**Neighborhood Disorder and Resident Sentiment in the Wake of
the Las Vegas Foreclosure Crisis**

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ABSTRACT

Using surveys collected from a sample of 643 households nested within 22 'naturally occurring' neighborhoods in Las Vegas, NV during the most recent economic recession, this study examined 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 on quality of life and neighborhood satisfaction.

There has certainly been no shortage of studies that examine predictors of neighborhood satisfaction and residential quality of life in urban areas of the U.S. (Amerigo and Aragones 1997; Dassopoulos, Batson, Futrell, and Brents 2012; Galster and Hesser 1981; Grogan-Kaylor et al. 2006; Hipp 2009; Lovejoy, Handy, and Mokhtarian, 2010; Parkes, Kearns, and Atkinson 2002). Understanding the relationship between residential contentment and community well-being 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 most recent economic recession which officially began in December 2007 and ended in 2009 (Muro et al.2009), cities across the United States are dealing 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 have been compromised, generating important questions about the complex relationship between urban distress and community attachment.

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 communitarian neighborhoods are vital to the sustainability of healthy cities. When residents feel satisfied with their neighborhoods, they report greater neighborhood attachment, 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 & Kogl 2007, Sampson, Morenoff & Gannon-Rowley, 2002; Sirgy & Cornwell, 2002). Consequently, when residents are dissatisfied with their neighborhoods, they report less neighborhood satisfaction, lower quality of life, and are more likely to leave their communities (Bolan, 1997; Oh, 2003; Sampson, 2003). Various characteristics of neighborhood disorder,

including poverty, crime, dilapidated infrastructure, graffiti, transiency, and litter, have repeatedly been found to be negatively associated with neighborhood satisfaction and quality of life (Ross and Mirowsky 1999; Galster and Hesser 1981). However, neighborhood social ties, friendship bonds, and feelings of collective efficacy strengthen neighborhood attachment, satisfaction, and quality of life through feelings of social integration and trust (Grogan-Kaylor et al. 2006; Kasarda and Janowitz 1974; Parkes, Kearns, and Atkinson 2002). While there has been a plethora of research on predictors of neighborhood satisfaction and quality of life, few studies have been able to capture residents' neighborhood sentiments in the wake of a deep economic recession. Our study is the first to combine residential survey data collected during the most recent recession with housing foreclosure data to examine the associations between urban distress and neighborhood satisfaction and quality of life.

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 has experienced a whirlwind of social and economic disorder stemming from the recession. Unemployment rates and home foreclosures are among the highest in the nation, social services are overburdened, and population growth is stagnant (Bureau of Labor Statistics 2011; Center for Business and Economic Research 2011). While much research has explored neighborhood quality of life issues at the national level, or in other metropolitan contexts, there has been almost no empirical research on community issues in Las Vegas. Our survey-based study, coupled with metropolitan data on housing foreclosures allows us to combine residents' *perceptions* of physical distress with *actual* measures of distress to determine the extent to which these actual and perceived measures of neighborhood distress are associated

with neighborhood satisfaction and quality of life. 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 neighborhood disorder (physical disorder and crime)? and 2.) Do perceptions of neighborliness mediate the relationships between neighborhood disorder and quality of life and neighborhood satisfaction?

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 metropolitan region continued apace in the 2000s with roughly half a million people arriving between 2000 and 2007. Some demographers estimate that the Las Vegas population will double again by 2040 (Lang, Sarynski, & Muro, 2008). In this context of population growth, transiency was also high. In 2000, Nevada ranked highest among all states in residential mobility, where 25% of the population had moved from another state to Nevada within the past five years. Between 2000 and 2004, Nevada had the highest domestic annual rate of net migration in the country (Perry 2006). As a result of such rapid population growth and concomitant economic boom, the Las Vegas housing market flourished between 1990 and 2006. With approximately 6,000 newcomers per month arriving in Las Vegas at the height of the boom, home prices reached all-time highs in 2006. The average median price of a single-family home was $349,500 in January of 2007. Just four years later, following the economic bust and housing crisis, the median price of single-family homes in January 2011 was $132,000 – an astonishing 62% decline (Greater Las Vegas Realtors

Association, 2007, 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. In addition to subprime lending, 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). Dependent on tourism and service-based employment, many people who made Las Vegas home during the boom years either relied on income with little documentation (gambling revenues, cocktail waitress, valet drivers), or simply were not able to afford conventional mortgage loans. For an urban area to be among the hardest hit in housing foreclosures, it needed to experience most, if not all, of the problems associated with subprime lending: large racial and ethnic concentration, mid-level credit scores, new housing construction, and high unemployment rates (Mayer and Pence 2008). Las Vegas fit the bill. Ripe with a large wave of Hispanic immigrant population growth, workers with unconventional sources of income, chaotic urban sprawl and rampant new construction, and high unemployment, Las Vegas experienced harshly pronounced rates of appreciation and concentrations of subprime lending (Mayer and Pence 2008).

As a result, since 2007, approximately 70,000 housing units have been foreclosed upon with nearly 6,000 new foreclosures still occurring every quarter (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 has increased at a rate of about 3% per year (Community Resources Management Division 2010). This number may actually be higher because of the foreclosures held by banks but not yet made available for sale. In addition, estimates are that 25% of all mortgage holders are experiencing serious delinquency (90 days or more past due), which is the second highest level in the nation. In all likelihood, these rates will continue to increase over the next few years (Community Resources Management Division 2010).

As home prices have witnessed unfathomable declines and homeowners struggle to make mortgage payments on undervalued properties, southern Nevada has also been faced with the largest increase in unemployment of any major metropolitan region in the country. Between April 2008 and April 2010, unemployment in Southern Nevada jumped 10 percentage points to an unprecedented high of 15.1% (US Bureau of Labor Statistics 2012). High rates of unemployment put current mortgage holders at risk for future foreclosure (Community Resources Management Division 2010). Such rapid and chaotic economic stress raises important questions about the quality of life for Las Vegas residents in this recessionary climate. A region that was already fraught with problems, such as residential transiency, tenuous social cohesion, sharp racial and ethnic inequalities, environmental problems, and poor social services is now facing an economic and housing crisis that only exacerbates these problems. High foreclosure rates and the accumulation of real estate owned properties (REOs) can have detrimental mutually reinforcing effects on neighborhoods, including infrastructural and environmental decay, increased criminal activity, and reduced neighboring property values (Apgar and Duda 2005; 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 role of neighborhood social structural characteristics on neighborhood satisfaction and quality of life (Herting and Guest 1985; Kelling 1996), often applying the *theory of social disorganization* in their studies. 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 (Hipp 2007; Kurbin and Wetizer 2003; Markowitz et al. 2001; Sampson and Groves 1989; Warner 2003). Neighborhood solidarity among residents is a resource for organizing around problems when they occur and taking steps to reduce neighborhood disorder (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, 1991).

Residents typically use evaluative measures to judge their neighborhoods and are often keenly aware of neighborhood stressors that indicate physical and social disorder (Dassopoulos, Batson, Futrell, & Brents 2012; Hipp, 2010; Nation, Fortney and Wandersman, 2010; Taylor, 1996; Skjaeveland, Garling and Maeland, 1996; Fried, 1982; Ross and Mirowsky, 1999; Sampson, 2003). Physical disorder, or decay, refers to the overall material qualities of the neighborhood and includes features 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, 1986, 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 disorder 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). While high rates of foreclosure have the potential to lead to physical disorder and crime, there are also real material losses associated with high rates of housing foreclosure. That is, foreclosed homes typically sell at significantly discounted prices and appreciate much more slowly than traditionally sold homes (Forgey, Rutherford, and VanBuskirk 1994; Pennington-Cross 2006). Home appraisers can then use these lower bank-owned home sales prices as comparisons when appraising non-bank-owned properties, resulting in very 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 between a 0.9 % and 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 for home improvements, family emergencies, or children's college tuition and make it more difficult for homeowners to sell their homes in the case of job loss, relocation, or changes to family structure.

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 work has shown that social characteristics, such as neighboring, social ties, trust, and cohesion may be more meaningful to residents in their neighborhood evaluations (Grogan-Kaylor et al. 2006; Parkes et al. 2002). Social neighboring has been found to foster mutual support and trust among neighborhood residents (Sampson et al. 1989), 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 &

Baba, 1990; Bolan, 1997; Campbell & Lee, 1992; Hipp & Perrin, 2006). Neighborliness can

reflect both social and behavioral attachments through various activities that range from simply

being courteous with 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

(Ahlbrandt, 1984; Guest & Lee, 1983; Hunter and Suttles, 1972; Kasarda and Janowitz, 1974;

Riger and Lavrakas, 1981). 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;

Speare, 1974). This social integration with neighbors should have a diminishing effect on

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 (*Hypothesis 2*). That is, neighborliness should act as a buffer against

neighborhood distress, even in neighborhoods with high rates of foreclosure.

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), and researchers often use the

two interchangeably, neighborhood satisfaction and quality of life ultimately measure different

sentiments, both of which should be important to urban planners and policy makers. While neighborhood satisfaction reflects residents' complex evaluations about how well a neighborhood meets their physical and social needs (Galster and Hesser 1981; Amerigo and Aragones 1997; Lu 1999), 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 Fuzhong 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.

Data and Variables

Study Area

The data for this study were gathered in 22 neighborhoods in the Las Vegas metropolitan area of Clark County, Nevada in 2009. 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 neighborhoods in each of the four distinct municipal jurisdictions in the Las Vegas metropolitan are: eight in the City of Las Vegas, four in North Las Vegas, four in Henderson, and six in unincorporated Clark County. 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. The data provide the approximate number of foreclosure

starts for all of 2007 and the first six months of 2008 ("Foreclosure Starts over 18 months") at

the statewide level[1]. For our purposes, we used census tract foreclosure rates from Clark County,

Nevada. We matched the NSP data (census tract data) to the LVMASS survey data (individual

household data) by census tract to create a multilevel data set.

Neighborhood Conceptualization

Social scientists widely use the term "neighborhood" when their actual geographic units

of study are census tracts or block groups[2] (Morenoff, Sampson and Raudenbush, 2001;

Sampson and Raudenbush, 1999), school districts, zip codes, or police beats (Kruger 2008;

Sampson, Morenoff and Gannon-Rowley, 2002; Woldoff, 2002; Campbell and Lee, 1992).

These larger geographic units may be appropriate for studying aggregate behaviors, but they are

not ideal for neighborhood-level research and policy development (Kruger, 2008; Sampson et al,

2002). We used the census block group as our definitional base of a neighborhood and then used

ecological measures, such as community walls, roads, neighborhood signs, street names and

sidewalks (Hipp, 2009; Kruger, 2008; Grannis, 1998; Taylor, 1996) to define smaller

neighborhood locales within each block group. Our goal was to measure neighborhood variables

at a level that captures the most immediate experience of residential living space.

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[1] A more precise methodology of the NSP data is available upon request.
[2] On average, census tracts contain approximately 1,500 households and include between 2,500 and 8,000 people and are designed to be homogenous with respect to population characteristics, economic status, and living conditions (U.S. Department of Commerce, 1994, 10-1). The block group is the smallest geographic entity for which the decennial census tabulates and publishes sample data, and averages roughly 400 households (U.S. Department of Commerce, 1994, 11-1).

Study Neighborhoods and Sample Households

We used stratified four-stage cluster sampling to select our study neighborhoods. To ensure that our sample included neighborhoods with socioeconomic, racial, and ethnic diversity, we first stratified Las Vegas metropolitan area census tracts by household income into quartiles. We then randomly selected 20 census block groups within each income stratum. We used geographic electronic mapping to locate each census block group to identify and exclude those that appeared predominantly commercial or were primarily vacant land. We excluded six of the eighty block groups and then conducted field assessments of the remaining block groups to create more proximate and accurate representations of individual neighborhoods within each block group. In the second sampling stage, we randomly selected five of the remaining block groups from each income quartile, resulting in 20 block groups.

Using street accessibility measures (Hipp, 2009; Kruger, 2008; Grannis, 1998), we defined and identified distinct neighborhoods within each selected block group. In fall 2008, on-site raters coded physical conditions, street accessibility, and visual homogeneity of the entire block group to identify neighborhood boundaries. We excluded neighborhoods with fewer than 50 visibly occupied homes in this sampling stage. We then randomly chose one neighborhood from each block group, for a total of five neighborhoods in each income stratum. In addition, we randomly selected two neighborhoods from the 24 census tracts where at least 20% of the population was aged 65 and over as a proxy for a retirement neighborhood. 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 the Cannon Center for Survey Research at the University of Nevada Las Vegas.

Dependent Variables: Neighborhood Quality of Life and Neighborhood Satisfaction

Neighborhood Quality of Life. We use 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 the variable.

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; Galster 1987;

Harris 2001; Hartnagel 1979; Hipp 2008; Jagun et al. 1990; Lu 1999; McHugh et al. 1990; Parkes et al. 2002; Sampson 1991), combining several indicators of neighborhood satisfaction provides a more reliable and precise measure (Hipp 2008). Accordingly, we constructed a nine item index of neighborhood satisfaction that assesses both the physical and social 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, walking distance to bus lines or light rail, the number of long term neighbors, and distance to natural areas such as mountains. The neighborhood satisfaction index ranges from 9 (lowest satisfaction) to 36 (highest satisfaction) and has a Cronbach's alpha score of 0.82, indicating strong internal consistency among items. Preliminary analysis revealed that this neighborhood satisfaction scale is normally distributed.

Independent Variables

Foreclosure Rates. From the 2008 NSP data, we extracted census tract foreclosure rates for the 22 corresponding LVMASS neighborhoods. Although there may not be perfect overlap between our neighborhoods and their corresponding census tract foreclosure rates, the LVMASS data are the first to allow scholars to examine residential neighborhood sentiments in an urban area plagued by housing foreclosures. After merging the NSP data with LVMASS data, foreclosure rates in our sample ranged from 14.9% to 29.5%. The average foreclosure rate of neighborhoods in our sample is 24.2%.

Neighborhood Physical Decay. Neighborhood physical decay is an index of five items from the LVMASS. 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 ranges from 5 (Lowest Disorder) to 15 (Highest Disorder), is normally distributed, and has 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 foreclosure rate in the same regression models, we examined the correlation between this scaled physical decay variable and 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" coded 1 and "little problem" and "not a problem" coded 0.

Social Neighboring. Our measure of social neighboring or "neighborliness" is composed of five items that assess respondents' assessments of neighborly interactions. The items are: "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. The index

ranges from 5 (Least Neighborly) to 25 (Most Neighborly), is normally distributed, and has a Cronbach's alpha of .79, indicating strong internal consistency among items.

Control Variables

Because neighborhood environments have different organizational qualities and expectations for social interactions based on their spatial distribution from an urban core (Nation, Fortney and Wandersman, 2010), we used geographic mapping tools to categorize the neighborhood types by distance from the downtown urban core. We identified three neighborhood types based on similar geographic distributions in Phoenix (Larsen, Harlan, Bolin, Hackett, Hope, Kirby, Nelson, Rex, and Wolf 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; Rice and Steel 2001; Lewicka 2005; Brown et al. 2004; Schieman 2009). Therefore, we included a dichotomous variable for homeownership (vs. renting) and a continuous variable for length of current residence in years. Our sample includes residents who have lived at their current residence an average of 11.7 years, and nearly 80% of residents are homeowners.

We also controlled for variables that approximate life-cycle stage and indicate socioeconomic status. We measured *Age* as a continuous variable. The mean age of our sample is 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 holds 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 is explained at the neighborhood vs. the individual respondent level.

Our first dependent variable, neighborhood quality of life, is 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 predict the probability of being in a higher neighborhood quality of life category. Our second dependent variable, neighborhood satisfaction, is an interval ratio variable that is normally distributed. Therefore, we used two-level linear models with random intercepts at the neighborhood level.

For both dependent variables we first presented a null model with no predictors in order to determine the proportion of variation in quality of life and neighborhood satisfaction that is

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 mediate 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.

Results

Descriptive statistics are presented in Table 1. 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 25.93 (range from 9 to 36). Approximately 16% of residents reported that crime is a big problem in their neighborhoods, and the mean physical disorder index was 7.68 (range from 5 to 15). Respondents lived in neighborhoods that had an average foreclosure rate of 21.58%. 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 foreclosure rates across the 22 neighborhoods in our sample. The scatterplots show that residents living in

neighborhoods with the highest foreclosure rates reported the lowest quality of life and the lowest neighborhood satisfaction. Figure 3 displays the relationships between physical disorder and crime and quality of life. Residents who reported that physical disorder and crime are big problems in their neighborhood also reported lower neighborhood quality of life. Figure 4 shows the relationships between physical disorder and crime and neighborhood satisfaction. As physical disorder and crime become more problematic for residents, neighborhood satisfaction declines.

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 is 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 significant after the introduction of these variables. Neighborhood physical decay and perceptions of crime are negatively associated with neighborhood quality of life. In addition, net of the other measures of neighborhood disorder, the census tract foreclosure rate is independently negatively 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. Respondents with higher social neighboring scores reported higher overall quality of life, net of the effects of neighborhood disorder. Therefore, even in neighborhoods with higher levels of disorder, as proxied by foreclosure, crime, and physical decay, positive perceptions of one's neighbors are associated with greater quality of life. 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 disorder index continued to be negatively 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. Residents who reported greater neighborhood satisfaction reported significantly higher quality of life while older residents reported slightly lower 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 is significant neighborhood level variation in residents' satisfaction ratings. About 19% of the variation in neighborhood satisfaction can be explained by neighborhood level characteristics (ICC = 0.193). The neighborhood distress predictors introduced in Model 2 explained a substantial portion of this variation. After the introduction of census tract foreclosure rate, physical disorder, and

perceptions of crime, only about 6% of neighborhood level variation remained unexplained (ICC = .06). 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 negatively 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 negatively 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 is negatively associated with neighborhood quality of life, but not with neighborhood satisfaction. Our results also indicated that perceptions of neighborliness partially mediate 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 1986, 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 operationalize neighborhood satisfaction. Our measure of neighborhood satisfaction is comprised of nine-items that focus on specific neighborhood objects (size of yards, shade, and parks) and qualities (racial and ethnic diversity, distance to public transportation and nature, 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 that were slightly significant at the .10 level. However our sample size is too small to interrogate this further. Future research should examine these interactions more closely.

Our finding that length of residence is not positively associated with neighborhood satisfaction is consistent with previous studies with the same null result (Adams 1992; Bolan 1997; Connerly and Marans 1985; Galster 1987; 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 does not affect 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; Lu 1999), 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. Second, we were able to demonstrate that neighborhood satisfaction and quality of life, while often used interchangeably by researchers, likely measure different sentiments. In the future, researchers should take care in distinguishing the two concepts and attempt to parse out the underlying sentiments of each. 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. Las Vegas was undoubtedly one of the hardest hit cities of the economic recession and housing crash.

Our results demonstrate that housing foreclosures are negatively associated with neighborhood quality of life sentiments. 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 that affect 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), then 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 convincing evidence that preserving neighborhood quality in the wake of a foreclosure crisis should be a goal of all public and urban policy, but especially in urban areas like Las Vegas that have witnessed profound foreclosure events.

While 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.

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Table 1. Descriptive Statistics for Dependent, Independent and Control Variables.

	Mean	SD
Dependent Variables		
Neighborhood Quality of Life		
Very Good	0.30	
Fairly Good	0.54	
Not very Good	0.12	
Not at all Good	0.03	
Neighborhood Satisfaction	25.93	5.92
Independent Variables		
Census Tract Foreclosure Rate	21.53	3.60
Neighborhood Physical Disorder	7.68	2.35
Crime		
Big Problem	0.16	
Little or No Problem	0.84	
Control Variables		
Neighborhood Type		
Urban Core	0.19	
Suburban	0.41	
Urban Fringe	0.39	
Marital Status		
Other Status	0.44	
Married or Living with Partner	0.56	
Race		
White, non Hispanic	0.73	
Non White	0.27	
Age (in years)	54.13	16.70
Education		
H.S. or Less	0.26	
Some College	0.41	
College Degree or more	0.33	
Employment Status		
Employed	0.93	
Unemployed	0.07	

Years Lived at Current Residence	11.67	9.48
Housing Type		
Own	0.80	
Rent	0.20	

Total N = 643

Table 2. Individual Mean Scores of Scaled Items, 2009 LVMASS Data

Neighborhood Satisfaction	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
Walking distance to bus line or light rail	2.83	0.90
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

Social Neighboring	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

Neighborhood Disorder	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

Total 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)	-4.518	**	(1.343)
Intercept 3 (Good)	1.853	***	(.240)	7.591	***	(.780)	2.282	*	(.871)	-0.641		(1.323)
Intercept 2 (Not Very Good)	3.580	***	(.305)	9.415	***	(.820)	4.255	***	(.897)	1.423		(1.339)
Independent Variables												
Neighborhood Physical Disorder				-0.274	***	(.045)	-0.203	***	(.046)	-0.143	**	(.048)
Crime a Big Problem				-0.549	*	(.262)	-0.424		(.261)	-0.480		(.267)
Census Tract Foreclosure Rate				-0.152	***	(.034)	-0.115	**	(.030)	-0.106	*	(.041)
Social Neighboring Index							0.247	***	(.027)	0.181	***	(.029)
Control Variables												
Neighborhood Satisfaction										0.156	***	(.021)
Neighborhood Type												
(ref = Urban Core)												
Suburban										0.292		(.291)
Urban Fringe										0.265		(.365)
Marital Status												
Married or Living with Partner (ref = Other status)										-0.180		(.173)
Race												
White, non-Hispanic (ref = Non-white)										0.119		(.211)
Age (in years)										-0.015	*	(.006)
Education												
(ref = H.S. or Less)												
Some College										0.027		(.220)

|	Model 1		Model 2		Model 3		Model 4	
College Degree or more							-0.359	(.237)
Unemployed (ref = Employed)							-0.270	(.326)
Years Lived at Current Residence							0.008	(.011)
Housing Type								
Own (ref = Rent)							0.232	(.230)
Neighborhood Variance	0.931 **	(.340)	0.118	(.096)	0.054	(.073)	0.027	(.065)
Intraclass Correlation Coefficient	0.221		N/A		N/A		N/A	

N = 643 households in 22 Las Vegas neighborhoods, 2009

Table 4. Multilevel Linear Models Predicting Neighborhood Satisfaction

|	Model 1			Model 2			Model 3			Model 4		
Intercept	25.573	***	(.539)	37.897	***	(1.989)	25.612	***	(1.870)	17.592	***	(2.705)
Independent Variables												
Census Tract Foreclosure Rate				-0.280	**	(.092)	-0.174	*	(.068)	-0.056		(.087)
Neighborhood Physical Disorder				-0.787	***	(.099)	-0.612	***	(.094)	-0.483	***	(.091)
Crime a Big Problem				0.182		(.581)	0.524		(.541)	0.899		(.523)
Neighborliness Index							0.511	***	(.049)	0.360	***	(.051)
Control Variables												
Neighborhood Quality of Life										1.945	***	(.272)
Neighborhood Type												
(ref=Urban Core)												
Suburban										-0.392		(.616)
Urban Fringe										0.078		(.776)
Marital Status												
Married or Living with Partner (ref=Other status)										0.533		(.332)
Race												
White, non Hispanic (ref=Non-white)										-0.811	*	(.402)
Age (in years)										0.044	***	(.013)
Education												
(ref = H.S. or Less)												
Some College										-0.831	*	(.421)
College Degree or more										-0.484		(.455)
Unemployed (ref=Employed)										0.115		(.627)
Years Lived at Current Residence										-0.045	*	(.022)
Housing Type												
Own (ref = Rent)										-0.042		(.444)
Neighborhood Variance	5.478	**	(1.950)	1.321	*	(.678)	0.453		(.340)	0.268		(.293)
Intraclass Correlation Coefficient	0.193			0.060			N/A					

N = 643 households in 22 Las Vegas neighborhoods, 2009

**Figure 1. The Relationship between Foreclosure Rate and Neighborhood Quality of Life**
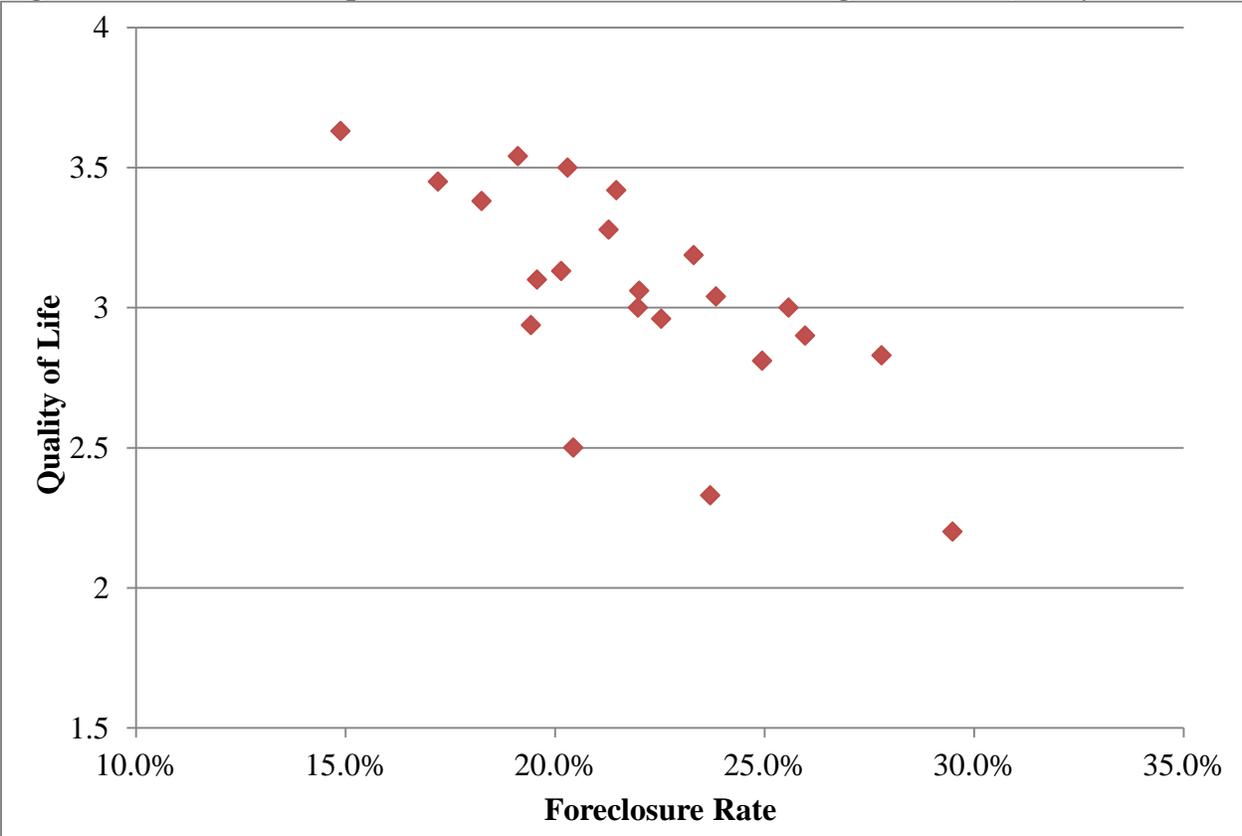
Note: Represents 643 households within 22 neighborhoods in Las Vegas, 2009

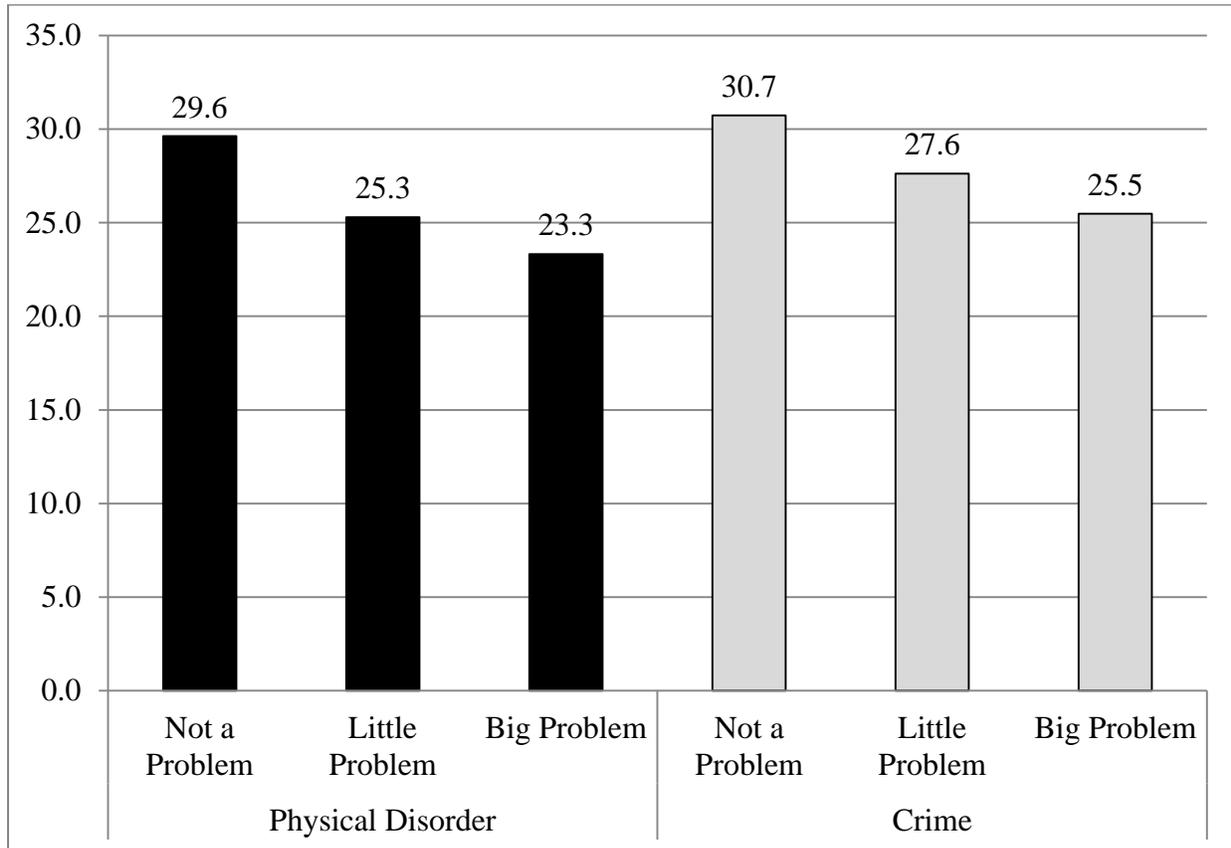**Figure 2. The Relationship between Foreclosure Rate and Neighborhood Satisfaction**
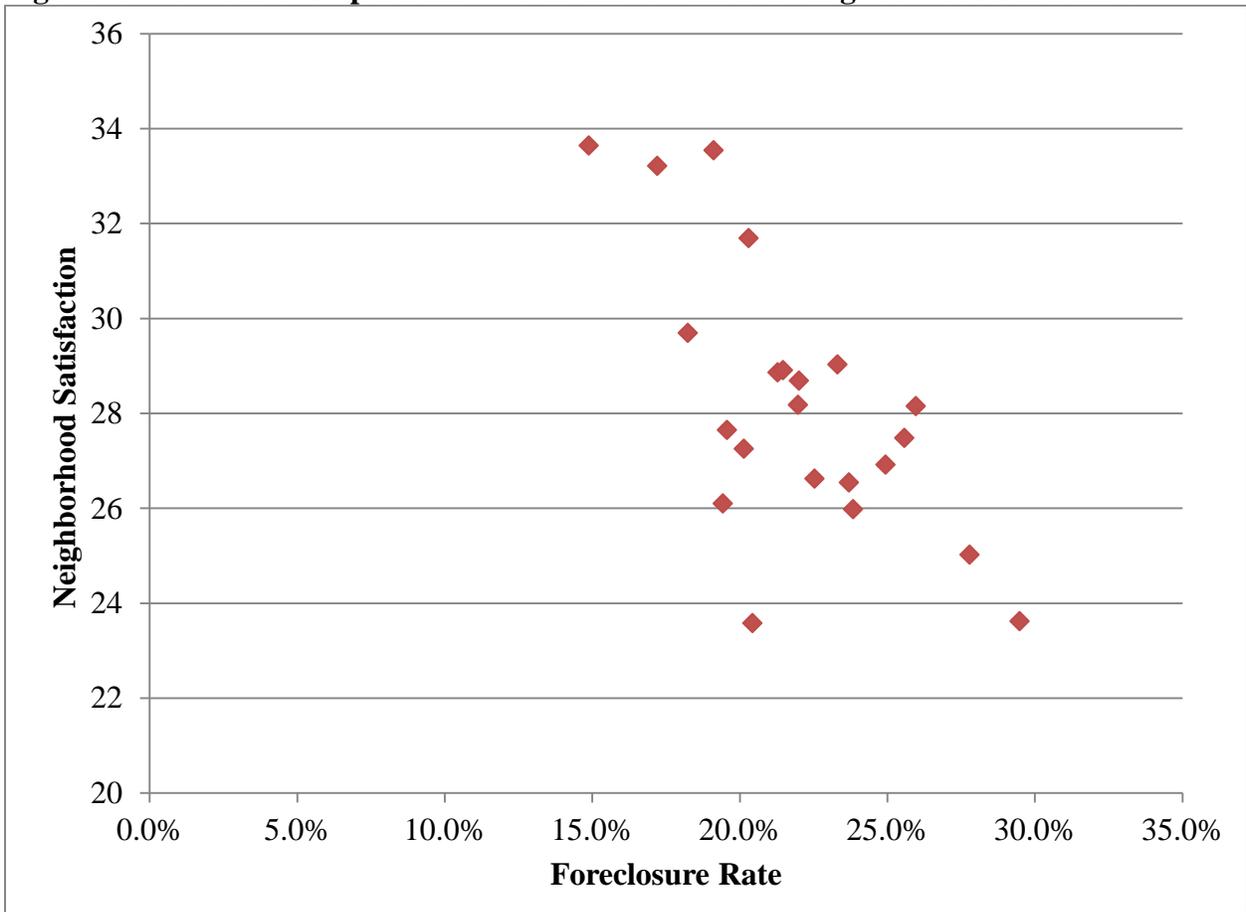
Note: Represents 643 households within 22 neighborhoods in Las Vegas, 2009

Figure 3. Quality of Life by Neighborhood Physical Disorder and Perceptions of Crime
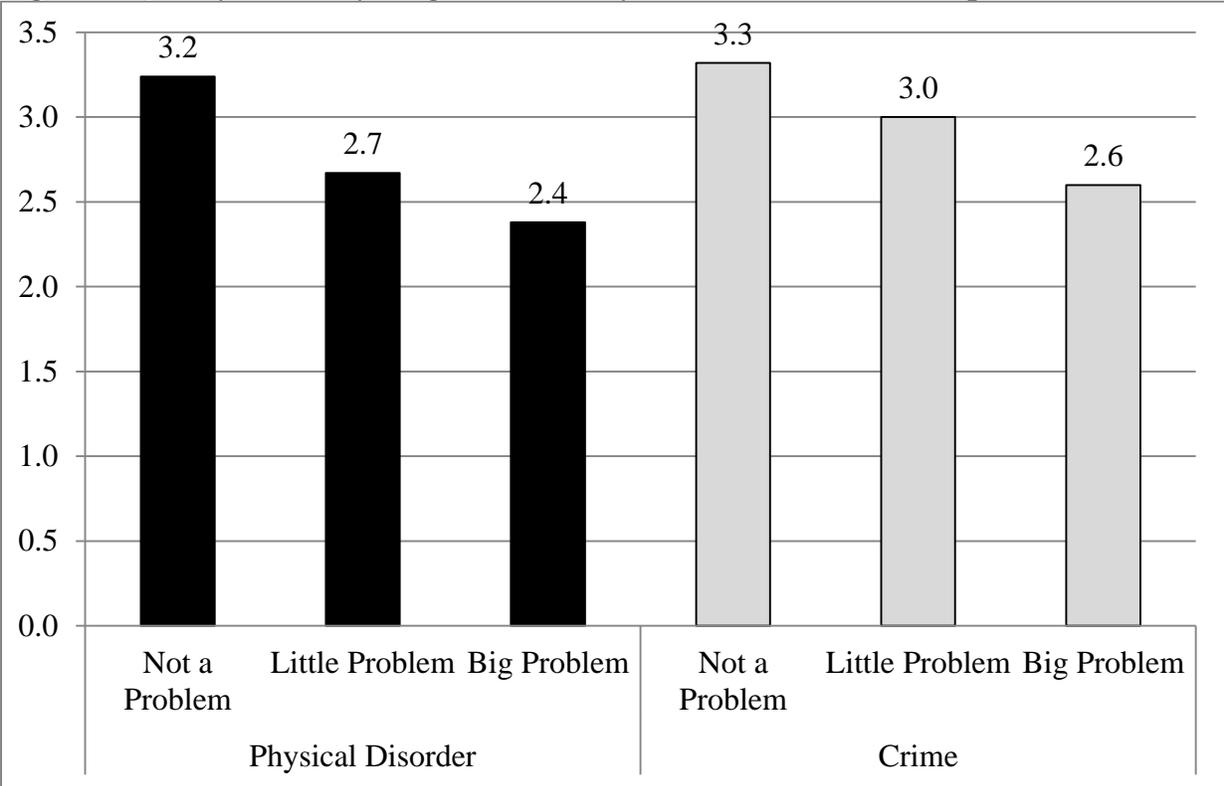
Note: Represents 643 households within 22 neighborhoods in Las Vegas, 2009

Figure 4. Neighborhood Satisfaction by Neighborhood Physical Disorder and Perceptions of Crime

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