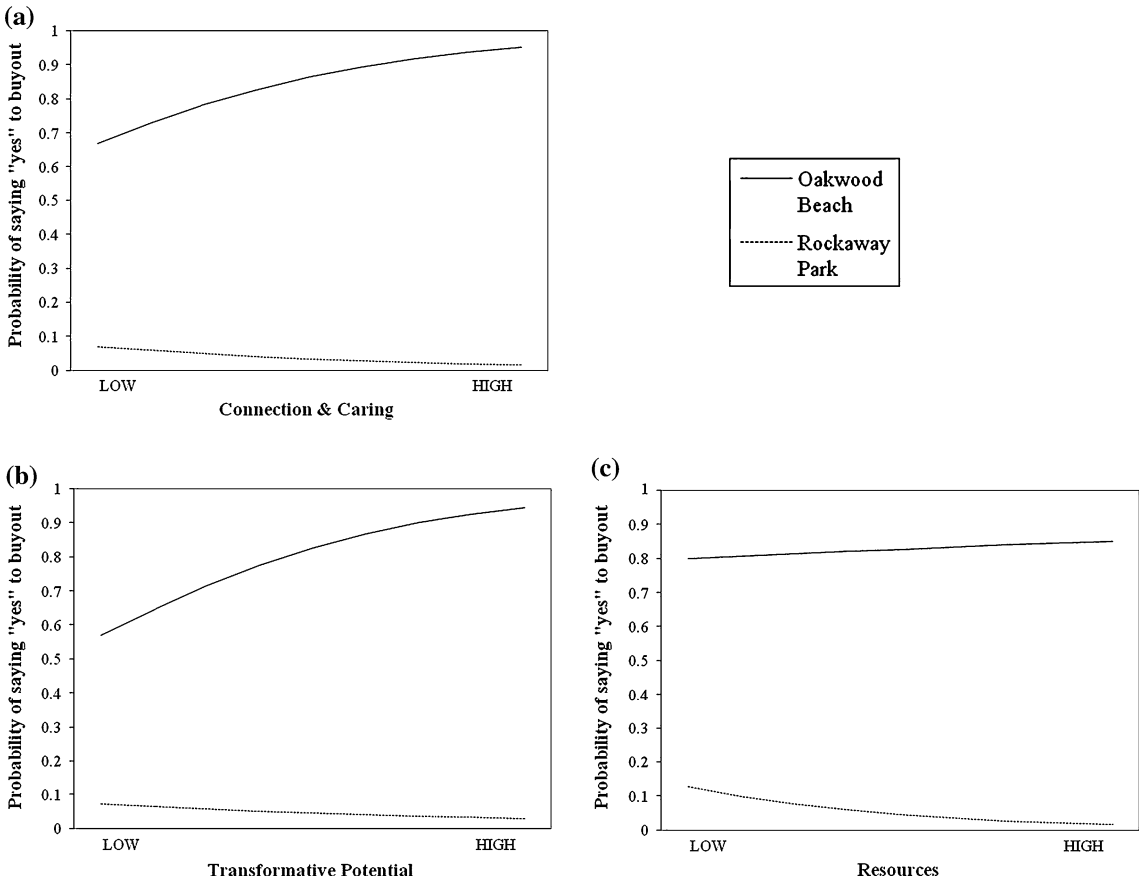

Fig. 1 Interaction between community and resilience domains. Low values of the independent variables (X-axis) represent one standard deviation below the mean, and high values represent one standard deviation above the mean. *Note*: Figures produced using Jeremy Dawson's website on interpreting interaction effects: http://www.jeremydawson.co.uk/slopes.htm

interaction between Transformative Potential and community (OR = .06). There was also a significant interaction between Resources and community (OR = .23).

The interactions for Transformative Potential and community and Resources and community are graphed in Fig. 1b, c, respectively. Figure 1b revealed that, for residents living in Oakwood Beach, a higher perception of Transformative Potential (a measure of the community's ability to frame collective experiences, and to identify, discuss, and address issues and challenges that arise) was associated with being more likely to accept the buyout ($b = 2.07$, $p < .001$; OR = 7.92), but for individuals living in Rockaway Park, a higher perception of Transformative Potential was associated with being less likely to accept the buyout ($b = -.77$, $p < .001$; OR = .46). Figure 1c revealed that, for residents of Oakwood Beach, a higher perception of the availability of community resources before Sandy was associated with being more likely to accept the buyout ($b = .20$, $p < .001$; OR = 1.22), whereas for individuals living in Rockaway Park, a higher perception of Resources before Sandy was associated with being less likely to accept the buyout ($b = -1.25$, $p < .001$; OR = .29).

Taken together, the quantitative results from this study indicate that community resilience played a role in the buyout decision in the study communities, though, interestingly, high levels of resilience predicted different outcomes in each community. To further explore the relationship between community resilience and the buyout decision, we now turn to the results from the qualitative interview data. Data are presented according to the two a priori themes that were selected in order to expand on the question of why these two similar communities had different responses to the idea of a buyout and to examine the role of resilience in their decisions. Results for each a priori theme, and associated sub-themes, are presented by community.

The Experience of Previous Disasters

Oakwood Beach and Rockaway Park have both experienced a number of disasters in the past, though important

differences emerged from the data regarding the nature of those disasters and, in turn, the ways in which each community responded to the challenges they faced.

Oakwood Beach

The residents of Oakwood Beach have a long history of dealing with natural hazards. However, in the memories of current residents, this had not included major, damaging hurricanes.[3] Still, it is difficult to understand the story of Oakwood Beach without understanding the impacts that previous events have had on the community.

A History of Natural Disasters With a small number of exceptions, when residents first moved to this area they did not conceive of nature as a significant threat.

> You don't believe how close that beach is. And that was one a the reasons why I bought this house… 'Cause I love water… I love the sun, I love the water. I never thought it would be a threat. I really didn't.

This began to change when, in December 1992, a powerful nor'easter hit Staten Island, resulting in what was, for most residents, the first instance of significant flooding in their homes. The severity of flooding caused by the storm varied across the community, but according to participants, ranged from a few inches of water to several feet in the homes closest to the ocean. For a community accustomed to only minor flooding, this came as a shock. According to one resident, the idea of a buyout was first broached in the days following this event. In time, however, the residents determined that selling their homes was not the best course of action. Instead, the community organized and began lobbying to have mitigation measures installed. This process continued for many years, and eventually resulted in some improvements being made, including repairs to a berm and seawall that separated the residential area from the ocean. With this, residents once again began to feel that their community was a reasonably safe place to live. As such, residents continued to work on their homes and build their lives in the community.

"Double Trouble" While Oakwood Beach faced occasional threats from large-scale hazard events, residents' main concerns before Sandy were the routine, smaller-scale floods and fires that plagued the neighborhood. As one participant described it, the area faces *double trouble*:

> And, uh, they make a joke. We have like, option. We can be in a fire, or we can be in flood! Each year, it's like, different news. Who want to live in this area? It's like, I told you, it's double trouble.

Residents described minor floods and fires as being a normal and expected fact of life. Flooding was relatively common in the low-lying areas, and fires would break out in the phragmites and brush that populated wetland areas in and around the community. Up until relatively recently, these events were viewed mostly as nuisances, but nuisances that residents were willing to live with. The floods and fires became more of a concern when residents began to notice an escalation in the number and severity of these events in the years leading up to Sandy.

> The flood, the flooding has grown every year to, two times, four times a year. And the… extensiveness of it has grown.

Similarly, the perception was that the brush fires, which had been a regular occurrence for years, had also begun to feel like more of a threat. One participant described the neighborhood as being "ravaged with fires." These fires culminated in a six-alarm fire that burned for 4 h on Easter Sunday, April 12, 2009 (White 2009). As one resident pointed out, while no one was injured as a direct result of the fire, it did damage the berm that was a source of protection for the community from storm surge.

Rockaway Park

In general, residents of Rockaway Park made fewer references to previous disasters than residents of Oakwood Beach. Whereas natural disasters like the '92 nor'easter emerged as the most salient disaster events for participants in Oakwood Beach, terrorism and technological disasters were more salient by far for participants in Rockaway Park. September 11th impacted the community heavily. Several participants mentioned that a large number of firefighters from the area had been killed, and others described watching the towers fall from their neighborhood (Manhattan is visible across the bay). On November 12, 2001, just 2 months later, American Airlines flight 587 crashed at the border of Rockaway Park and neighboring Belle Harbor.

This is not to say that natural disasters were a non-issue in Rockaway. They, too, had experienced other hurricanes, including Hurricane Gloria (in 1985) and Hurricane Donna (in 1960). These events, however, were only mentioned by one resident each. In general, residents of Rockaway spoke of hurricanes and other natural disasters as events that were always threatened, but never materialized.

[3] The last major hurricane to hit Staten Island was the Great New England Hurricane of 1938, a category 3 storm that resulted in 700 deaths throughout New York and southern New England (Mandia 2013).

Sandy as the "First Disaster" Residents of Rockaway Park, then, did not expect the devastation that Sandy brought to their neighborhood, nor did they have any recent memories of storms causing any kind of significant damage. As such, Sandy was perceived as the community's first major natural disaster. A woman who had lived in the area since 1971 described Sandy as the "first disaster we've ever had." Another resident, reflecting this same sentiment, said, "I mean, we thought a hurricane was coming. We've been through hurricanes. We never, never expected anything like what came in that night."

Sense of Place and Local Culture

Sense of place emerged as a key theme in both communities: both communities were perceived as being unique in the city, and residents in both communities described strong personal and intergenerational ties to the area. At the same time, each community reflected a unique local culture.

Oakwood Beach

Residents of Oakwood Beach described their neighborhood as an oasis in the city: a relatively unknown and unique area in which they were sheltered from many of the normal stressors and concerns of city living:

> But we really did love where we lived, because it was surrounded by this natural boundary that offered us, um, almost like an oasis. Coming home from the city every day. Or even an oasis from the rest of the island, because it was this hidden little gem.

This view of the neighborhood as a private oasis was closely connected to an attachment to the natural resources in the area. Though Oakwood Beach is a neighborhood in New York City, its unique ecology (it is bordered by the ocean and wetlands) fostered a connection to nature that contributed to residents' perceptions that their community was special and unique. The beach and other natural resources became part of the residents' daily lives and activities and, for many, a symbol of deep personal and intergenerational ties to the area:

> Participant: I raised six children down here. And I have no yard. You saw my dimensions. So that's where they would play.
> Interviewer: The beach was your yard.
> Participant: Yeah! Uh, they would play, and, I mean my oldest is 53. So, the, this was, you know, I think he was about 13 when we moved here.

For a number of residents, their attachment to the neighborhood began in their own childhoods, or even with their parents' generation. One man, whose story was not uncommon, moved to the neighborhood permanently in 1986, but had summered there since 1966, when he was 6 years old:

> Growin' up as a kid, you were able to make a fire on the beach. Especially on the 4th of July. People would make a bonfire there. The next morning you'd wake up early and go beachcombin' and see what you could find.

A Piece of the American Dream Oakwood Beach is not a wealthy neighborhood. Most of the residents are blue-collar workers or city employees who live in modest homes purchased with modest incomes. Still, on the whole, residents took great pride in their homes and their community, and they valued their community as a place where they could own their own (detached or semi-attached) home with amenities that are inaccessible in other areas of the city:

> It was like an estate. It was like a retreat. It was somethin' that we could never have, my wife and I, because of our finances. I mean we both work. We're both workin' people, but we're not well-to-do people. Every, I worked 2 jobs over 20 years, and every extra dollar I made, I put into that house to finish it.

It was common for participants to discuss how they had made improvements to their homes over the years, often by adding a swimming pool, an upgraded kitchen, a deck, or other amenities that would not have been accessible had they lived elsewhere in the city. In this way, a local culture developed around attachment to home and the value of home ownership, the quintessential American dream.

A Neighborhood in Flux While the residents of Oakwood Beach described their community in overwhelmingly positive terms, it was also clear that this was a neighborhood in transition before Sandy hit. A wave of new construction that brought new flooding to the area also brought new neighbors, and the introduction of residents from more varied ethnic backgrounds into a racially homogenous area. Some of these new residents were viewed with suspicion, and the sense of the neighborhood as safe and idyllic showed signs of erosion[4]:

[4] In some ways, a similar situation occurred in Rockaway Park with the construction of large public housing developments in the neighborhood. While some residents mentioned these housing development (always with negative connotations), the impact on the neighborhood as a whole did not seem to be internalized in the same way, perhaps because the public housing units were geographically isolated from the rest of the community.

> But then there was issues with neighbors, and, you know, stranger people started moving in, and, it changed.
> I mean, I have my personal feelings about the last 4 years. Of how the neighborhood changed. Because of the building. And, when you can't sell homes, you rent homes out, and when you rent homes out, you don't, you aren't as particular of who you're rentin' these homes out to. So we started getting a lot more drug infestations, we started getting garbage dumping, we started getting break-ins, attempted break-ins…

Taken together, these changes in an otherwise stable community become an important part of the community narrative. These changes were not embraced, and appear to have been associated with a sense of detachment from the community as a whole.

Rockaway Park

Like the residents of Oakwood Beach, residents of Rockaway saw their community as a uniquely beautiful and private corner of New York City. One resident summarized this view by describing Rockaway as "one of New York's best-kept secrets", while another resident stated:

> So, if I had to describe Rockaway to someone, I would say, a beach community that is a part of New York, that is not part of New York. It's slower, calmer, nicer, wetter, saltier, sandier. Um, a community… a real, a neighborhood.

Participants routinely described how their daily lives were organized around the community's natural resources, including the beach and area parks. However, the most commonly cited resource was the boardwalk that had extended along the beach for several miles before Sandy washed it away. The boardwalk can best be described as a cultural symbol in Rockaway. It was described as a gathering place where residents of all ages met to walk, ride bicycles, and interact, and it was greatly missed.

As was true in Oakwood Beach, participants in Rockaway provided many examples of how their personal and family histories were tied to the community. Like Oakwood Beach, Rockaway Park had once been a summer beach community that, over time, had been developed for year-round living. A number of participants had first come to spend the summers in Rockaway Park as children, and had later moved to the area permanently.

> I've been a part of the Rockaways, even though I've lived out here for 20 years plus, I've been comin' out here since I was a kid. So it's always been a part of me.

Sand in Your Shoes One cannot spend too much time in Rockaway without hearing the phrase "sand in your shoes." This saying represents an important shared narrative that residents used to express their connection to Rockaway, and their identity as a (permanent) member of the community. One resident stated, "You come here, sand gets in your shoes, you stay here," and another, "So, yeah, I'm here forever, I've got sand in my shoes." Importantly, this phrase distinguishes the experience of residents of Rockaway Park from the residents of Oakwood Beach. While both communities described deep personal and intergenerational connections to their communities, the personal histories of residents of Rockaway Park were couched in a strong, shared narrative that bound their personal stories into a collective experience and a collective identity.

Discussion

This study sought to address the question of why two similar communities would come to different conclusions about whether to pursue or reject a home buyout after experiencing a major disaster, and to explore the role that resilience played in these decisions. The two communities included in this study were selected because of their demographic similarities, exposure to Sandy, and comparable levels of vulnerability to future hazards. In the course of this study, additional similarities were identified that add depth to this comparison. We saw that residents in both areas viewed their communities as special and unique among New York City neighborhoods, and residents in both communities had deep personal, family, and intergenerational ties to the area, which contributed to a strong sense of place. At the same time, differences were identified and provided context to the decisions made in each community.

Looking across findings from the survey, two interesting trends emerge: the limited role of individual-level predictors in the buyout decision, and the differing trajectories of resilience in each community. First, with the exception of race, no individual-level covariates were significant predictors of the buyout decision. The effects of race are difficult to extrapolate given the homogeneity of the sample (and the two communities). However, past studies have suggested that members of minority groups are more likely to relocate after a disaster, a decision that may be associated with limited social power (Morrow-Jones and Morrow-Jones 1991). More recently, it has been suggested that the decision to rebuild or relocate among African-Americans, in particular, may be a function of the relative financial burden associated with these decisions and the mental health consequences of exposure to disaster

(Davidson et al. 2013), though more research is needed to clarify and expand these findings.

Still, taken together, the lack of significance of these individual-level predictors is surprising, particularly with regard to tenure, exposure (Myers et al. 2008),[5] and the presence of children in the home (Fraser et al. 2003; Shriver and Kennedy 2005), which have been found previously to influence the decision to remain in or leave one's home. The implication here is that residents' perceptions of their *broader community* were more influential in the buyout decision than were their experiences of Sandy, or their personal or family characteristics. This finding indicates that, while the decision to accept or reject the buyout is made independently by each homeowner, this choice is tied to the decisions of one's neighbors in a very real way. Consider, for example, the ramifications if a homeowner rejects the buyout, but a large number of his or her neighbors accept the buyout and move away. This decision has potentially serious implications in terms of safety, the availability of services, social connections, and property values. Similarly, the choice to accept the buyout has certain known implications (including the loss of one's home, the disruption of social networks, and the hassle of finding and establishing one's self in a new home). If a homeowner makes a decision to relocate, but a large number of her neighbors remain in the community, she may experience these losses more deeply than if she knows the majority of her neighbors have relocated and the community has disbanded. Either way, there are risks associated with being in the minority, and comfort in acting as a group.

Next, in comparing the role of resilience-related measures on the buyout decisions for these two groups, data from this study suggest that resilience did play a significant role, though the nature of this role varied as a function of community of residence. Recall that significant interaction effects were found for community by Connection & Caring, Transformative Potential, and Resources. Importantly, in each of these areas, higher values of the resilience measure were associated with being *more* likely to accept the buyout in Oakwood Beach, and being *less* likely to accept the buyout in Rockaway Park. Thus, the decisions made by residents of both communities were influenced by their perceptions of the community's characteristics of resilience, but these characteristics influenced the residents of the two communities in opposite directions. While these responses may seem counterintuitive, the disaster resilience literature offers some insight into why these communities may have behaved as they did. As a construct, disaster resilience has been theorized as following two primary trajectories. Traditionally, community resilience has been defined as the ability to "bounce back" from a catastrophic event (Berke and Smith 2009; Cutter et al. 2008; Manyena 2006), which for disaster affected communities, is interpreted as recovery and a return to normal functioning. Manyena (2006) has summarized this view:

> Disaster resilience is seen as the 'shield', 'shock absorber' or buffer that moderates the outcome to ensure benign or small-scale negative consequences. Indeed, the goal of disaster risk management is to guarantee minimal loss of life and livelihoods and to allow the affected community or system to return to 'normal' within the shortest possible time. (p. 438)

However, disaster resilience has also been defined as the ability to recognize and adapt to changing circumstances:

> Resilience is the ability of a social system to respond and recover from disasters and includes those inherent conditions that allow the system to absorb impacts and cope with an event, as well as post-event, adaptive processes that facilitate the ability of the social system to re-organize, change, and learn in response to a threat. (Cutter et al. 2008, p. 599)

In this definition, the concept of resilience is expanded to include both the ability to effectively respond to and recover from an event, and the ability to adapt, as necessary, to change. Adaptation can occur in situ through activities such as lifestyle changes or mitigation measures (Manyena 2006), but can also encompass more extreme adaptation measures.

What we see in this comparison of Oakwood Beach and Rockaway Park is an example of how two resilient communities exhibited resilient responses to a major disaster, though this resilience manifested differently depending on the community. In Oakwood Beach, residents largely chose to adapt to changing circumstances, which in their case meant relocating out of an area that was no longer viewed as livable (an extreme form of adaptation). Most residents of Rockaway Park, in contrast, followed a path of overcoming the hurricane and reestablishing their way of life. While a certain level of adaptation was necessary in the case of Rockaway Park (mitigation measures, for example, can be viewed as a form of adaptation), the community's primary focus was on rebuilding and reestablishing their community as they knew it.

The question may arise of whether relocation—which, by definition permanently disrupts an established household or

[5] There were qualitative differences in residents' exposure to Sandy (flooding in Oakwood Beach, floods and fires in Rockaway Park, and higher reports of home damage in Oakwood Beach). However, the two items included in the exposure index (*Would you say your home was severely damaged? Did you ever feel like your life was in danger?*) were not significant predictors of the buyout decision when analyzed independently.

community—can be considered a resilient response. From a policy, engineering, and hazards perspective, the relocation of residents out of vulnerable areas has been viewed as a means of increasing the overall resilience of larger social systems (see, for example, Godschalk 2003). However, this approach, while easily justifiable, fails to consider the nuance and complexity of what it means to decide (or be forced) to leave one's home and community. From a community perspective, accordingly, relocation has been considered a threat to resilience (Bonanno et al. 2010; Bronen 2009). While this may prove true in the mid- to long-term, what is clear in Oakwood Beach is that the decision to relocate, difficult as it might be, was a logical next step along a trajectory of resilience.

Here, then, we have two examples of resilient responses: in Oakwood Beach, an example of relocation as adaptation to an altered environment; and in Rockaway Park, an example of rebuilding as a return to normalcy after a major disruption. In both cases, resilience, established and nurtured over time, enabled these communities to be active participants in their own recovery (the alternative being a persistent state of dysfunction; Norris et al. 2009).

The Role of Context

In addition to the clues provided by the disaster resilience literature as to why resilience played different roles in each of these communities, insight is found in the results of the qualitative portion of this study, which suggest that each community's decision regarding the buyout is best understood in the context of the history and local culture of the community. To begin, the response to Sandy was reflective of each community's history of disasters. Residents of Oakwood Beach had been dealing with natural disasters for years and, largely, accepted them as part of life in the area. However, they had concerns that routine fire and flood events were steadily becoming more frequent and more severe. Residents of Rockaway Park, conversely, viewed Sandy as their "first disaster," though they had suffered severely in the past from technological and terrorism related disasters. While residents of Rockaway Park were able to dismiss Sandy as a freak event, in Oakwood Beach, Sandy represented the culmination of a series of increasingly severe events. Or, while Sandy was an unprecedented event in both communities, it was considered an anomaly in Rockaway Park, and part of a pattern in Oakwood Beach.

The importance of local culture must also be considered. Both communities were grounded in local cultural systems that connected residents to each other and to their physical communities. In Oakwood Beach, this local culture was based in residents' ability to achieve the "American dream" of homeownership, or, as one participant stated, their "piece of the rock." In Rockaway Park, residents' connection to their community is reflected in the phrase, "sand in your shoes." In both cases, these cultural systems augmented the deep sense of connection to place that was built through personal and intergenerational ties to the neighborhood. Here, an important distinction is drawn by the buyout. While residents of Oakwood Beach were deeply committed to the community, there was some evidence that this connection had begun to shift in recent years as the neighborhood developed and changed. And, while the thought of leaving was painful, the buyout did, at least on paper, offer the promise of homeownership elsewhere (and thus the maintenance of an important cultural symbol). The culture of Rockaway Park, however, is inextricably tied to one geographic location. While residents could, presumably, find a new home near a different beach, relocating out of Rockaway Park would mean shaking the sand from one's shoes, and giving up one's identity as a Rockawayite.

Implications

Findings from this study have important implications for the affected communities, as well as for other communities that have or will face similar choices in the future. Both Oakwood Beach and Rockaway Park benefited from relatively high levels of resilience, indicating that efforts to bolster community resilience are important in preparing communities to respond to major, collective crises. The role of community-level predictors in the buyout decision is also important to note. Home buyout programs are interesting in that there are typically both individual- and community-level factors that contribute to the decision-making process. At the individual (or household level) lies the ultimate decision to accept or reject a buyout offer. This decision is couched in a program offered to a collection of homeowners or to an entire community. The present study indicates that the individual buyout decision cannot be understood without considering the influence of community-level factors, suggesting that the interplay between these two levels deserves further attention. Additionally, the experience for residents of the buyout or rebuilding process must be considered. The experience of this process was the source of tremendous stress for many residents, the effects of which may continue to be felt for years to come.

This study also has implications for the field of community psychology, specifically for the application of community psychology to the study of disasters. While community psychologists have focused on disasters, there is a tendency within the field to concentrate on individual-level issues, such as the psychological impacts of hazard events. This research is certainly valuable; however, the present study highlights the need for more contextualizing research on the impact of and recovery from disaster

events. Community psychology, with its emphasis on context and multiple levels of analysis, has the potential to play a leading role in reshaping disaster research by taking an ecological approach to understanding disasters at the individual, household, community, and societal levels.

Policy Applications

From a policy perspective, it is easy to understand why home buyout programs are attractive solutions for communities that are located in high-risk areas. As was true after Hurricane Katrina, areas devastated by Hurricane Sandy have been designated by public officials and the media as places where no one should live. Of course, these declarations are complicated by the fact that people *do* live in these areas (and, in the case of the communities in this study, have for a very long time), and that depopulating all vulnerable areas is simply infeasible.

What is evident from this study is that buyouts cannot be viewed as an easy fix, and there is not a programmatic answer for convincing people to accept a buyout. That decision, as evidenced by Oakwood Beach and Rockaway Park, depends heavily on the context (particularly the historical, social, and cultural context) of each community. Exploring and understanding the role of context in situations like these will provide insight into how we can best support residents of disaster-affected communities as they make these difficult decisions, and will also afford data that can be used to develop more effective policy initiatives related to postdisaster relocation. Relatedly, the next steps of the buyout and rebuilding processes in these communities need to be examined just as carefully as the buyout decision itself, as effective policy related to the relocation and reintegration of dislocated residents, and to the rebuilding and mitigation of communities that remain in place, must also reflect a deep understanding of the individual-level, community-level, and contextual factors at play.

It would be a mistake to limit this discussion to the experience of postdisaster relocation in the United States. This is a global issue of interest, as evidenced by a number of major disasters across the globe in recent years. For example, after a series of earthquakes devastated the major urban center of Christchurch, New Zealand in 2011, local authorities instituted residential "Red Zones" in the city, in which no homes were permitted to be repaired or rebuilt (Dickinson 2013). This resulted in the forced relocation of approximately 6000 residents, a process that was facilitated by a government buyout (Parker 2011). There are some interesting parallels between Oakwood Beach and the communities included in the Red Zones in Christchurch: a small number of residents in both areas rejected buyout offers, in contrast to the majority of their neighbors (3 News 2014). Additionally, in both cases the buyouts were implemented against a backdrop of pre-existing policy interests in the land: redevelopment in Christchurch (McCrone 2013), and the expansion of a stormwater management system, called the Bluebelt, on Staten Island (City of New York 2014). This event, and others like it, highlight the importance of quality research on the issue of relocation, and further emphasize the need to link data with policy and action on this issue. Similarly, these challenges are not restricted to acute hazards. This is also a discussion that has relevance when considering the issue of forced relocation due to climate change.

Limitations

As with any study there are limitations that should be noted. Survey participants were not randomly selected, though efforts were made to reduce bias in the data collection process. The participation of a number of residents was obtained through convenience sampling at buyout-related community events. Still, the samples obtained in each community were reasonably representative of the community, the main exception being the oversampling of females in Rockaway Park. Another issue was the relatively large number of homes for which no one answered when approached. It is possible that there were differences between those individuals who answered their doors and those who did not, which could have influenced this study's findings. The relatively small sample size and homogeneity of the sample were also limitations. The small sample size resulted in concerns about statistical power, thus influencing the specification of the regression models. In addition, the homogeneity of the sample limits the generalizability of these findings. Finally, the timing of the data collection presented challenges. At the time of data collection, the state's buyout program had been approved, but not implemented. As such, participants could only report on their *intent* to accept or reject a (possible) future buyout offer. To our knowledge, the state never released a timeline or plan of when or how buyouts would be implemented in the eligible communities, though Oakwood Beach was designated as a pilot community for the buyout fairly early in the process.

Future Directions

The results of this study suggest several lines of future research. First, while our understanding of the factors that influence buyout decision-making is limited and deserves additional attention, it is just one issue among many in a complex process. More research is needed to explore the mid- and long-term implications of home buyout programs. The decision of whether or not to take the buyout was one

of numerous challenges that residents of Oakwood Beach and Rockaway Park have faced and will continue to face. The implications of many of these decisions have yet to play out. While Oakwood Beach accomplished its goal of obtaining a buyout, it is clear from the literature that relocation is associated with a number of negative outcomes. These residents now face the dissolution of their community, the stress and difficulty of finding a comparable home, and the challenges of integrating into a new community. By contrast, residents of Rockaway Park have, for the most part, achieved their goals of rebuilding and remaining in their community. However, they now face potential policy changes that could threaten their ability to remain in their homes and, of course, the ever-looming threat of future disasters. These issues represent a significant gap in the literature, and they must be carefully considered if we are to fully understand the costs and benefits of home buyout programs.

Second, findings from this study indicate that future research on postdisaster relocation should take an ecological approach that integrates an understanding of the role of local contextual factors. By approaching the issue of postdisaster home buyouts from an ecological perspective, we are able to move beyond the questions of whether or not buyout programs are beneficial or successful, to the more nuanced and meaningful questions of, are they successful, for whom, and under what circumstances?

Conclusion

This study explored the relationship between community resilience and postdisaster relocation in two communities in New York City that were eligible for a home buyout program after Hurricane Sandy. While both communities exhibited characteristics of resilience and resilient responses to Sandy, the role of resilience varied by community. The results suggest resilience is not a factor that necessarily moves communities toward or away from a specific decision regarding relocation; rather it moderates the relationship between contextual factors (such as the community's history of disaster, local cultural norms, and attachment to place) and the relocation decision. Furthermore, this study suggests that perceptions of community-level factors may be more important than individual-level factors in relocation decisions.

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