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Distress in the Desert: Neighborhood Disorder, Resident Satisfaction, and Quality of Life during the Las Vegas Foreclosure Crisis

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Abstract

Using surveys collected from a sample of households nested within ‘naturally occurring’ neighborhoods in Las Vegas, NV during the 2007-2009 economic recession, this study examines the associations between real and perceived measures of neighborhood distress (foreclosure rate, physical decay, crime) and residents' reports of neighborhood quality of life and neighborhood satisfaction. Consistent with social disorganization theory, both real and perceived measures of neighborhood disorder were negatively associated with quality of life and neighborhood satisfaction. Residents' perceptions of neighborliness partially acted as a buffer against the effects of neighborhood distress, including housing foreclosures, on quality of life and neighborhood satisfaction.

Keywords

neighborhoods; foreclosures; quality of life; neighborhood satisfaction; disorder

There are numerous studies that examine predictors of neighborhood satisfaction and residential quality of life in urban areas of the U.S. (Amerigo and Aragonés 1997; Dassopoulos et al. 2012; Galster and Hesser 1981; Grogan-Kaylor et al. 2007; Hipp 2009; Parkes, Kearns, and Atkinson 2002). Understanding the drivers of neighborhood satisfaction and quality of life is all the more important in the wake of a deep economic recession as residents face uncertain economic futures, and city planners and policymakers face reduced budgets for community development and improvements. As a result of the Great Recession, which officially began in December 2007 (Muro et al. 2009), cities across the U.S. dealt with record high housing foreclosures, unemployment rates, and newfound urban distress. For the residents living in these urban areas, residential morale and quality of life may have

been compromised, generating important questions about the complex relationship between urban distress and neighborhood sentiments.

Neighborhoods remain among the most common settings where residents forge attachments to people and create meaning, significance, and coherence in their lives. Resilient and stable neighborhoods are vital to the sustainability of healthy cities. Residents who feel satisfied with their neighborhoods report a greater sense of attachment to the local community, higher overall life satisfaction, better mental and physical health, greater political participation, and are more likely to invest in building healthy and stable communities (Adams 1992; Hays and Kogl 2007; Sampson, Morenoff and Gannon-Rowley 2002; Sirgy and Cornwell 2002). Conversely, when residents are dissatisfied with their neighborhoods, they report a lower quality of life, are less invested in the community, and are more likely to disrupt neighborhood stability by leaving (Bolan 1997; Oh 2003).

We center our study in Las Vegas, Nevada, an attractive location to explore the relationships between housing foreclosure, neighborhood distress, and residential sentiment. Following nearly 20 years of the nation's most rapid population growth and urban sprawl (CensusScope 2000), Las Vegas experienced a whirlwind of social and economic disorder stemming from the recession. Unemployment rates and home foreclosures skyrocketed to among the highest in the nation, social services were overburdened, and population growth was stagnant (Bureau of Labor Statistics 2012; Center for Business and Economic Research 2011).

Our survey-based study, coupled with metropolitan data on housing foreclosures allows us to combine residents' *perceptions* of physical distress with an *actual* measure of disorder (housing foreclosures) to examine the associations of each with neighborhood quality of life and satisfaction. Our study is guided by the following research questions: 1.) Is housing foreclosure associated with residents' perceptions of neighborhood quality of life and neighborhood satisfaction above and beyond the traditional indicators of perceived neighborhood disorder (physical disorder and crime)? and 2.) Do perceptions of neighborliness mediate the relationships between neighborhood disorder and neighborhood satisfaction and/or neighborhood quality of life?

Boom and Bust: Las Vegas and the Foreclosure Crisis

The Las Vegas metropolitan area led the nation in population growth during the 1990s at 66.3%, almost doubling the rate of population growth of second ranked Arizona (CensusScope 2000). Population growth in the Las Vegas metro area continued apace in the 2000s with roughly half a million people arriving between 2000 and 2007. Demographers estimate that the Las Vegas population will double again by 2040 (Lang, Sarynski, and Muro 2008). As a result of such rapid population growth and concomitant economic boom, the Las Vegas housing market flourished between 1990 and 2006. In January of 2007, the average median price of a single-family home was \$349,500. Just four years later in January 2011, the median price of single-family homes was \$132,000 – an astonishing 62% decline (Greater Las Vegas Association of Realtors 2007; Greater Las Vegas Association of Realtors 2011). This is the largest decline of any metropolitan area in the United States (Community Resources Management Division 2010).

With the largest concentration of subprime mortgage originations in the country (Mayer and Pence 2008), the Las Vegas housing market was a ticking time bomb for a housing bust. Subprime mortgage products were designed to provide home ownership opportunities to the most credit-vulnerable buyers, including those with no established credit history, little documentation of income, and/or those with smaller down payments. Mortgage companies also made it easier for current homeowners to refinance loans and withdraw cash from houses that had appreciated in value (Mayer and Pence 2008). There were four primary drivers of the foreclosure crisis in urban areas that were associated with subprime lending practices: a large racial and ethnic concentration, mid-level credit scores, new housing construction, and high unemployment rates (Rugh and Massey 2010; Mayer and Pence 2008). Las Vegas experienced all four of these drivers before and after the recession.

As a result, between late 2007 and 2010, approximately 70,000 housing units were foreclosed upon (Community Resources Management Division 2010). Up until 2006, Nevada had a very low loan delinquency rate, particularly among subprime borrowers. This was partly because borrowers in the robust Nevada housing market could often avoid foreclosure by quickly selling their homes to eager buyers (Immergluck 2010). However, between 2007 and 2010 the foreclosure rate in Nevada increased at a rate of about 3% per year (Community Resources Management Division 2010). In addition, about 25% of all mortgage holders were experiencing serious delinquency (90 days or more past due), which ranked among the highest in the nation.

As the recession hit, unemployment in the Las Vegas metro area jumped 10 percentage points to an unprecedented high of 15.1% between April 2008 and April 2010 (Bureau of Labor Statistics 2012). High rates of unemployment put current mortgage holders at risk for future foreclosure (Community Resources Management Division 2010). Although housing foreclosures and delinquencies have significantly declined over the past year, the high foreclosure rates and the accumulation of real estate owned properties (REOs) between 2007 and 2010 likely had detrimental mutually reinforcing effects on neighborhoods, including infrastructural and environmental decay, increased criminal activity, and reduced neighboring property values (Immergluck and Smith 2006; Schuetz, Been, and Ellen 2008), all of which are likely to have negative effects on neighborhood satisfaction and quality of life.

Neighborhood Disorder and Social Cohesion

Researchers have long studied the relationships between neighborhood social structural characteristics and neighborhood satisfaction and quality of life often applying the *theory of social disorganization* in their studies (Hipp 2007; Kubrin and Wetizer 2003; Sampson and Groves 1989). Social disorganization theory suggests that certain neighborhood structural characteristics, such as physical disorder, crime, and economic resources affect the formation of social ties, neighborly trust, and mechanisms of social control (Sampson and Groves 1989; Sampson 1991; Sampson 2012). Neighborhood solidarity among residents is a resource for organizing around problems when they occur and taking steps to reduce neighborhood disorder (Sampson et al. 1989; Morenoff, Sampson, and Raudenbush 2001; Kubrin and Weitzer 2003). These social ties help to foster neighborhood attachment and

satisfaction (Austin and Baba 1990; Hipp and Perrin 2006; Kasarda and Janowitz 1974; Parkes et al. 2002; Sampson 1988; Sampson 1991).

Residents typically use evaluative measures to judge the physical qualities of neighborhoods and are often keenly aware of neighborhood stressors that indicate physical and social disorder (Dassopoulos et al. 2012; Hipp 2010; Nation, Fortney and Wandersman 2010; Taylor 1996; Ross and Mirowsky 1999; Sampson 2004). Physical decay, such as dirt, litter, graffiti, vandalism, and buildings that are vacant or in disrepair. Residents associate physical disorder with a breakdown in social control and social order, raising questions about neighborhood safety and stability (Sampson and Raudenbush 1999; Harcourt 2001; Taylor 2001). As crime and disorder increase, residents' satisfaction tends to decline, and they may decide to leave the neighborhood (Low 2003; Skogan 1990; Skogan and Maxfield 1981). There is some indication that residents' perceptions of crime and disorder have greater influence on neighborhood satisfaction than the actual existence of such crime and disorder (Adams 1992).

However, we contend that, in addition to these *perceived* measures of neighborhood distress, neighborhood housing foreclosure rates are likely to be independently associated with neighborhood satisfaction and quality of life, partly as a function of the tangible negative financial impact foreclosures have on surrounding households. Generally, the role of housing foreclosures on neighborhood satisfaction has received scant scholarly attention, and very little is known about how a metropolitan-wide foreclosure crisis is associated with neighborhood satisfaction and quality of life. Often viewed as a serious threat to neighborhood stability and community well-being, housing foreclosures have become yet one more physical symbol of decay (Immergluck and Smith 2006). In many neighborhoods, foreclosed homes are vacant, boarded up, or abandoned properties with unkempt yards and signage to indicate the neighborhood's demise. As a result, these properties create a haven for criminal activity, discourage remaining residents to invest in the neighborhood, decrease neighborhood social capital, and ultimately reduce neighborhood quality (Leonard and Murdoch 2009). There are also real material losses associated with high rates of housing foreclosure. Foreclosed homes typically sell at significantly discounted prices and appreciate much more slowly than traditionally sold homes (Pennington-Cross 2006). Home appraisers then use these lower bank-owned home sales prices as comparisons when appraising non-bank-owned properties, resulting in real financial spillover effects on neighboring property owners. Indeed, based on data collected on foreclosures and single-family property transactions during the late-1990s in Chicago, Immergluck and Smith (2005) estimated that each foreclosure within a city block of a single-family home resulted in a 0.9%-1.4% decline in that property's housing value. These reductions in housing values often make it more difficult for homeowners to obtain home equity loans and make it more difficult for homeowners to sell their homes in the case of job loss, relocation, or changes to family structure. The inability of homes to appraise at asking prices also means that many neighborhoods in Las Vegas have seen an influx of cash-paying investors who do not live in Las Vegas (Schmit 2013) and often rent these properties to tenants who may have less social and financial investment in the neighborhood than do homeowners (Rohe and Stewart 1996).

Accordingly, we anticipate that perceptions of neighborhood disorder (crime and physical disorder) will be negatively associated with neighborhood satisfaction and quality of life but that the housing foreclosure rate will have an independent negative association with neighborhood satisfaction and quality of life above and beyond perceptions of physical disorder and crime (*Hypothesis 1*).

The Mediating Role of Neighborliness

Although neighborhood physical characteristics provide residents with visible and distinguishable cues of disorder, and high rates of foreclosure have deleterious financial consequences for remaining residents, prior research has shown that social characteristics, like neighboring, social ties, trust, and cohesion may be more meaningful to residents in their neighborhood evaluations than are actual physical characteristics (Grogan-Kaylor et al. 2007; Parkes et al. 2002). Social neighboring has been found to foster mutual support and trust among neighborhood residents (Sampson 1988; Sampson et al. 2002), contributing to higher levels of neighborhood satisfaction. For example, residents who self-report a greater number of neighbors as “close friends” report higher rates of neighborhood attachment than those with fewer close friends in the neighborhood (Adams 1992; Austin and Baba 1990; Bolan 1997; Campbell and Lee 1992; Hipp and Perrin 2006). Neighborliness can reflect both social and behavioral attachments through various activities that range from being courteous to neighbors to collectively organizing to address neighborhood problems (Woldoff 2002). As residents participate in neighborhood activities, they develop a shared sense of community, emotional investment, and positive feelings toward their residential locale (Dassopoulos and Monnat 2011; Guest & Lee 1983; Kasarda and Janowitz 1974). If these feelings are strong enough, residents are more likely to stay and invest in their neighborhoods, enhancing the quality of life by making home improvements or joining with other neighbors to solve problems (Guest & Lee 1983; Larsen et al. 2004). This social integration with neighbors should be inversely associated with perceptions of disorder (Baba and Austin 1989). Accordingly, we anticipate that ‘social neighboring’ or feelings of ‘neighborliness’ will mediate the negative associations between neighborhood distress (neighborhood disorder, crime, foreclosure) and neighborhood satisfaction and quality of life; neighborliness should act as a buffer against neighborhood distress (*Hypothesis 2*).

Neighborhood Sentiments: Quality of Life & Satisfaction

Attitudes about one's community and neighborhood play a fundamental role in neighborhood assessment but are measured in a variety of ways. Evaluative measures focus on positive or negative judgments and are typically related to how residents' assess their neighborhood satisfaction and quality of life. Although neighborhood satisfaction is intricately linked with quality of life assessments (Sirgy and Cornwell 2002), neighborhood satisfaction and quality of life ultimately measure different sentiments. While neighborhood satisfaction reflects residents' complex evaluations about how well a neighborhood meets their physical and social needs (Galster and Hesser 1981; Amerigo and Aragonés 1997), quality of life gets at more holistic experiences of overall well-being, rather than actual conditions of neighborhood life. Neighborhood quality of life can be conceptualized as aspects of a person's living situation that enable residents to feel better, maintain

independence, and physically, mentally, and socially function (Fisher and Li 2004). In addition, quality of life encompasses both psychological affect and “the meanings and purposes that people use to generate significance, validity and coherence in their lives” (Hughes 2006: 611). Assessing quality of life separately from satisfaction in the context of neighborhood research is important because the meanings articulated by Hughes (2006) provide the foundation for social relationships and integration. While few neighborhood-based studies have examined these measures separately, we are convinced they represent distinct sentiments in our study. We contend that neighborhood satisfaction (our index of eight items) is a strong evaluative measure of the physical and social qualities that are *visible* in neighborhoods to both residents and visitors. We contend that neighborhood quality of life taps a more global emotional psychological sentiment that is private to residents and oftentimes *invisible* to others.

Data and Variables

Study Area

The individual level data for this study were gathered in 22 neighborhoods in the Las Vegas metropolitan area of Clark County, Nevada in 2009.¹ Clark County, Nevada has a population of roughly 1.95 million people and is home to 72% of the population of Nevada (U.S. Census Bureau 2010). Our final random sample included residents in neighborhoods in each of the four distinct municipal jurisdictions in the Las Vegas metropolitan area: eight in the City of Las Vegas, four in North Las Vegas, four in Henderson, and six in unincorporated Clark County.

We used the census block group as our definitional base of a neighborhood and then used on-site field researchers to code street accessibility and physical conditions, such as community walls, roads, neighborhood signs, street names and sidewalks (Hipp 2009; Kruger 2008; Grannis 1998; Taylor 1996) to define smaller naturally occurring neighborhoods within each block group. Our goal was to measure neighborhood variables at a level that captured the most immediate experience of residential living space.

Although the concept of ‘neighborhood’ is widely used, it is difficult to define and there appears to be no universal definition. Most commonly, scholarly work has defined neighborhoods as census tracts or census block groups, both of which are typically larger areas than one true neighborhood (Morenoff et al 2001; Sampson and Raudenbush 1999; Quillian 2003). In addition to census tracts and block groups, other studies conceptualize neighborhood using geographically defined boundaries or other types of administrative bodies, including school districts, zip codes, and police beats (Kruger 2008; Sampson et al 2002; Woldoff 2002; Bellair 1997). However, according to many (Kruger 2008; Quillian 2003; Sampson et al 2002), these types of geographic boundaries offer imperfect operational

¹At the time of sampling, there were 345 Census tracts in the Las Vegas metropolitan area. Using data from both the 2000 Census and 2005-2009 American Community Survey 5-year estimates, we compared our 22 study neighborhoods to the remaining 323 Census tracts along several socioeconomic and demographic characteristics, including median household income, percent poverty, racial composition, percent married, percent 65+, educational attainment, median year house was built, and percent owner occupied housing units. We found no significant differences between our study tracts and those not included in the study, leading us to conclude that the neighborhoods we included in this study are representative of the Las Vegas Metropolitan Area in general.

definitions of neighborhoods for research and policy. It is both impractical and methodologically challenging to define neighborhoods by these standards. As such, others have used ecologically defined neighborhood definitions based on homogeneity and street accessibility (Hipp 2010; Kruger 2008; Grannis 1998; Taylor 1996).

Although larger geographic and contextual units may be appropriate for studying aggregate behaviors, it is unlikely that many of our conceptual arguments will operate at the aggregate level. Based on local variation of neighborhood built environments observed in our block group field assessments, we feel strongly that using block groups as neighborhoods can mask the true degree of social interaction between neighbors and the sustainable efforts of smaller areas that exist in each block group.

Study Neighborhoods and Sample Households

We used stratified four-stage cluster sampling² to select our study neighborhoods and ensure that our sample included neighborhoods with socioeconomic diversity. We excluded neighborhoods with fewer than 50 visibly occupied homes in this sampling stage. In total, we randomly selected 22 distinct neighborhoods in the southern Nevada region. The final sampling frame included residential addresses for each household in the 22 sampled neighborhoods. The final study population included 1,680 households. The sample size in each neighborhood ranged from 40 to 125 households. With a 40% response rate, our final sample included 664 households. After excluding cases with values missing on our key dependent variables, our final analytic sample for this study was 643 Las Vegas households. Sensitivity analysis revealed that excluded households were not statistically different from included households along any measurable characteristic.

Survey Instrument

Each household received a letter offering an incentive of a family day pass to a local nature, science, and botanical gardens attraction to participate in the study and a website address for a web-based survey or telephone number to complete the survey by phone. After exhausting the telephone and web-based responses, we used mailed surveys and field surveys. The survey was made available in English and Spanish and administered by trained researchers.

Dependent Variables: Neighborhood Quality of Life and Neighborhood Satisfaction

Neighborhood Quality of Life—We used a one-question evaluative measure of quality of life in the neighborhood. Residents were asked to rate the *overall quality of life in their neighborhood* as “Very Good,” “Fairly Good,” “Not Very Good,” and “Not at all Good.” Quality of Life was coded 1(Not at all Good) to 4 (Very Good). We elected to maintain the ordinal format of this variable in our regression analyses rather than dichotomizing.

Neighborhood Satisfaction—Although most prior studies have attempted to capture the concept of neighborhood satisfaction with a single measure asking residents about their global satisfaction with the neighborhood (Bolan 1997; Connerly and Marans 1985; Harris 2001; Hartnagel 1979; Jagun et al. 1990; McHugh, Gober, and Reid 1990; Parkes et al.

²In order to conserve space, sampling methods are not discussed in full detail here but are available upon request.

2002; Sampson 1991), combining several indicators of neighborhood satisfaction provides a more reliable and precise measure (Woldoff 2002; Hipp 2009). Accordingly, based on results from a factor analysis and following Sirgy and Cornwell (2002) we constructed an eight item index of neighborhood satisfaction that assessed the physical, social, and economic environments of respondents' neighborhoods. Using four-point Likert scale questions, we asked respondents to rate their satisfaction with the mixture of housing types, the economic value of homes, the appearance of homes and yards, the size of yards, the mix of racial and ethnic groups, the quality of parks and common spaces, the number of long term neighbors, and distance to natural areas such as mountains. Factor analysis (rotated Varimax) confirmed that each of these variables loaded highly onto only one factor with an Eigenvalue of 3.51. The neighborhood satisfaction index ranged from 8 (lowest satisfaction) to 32 (highest satisfaction) and had a Cronbach's alpha score of 0.81, indicating strong internal consistency among items. Analysis revealed that this neighborhood satisfaction scale was normally distributed.

Independent Variables

Foreclosure Rates—Our data on housing foreclosures came from the Neighborhood Stabilization Program (NSP) authorized under Title III of the Housing and Economic Recovery Act of 2008 (Department of Housing and Urban Development 2008). Using data from the Mortgage Bankers Association National Delinquency Survey, HUD has calculated the approximate number of foreclosure starts for 2007 and the first six months of 2008 at the state level and then used data from the Federal Reserve Home Mortgage Disclosure Act on high cost loans, Office of Federal Housing Enterprise Oversight Data on falling home prices, and Bureau of Labor Statistics data on place and county unemployment rates to specify regression models that predict foreclosure rates at the county, census tract, and block group levels. Although these data are not ideal for measuring small-area foreclosure rates, they are currently the only publicly available data to provide any kind of estimate of Census tract foreclosures. To test reliability of these data, HUD requested that the Federal Reserve compare HUD's estimates to Equifax data on the percentage of households that were at least 90 days delinquent on their mortgage payments. Analysis by Federal Reserve staff found high intrastate correlations between the HUD-predicted county foreclosure rates and the Equifax county-level delinquency rates. For Nevada, the correlation comparison of HUD county foreclosure rate estimates to Equifax 90-day mortgage delinquency sample data for counties with over 15,000 households (like Clark County, NV) was .883. In addition to the HUD statewide estimates of foreclosure starts, the regression models used to predict Census tract foreclosures accounted for a number of variables that are reasonably believed to be casually related to foreclosure rates, including the estimated number of mortgages, total 90-day residential vacancy rate from United States Postal Service data, total number of conventional and high-cost loans, the unemployment rate, and a measure of price decline in home values.

From the 2008 NSP data, we extracted census tract foreclosure rates for the 22 corresponding LVMASS neighborhoods and linked them with our LVMASS data by selecting the Census tract that contained the naturally occurring LVMASS neighborhood. Although there is not perfect overlap between our neighborhoods and their corresponding

census tracts, we are confident that if foreclosure rates were available for our naturally occurring neighborhoods, they would be highly correlated with the census tract foreclosure rates. After merging the NSP data with LVMASS data, foreclosure rates in our sample ranged from 14.9% to 29.5%.

Neighborhood Physical Decay—Neighborhood physical decay is an index of five items from the LVMASS. Exploratory factor analysis indicated that these five items loaded highly onto only one factor. Following research by Woldoff (2002) and Ross and Mirowsky (1999), we asked respondents whether vacant land, unsupervised teenagers, litter or trash, vacant houses, and graffiti in their neighborhoods were a big problem (coded 3), a little problem (coded 2), or not a problem (coded 1). The index ranged from 5 (Lowest Disorder) to 15 (Highest Disorder), was normally distributed, and had a Cronbach's alpha score of 0.74, indicating moderately strong internal consistency among items. To ensure that we would not have problems with multicollinearity as a result of including both physical decay and the foreclosure rate in the same regression models, we examined the correlation between this scaled physical decay variable and the neighborhood foreclosure rate and found a moderate correlation of only .43.

Crime—Given its importance in predicting neighborhood satisfaction in previous studies (Cook 1988; Low 2003; Hipp 2010), we used perception of crime as a separate indicator of neighborhood disorder. Respondents were asked to indicate whether crime was a “big problem,” “a little problem,” or “not a problem at all” in their neighborhoods. We dichotomized perception of crime, with “big problem” = 1 and “little problem” and “not a problem” = 0.

Social Neighboring—Following Larsen et al. (2004), our measure of social neighboring or “neighborliness” was composed of five items that assessed respondents' evaluations of neighborly interactions. The items were: “I live in a close-knit neighborhood,” “I can trust my neighbors,” “My neighbors don't get along” (reverse coded to match the direction of the other items), “My neighbors' interests and concerns are important to me,” and “If there were a serious problem in my neighborhood, the residents would get together to solve it.” Responses ranged from strongly disagree to strongly agree. Factor analyses revealed that all five items loaded highly on one factor. The index ranged from 5 (Least Neighborly) to 25 (Most Neighborly), was normally distributed, and had a Cronbach's alpha of .79, indicating strong internal consistency among items.

Control Variables

We used geographic mapping tools to categorize the neighborhood types by distance from the downtown urban core based on similar geographic distributions in Phoenix (Larsen et al. 2004). We designated as “urban core” five neighborhoods within a five-mile radius of downtown. We designated as “suburban,” ten neighborhoods located between five and ten miles from the urban core. Finally, we designated as “urban fringe” seven neighborhoods more than ten miles from the urban core.

Previous studies indicate that homeownership and length of residence are important predictors of neighborhood attachment (Kasarda and Janowitz 1974; Sampson 1988; Adams 1992; Brown, Perkins, and Brown 2004). Therefore, we included a dichotomous variable for homeownership (vs. renting) and a continuous variable for length of current residence in years. Our sample included residents who have lived at their current residence an average of 11.7 years, and nearly 80% of residents were homeowners.

We also controlled for *Age* as a continuous variable. The mean age of our sample was 54 years old. We measured *Race* as White (73%) and Non-White (ref) (27%). We measured *Education* as “High School Degree or Less,” (ref) “Some College Education,” and “College Degree or More.” Nearly 33% of our sample held at least a college degree, followed by 41% with some college education and 26% with a high school degree or less. *Marital Status* was a binary variable indicating Married (56%) vs. Non-Married (ref) (44%). Finally, employment status was a dichotomous variable indicating whether the respondent was employed (ref) (93%) vs. unemployed (7%) at the time of survey completion.

Analytic Method

To adjust for the clustering of 633 residents within 22 neighborhoods, we used multilevel models to examine the relationships between neighborhood distress and our two dependent variables: neighborhood quality of life and neighborhood satisfaction. Multilevel models control for the clustering of multiple respondents within the same geographic unit by appropriately adjusting the standard errors associated with neighborhood level variables (Raudenbush and Bryk 2002). By using multilevel models, we were also able to determine the proportion of variation in residents' quality of life and neighborhood satisfaction that was explained at the neighborhood vs. the individual respondent level.

Our first dependent variable, neighborhood quality of life, was a four category variable measured at the ordinal level. Accordingly, we used two-level proportional odds (ordered logit) models with random intercepts at the neighborhood level. These models predicted the probability of being in a higher neighborhood quality of life category. Our second dependent variable, neighborhood satisfaction, was an interval ratio variable that was normally distributed. Therefore, we used two-level linear models with random intercepts at the neighborhood level.

For both dependent variables we first ran a null model with no predictors in order to determine the proportion of variation in quality of life and neighborhood satisfaction that was explained at the neighborhood vs. individual resident level. We then introduced the neighborhood distress measures in Model 2 (foreclosure rate, physical decay index, and perceptions of crime). In the third model, we introduced our social neighboring index to determine whether perceptions of neighborliness mediated the associations between neighborhood distress and neighborhood satisfaction/quality of life. In the final model, we included all of the remaining covariates discussed above. In the quality of life model, we also controlled for neighborhood satisfaction, and in the neighborhood satisfaction model, we controlled for quality of life. We tested models without the alternate dependent variable as a control, and the results were unchanged.

Results

Descriptive statistics are presented in Table 1, and means for each of the individual items that were included in the scales are presented in Table 2. An overwhelming majority (84%) of residents reported a fairly good or very good quality of life in their Las Vegas neighborhoods. The average neighborhood satisfaction scale score was 23.11 (range from 8 to 32). Only 16% of residents reported that crime is a big problem in their neighborhoods. The mean physical disorder index was 7.68 (range from 5 to 15), and the mean social neighboring index was 16.96 (range from 5 to 25). Respondents lived in neighborhoods that had an average foreclosure rate of nearly 22%. Overall, Las Vegas residents seemed generally satisfied and content with their neighborhoods but indicated a moderate level of disorder.

We examined a series of bivariate relationships to determine whether residents who reported more neighborhood disorder had lower neighborhood satisfaction and quality of life. The results demonstrated negative relationships between all measures of neighborhood disorder and both quality of life and neighborhood satisfaction. Figure 1 and Figure 2 display the relationships between foreclosure rates and average quality of life and neighborhood satisfaction across the 22 neighborhoods in our sample. The scatterplots show a negative relationship between foreclosure rates and both average quality of life and neighborhood satisfaction. Figures 3 and 4 display the inverse relationships between average perceptions of physical decay/disorder and average quality of life and neighborhood satisfaction. Figure 5 and Figure 6 present bar graphs that show the relationship between perceptions of crime (not a problem, little problem and big problem) and average neighborhood satisfaction and quality of life scores. Residents who reported that crime was big problem in their neighborhood also reported lower neighborhood quality of life and lower neighborhood satisfaction.

Neighborhood Quality of Life

Coefficients for the ordered logit models predicting neighborhood quality of life are presented in Table 3. Results from the null model (Model 1) demonstrate significant neighborhood level variation in residents' assessment of quality of life; about 22% of the variation in neighborhood quality of life was explained by characteristics at the neighborhood level ($ICC = 0.221$). The neighborhood distress independent variables introduced in Model 2 (foreclosure rate, neighborhood physical decay, and perceptions of crime) completely explained all of this neighborhood level variation in quality of life; the neighborhood-level variance was no longer statistically significant after the introduction of these variables. Neighborhood physical decay and perceptions of crime were inversely associated with neighborhood quality of life. In addition, net of the other measures of neighborhood disorder, the census tract foreclosure rate was inversely associated with neighborhood quality of life, lending support to Hypothesis 1. Hypothesis 2 suggested that "neighborliness" would mediate the association between neighborhood disorder and quality of life. Results from Model 3 partially support this hypothesis. The introduction of the social neighboring index led to slight reductions in the coefficients for foreclosure rate and physical decay and eliminated the significance of perceptions of crime, suggesting that

residents' perceptions of neighborliness explain some of the relationship between neighborhood disorder and quality of life. Social neighboring scores were also positively associated with overall quality of life, net of the effects of neighborhood disorder. These results persisted after the introduction of control variables in Model 4. Although there were slight reductions in the independent variable covariates with the introduction of the control variables, the foreclosure rate and physical decay index continued to be inversely associated with quality of life, while social neighboring was positively associated with quality of life. In addition to the indicators of neighborhood disorder, there were only two other variables found to be significantly associated with neighborhood quality of life. Neighborhood satisfaction was positively associated with quality of life, and age was inversely associated with quality of life.

Neighborhood Satisfaction

Results of the neighborhood satisfaction models are presented in Table 4. The significant neighborhood-level variance in the null model (Model 1) indicates that there was significant neighborhood level variation in residents' satisfaction ratings. About 21% of the variation in neighborhood satisfaction was explained by neighborhood level characteristics ($ICC = 0.213$). The neighborhood distress predictors introduced in Model 2 explained a substantial proportion of this variation. After the introduction of census tract foreclosure rate, physical disorder, and perceptions of crime, only about 7% of neighborhood level variation remained unexplained ($ICC = .074$). Unlike with quality of life, however, residents' perception of crime was not a significant predictor of overall neighborhood satisfaction (Model 2). The census tract foreclosure rate and perceptions of physical decay were both inversely associated with neighborhood satisfaction. The introduction of the social neighboring indicator in Model 3 explained some of this association and further explained the remaining unexplained neighborhood-level variation in neighborhood satisfaction. The control variables introduced in Model 4 eliminated the significance of census tract foreclosure rate. However, net of these resident-level controls, perceptions of physical decay and neighborliness continued to be associated with neighborhood satisfaction. In addition, quality of life and age were positively associated with neighborhood satisfaction while non-white race/ethnicity, having some college vs. high school or less, and years at current residence were inversely associated with neighborhood satisfaction.

Discussion

This study combined residential survey data collected in Las Vegas during the most recent economic recession with housing foreclosure data to examine the associations between real and perceived measures of neighborhood distress, neighborhood satisfaction, and quality of life and the mediating role of social neighboring on those associations. Results demonstrated that, net of traditional measures of neighborhood distress, and neighborhood- and individual-level controls, the foreclosure rate was inversely associated with neighborhood quality of life, but not with neighborhood satisfaction. Our results also indicated that perceptions of neighborliness partially mediated the association between neighborhood distress and quality of life. That is, social neighboring, characterized by trust, concern for neighbors, and collective efficacy, acts as a buffer against neighborhood disorder.

Despite previous findings to the contrary (Adams 1992; Harris 2001; Hipp 2009; Parkes et al. 2002; Skogan 1990; Skogan and Maxfield 1981), we found that perceptions of crime are not associated with neighborhood satisfaction. They are, however, associated with residents' assessments of neighborhood quality of life, at least until the introduction of a measure of social neighboring. One explanation for why we did not find the oft-cited relationship between perceptions of crime and neighborhood satisfaction is simply the way in which we operationalized neighborhood satisfaction. Our measure of neighborhood satisfaction was comprised of eight items that focused on specific neighborhood objects (size of yards, shade, and parks) and qualities (racial and ethnic diversity, economic value of homes, and long-term neighbors). Our multidimensional satisfaction variable cannot be compared to studies that used a single-item question asking residents to rate their overall neighborhood satisfaction. Alternatively, it could also be that neighborliness moderates the relationships between perceptions of crime and neighborhood satisfaction and quality of life. We did attempt to test this by examining a series of interaction models between perceptions of crime and neighborhood satisfaction and perceptions of crime and quality of life and found that those interactions were significant at the .10 level. However our sample size was too small to interrogate this further. Future research should examine these interactions more closely.

Our finding that length of residence was not positively associated with neighborhood satisfaction is consistent with previous studies with the same null result (Adams 1992; Bolan 1997; Connerly and Marans 1985; Lee, Campbell, and Miller 1991; Sampson 1991; Woldoff 2002). This contrasts with consistent findings of a positive relationship between length of residence and neighborhood attachment (Bolan 1997; Connerly and Marans 1985; Kasarda and Janowitz 1974; Sampson 1988; Woldoff 2002), suggesting that although length of residence may improve perceived neighborhood cohesion, it is not associated with satisfaction (Hipp 2009). In addition, while some studies have found that measures of economic and social attachment to a neighborhood, such as homeownership and marital status, improve neighborhood satisfaction (Harris 2001; Lee et al. 1991), most studies have failed to detect significant relationships (Adams 1992; Bolan 1997; Connerly and Marans 1985; Hipp and Perrin 2006; Parkes et al. 2002; Sampson 1991; Woldoff 2002). Like these studies, our null findings related to homeownership and marital status further contest the view that residents' degree of economic and social investment in a neighborhood is related to neighborhood satisfaction or neighborhood quality of life.

Our study contributes to the literatures on neighborhood satisfaction, urban sustainability, and neighborhood disorder in several ways. First, rather than using the typical conceptualization of neighborhood - the census tract or block group - we conceptualized a neighborhood in a way that captures the immediate experiences of residential life by using natural neighborhood boundary measures such as community walls, gates, street accessibility, and visual homogeneity. In an economic era where housing foreclosures, vacant homes, and unkempt yards can plague some neighborhoods but not others, our analysis of "naturally occurring" neighborhoods provides a more robust understanding of neighborhood-level sentiments. Second, we were able to demonstrate that neighborhood satisfaction and quality of life, while often used interchangeably by researchers, likely measure different sentiments. A compelling finding in our paper was the inverse association between foreclosure rate and quality of life, but no association between foreclosure rate and

neighborhood satisfaction. These results held even after removing the alternate dependent variable as a control from each respective model, thereby minimizing concerns about endogeneity bias. This suggests that residents can comprehend and validate the qualitative difference between neighborhood satisfaction and quality of life. Residents can appreciate and enjoy their homes and immediate neighborhood amenities (parks, neighbors, safety, and economic value of home) but still be apprehensive about whether the neighborhood offers fulfillment and significance in their lives (Hughes 2006; Sirgy and Cornwell 2002). Our results might also be tapping an unmeasured facet of residents living in urban areas facing widespread economic turmoil and long-term recoveries. Due to the housing crisis, rapid reduction in home values, and high unemployment, many residents became “house-locked” and faced tough decisions about their mortgage situation and relocating for better opportunities. Yet at least one recent study shows that migration patterns among those with negative equity are no different than those without, even in Nevada which ranked first in percent change in housing price index during the period under study (Molloy, Smith, and Wozniak 2011). In a statistical irony, the state that witnessed the most rapid population growth and residential mobility now faces the worse economic conditions, but people are not leaving. As a result, residents may simply be electing to reinvest in their local residential spaces (homes and neighborhoods) even though they may question their long-term quality of life by staying there. Urban cultural scholars have long noted that “cities are not approached simply as forums for economic and political confrontations but as places rich with meaning and value for those who live, work, and play in and near them” (Borer 2006). Whether it’s the “iconic” and symbolic nature of living in Las Vegas, ties to family, or a newfound appreciation for the non-economic amenities of the city, we encourage researchers to consider the role of local culture and the idea of “new localism” in attempts to parse out the underlying sentiments of neighborhood satisfaction and quality of life.

Third, as a result of a major economic recession and ensuing housing foreclosure crisis that began just as we launched our administration of the Las Vegas Metropolitan Area Social Survey, our research was able to examine the relationships between neighborhood distress, satisfaction, and quality of life at a time when those sentiments were likely to be at their lowest levels. While others might contend this is a limitation to our study, we contend that the timing of our data collection offers a unique opportunity to evaluate the role of both *perceived* and *actual* measures of neighborhood distress on residential sentiments. Our findings that perceptions of crime were not significantly associated with neighborhood satisfaction or quality of life offer a telling story about how urban distress manifests itself to residents. Results suggest that physical decay and neighborly interactions mattered more to residents in their neighborhood sentiments than did perceptions of crime. This suggests that urban planners and policymakers, while continuing to promote crime-free and safe communities, should also direct discussions and resources towards the ways in which built environments can improve social interactions among neighbors and ultimately advance quality of life sentiments.

The results of this study should be considered in light of some limitations. First, the LVMASS data are cross-sectional, and although we have demonstrated associations between neighborhood foreclosure and quality of life, as well as evidence that neighborliness

attenuates the association between foreclosure and neighborhood satisfaction, these data do not allow us to argue that the foreclosure crisis had a causal effect on Las Vegas' attitudes toward their neighborhoods. Second, although a major strength of this study is our conceptualization of neighborhoods as 'naturally occurring' boundaries that better represent every day interactions and experiences, these neighborhoods do not demonstrate perfect overlap with census tracts – the unit of analysis for our foreclosure rate data. Nonetheless, we believe that the neighborhood boundaries used for LVMASS are close approximations to census tract boundaries such that the foreclosure rates reliably represent the effects of foreclosures in our neighborhoods. Third, the HUD NSP foreclosure data are not ideal, but unfortunately, they are currently the only non-proprietary data available for measuring small-area foreclosure rates. Although HUD uses an algorithm to predict census-tract foreclosure rates rather than measure actual foreclosure, there is substantial methodological detail to suggest that these foreclosure rates are highly correlated with actual foreclosures. Researchers with the resources available to purchase proprietary data on actual foreclosure rates should compare the HUD-predicted rates to actual rates in order to lend more confidence to the use of the HUD data.

An additional potential concern with our foreclosure variable is that it measures 18 months of foreclosure starts rather than actual completion of the foreclosure process. Harding (2009) identifies three distinct phases of the foreclosure process: a period of delinquency leading to foreclosure, a period wherein the bank takes possession of the property (i.e., it becomes a REO: Real-Estate Owned Property), and the resale period after the REO transaction. Our foreclosure measure best captures the later stages of the first step in this process. There is some debate about the lag effect of foreclosures on nearby residents in the neighborhood. While Harding et al. (2009) find that the maximum negative effect of a foreclosure on one particular material component that is likely of high concern to residents -home values - occurs right around the time of the foreclosure, Gerardi et al. (2012) find that the magnitude of negative effects of foreclosures on nearby properties peak *before* the distressed properties complete the foreclosure process. Given that the peak of negative foreclosure effects, at least in terms of neighboring home values, occurs sometime before or right around the time of the foreclosure rather than at the time of the foreclosure start, the most likely implication for our analysis is that our foreclosure variable leads us to underestimate the actual relationship between foreclosure and neighborhood satisfaction and quality of life. Finally, our neighborhood satisfaction, neighborhood decay, and social neighboring indices are unweighted indexes comprised of several evaluative measures of neighborhoods. Because different individuals in different communities may place varying weight on each component of each index, it is plausible that our results are under- or over- emphasizing certain components of each index. Unfortunately, without previous research to guide exactly how much weight should be placed on each component of the different scales, weighting our scales would be based upon pure speculation.

As hypothesized, our results demonstrated that the housing foreclosure rate (an actual measure of neighborhood distress) was inversely associated with neighborhood quality of life sentiments above and beyond perceived measures of neighborhood distress. The negative costs associated with foreclosures begin with the homeowner in default and the

financial institution holding the mortgage. However, the social and economic costs of foreclosure on neighborhood quality are more widespread and have spatial spillover effects on neighbors and neighborhoods. When neighborhood quality is perceived as a local public good that is produced by neighbors who enhance (or fail to enhance) their homes, yards, and other personal and neighborhood structures (i.e. sidewalks, streets, parks), foreclosure events threaten the public good (Leonard and Murdoch 2009). Economically, housing foreclosures can reduce the home values for all neighboring properties for up to 5 years after the foreclosure (Lin, Rosenblatt, and Yao 2009; Immergluck and Smith 2005). Our results offer compelling evidence that preserving neighborhood quality in the wake of a foreclosure crisis should be a goal of all public and urban policy makers, especially in urban areas like Las Vegas that have witnessed profound foreclosure events.

Although our research does not allow us to examine aggregate neighborhood qualities and amenities, we suspect that some neighborhoods might be protected from economic distress and report less negative neighborhood experiences than others. Future research should explore whether “master-planned” and/or “gated” communities have been buffered from the negative effects of housing foreclosures. If these communities are commodified in ways that shield them from property value decline (Le Goix and Vesselinov 2012), then they might also be shielded from neighborhood quality decline. To the extent that this might be the case, scholars should include master-planned communities in their neighborhood studies.

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

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Figure 1. The Relationship between Foreclosure Rate and Neighborhood Quality of Life

Note: Represents 643 households within 22 neighborhoods in Las Vegas, 2009

Figure 2. The Relationship between Foreclosure Rate and Neighborhood Satisfaction
Note: Represents 643 households within 22 neighborhoods in Las Vegas, 2009

Figure 3. The Relationship between Perceptions of Physical Decay and Quality of Life

Figure 4. The Relationship between Perceptions of Physical Decay and Neighborhood Satisfaction

Figure 5. Quality of Life by Perceptions of Crime

Figure 6. Neighborhood Satisfaction by Perceptions of Crime

Note: Represents 643 households within 22 neighborhoods in Las Vegas, 2009

Table 1
Descriptive Statistics for Dependent, Independent and Control Variables

<i>Dependent Variables</i>	Mean	SD
Neighborhood Quality of Life		
Very Good	0.30	
Fairly Good	0.54	
Not very Good	0.12	
Not at all Good	0.04	
Neighborhood Satisfaction	23.11	4.90
<i>Independent Variables</i>		
Census Tract Foreclosure Rate	21.58	3.60
Neighborhood Physical Decay	7.68	2.40
<i>Crime</i>		
Big Problem	0.16	
Little or No Problem	0.84	
Social Neighboring	16.96	3.80
<i>Control Variables</i>		
<i>Neighborhood Type</i>		
Urban Core	0.19	
Suburban	0.41	
Urban Fringe	0.39	
<i>Marital Status</i>		
Other Status	0.44	
Married or Living with Partner	0.56	
<i>Race</i>		
White, non-Hispanic	0.73	
Non White	0.27	
Age (in years)	54.17	16.70
<i>Education</i>		
H.S. or Less	0.26	
Some College	0.41	
College Degree or more	0.33	
<i>Employment Status</i>		
Employed	0.93	
Unemployed	0.07	
Years Lived at Current Residence	11.69	9.50
<i>Housing Type</i>		
Own	0.80	
Rent	0.20	

Note: N = 643

Table 2
Individual Means of Scaled Items

<i>Neighborhood Satisfaction</i>	Mean ¹	SD
The mix of racial and ethnic groups	3.02	0.82
The size of yards	3.00	0.91
Mixture of housing types	2.98	0.94
The number of long-term neighbors	2.97	0.88
Distance to natural areas such as mountains	2.92	0.94
The appearance of homes and yards	2.82	0.96
The quality of parks and common spaces	2.80	0.98
The economic value of homes	2.58	1.02
<i>Social Neighboring</i>	Mean ²	SD
I live in a close-knit neighborhood	3.05	1.16
If there were a serious problem in my neighborhood, the residents would get together to solve it	2.66	1.09
My neighbors interests and concerns are important to me	2.59	0.95
I can trust my neighbors	2.42	1.08
My Neighbors don't get along (reverse coded)	2.33	0.89
<i>Neighborhood Disorder</i>	Mean ³	SD
Unsupervised teenagers	1.65	0.71
Litter or trash	1.64	0.72
Vacant houses	1.55	0.68
Graffiti	1.49	0.66
Vacant land	1.35	0.58

Note: N=643

¹ Items range from 1 to 4

² Items range from 1 to 5

³ Items range from 1 to 3

Table 3
Multilevel Ordered Logit Models Predicting Resident Assessment of Neighborhood Quality of Life

Cumulative Intercepts	Model 1	Model 2	Model 3	Model 4
Intercept 4 (Very Good)	−1.142 *** (.231)	4.366 *** (.730)	−1.303 (.867)	−4.383 ** (1.364)
Intercept 3 (Good)	1.853 *** (.240)	7.591 *** (.780)	2.282 * (.871)	−0.49 (1.344)
Intercept 2 (Not Very Good)	3.580 *** (.305)	9.415 *** (.820)	4.255 *** (.897)	1.587 (1.360)
<i>Independent Variables</i>				
Census Tract Foreclosure Rate		−0.152 *** (.034)	−0.115 ** (.030)	−0.109 * (.043)
Neighborhood Physical Decay		−0.274 *** (.045)	−0.203 *** (.046)	−0.139 ** (.049)
Crime a Big Problem		−0.147 * (.262)	−0.424 (.261)	−0.480 (.268)
Social Neighboring Index			0.247 *** (.027)	0.177 *** (.029)
<i>Control Variables</i>				
Neighborhood Satisfaction				0.156 *** (.021)
<i>Neighborhood Type</i>				
(ref = Urban Core)				
Suburban				0.295 (.301)
Urban Fringe				0.224 (.378)
<i>Marital Status</i>				
Married or Living with Partner (ref = other status)				−0.164 (.173)
<i>Race</i>				
White, non-Hispanic (ref = Non-white)				0.133 (.212)
Age (in years)				−0.015 * (.007)
<i>Education</i>				
(ref = H.S. or Less)				
Some College				0.006 (.220)
College Degree or more				−0.398 (.238)
Unemployed (ref = Employed)				−0.276 (.326)
Years Lived at Current Residence				0.009 (.011)
<i>Housing Type</i>				
Own (ref = Rent)				0.226 (.231)
Neighborhood Variance	0.931 ** (.340)	0.118 (.096)	0.054 (.073)	0.04 (.069)
Intraclass Correlation Coefficient (ICC)	0.221	0.035	0.016	0.012

Note: N = 643 households in 22 Las Vegas neighborhoods, 2009

p<.001;

**
p<.01;

*
p<.05

Table 4
Multilevel Linear Models Predicting Neighborhood Satisfaction

	Model 1	Model 2	Model 3	Model 4
Intercept	22.740 *** (.518)	34.441 *** (1.954)	23.123 *** (1.758)	14.818 *** (2.50)
<i>Independent Variables</i>				
Census Tract Foreclosure Rate		−0.271 ** (.090)	−0.175 * (.065)	−0.033 (.081)
Neighborhood Physical decay		−0.729 *** (.090)	−0.569 *** (.085)	−0.450 *** (.083)
Crime a Big Problem		0.116 (.529)	0.428 (.492)	0.774 (.475)
Neighborliness Index			0.473 *** (.045)	0.334 *** (.046)
<i>Control Variables</i>				
Neighborhood Quality of Life				1.795 *** (.247)
<i>Neighborhood Type</i>				
(ref=Urban Core)				
Suburban				−0.364 (.576)
Urban Fringe				0.378 (.726)
<i>Marital Status</i>				
Married or Living with Partner (ref = other status)				0.360 (.302)
<i>Race</i>				
White, non Hispanic (ref = Non-white)				−0.776 * (.366)
Age (in years)				0.043 * (.011)
<i>Education</i>				
(ref = H.S. or Less)				
Some College				−0.655 (.382)
College Degree or more				−0.272 (.413)
Unemployed (ref=Employed)				0.168 (.569)
Years Lived at Current Residence				−0.047 (.020)
<i>Housing Type</i>				
Own (ref = Rent)				−0.027 (.403)
Neighborhood Variance	5.147 ** (1.805)	1.368 * (.655)	0.474 (.322)	0.267 (.267)
Intraclass Correlation Coefficient (ICC)	0.213	0.074	0.031	0.019

Note: N = 643 households in 22 Las Vegas neighborhoods, 2009

p<.001;

**
p<.01;

*
p<.05