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Understanding the Interplay between Neighborhood Structural Factors, Social Processes, and Alcohol Outlets on Child Physical Abuse

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Abstract

This paper seeks to understand the relative influence of neighborhood structural characteristics (e.g. disadvantage) and social processes (e.g. interactions between residents) on child physical abuse. Using multi-level modeling in a sample of 3,023 parents in 194 zip codes, structural characteristics of factor scores representing residential stability and foreign born Latino males were negatively related to child physical abuse. High proportions of naturalized and Asian/Pacific Islander families were positively related to frequency of physical abuse. Higher levels of neighborhood social disorder were related to more frequent physical abuse while higher levels of collective efficacy were related to less frequent physical abuse. Programs designed to alleviate disorder and increase neighborly interactions may be effective at reducing physical abuse. By understanding the relative importance of the demographic characteristics of neighborhoods and the actions and interactions of residents within the neighborhoods, policy and practice can be tailored more effectively to prevent maltreatment.

Keywords

Child physical abuse; neighborhood structure; disadvantage; neighborhood social processes

Introduction and Literature Review

Child maltreatment, defined as an act that puts a child at risk for imminent harm, is a significant public health concern as approximately 1 in 9 U.S. children experience some form of abuse or neglect by the age of 18 (Wilderman, Emanuel, Leventhal, Putnam-Hornstein, Waldfogel, & Lee, 2014). Yet, the role of neighborhood structural factors and social processes in maltreating behaviors has remained a relatively unexplored area of inquiry. Structural aspects of neighborhoods include those characteristics that are aggregated sociodemographic characteristics of people living in defined geographic areas, such as the poverty status, neighborhood turnover, and levels of segregation of the residents. These include those aspects of neighborhoods that purely describe who lives in the neighborhoods but does not include interaction amongst neighbors. Social processes, on the other hand,

include those aspects of neighborhoods that involve actions of or interactions between the residents within the neighborhood, such as neighbors helping each other with day-to-day needs or watching over each other's children.

Parents are faced with challenges and supports at multiple levels of the social ecology that impact their ability to raise their children in optimal ways. Neighborhoods that are impoverished, have high rates of residential instability, and high densities of alcohol outlets have been found to have higher rates of maltreatment (Coulton et al., 2007; Freisthler et al., 2006). A small group of studies have examined the role of neighborhood processes (e.g. social cohesion and social control) in child maltreatment, but limited work has been done to consider these processes in conjunction with the structural characteristics (for exceptions see Deccio et al., 1994; Ernst, 2001; Fromm, 2004; Korbin et al., 1998). This study adds to the current knowledge of neighborhoods and child maltreatment by examining structural characteristics of neighborhoods versus neighborhood processes.

Literature Review

Rates of child maltreatment vary significantly by geographic region (Ernst, 2000; Paulsen, 2003; Vinson & Baldry, 1999; Zielinski & Bradshaw, 2006). A wealth of research has sought to determine the reasons for this variation (Coulton et al., 2007; Freisthler et al., 2006). Coulton and colleagues (2007) suggested a model for understanding the mechanisms through which neighborhoods can protect against or provide additional risk for maltreatment. This model included structural characteristics (neighborhood disadvantage, demographics, and stability), neighborhood processes (collective efficacy, social organization, and community resources/deficits), and transactional processes (environmental stressors and social support) as potential sources of risk and protection related to child maltreatment (Coulton et al., 2007). By including the descriptive information about neighborhoods as well as the interactions between neighbors, the authors provide a holistic framework for considering the multiple pathways through which the communities in which families live affect their ability to parent. The current study assesses the behavioral influences (including informal social control and reciprocated exchange) of neighborhoods that may be related to abusive parenting practices.

Structural Characteristics of Neighborhoods and Child Maltreatment

Structural characteristics of neighborhoods have dominated the research to date (Coulton et al., 2007). Data for these factors are much more readily available than the social processes of neighborhoods, because of the wide availability of Census data. In terms of these structural characteristics, the current study will focus on rates of poverty, unemployment, single-headed households, neighborhood turnover, and demographic characteristics such as age, sex, race, and ethnicity of the residents within the neighborhood.

The most commonly studied structural characteristic is poverty or concentrated disadvantage. Community-level poverty may be detrimental to parenting above and beyond the effect of individual poverty status because of the stress associated with living in a neighborhood that is dominated with residents who are experiencing high levels of disadvantage. Many studies have found evidence of a relationship between community

poverty and child maltreatment (Ben-Arieh, 2010; Coulton, et al., 1999; Coulton, et al., 1995; Deccio, et al., 1994; Drake & Pandey, 1996; Ernst, 2001; Freisthler, 2004; Freisthler, Gruenewald, et al., 2007; Freisthler, et al., 2004; Freisthler, et al., 2005; Fromm, 2004; Irwin, 2009; Korbin, et al., 1998; Merritt, 2009). When included as neighborhood concentrated disadvantage, this measure often includes not just rates of poverty but also rates of unemployment (Ben-Arieh, 2010; Coulton, et al., 1999; Coulton, et al., 1995; Deccio, et al., 1994; Gillham et al., 1998 Korbin, et al., 1998; Weissman, et al., 2003) and female-headed households (Ben-Arieh, 2010; Deccio, et al., 1994; Freisthler, 2004; Freisthler, et al., 2008; Freisthler, et al., 2004; Garbarino & Crouter, 1978), which may also indicate large scale structural inequities in neighborhoods.

Residents living in highly segregated neighborhoods with a high proportion of racial minorities may face an additional risk for maltreatment because they may feel trapped in troubled neighborhoods plagued by high rates of crime and poverty. In studies examining concentrations of racial minorities, the results were not conclusive. One study found positive associations with maltreatment (Freisthler, Gruenewald, et al., 2007), while others found no association (Freisthler, 2004; Kim 2004). Deccio et al. (1994) found that neighborhoods with high levels of maltreatment had a lower percentage of white residents than neighborhoods with low levels of maltreatment. Molnar et al. (2003) found that high levels of immigrant concentration were associated with lower levels of maltreatment. The relationship between minority concentration and child maltreatment is complex, and not yet understood.

Residential instability or population turnover may increase the risk for maltreatment because of the lack of feeling of community amongst neighbors and the inability of neighbors to form bonds with one another and therefore provide support that might protect against maltreatment. In examining the relationship between residential instability and maltreatment, some studies found a positive relationship between the two, (Ben-Arieh, 2010; Coulton et al., 1995; Deccio, et al., 1994; Ernst, 2001; Freisthler, et al., 2008; Fromm, 2004; Garbarino & Crouter, 1978; Spearly & Lauderdale, 1983; Young & Gately, 1988). However, a similar number of studies did not find a significant relationship (Coulton, et al., 1999; Freisthler, 2004; Freisthler, et al., 2005; Freisthler, et al., 2004; Kim, 2004; Merritt, 2009; Molnar, et al., 2003).

Finally, alcohol outlet densities has been found to be related to rates of child maltreatment (Freisthler, 2004; Freisthler et al., 2005; Freisthler et al. 2007; Freisthler & Weiss, 2008; Morton, 2013). Density of off-premise outlets (e.g., establishments that sell alcohol to be consumed elsewhere such as grocery or liquor stores), in particular, were related to higher rates of physical abuse in Census tracts in California (Freisthler et al., 2004) but lower rates of physical abuse in New Jersey (Morton, Simmel, & Peterson, 2014).

Neighborhood Processes and Child Maltreatment

In a 2007 review of the neighborhood maltreatment literature, Coulton and colleagues concluded that although there had been significant work regarding structural aspects of neighborhoods related to maltreatment, there was a gap in the existing literature related to the role of neighborhood processes. Important differences between neighborhoods may exist

in terms of the ways in which residents interact with one another that could provide protective benefits for parents. Differences in child maltreatment rates between neighborhoods with similar rates of poverty may be explained by differences in the actions of the residents within. Further, social processes may be more easily altered by individual- and community-level interventions than structural characteristics, which require large-scale policy interventions to effect change. Within the limited body of work examining the social processes of neighborhoods, there have been mixed findings.

These processes have been conceptualized in a variety of ways, including perceptions of collective efficacy (Coulton et al., 1999; Guterman et al., 2009; Molnar et al., 2003), which refers to social cohesion (mutual trust among neighbors) and social control, which are the norms regarding appropriate behavior (Sampson, Morenoff, & Gannon-Rowley, 2002). While Guterman et al. (2009) found that more negative perceptions of collective efficacy and social disorder were associated with higher levels of psychological aggression and physical assault; Molnar et al. (2003) and Coulton et al. (1999) did not find evidence of a relationship. Deccio et al (1994) examined perceptions of neighborhood social support and parenting support and did not find a relationship with child maltreatment. However, Garbarino and Sherman, (1980) found that residents of neighborhoods with higher rates of maltreatment reported that their neighbors were less likely to assist with childcare, had more negative comments about neighborhood, higher levels of stress, and were less likely to engage in neighborhood exchanges compared to residents in neighborhoods with lower rates of maltreatment. Similarly, Vinson and colleagues (1996) found that a greater number of interactions with neighbors and acquaintances was associated with lower child abuse rates.

In a study of social disorder and collective efficacy, Guterman et al. (2009) found a mild direct role of these neighborhood processes on physical abuse and a more noticeable indirect effect on physical abuse and neglect through its effect on parenting stress and personal control (Guterman et al., 2009). In other words, people living in areas with more disorder and less collective efficacy were more likely to use physical abuse. Perhaps more importantly, more negative perceptions of social disorder and collective efficacy were related to lower levels of personal control and higher levels of parenting stress. This parenting stress was positively related to both psychological aggression and physical abuse (Guterman et al., 2009). Kim & Maguire-Jack (2013) sought to further elucidate the relationship between these social processes and maltreatment by adding a mother's participation in her community to the model. The authors found that a mother's involvement in her community was associated with lower levels of psychological aggression, and that a more positive perception of community social control was associated with lower levels of physical assault.

Deciphering the Relative Importance of Structure and Process

Likely due to the small number of studies on social processes, relatively little is known as to whether social processes or structural characteristics of neighborhoods play a larger role in child maltreatment (Deccio 1994; Ernst, 2001; Fromm, 2004; Korbin et al., 1998). The few studies that have examined both structural characteristics and social processes found that risk associated with neighborhood impoverishment was diminished in neighborhoods with

positive social processes (i.e. social integration; Deccio et al., 1994); extent to which neighbors know and rely on each other (Ernst, 2001); extent to which adults and children are linked to each other in a community (Fromm, 2004); connectedness and parenting support (Korbin et al., 1998). This finding has important policy implications – even without resources to considerably reduce poverty within a neighborhood, interventions targeted to connect neighbors with each other might still decrease child maltreatment in significantly disadvantaged communities.

By examining structural characteristics and social processes and their relation to child maltreatment in isolation, the current research is unable to disentangle the relative importance of the structural characteristics and social processes of neighborhoods. Living in a neighborhood with high rates of poverty might increase connections between neighbors because of a higher level of need for support, or it might decrease these connections because of higher levels of stress of individual residents. Additionally, greater reliance on your neighbors might decrease an individual's propensity to move to a different neighborhood, thus decreasing residential instability. Both of these constructs may have an important influence on child maltreatment behaviors, and without including them in the same model, the effect of one may be misestimated. By understanding the relative importance of the demographic characteristics of neighborhoods and the actions and interactions of residents within the neighborhoods, policy and practice changes can be tailored more effectively to prevent maltreatment from occurring.

Summary

In sum, although there has been significant work regarding structural aspects of neighborhoods and some work regarding neighborhood processes and alcohol outlets in child maltreatment, there are few studies that have examined the role neighborhood structural characteristics versus neighborhood processes. Using multilevel modeling and data from 3023 individuals in 195 zip codes, the current study seeks to answer the following research questions: (1) To what extent are neighborhood processes related to physical child abuse? and (2) Do neighborhood processes contribute to physical abuse after controlling for structural characteristics?

Methods

Study Design and Population

A two stage sampling procedure was performed to obtain parents from cities in California. Cities in California with population size between 50,000 and 500,000 in 2000 were eligible to be chosen for the study. Of the 138 eligible cities, 50 were chosen from a randomized list. The first city on the list was chosen for the study, remaining cities were included if they were at least one mile and two cities away from any city already included in the study. In other words, no selected cities were immediately adjacent to each other, but had at least the boundary of one other city between them and another selected city. Here zip codes were used to approximate neighborhood areas.

The second stage involved identifying and recruiting respondents. Parent respondents were selected via listed samples of telephone numbers of likely residents of one of the 50 cities. Eligible parent respondents included those that had at least one child who was 12 years or younger, the child lived with the parent at least 50% of the time, spoke English or Spanish, and lived within the city boundaries of the selected cities. Data were collected from 3,023 parent respondents using computer assisted telephone interviewing (CATI) software with a live interviewer for the majority of the survey. Sensitive questions about abusive and neglectful parenting were asked using interactive voice response technology (IVR, described in more detail below). The survey took 30 minutes, on average, and parents were compensated $25 for their time. Parents provided verbal informed consent. Data were weighted based on race/ethnicity, gender, and household type (single vs. two parent households) in order to be generalizable to 138 cities of this size in California. The response rate for the study was 47.4%.

Addresses were obtained by the survey research firm that conducted the CATI interviews. In order to maintain confidentiality of survey respondents, spatial adaptive masking procedures were used. This process degraded home addresses of respondents. First, address lists in each of the cities were purged of commercial establishments to provide initial geographic survey sample for each of the communities under study. These lists then were used to create maps of all residential households in every city. The reported address location of each survey respondent was moved to a randomly selected location within a circle with radius proportional to an area containing 100 residential households around the original point location. Finally, the original address information was discarded. The survey research firm only provided us with the x, y coordinates of the pseudo-addresses from the spatial adaptive masking process. Based on indicators provided by the survey research firm, 89.6% of respondents were places in the same Census block group as the original point with an the average distance from the original point the pseudo-geocode was located (0.14 miles).

For this study, respondents were aggregated to zip codes. Based on indicators we were provided, respondents lived within 194 zip codes, with an average of 15 respondents per zip code. Zip codes in this study are, on average, 42.9 square miles (sd = 76.6; range = 0.778 – 484.3). We chose zip codes to represent the neighborhood area based on recent research findings that individuals' actual use of geographic space is larger than residential neighborhoods measured using Census tracts or block groups (Crawford, Jilcott Pitts, McGuirt, Keyserling, & Ammerman, 2014). Aggregating respondents to zip codes (as opposed to smaller geographic units) enabled us to examine neighborhood structure and social processes as collective properties of the neighborhood area instead of as parent's perceptions of these processes.

Measures

We used the severe assault scale the Conflict Tactics Scale, Parent-Child version (CTS-PC; Straus, Hamby, Finkelhor, Moore, & Runyan, 1998) to approximate child physical abuse. Parents were asked to respond the number of times they participated in a particular parenting behavior towards a focal child, defined as the child with the most recent birthday if more than one eligible child resided in the household. Four questions assessing behaviors were

included, such as hitting a child with a fist. The frequency count of physical abuse included one additional item (frequency of shaking a child) for parents who identified a focal child under two years old. Response categories included never, 1 to 5 times, 6 to 10 times, and more than 10 times. It is important to note that, in the original CTS-PC scale, Straus and colleagues (1998) included more response options (once, twice, 3–5 times, 6–10 times, 10–20 times, and 20 or more times). The scale included in this survey did not include all of the options, but we used the midpoint of each range (3 for 1 to 5 times, 8 for 6 to 10 times, and 15 for more than 10 times) to calculate frequencies to approximate the guidelines established by Straus et al. (1998). On average, parent respondents engaged in .33 (SD = 1.98, see Table 1) acts of physical abuse per year. Child physical abuse items were asked using IVR where parents used their telephone key pad to respond to questions by an automated system. This procedure was used to reduce concerns related to social desirability reporting.

Level 2 variables include neighborhood structural characteristics, alcohol outlet density, and neighborhood social processes. Neighborhood structural characteristics were created using data from GeoLytics for 2009. GeoLytics is a commercial source that provides population-based estimates of demographic variables in non-Census years (GeoLytics, 2009). Thirteen variables used in previous studies to represent measures of social disorganizations were identified (Coulton et al., 1995; Sampson et al., 1997). These variables included percent of families living in poverty, percent unemployed, percent female-headed households with children, ratio children (0 – 14 years) to adults (25 – 85 years), percent black, proportion of population foreign born who were naturalized, percent Asian/Pacific Islander, proportion of long time residents, proportion of recent movers, percent owner-occupied housing units, proportion of population foreign born who are not citizens, ratio of males (25 +) to females (25 +), and percent Hispanic. To reduce collinearity among the variables, factor analysis was conducted using principal components with varimax rotation. This resulted in four factor scores with eigen values over one. These four factor scores explained 75.62% of the variance. Factor loadings for the factor scores are included in Table 2. The four factors loosely represent concentrated disadvantage (Factor 1), naturalized Asian/Pacific Island residents (API, Factor 2), residential stability (Factor 3), and foreign born, Latino males (Factor 4).

Alcohol outlet density

The density of alcohol outlets was measured using data from the California Department of Alcohol Beverage Control. On-premise outlets were measured by bars, pubs, and restaurants that served alcoholic beverages for consumption on the premises. Off-premise alcohol outlets are those where alcohol is purchased at the establishment but consumed off site. These include liquor stores, convenience stores, and grocery stores. The number of outlets were denominated by area (in square miles) of the zip code. Outlets were geocoded to street addresses at a 99% rate.

Neighborhood social processes

Neighborhood social processes were measured via the survey. Social disorder was measured using four questions. Respondents were asked if (1) heavy car or vehicle traffic; (2) violence, assaults or muggings; (3) gangs; and (4) drugs and drug sales were problems in

their neighborhoods. Response categories included “Big Problem,” “Somewhat a Problem,” and “Not a Problem” and responses were summed to create a disorder scale and averaged across all respondents in a given zip code. Reliability for this scale (as measured by Cronbach’s alpha) was .714. Informal social control and reciprocated exchange were created using modified scales created for the Project for Human Development in Chicago Neighborhoods (Sampson, Raudenbush, & Earls, 1997; Sampson, Morenoff, & Earls 1999). Child-centered informal social control was measured using four items that assessed neighborhood members’ willingness to intervene if (1) neighborhood children were skipping school; (2) children were spray-painting graffiti on a local building; (3) breaking up a fight in the neighborhood; and (4) scold a child for showing disrespect to an adult. Response categories included five choices on a Likert scale ranging from “Very Unlikely” to “Very Likely” Items in the scale were summed and had acceptable reliability ($\alpha = .698$). Reciprocated exchange was measured by three items and refers to the frequency of social exchange by neighbors. Questions about (1) frequency of favors by respondent and neighbors, (2) frequency of get togethers or parties with neighbors, and (3) visit each other’s homes were responded to with “Often” “Sometimes” “Rarely” or “Never.” The summed responses had good reliability as measured by Cronbach’s alpha ($\alpha = .788$). These two measures were summed and averaged across the zip code to create a measure of collective efficacy at the zip code level.

Control Variables

Demographic control variables included child gender, child age, respondent gender, respondent age (recoded into three categories: < 30 years, 31 – 45 years, 46 and older), respondent race/ethnicity (Asian, Black, Hispanic, White, or other/multiple race or ethnicities), household income (< $60,000, $60,001 - $100,000, > $100,000), respondent education (< high school, high school graduate, some college, college degree), and marital status (married or living in a marriage-like relationship, single/widowed/divorced).

Additional psychosocial variables controlled for mental health (e.g., depression and anxiety), personality traits (e.g., impulsivity) and parenting stress. Depression and anxiety were measured using the PRIME-MD short form (Spitzer et al., 1999). Two questions assessed depressive symptoms (feeling down, depressed or hopeless and being bothered by little interest or pleasure in doing things) and three assessed symptoms of anxiety (having a lot of nerves, feeling anxious or on edge; worrying about a lot of different things; and having an anxiety attack). A “yes” response to any item was recoded as depression or anxiety, respectively. Cronbach’s alpha was measured at .65 for depression and .61 for anxiety. Impulsivity was measured using a modified version of Dickman’s Dysfunctional Impulsivity scale (Dickman, 1990). Seven items with yes/no responses asked about the respondents’ level of impulsivity e.g., I often get into trouble because I don’t think before I act) and had an internal consistency score of .73. Parenting stress was measured using two items from the Dimensions of Discipline Inventory by Straus and Fauchier (2011): “I got very angry when this child misbehaved” and “I felt stressed out by this child’s misbehavior.” The scale had acceptable reliability ($\alpha = .67$). Responses to these items (“Never,” “Sometimes.” “Often,” and “Always”) were averaged to create a parenting stress score.

Additional neighborhood variables included the length of time (in years) a respondent had lived in their current neighborhood. Three yes/no measures of participation in neighborhood activities were included (1) neighborhood groups; (2) social groups, including sports team activities; and (3) church groups.

Data Analysis Procedures

Given the nested nature of the data (individuals within zip codes), multilevel models were used to analyze the data. The dependent variable (frequency of physical abuse) was a count variable, requiring a Poisson distribution. The model addressed overdispersion since the variance was greater than would be expected under a Poisson distribution.

Missing data was generally negligible (< 5%) for most study variables. The primary source of missing data was due to survey dropout during the transition from a live interviewer to the (IVR procedures. Assessment of missing data due to this transition found that only statistically significant difference was that U.S. born respondents were more likely to complete the interactive voice response portion of the survey (Kepple et al., 2014). No other differences on the sociodemographic and parenting variables were found between those that completed the IVR and those that did not.

Results

Model 1 presents the results from a model including only the neighborhood structural characteristics. Model 2 provides the results for the social processes. The results of an integrated model that incorporates the neighborhood structural and social process measures, along with individual-level control demographic, psychosocial, and neighborhood participation variables.

Neighborhood Structural Processes

Individuals living in zip codes with high levels of concentrated disadvantage and high percentages of naturalized Asian/Pacific Island residents report using physical abuse more frequently. Living in neighborhoods with high levels of residential stability (e.g., high proportion of longtime residents) was related to less frequent use of physical abuse by parents. In this model, density of on- and off-premise alcohol outlets and the factor score related to foreign born Latino males was not related to use of physical abuse.

Neighborhood Social Processes

In Model 2, high levels of social disorder are associated with more frequent use of physical abuse. Higher levels of collective efficacy are related to less frequent use of physical abuse by parents.

Full Model

When controlling for a variety of individual-level covariates, higher percentages of naturalized and Asian/Pacific Islanders (Factor 2) and higher levels of social disorder are related to more frequent use of physical abuse. High levels of residential stability (Factor 3) and foreign born Latino males (Factor 4) are related to less frequent use of physical abuse.

Individuals living in zip code areas with higher levels of collective efficacy use physical abuse less frequently. Concentrated disadvantage is no longer related to frequency of physical abuse. Neither density of off- or on-premise density of alcohol outlets were related to use of physical abuse. A specificity test where physical abuse was dichotomized (use/never use) found similar neighborhood level relationships (results not shown but available on request).

Boys and older children were physically abused more frequently than girls and younger children. Parents reporting depressive symptoms and higher levels of impulsivity used physical abuse more frequently. High school graduates and those with reporting some college used physical abuse less frequently than parents reporting their education level as less than high school diploma or GED. Higher levels of parenting stress and living more years in the neighborhood area were related to more frequent use of physical abuse.

In order to further examine the disparate findings between individual-level years living in a neighborhood and use of physical abuse, we tested an interaction model that the moderating relationship of social disorder (Level 2) and number of years living in the neighborhood (Level 1). In this interaction model (full results not shown, but are available on request), social disorder is no longer directly related to child physical abuse ($b = 0.064$; $SE = 0.221$; $p = 0.77$) nor is number of years living in the neighborhood ($b = 0.020$; $SE = 0.020$; $p = 0.33$). However, the interaction of social disorder and number of years living in a neighborhood is positively related to physical abuse ($b = 0.038$; $SE = 0.012$; $p = 0.002$). Put more simply, parents who have lived in a neighborhood with high levels of social disorder for a longer length of time report using physical abuse more frequently.

Discussion

The purpose of this study was to examine how neighborhood structural and social processes may independently contribute to use of physical abuse by parents. By doing so, we add to the small but growing literature that seeks to move beyond aggregate demographic characteristics of neighborhoods to understand how social relationships may affect the use of child physical abuse. Overall, we found that both neighborhood structural characteristics and neighborhood social processes were related to child physical abuse, even after controlling for a host of individual level sociodemographic and psychosocial characteristics. Residential stability was negatively related to frequency of child physical abuse, which is consistent with previous research (Freisthler et al., 2006; Coulton et al., 2007; Coulton et al., 1999; Molnar et al., 2003). Higher percentages of foreign born Latinos was negatively related to use of physical abuse similar to findings be Molnar and colleagues (2003). Interestingly, alcohol outlet density in zip codes was not related to child physical abuse once neighborhood social processes were controlled. Thus it appears that alcohol outlets may work through drinking behaviors (Freisthler & Price Wolf, in review) or drinking locations (Freisthler, 2011; Freisthler & Gruenewald, 2013) and not through neighborhood structure. Our study also found that higher percentages of naturalized and Asian/Pacific Island residents was positively related to frequency of child physical abuse.

With regards to neighborhood social processes, those respondents living in areas with higher levels of social disorder use physical abuse more frequently. However, higher levels of neighborhood collective efficacy were related to less frequent use of physical abuse. Previous work combining these processes in a factor score of negative neighborhood perceptions (high disorder, low collective efficacy) found similar results (Guterman et al., 2009). Our findings, however, show that these processes may operate separately and the relationships may be more nuanced. For example, when both social disorder (social process) and concentrated disadvantage (structural) were in the final model, social disorder remained significant but disadvantage did not. Parents living in areas where disorder (including violence and assaults) is high may be socialized to use more violent types of discipline (e.g., hitting a child with a fist) vs nonviolent parenting behaviors, such as time outs. Areas with higher levels of collective efficacy may have more neighborly interactions that do not sanction the use of physical abuse and intervene when these behaviors occur while disorder may inhibit these neighborly social interactions. Our findings suggest that interventions focusing on reducing visible signs of social disorder and improving neighborly interactions may reduce use of physical abuse, even in neighborhoods with high levels of poverty and other forms of disadvantage.

Somewhat paradoxically, the longer a respondent lived in their neighborhood, the more physical abuse he or she used. Given that residential stability at the neighborhood-level is generally protective of physical abuse (Freisthler et al., 2006; Coulton et al., 2007), we assessed this further. We found that residential stability at the individual level may only be protective of child physical abuse for those living in neighborhoods with lower levels of social disorder, supporting the idea that parents living in areas with social disorder may be socialized into violent behaviors, including violent parenting. Although time in a neighborhood is thought to be protective by building relationships, social disorder may prevent this from occurring resulting in more punitive parenting behaviors.

Limitations

Although this study represents an advance in work assessing the effects of neighborhoods on child physical abuse, several limitations should be noted. As a general population telephone survey with a moderate response rate, those without landlines (primarily low income and young adult populations) are less likely to be represented. This lack of representativeness is likely extend to other covariates as well. For example, the sample in this study is more educated than California at large (U.S. Census, 2011). However, most studies of child physical abuse examine populations already involved with the child welfare system (disproportionately low income minority families), allowing this study to assess abusive families in a more diverse population. Causality cannot be determined from this cross-sectional study; thus we cannot say how changing neighborhood conditions may increase or decrease use of child physical abuse. Child physical abuse is assessed via self-reports by parents using the CTS-PC— an assessment of the use of parenting behaviors that would likely be considered as physically abusive if investigated by child welfare caseworkers; however, it is unknown whether an official investigation has occurred. These estimates result in higher rates than found in child welfare system alone (Straus et al., 1998). Although we employed various measures to reduce and minimize social desirability bias, counts of

physical abuse may still be underreported. Our study does not assess whether or not the respondent had been physically abused himself or herself, a possible confounder in the relationship between neighborhood characteristics and child physical abuse. Similarly, parenting expectations and norms, particularly as they relate to use of corporal punishment or physical abuse was also not controlled for in the study, but may be related to use of physical abuse. Additionally, residents cannot ethically be assigned to live in different zip codes. Thus, where people choose to live may be, in part, a function of whether or not they feel they can engage in maladaptive parenting practices. We cannot discount the fact that some of our findings may be related to this process of neighborhood selection. Finally, our study uses zip code as a unit of analysis, a larger geographic area than typically used in studies of neighborhood effects. Future work should examine whether or not these findings remain consistent using other conceptualizations of neighborhood areas.

Policy and Practice Implications

Overall, our finding suggest that programs designed to alleviate and reduce neighborhood disorder may be effective at also reducing child physical abuse. The psychological and social distress of living in such neighborhoods may create conditions where parents use physical abuse to maintain control over a child's behavior (Coulton et al., 2007). Community policing efforts designed at reducing social disorder such as heavy neighborhood traffic or drug sales may allow for more neighborly interactions that reduce abusive parenting. Finally, neighborhood organizing efforts designed to increase "eyes on the street" may serve a dual purpose of reducing crime and disorder and intervening in families through informal measures of social control. A greater emphasis on increasing awareness of abusive parenting, along with the appropriate reporting procedures may be an additional way of encouraging informal social control in at-risk neighborhoods.

Directions for Future Work

The findings presented here are significant because they simultaneously assess neighborhood structural and neighborhood social processes on child physical abuse. Both types of neighborhood characteristics were related to physical abuse; however, as most people do not spend all their time in their residential neighborhood, studies that assess how an individual's movements in and out of different physical places may provide more nuanced information on the role of the environment on child physical abuse. This may be especially important for people who spend most of their lives in a poor disadvantaged neighborhood. Studies that examine how neighborhood interventions, such as the Promise Neighborhood movement, affects abusive parenting could also provide new information in how to intervene in areas with entrenched neighborhood disadvantage.

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References

Ben-Arieh A. Localities, social services and child abuse: The role of community characteristics in social services allocation and child abuse reporting. Children and Youth Services Review. 2010; 32(4):536–543.

Coulton C, Crampton D, Irwin M, Spilbury J, Korbin J. How neighborhoods influence child maltreatment: A review of the literature and alternative pathways. Child Abuse & Neglect. 2007; 31:1117–1142. [PubMed: 18023868]

Coulton C, Korbin J, Su M. Neighborhoods and child maltreatment: a multi-level study. Child Abuse & Neglect. 1999; 23(11):1019–1040. [PubMed: 10604060]

Coulton C, Korbin J, Su M, Chow J. Community Level Factors and Child Maltreatment Rates. Child Development. 1995; 66(5):1262–1276. [PubMed: 7555215]

Deccio G, Horner WC, Wilson D. High-risk neighborhoods and high-risk families: Replication research related to the human ecology of child maltreatment. Journal of Social Services Research. 1994; 18:123–137.

Dickman SJ. Functional & dysfunctional impulsivity: Personality & cognitive correlates. Journal of Personality & Social Psychology. 1990; 58(1):95–102. [PubMed: 2308076]

Drake B, Pandey S. Understanding the relationship between neighborhood poverty and specific types of child maltreatment. Child Abuse & Neglect. 1996; 20:1003–1018. [PubMed: 8958452]

Ernst JS. Mapping child maltreatment: Looking at neighborhoods in a suburban county. Child Welfare. 2000; 79:555–572. [PubMed: 11021347]

Ernst JS. Community-level factors and child maltreatment in a suburban county. Social Work Research. 2001; 25(3):133–142.

Freisthler B. A spatial analysis of social disorganization, alcohol access, and rates of child maltreatment in neighborhoods. Children and Youth Services Review. 2004; 26(9):803–819.

Freisthler B, Gruenewald P. Where the individual meets the ecological: A study of parent drinking patterns, alcohol outlets, and child physical abuse. Alcoholism: Clinical and Experimental Research. 2013; 37:993–1000.

Freisthler B, Gruenewald PJ, Ring L, LaScala EA. An ecological assessment of the population and environmental correlates of childhood accident, assault, and child abuse injuries. Alcoholism: Clinical and Experimental Research. 2008; 32(11):1969–1975.

Freisthler B, Merritt D, LaScala E. Understanding the ecology of child maltreatment: A review of the literature and directions for future research. Child Maltreatment. 2006; 11:263–280. [PubMed: 16816324]

Freisthler B. Alcohol use, drinking venue utilization, and child physical abuse: Results from a pilot study. Journal of Family Violence. 2011; 26(3):185–193. [PubMed: 21475714]

Freisthler B, Price Wolf J. Does alcohol outlet density moderate the relationship between drinking patterns and child physical abuse?. in review

Freisthler B, Gruenewald PJ, Remer LG, Lery B, Needell B. Exploring the spatial dynamics of alcohol outlets and Child Protective Services referrals, substantiations, and foster care entries. Child Maltreatment. 2007; 12:114–124. [PubMed: 17446565]

Freisthler B, Midanik LT, Gruenewald PJ. Alcohol outlets and child physical abuse and neglect: Applying routine activities theory to the study of child maltreatment. Journal of Studies on Alcohol. 2004; 65:586–592. [PubMed: 15536767]

Freisthler B, Needell B, Gruenewald PJ. Is the physical availability of alcohol and illicit drugs related to neighborhood rates of child maltreatment? Child Abuse and Neglect. 2005; 29(9):1049–1060. [PubMed: 16168479]

Freisthler B, Weiss RE. Using Bayesian space-time models to understand the substance use environment and risk for being referred to Child Protective Services. Substance Use & Misuse Special Issue. 2008; 43(2):239–251.

Fromm, S. The Processes that Moderate the Effect of Community Structural Factors on Neighborhood Child Maltreatment Rates. Raleigh, NC: North Carolina State University; 2004. Unpublished Dissertation

Garbarino J, Crouter A. Defining the community context for parent-child relations: the correlates of child maltreatment. Child Development. 1978; 49(3):604–616. [PubMed: 710189]

Garbarino J, Sherman D. High-risk neighborhoods and high-risk families: the human ecology of child maltreatment. Child Development. 1980; 51(1):188–198. [PubMed: 7363733]

GeoLytics. Estimates Professional 2009. East Brunswick, NJ: GeoLytics, Inc; 2009.

Gillham B, Tanner G, Cheyne B, Freeman I, Rooney M, Lambie A. Unemployment rates, single parent density, and indices of child poverty: Their relationship to different categories of child abuse and neglect. Child Abuse & Neglect. 1998; 22:79–90. [PubMed: 9504211]

Guterman NB, Lee SJ, Taylor CA, Rathouz P. Parental perceptions of neighborhood processes, stress, personal control, and risk for physical child abuse and neglect. Child Abuse and Neglect. 2009; 33(12):897–906. [PubMed: 19900705]

Irwin, M. The impact of race and neighborhood on child maltreatment: a multi-level discrete time hazard analysis. Cleveland, OH: Unpublished Dissertation, Case Western Reserve University; 2009.

Kepple NJ, Freisthler B, Johnson-Motoyama M. Bias in child maltreatment self-reports using Interactive Voice Response. Child Abuse & Neglect. 2014; 38:1694–1705. [PubMed: 24819534]

Kim B, Maguire-Jack K. Community interaction and child maltreatment. Child Abuse and Neglect. 2013

Kim, JS. Neighborhood effects on the etiology of child maltreatment: a multi-level study. Austin, TX: Unpublished Dissertation, University of Texas at Austin; 2004.

Korbin JE, Coulton CJ, Chard S, Platt-Houston C, Su M. Impoverishment and child maltreatment in African American and European American neighborhoods. Development and Psychopathology. 1998; 10(02):215–233. [PubMed: 9635222]

Merritt DH. Child abuse potential: Correlates with child maltreatment rates and structural measures of neighborhoods. Children and Youth Services Review. 2009; 31(8):927–934.

Molnar BE, Buka SL, Brennan RT, Holton JK, Earls F. A multi-level study of neighborhoods and parent-to-child physical aggression: Results from the project on human development in Chicago neighborhoods. Child Maltreatment. 2003; 8:84–97. [PubMed: 12735711]

Morton C. The moderating effect of substance abuse service accessibility on the relationship between child maltreatment and neighborhood alcohol availability. Children and Youth Services Review. 2013; 35:1933–1940. [PubMed: 24436505]

Morton CM, Simmel C, Peterson NA. Neighborhood alcohol outlet density and rates of child abuse and neglect: Moderating effects of access to substance abuse services. Child Abuse & Neglect. 2014

Paulsen DJ. No safe place: Assessing spatial patterns of child maltreatment victimization. Journal of Aggression, Maltreatment & Trauma. 2003; 8:63–85.

Sampson RJ, Morenoff JD, Earls F. Beyond social capital: Spatial dynamics of collective efficacy for children. American Sociological Review. 1999; 64:633–660.

Sampson RJ, Morenoff JD, Gannon-Rowley T. Assessing neighborhood effects: Social processes and new directions in research. Annual Review of Sociology. 2002; 28:443–478.

Sampson RJ, Raudenbush SW, Earls F. Neighborhoods and violent crime: A multilevel study of collective efficacy. Science. 1997; 277:918–924. [PubMed: 9252316]

Spearly JL, Lauderdale M. Community characteristics and ethnicity in the prediction of child maltreatment rates. Child Abuse and Neglect. 1983; 7:91–105. [PubMed: 6684981]

Spitzer RL, Kroenke K, Williams JBW, et al. Validation and utility of a self-report version of PRIME-MD: The PHQ Primary Care Study. JAMA. 1999; 282:1737–1744. [PubMed: 10568646]

Straus MA, Hamby SL, Finkelhor D, Moore DW, Runyan D. Identification of child maltreatment with the parent-child conflict tactics scales: Development and psychometric data for a national sample of american parents. Child Abuse & Neglect. 1998; 22(4):249–270. [PubMed: 9589178]

Straus, MA.; Fauchier, A. Manual for the Dimensions of Discipline Inventory (DDI). Durham, NH: Family Research Laboratory, University of New Hampshire; 2011. http://pubpages.unh.edu/~mas2/

U.S. Census Bureau. In Statistical Abstract of the United States: 2012. 131st Edition. Washington, DC: 2011. Table 233: Educational Attainment by State, 1990 – 2009. http://www.census.gov/compendia/statab/2012/tables/12s0233.pdf.

Vinson, T.; Baldry, E. The spatial clustering of child maltreatment: Are micro-social environments involved? Trends and Issues in Crime and Criminal Justice. Canberra: Australian Institute of Criminology; 1999.

Vinson T, Baldry E, Hargreaves J. Neighbourhoods, networks, and child abuse. The British Journal of Social Work. 26(4):523–543.

Weissman AM, Jogerst GJ, Dawson JD. Community characteristics associated with child abuse in Iowa. 2003

Wildeman C, Emanuel N, Leventhal J, Putnam-Hornstein E, Waldfogel J, Lee H. The prevalence of confirmed maltreatment among American children, 2004–2011. JAMA Pediatrics. 2014; 168(8): 706–713. PMID: 24887073. [PubMed: 24887073]

Young G, Gately T. Neighborhood impoverishment and child maltreatment. Journal of Family Issues. 1988; 9:240–254.

Zielinski DS, Bradshaw CP. Ecological influences on the sequelae of child maltreatment: A review of the literature. Child Maltreatment. 2006; 11:49–62. [PubMed: 16382091]

Table 1

Descriptive Statistics of Study Variables

Variable Name	Weighted % or $\bar{x}$ (sd)	Sample n
Frequency of Child Physical Abuse	0.33 (1.98)	2770
Level 1: Individual		
Focal child gender		
Male	50.4	1495
Female	49.6	1414
Focal child age, in years	6.68 (3.6)	2914
Respondent gender		
Male	47.9	1050
Female	52.1	1973
Age		
18 – 30 years	14.1	404
31 – 45 years	64.7	2034
46 years and older	21.1	585
Marital Status		
Married or cohabiting	76.7	2673
Single/divorced/widowed	23.3	350
Race/Ethnicity		
Non-Hispanic White	50.5	1753
Non-Hispanic Black	5.0	111
Hispanic	29.4	733
Asian	10.0	236
Multi-Racial/Other	5.1	176
Income		
≤ $60,000	38.5	989
$60,001 - $100,000	26.1	862
$100,001 +	31.4	1057
Depressive Symptoms		
Yes	19.1	504
No	80.9	2480
Anxiety Symptoms		
Yes	47.4	1401
No	52.6	1605
Impulsivity Level	0.78 (1.3)	2975
Education Level		
Less than high school	6.2	150
High school graduate	13.9	387
Some college	24.2	680
College graduate	55.7	1804
Parenting Stress	3.93 (1.3)	2984

Variable Name	Weighted % or $\bar{x}$ (sd)	Sample n
Neighborhood Social Processes		
Social Disorder	5.08 (1.57)	2888
Informal Social Control	16.12 (3.14)	2753
Reciprocated Exchange	8.34 (2.39)	3010
Number of years living in the neighborhood	8.45 (6.95)	3023
Participate in block or neighborhood groups		
Yes	29.0	884
No	71.0	2138
Participate in social and fraternal groups, sports clubs		
Yes	42.6	1344
No	57.3	1678
Participate in church groups		
Yes	50.1	1530
No	49.9	1492
Level 2: Zip Code (Neighborhood Structure)		
Factor 1 – Concentrated Disadvantage	0.00 (1.00)	194
Factor 2 – Naturalized Asian/Pacific Islanders	0.00 (1.00)	194
Factor 3 – Residential Stability	0.00 (1.00)	194
Factor 4 – Foreign Born, Latino Males	0.00 (1.00)	194
Off-premise outlets per area	2.93 (2.98)	194
On-premise outlets per area	5.04 (9.36)	194

Table 2

Factor Loadings of Neighborhood Structure using Principle Components Analysis with Varimax Rotation

	Factor 1	Factor 2	Factor 3	Factor 4
Percent families living in poverty	**0.944**	0.000	−0.051	0.102
Percent unemployed	**0.820**	−0.017	−0.079	0.114
Percent female-headed households with children	**0.922**	−0.057	−0.050	−0.078
Ratio children (0 – 14 years) to Adults (25 – 85 years)	**0.768**	−0.127	−0.109	0.284
Percent Black	**0.634**	0.275	−0.020	−0.366
Proportion of population foreign born, naturalized	−0.078	**0.875**	0.249	0.225
Percent Asian/Pacific Islander	−0.007	**0.922**	−0.045	−0.135
Proportion of long time residents	0.100	0.138	**0.781**	−0.098
Proportion of recent movers	0.262	−0.051	**−0.878**	0.000
Percent owner-occupied housing units	−0.544	−0.121	**0.456**	−0.092
Proportion of population foreign born, not a citizen	0.509	0.465	0.049	**0.623**
Ratio of males (25 +) to females (25 +)	−0.054	0.012	−0.206	**0.705**
Percent Hispanic	0.625	−0.043	0.226	**0.664**

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Table 3

Multilevel Poisson Model for Neighborhood Structure, Neighborhood Social Process, and Frequency of Physical Abuse (n = 2809)

	Model 1			Model 2			Model 3		
Variable Name	**B**	**SE**	**p**	**B**	**SE**	**p**	**B**	**SE**	**p**
Intercept	−0.780	0.122	***	−0.745	0.123	***	−3.605	0.507	***
Level 1: Individual									
Male child							0.696	0.148	***
Focal child age, in years							0.082	0.023	***
Male							0.253	0.144	
Age (reference (18 – 30 years)									
31 – 45 years							−0.008	0.277	
46 years and older							−0.242	0.328	
Married or cohabiting							−0.056	0.224	
Race/Ethnicity (reference: Non-Hispanic White)									
Non-Hispanic Black							0.225	0.376	
Hispanic							0.237	0.193	
Asian							0.282	0.261	
Multi-Racial/Other							−0.313	0.329	
Income (reference: ≤ $60,000)									
$60,001 - $100,000							0.201	0.187	
$100,001 +							0.011	0.206	
Depressive Symptoms							0.495	0.193	*
Anxiety Symptoms							−0.172	0.156	
Impulsivity Level							0.165	0.040	***
Education Level (reference: less than high school)									
High school graduate							−0.451	0.391	**
Some college							−0.417	0.353	*
College graduate							0.082	0.340	
Parenting Stress							0.287	0.048	***
Number of years living in the neighborhood							0.032	0.008	***
Participate in block or neighborhood groups							−0.270	0.161	
Participate in social and fraternal groups, sports clubs							0.089	0.150	

	Model 1			Model 2			Model 3		
Variable Name	**B**	**SE**	**p**	**B**	**SE**	**p**	**B**	**SE**	**p**
Participate in church groups							−0.007	0.140	
Level 2: Zip Code									
Neighborhood Structure									
Factor 1 – Concentrated Disadvantage	0.504	0.160	**				0.243	0.203	
Factor 2 – Naturalized Asian/Pacific Islanders	0.232	0.114	*				0.286	0.126	*
Factor 3 – Residential Stability	−0.436	0.163	**				−0.417	0.137	**
Factor 4 – Foreign Born, Latino Males	−0.197	0.127					−0.321	0.128	*
Off-premise outlets per area	−0.044	0.063					−0.011	0.059	
On-premise outlets per area	0.014	0.020					−0.013	0.020	
Neighborhood Social Processes									
Social Disorder				0.626	0.117	***	0.548	0.166	***
Collective Efficacy				−0.234	0.070	***	−0.159	0.078	*

* p < .05,

** p < .01,

*** p < .001

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