Neighborhood Incivilities: Effects of Disorder on Fear of Crime, Perceived Risk of Victimization, and Constrained Social Behavior

A Case Study of Flint, Michigan

A Thesis Proposal Presented to the Department of Sociology at the University of Michigan

By Karina Lopez
lopezkar@umich.edu

April, 2016

Dr. Jeffrey Morenoff, Professor of Sociology and Director of the Population Studies Center

Honors Faculty Advisor

Dr. Sarah Burgard, Associate Professor and Director of Graduate Studies in Sociology

Honors Coordinator

ABSTRACT

How are perceptions of neighborhood disorder by Flint, Michigan residents related to these residents' fear of crime, and how do those perceptions influence their movement within their urban space? I propose that residents who perceive high disorder in their neighborhood will be more likely to express high levels of fear of crime and that residents expressing high fear of crime will be more likely to avoid certain areas of the city, limit their activity, spend less time away from home, or not go out alone after dark. I collected and analyzed survey data from 125 Flint residents on the topics of fear of crime, neighborhood disorder and constrained social behavior as well as data from systematic social observation of nineteen city blocks within the city of Flint. I found that perceptions of disorder were indirectly linked to fear of crime, mediated through perceived risk of victimization. I also found that residents were more likely to change their behavior if they expressed high levels of fear but that behavioral change was much more likely if residents expressed high levels of both fear and perceived risk of victimization. These results confirm and extend upon known associations between perceptions of disorder, fear of crime and constrained social behavior.

ACKNOWLEDGEMENTS

I would first like to sincerely thank my advisor, Dr. Jeffrey Morenoff, for devoting countless hours to guiding me throughout this process. Thank you for your encouragement, your support, and for challenging me to become a better sociological thinker. This would not have been possible without your mentorship.

I would also like to thank both Karin Martin and Sarah Burgard. Thank you both for making yourselves available to answer questions and for motivating and uplifting me when the process seemed overwhelming. Without your help and the help of my colleagues in the Honors cohort I would surely have gone insane. To my colleague and dear friend Ben Frey, I will miss our late nights working together in the library. I can't wait to see where life takes us next.

I would next like to thank the University of Michigan Sociology Department, as well as the Graf family and the generous donations of Honors alumnus to the LSA Honors Program for their support through the provision of funding which made this research possible. Special thanks to both P.J. McGann and Alex Murphy for offering suggestions, support and friendship over the past two years. Thanks also to Shoshana Shapiro, I honestly could not have asked for a better graduate student mentor and friend.

Finally, I am deeply grateful for the love and support that I have received from my family and friends. To my mentor Jessica, thank you for sharing your wisdom with me, and teaching me the language of the heart. To my mother and father, thank you for teaching me to value hard work and education, for never losing faith in me and for making this accomplishment possible. To my partner, thank you for being a good listener, a supportive friend, and an incomparable life partner. You continue to inspire me to be a better person everyday.

To everyone I say again, *thank you.*

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INTRODUCTION

During the summer of 2014 in the city of Flint, Michigan a person could drive down Miller Road and at any given intersection expect to be approached by at least one homeless person asking for spare change. The homelessness problem grew to be such a concern that on October 20th, 2014 an ordinance[1] was presented to the Flint Township Board to make it a ticketable offence for people to stop traffic to give money to the panhandlers and beggars. The ordinance would also limit soliciting to those individuals who had acquired a permit. There was concern however amongst city officials that passing this ordinance would unintentionally raise crime by forcing panhandlers desperate for money down a different, more serious path of crime. Despite this concern the begging and soliciting committee passed the city ordinance after deciding that ensuring that Flint residents felt safe was worth the risk of rising crime. Residents do not like being approached by unpredictable, potentially dangerous strangers while walking down the street or pulling up to intersections. They want to feel safe when they are in public spaces, and when they do not there are serious implications.

The problems of homelessness and panhandling fall under a category referred to as disorder, or incivility, that is thought to be a major factor in fueling fear of crime. Since the 1960's, the topics of neighborhood disorder and fear of crime have become increasingly salient to criminologists, urban sociologists and policy planners. In a study on disorder and decline in American neighborhoods Skogan (1990) established a causal link between disorder and fear of crime, as well as a link between disorder and serious criminal activity. The evidence suggested that disorder could work in communities to stimulate rapid neighborhood decline because signs of disorder, such as litter, broken out windows, public intoxication, and panhandling, are visual

[1] See http://www.flinttownship.org/Portals/68/2015%20all/TRAFFIC%20SAFETY.pdf to read the ordinance in its original text.

cues that symbolize a breakdown in the local social order (Skogan 1986a). These signs of disorder signal to the observer than the environment is not cared for and therefore that it may be unpredictable and dangerous. Thus the observer perceives they are in danger of being victimized by crime and exhibits heightened levels of fear.

The major implication of Skogan's study is that disorder can ignite a cycle in which heightened levels of fear lead to ecological conditions that further increase fear, disorder, and possibly the actual threat of crime. The presumed reason is that when an individual observes signs of disorder they perceive they are at a higher risk of being victimized by crime and thus experience more fear. Other studies have found that elevated levels of fear lead to increased constrained social behavior such as avoiding certain areas of the city or withdrawing from community spaces (Liska, Sanchirico, and Reed 1988; Rengifo and Bolton 2012). If fewer residents are occupying public spaces within their neighborhoods it leaves those spaces open for more disorder and crime to take place, thus further fueling resident fear. Although later studies have asserted that the causal link between perceived disorder and crime may have been overstated (see Sampson & Raudenbush 1999), in the present study I set aside the usual question of whether or not disorder causes crime and instead examine the relationship between both perceived and observed disorder, fear of crime, and constrained social behavior in the neighborhood decline feedback process.

Most research on the topic of fear of crime focuses either on the link between disorder and fear or the link between fear and constrained social behavior. Few studies bring these separate lines of inquiry together within one line of questioning. Are people who see more signs of disorder in their neighborhoods generally more fearful of crime? Are people who live in neighborhoods that objectively have more signs of disorder generally more fearful of crime? Are

the people who are more fearful of crime also more likely to change their behavior by avoiding certain areas of the city, limiting their activity, spending less time away from home, or not going out alone after dark? Answering these questions is essential to improve our understanding of the overall neighborhood decline cycle.

Using Flint, Michigan as a case study I seek to examine the association between neighborhood disorder, fear of crime, and withdrawal from community spaces by asking the following question: How are perceptions of neighborhood disorder by Flint, Michigan residents related to these residents' fear of crime, and how do those perceptions influence their movement within their urban space?

LITERATURE REVIEW

Disorder and Fear of Crime

Incivility is a blanket term that encompasses "signs of danger," "broken windows," "disorder," "cues to danger" etc. The most frequent term used to classify these characteristics is Hunter's proposed concept of 'incivility' (Ferraro et al. 1992). Throughout this study I refer to both incivilities and disorder and use these terms synonymously, however, I choose to define my study variable as 'disorder' rather than 'incivility' because I believe the term disorder more clearly captures the items of interest in this study. Still, throughout the literature review I will use the term 'incivility' to preserve the language used by incivility theorists.

There are two types of incivility discussed: physical and social incivility. Physical incivility refers to disorderly physical characteristics, which can include but are not limited to: litter, graffiti, broken windows, boarded up buildings, abandoned cars, and signs of vandalism. Social incivility refers to public intoxication, aggressive panhandling, prostitution, and teenagers

hanging out in the streets. In previous studies, these are commonly reduced to five categories: noisy neighbors, teenagers hanging on streets, drunks or prostitutes in streets, litter laying about, vandalism or graffiti (Skogan 1990; Markowitz et al. 2001).

One difficulty with conceptualizing incivility is that many forms of incivility are actually crimes, just less serious ones. For example, public intoxication and prostitution, which are frequently considered measurements of disorder, are also actual crimes. In this sense disorder and crime may just be different manifestations of the same phenomenon (Sampson and Raudenbush 1999). However, even those forms of incivility that are actual crimes are typically only classified as misdemeanors or petty offenses. Those forms of incivility are usually only punishable by fines rather than jail or prison time (Kelling et al. 1996), so although they are criminal in nature, they are not the type of crime that is most generally feared when fear is produced by these signs of disorder.

Research on disorder and fear of crime is based in two main theoretical perspectives: social disorganization theory, and incivility theory. Social disorganization theory, one of the most prominent of the criminological theories, originated in Shaw and McKay's (1942) research on spatial distribution of crime in Chicago (Markowitz, Bellair, Liska, and Liu 2001). Shaw and McKay were concerned with why crime rates were higher in some areas of the city compared to other areas. They explored the neighborhood characteristics of those areas and discovered patterns in ecological factors that were influencing crime rates. The key finding of their work was that crime was not spread evenly throughout cities, but was concentrated in specific neighborhoods, and those neighborhoods contained high levels of disorganization. Social disorganization is defined as: "the inability of a community to realize the common values of its residents and maintain effective social control" (Bursik 1988). Disorganization refers to qualities

such as high poverty, residential instability, lack of cohesion, and disorder, amongst other factors, which result in an inability of a neighborhood to informally control deviant behaviors and maintain order.

Although social disorganization theory has traditionally focused solely on neighborhood structural effects on crime, some studies have sought to extend this theory to the study of fear of crime as well (Markowitz et al. 2001; Abdullah, Marzbali, Woolley, Bahauddin, and Maliki 2014). As social disorganization theory was applied to the study of fear of crime, a link was found between incivilities and resident fear. Those living in neighborhoods with the highest levels of disorganization were those who tended to have the highest levels of fear. Although social disorganization theory focuses on uncovering the relationship between a variety of neighborhood characteristics, neighborhood cohesion, stability and disorder to name a few, other theories such as the incivility theory or Kelling and Wilson's (1982) "broken windows" theory[2] isolate disorder as a precursor of fear of crime. Incivility theory claims that disorder signals to the observer that there is a lack of effective social control in an area, which results in resident fear of crime.

One of the originators of the incivility theory was Skogan (1990) who focused on incivilities' role in neighborhood change and urban decay. In a study of disorder and neighborhood decline Skogan and Lewis (1979) found that personal experience with crime, whether directly through victimization or indirectly through word of mouth, could not completely explain the high levels of fear of crime in cities. Fear levels did not match the distribution of crime such that fear would be high in areas with low crime and vice versa (Skogan and Lewis 1979). Hunter (1978) observed that fear of crime is more prevalent than

[2] Wilson's broken windows theory is a well-known criminological theory that focuses on the impact of vandalism and urban disorder on further crime.

actual criminal victimization and concluded that fear of crime is a problem that needs to be studied for its own sake and not solely as a byproduct of actual crime. He proposed that fear of crime is produced by environmental factors that have a greater influence on resident fear than crime itself does, and that those factors include social and physical disorder such as panhandling, graffiti, litter, etc. Disorder conveys to residents that an area is not cared for, that there is a lack of effective social control in that area and that because officials are unable to deal with minor problems of disorder they are likely to be ineffective against more serious crimes (LaGrange, Ferraro, and Supanic 1992). If incivilities appear and are not taken care of or erased, then their simple presence stimulates more disorder and allows for the multiplication of incivilities because incivilities symbolize abandonment and demoralization (Skogan 1990). Conversely, neighborhoods free from disorder communicate that they have high levels of social control and result in less fear of crime (Hunter 1978).

One of the most popular manifestations of the incivility theory is the broken windows theory, which gets its name from a 1982 Kelling and Wilson article, appropriately titled "Broken Windows". They argue that if a window is broken and left unrepaired in a building, soon all of the windows would be broken because nobody cared enough to fix the first broken window, thus breaking more is cost-free. The main argument of the broken windows theory is that disorder results in a breakdown of community informal social control, which exacerbates crime and fear of crime. In the article, Kelling and Wilson (1982) introduced a study conducted by the Police Foundation in Washington D.C. that increased the number of foot-patrolled neighborhoods in an effort to reduce crime. Although this initiative failed to reduce crime (at least as reflected in the police statistics), it reduced fear because, according to the foot-patrol project, residents believed that crime rates had gone down and perceived that their neighborhoods were safer despite the

fact that statistically speaking they were not. Having officers on foot patrol in neighborhoods made the residents feel protected from social disorder, and feel as though problems of physical disorder would be minimized due to the increased social control.

There is empirical evidence to support a positive relationship between incivility and fear of crime, however there is disagreement about whether this relationship is direct, or is indirectly mediated by perceived risk of victimization. Perceived risk of victimization is an individual's cognitive assessment of their risk of being victimized by crime. LaGrange and colleagues (1992) found that resident perceptions of incivilities did not have a strong direct effect on fear of crime, yet had a large direct effect on perceived risk, which in turn had a powerful effect on fear. So although the effect of incivilities on fear of crime is almost entirely mediated by risk, incivilities are still predictive of fear. "Incivilities are fear inducing only if they first elevate perceptions of risk" (LaGrange et al. 1992: 326). This differs from other findings that, although perceived disorder is mediated by perceived risk, it continues to be a significant independent predictor of fear (Gainey, Alper, and Chappel 2010). Abdullah and colleagues (2014) found there to be both a direct and indirect effect of disorder on fear of crime, and a number of other studies have found that incivility indicators have direct and positive relationships with fear of crime (Kelling and Wilson 1982; Skogan 1990; Markowitz et al. 2001).

One important factor to consider when modeling incivility is that in some neighborhoods where disorder is a big problem, disorder may come to be expected and be tolerated more and is therefore less likely to trigger fear. The implication is that disorder may have nonlinear effects on fear such that once a certain level of disorder is reached in a neighborhood additional increases may be less likely to trigger higher levels of fear. Additionally, various levels of disorder are going to affect different communities in different ways (Hunter 1978; Skogan 1990). For

example, a resident living in a neighborhood that is objectively high in disorder may not perceive high levels of disorder in their neighborhood because they are desensitized to it. On the other hand, one boarded up house in a neighborhood with otherwise no disorder is likely to be very noticeable. Thus it is beneficial to measure and compare both objective assessments of disorder that are systematic and reliable, in addition to residents' subjective perceptions of disorder. We can use observations of the objective and subjective to understand the relationship between the two and discover the level of disorder individuals within a given community find socially acceptable before they react in fear or modify their social behavior.

Constrained Social Behavior

Introduced by Skogan and Maxfield (1981) vulnerability theory is based on the idea that an individual's personal characteristics (e.g. age, sex, income, race) in combination with neighborhood conditions (e.g. disorder) may affect residents' fear of crime. This theory seeks to explain the relationship between crime, disorder, fear of crime, and perceived risk of victimization. It addresses the paradox of why groups less likely to be victimized, such as the elderly, tend to have higher levels of fear than those more likely to be victimized, such as younger people. Similarly, this theory offers an explanation as to why people who have never been victimized by crime and do not have direct experience with crime still report high levels of fear. Vulnerability theory suggests that fear is not a direct function of crime. Instead, people's perceptions of crime are related to feeling unsafe in public places due to their assessment of personal risk of victimization (Abdullah et al. 2014). Skogan and Maxfield found that resident fear was higher in areas where the residents perceived big problems of disorder and one notable consequence of fear of crime is withdrawal from public spaces (1981). When people feel

vulnerable and unsafe in public spaces they express elevated levels of fear of crime and are more likely to constrain their social behavior to guard themselves against victimization (Skogan 1986a).

Research on constrained social behavior in response to fear of crime has focused largely on various coping strategies, including modification of public activity space (Rengifo and Bolton 2012). Fear of crime causes people to adapt, which may shape the decisions they make about how they navigate through the urban space. While previous studies have shown links between heightened fear of local crime and constrained social behavior, due to inconsistencies with measurements of fear and differences in measurements of behavioral modifications (e.g. measuring either preventative, adaptive or avoidant behavior) the evidence supporting a relationship between fear of crime and behavioral modification is muddy (Liska et al. 1988; Rengifo and Bolton 2012). Most studies focused on links between specific dimensions of fear (e.g. fear of being robbed, fear of having your house broken into) and narrowly specified reactions such as installing alarms or getting a watchdog. Few studies examined the link between fear of crime and constrained social behavior more broadly.

One study that did analyze fear and social behavior more broadly found that fear of crime was negatively associated with expansive activity spaces but only in regards to routine activity (Rengifo and Bolton 2012). High levels of fear of crime were linked to reduction of routine activities such as visiting bars or clubs at night, yet were not linked to reduction of compulsory activity, such as time spent away during the day, or employment status. Though this study examined constrained social behavior more broadly than previous studies, it still limited constrained social behavior to two measures. These results suggest the need for future studies to

make a distinction between compulsory and routine activities, and to incorporate measures of preventative, adaptive and avoidant behavior.

Empirical evidence (Liska et al. 1988; Markowitz et al. 2001; Rengifo and Bolton 2012) also suggests a reciprocal relationship between constrained social behavior and fear of crime in which constrained social behavior in response to fear of crime results in increased fear because neighborhoods are then perceived as even more dangerous due to social isolation and decreased involvement with neighborhood activities. Areas of high perceived disorder are the areas that are most feared and subject to behavioral avoidance, which instills still more fear and presents more opportunities for creating of crime and disorder. Fearful people avoid public spaces and ties with their neighbors and therefore are less likely to engage in activities that increase informal social control (Gainey et al. 2010: 121). Similarly, Liska and colleagues found that fear increased constrained behavior which in return increased fear resulting in an "escalating causal loop" (1988: 835). In general, findings support the theory that fear of crime leads to constrained social behavior in public spaces, which in turn increases fear of crime.

The overlap between these three theories (social disorganization, incivilities and vulnerability) is evident. Neighborhood disorganization creates an environment in which disorder is created and flourishes. Residents observe signs of disorder and assess the danger, which is influenced by their assessment of personal risk of victimization. This results in resident fear of crime and potentially constrained social behavior, which feed back into the entire cycle. Although some studies (Abdullah et al. 2014) assess fear of crime by combining all three theories, in this study I focus primarily on incivility theory because this study only attempts to draw conclusions about disorder's association with fear and not the effects of other

neighborhood characteristics such as residential instability, lack of cohesion or social dynamics. I utilize incivility theory by employing Ferraro's (1995) risk interpretation model.

The Risk Interpretation Model

The risk interpretation model is a theoretical framework proposed by Ferraro (1995) to approach and untangle the relationship between micro-level and macro-level predictors of fear. The first distinction this model makes is that "fear of crime" and "victimization risk" cannot be used synonymously and that many earlier studies failed to properly make this distinction. Ferraro defines fear of crime as, "an emotional response of dread or anxiety to crime or symbols that a person associates with crime" (Ferraro 1995). On the other hand risk is a cognitive judgment resulting from an individual's assessment of crime rates and probability of victimization (Ferraro 1995). By definition, risk involves exposure to the chance of loss or injury (Ferraro 1995). While actual knowledge of risk within any given situation is unattainable, because a person is making a cognitive assessment of an event that has not yet transpired and may not transpire, an individual can only assess their victimization risk from given information and judgment of environmental cues (Ferraro 1995).

Ferraro (1995) argues that fear of crime and perceived risk of victimization cannot be used interchangeably because an elevated perception of risk does not necessarily lead to heightened fear. Perception of risk involves judgment, but fear of crime is an emotional response. An individual may assess their surroundings and judge that they are at risk of being victimized by a crime, yet not have the emotional response of being afraid of that crime. Similarly, fear is a somewhat physiological and sometimes irrational emotional response such that an individual may be cognitively aware that they are not at risk of being victimized by a

crime, yet they might experience fear regardless. Moreover, fear is only one of a number of possible reactions to the cognitive judgment of risk assessment. Other actions Ferraro lists are, constrained behavior, political activism, relocation and other avoidant behavior (Ferraro 1995). For this reason the risk interpretation model makes the distinction between these two concepts.

The risk interpretation model centers on symbolic interactionist theory, a theoretical framework that examines the subjective way in which individuals interpret and respond to objects, situations, behaviors and other things that they encounter in the world. "Symbolic interactionism is one theoretical perspective, though not the only one, which may be the most illuminating for understanding the role that perceptions of crime risk play in affecting fear" (Ferraro 1995:8). In regards to incivility, this theory helps us understand how individuals interpret information in their environment and then appraise their risk of victimization. Risk interpretation takes place in a situational context (Ferraro 1995). The situation is made up of the objective conditions that an individual finds himself or herself in, and the individual's interpretation of these objective conditions make for their subjective experience within that situation.

To summarize, the risk interpretation model works to bridge a gap between macro-level factors and micro-level factors in the analysis of fear of crime. Macro-level factors include environmental conditions of neighborhoods such as disorder, whereas micro-level factors are the individual ways people interpret those conditions to assess their risk of being victimized by crime. Ferraro theorizes (1995) that disorder communicates to an individual that they are at risk of being victimized by crime, the individual perceives they are at risk and experiences heightened levels of fear. Moreover, a fear response often includes withdrawing from public

spaces, which creates more opportunities for further disorder to occur thus feeding back into the cycle and contributing to the decline of the neighborhood (Ferraro 1995).

Ferraro (1995) notes twenty studies that use perceived risk and fear of crime as separate measurements (e.g. Lewis & Maxfield 1980; LaGrange & Ferraro 1989) but none of those twenty incorporate measures of incivilities. I found few studies that fully operationalize the risk interpretation model using measurement of incivilities, perceived risk and fear of crime (e.g. Gainey et al. 2010; Rengifo and Bolton 2012; Abdullah et al. 2014) and almost no studies that operationalized the risk interpretation model while including measurements of constrained social behavior. Of the two studies I found to include measurements of constrained social behavior the first (Rengifo and Bolton 2012) used very broad measurements of social behavior, specifying only between compulsory and voluntary activity. The second (Ferraro 1995) used a variety of survey questions to measure both avoidant and defensive behavior, yet these two indexes were summed in the analysis and used only as indicators for the single construct of constrained behavior.

I seek to extend the current literature by operationalizing the risk interpretation model and incorporating separate measures of preventative, adaptive and avoidant social behavior. This study will provide the scientific community with otherwise limited information for understanding how individuals interpret incivility within their neighborhoods, and how these interpretations are related to perceived risk of victimization, fear of crime and constrained social behavior. Furthermore by limiting my research specifically to Flint, Michigan and using a localized sample I am able to measure disorder not only subjectively through assessment of resident perception, but also objectively through systematic social observation which will allow me to draw comparisons between the two measures. Therefore this study asks the following:

How are perceptions of neighborhood incivility by Flint, Michigan residents related to resident fear of crime, and how do those perceptions influence their movement within the urban space?

METHODOLOGY AND MEASURES

Overview

This study employs a mixed-methods approach combining observational and face-to-face survey data. Survey data consist of responses from 125 residents within nineteen selected census city blocks in Flint, Michigan. City blocks were selected through a stratified probability sampling method and I traveled to all populated households located on a given city block within the sample. Then individual respondents 18 years of age or older were chosen randomly from among all present households members in a given household within those blocks. This survey was conducted in September 2015 to January 2016 and measures respondents' fear of crime, perceived risk of victimization, perception of neighborhood disorder, and social behavior. Observational data were collected within the same nineteen neighborhoods using a systematic social observation method. Observational data measured neighborhood disorder in a natural setting through an objective, well specified procedure that could be duplicated in future research and was based on established methods (Covington and Taylor, 1991; Sampson and Raudenbush, 2004; Karb, Elliott, Dowd and Morenoff, 2012). These data were analyzed to address the question of how perceptions of neighborhood disorder by Flint, Michigan residents are related to resident fear of crime, and how those perceptions influence the movement of Flint residents within the urban space.

Standpoint

It is necessary to discuss my relationship to the population in this study. As a Flint native I am a member of the group that I am studying, meaning I possess an *a priori* intimate knowledge of the Flint community and its residents. There are both advantages and disadvantages to insider research.

Insider knowledge provided me with pre-existing context for my research. Once the neighborhoods were selected for the sample I was able draw from my prior knowledge of the city's layout and assess whether those neighborhoods were representative of Flint as a whole. Although this knowledge did not influence my site selection process, it did provide me with context as I traveled to those neighborhoods to collect my observational and survey data. Also, being already familiar with the geography I was free from the effects of culture shock while going door-to-door within the neighborhoods. I believe this made my interactions with participants more natural, especially when first approaching them.

Insider knowledge can also be considered a disadvantage. My familiarity with the environment could lead to a loss of objectivity, particularly while conducting neighborhood observation. There is the increased risk that I would make assumptions during my observation based on prior knowledge of a neighborhood. I hoped to ameliorate this risk with my decision to utilize a systematic social observation method. By following specific and standardized procedures my intention was to distance myself from my data and prevent any prior assumptions from affecting my observations.

Finally, there is the concern of inherent bias that comes with insider research. In this context, bias would refer to my personal beliefs, experiences or values influencing my decision to use Flint as a case study, or influencing the study's design. Although I am wary of projecting

my own beliefs into the research and the data analysis, I believe that insider research has its advantages. Outsider research comes with its own biases where the researcher may consciously or unconsciously hold preconceived, potentially incorrect assumptions about a social group or location. In fact, I believe that due to Flint's reputation, an outside researcher's preconceived assumptions would have greatly biased the research.

The Study Area

According to the Uniform Crime Report, in 2010 Flint had a violent crime rate of 2,200 per 100,000 residents (Federal Bureau of Investigation, 2010). However, in 2014 this rate had fallen to 1,700 per 100,000 residents (Federal Bureau of Investigation, 2014). These data would suggest that Flint's violent crime rate is on the decline, however public perceptions about the city are not changing. The concern here is that if actual crime rates are decreasing, yet fear of crime and perceived risk of victimization remain high, residents will continue to withdraw from the community, leaving public spaces open for future disorder and possibly crime. If steps are not taken to change residents' perceptions, residents will continue withdrawing from the city, fear of crime will remain high and crime rates have the potential to rise again (Liska et al. 1988; Markowitz et al. 2001; Rengifo and Bolton 2012).

Site Selection Process

A stratified probability sampling method was selected to ensure that areas of both high and low disorder within the city of Flint were captured within the sample. This was necessary in order to draw a comparison between fear of crime, perceived risk, and community withdrawal amongst residents living in high disorder areas, and residents living in low disorder areas.

The United States Census Bureau divides geographies into census tracts to create statistical subdivisions of a county in order to provide stable geographic units for the purpose of collecting statistical data. These tracts are then divided into block groups, which generally contain between 600 and 3,000 people and are clusters of contiguous blocks within the same tract (United States Census Bureau, 2010). Finally, the Census Bureau divides block groups into census blocks, which are what one would typically think of when considering a city block bounded on all sides by streets. There are 41 census tracts either partially or wholly in the city of Flint. Using 2010 census data, I collected information on the following characteristics for all 41 tracts: unemployment, income, and educational attainment of residents. Previous studies have found these characteristics are correlated with disorder (Christie-Mizell, Steelman, and Stewart, 2003; Markowitz et al. 2001; Covington and Taylor, 1991).

From the 41 census tracts I selected the five census tracts that had the highest and the five tracts that had the lowest combined levels of unemployment, low income, and low educational attainment. Those were the ten census tracts selected for inclusion in the sample. Five of those census tracts comprised Group A, made up of tracts with high unemployment rates, low income levels and low educational attainment. Group A represented neighborhoods assumed to have high levels of disorder. The remaining five census tracts comprised Group B, made up of tracts with low unemployment, high income and high educational attainment. Group B represented neighborhoods assumed to have low levels of disorder. I divided the 10 census tracts into block groups and block numbers and entered them into a spreadsheet. I randomly sampled five blocks from each census tract resulting in fifty geographic units. Within those fifty units, addresses were sampled randomly to create a sample of households, and within each household one adult

resident was sampled to be a survey respondent. The final sample size was 125 respondents living within 19 city blocks.

Data Sources

The theoretical framework of this study requires an analysis of individual perceptions of disorder across multiple neighborhoods within the city of Flint, as well as independent, objective assessments of disorder. To achieve this I have drawn data from three different sources: census data, a neighborhood survey, and systematic social observation. Ideally, this study would have drawn from a fourth source—crime data. However, the Uniform Crime Report (UCR) does not collect crime statistics at either the census tract or block level. Police records were also unavailable at this level through the Flint City Police Department.

Census Data. Utilizing 2010 census data at the block-group level, I conducted a comparative analysis to ensure that the sample was representative of the city of Flint and that the blocks were comparable geographic units for the following theoretically relevant measures: population size, geographic size, population density, racial composition, median income, educational attainment, and unemployment rate.

Neighborhood Survey. The first source of data comes from a face-to-face neighborhood survey conducted in September 2015 to January 2016 (see Appendix D). I distributed the survey within the city blocks by going door-to-door within the hours of 9am and 5pm. The respondents completed the survey on site. This survey measured the following variables: fear of crime, perceived risk of victimization, perceptions of disorder and constrained social behavior. It also

collected demographic data on gender, race and age of the respondent. I knocked on a total of 552 house doors. Of the 552, 189 residents were home and of those 189, 125 residents agreed to be survey respondents. Thus, the response rate was 66%.

Systematic Social Observation. The observation of humans, including both behavior and setting, is referred to as social observation. Social observation becomes systematic when, according to Reiss (1971), the observation follows specific procedures that allow for replication and permit the logic of scientific inference. Systematic social observation (SSO) is a standardized method that allows a researcher to directly observe the physical and social characteristics of a neighborhood, one block at a time. The benefit of SSO is that rather than relying on respondents' retrospective and subjective observations of their environment, a researcher is able to connect directly to the behaviors and settings of empirical interest.

Mimicking a method employed by Sampson and Raudenbush, the geographic unit of recorded observation within the sampled block was the face block, which is a "block segment on one side of a street" (1999:616). Buildings or structures located on the other side of the street (across the street from the one being measured on any given city block) were also included in the block face, although representing a different geographic unit of measurement. To observe each block face, I traveled to the block and, using a crafted systematic social observation coding sheet (see Appendix E), documented the social activities and physical features of the block. I conducted these observations between the hours of 9am and 5pm during a single day in September, therefore weather conditions, such as snow coverage, did not have an effect on differences across different blocks captured on different days.

To measure signs of physical disorder I coded the following characteristics on a 0-3 scale: trash or litter in the streets, on sidewalks or on lawns; graffiti on walls or sidewalks; vacant or boarded up houses; vacant or boarded up businesses; broken out windows of property; apparent fire damage; broken out windows of cars; and abandoned cars. If a block had no signs whatsoever of a specific characteristic, a 0 was noted under that category on the SSO coding sheet. If a block contained 1 item of a specific characteristic, a 1 was noted under that category. If a block contained 2-3 items of a specific characteristic, a 2 was noted under that category. Finally, if a block contained more than 3 items of a specific characteristic, a 3 was noted under that category on the coding sheet.

The "trash or litter" category was an exception to this coding method because litter has a different threshold than say, a vacant house. One piece of litter found on a block will not produce the same emotional or cognitive response as one vacant or boarded up house on a block. Therefore, trash or litter in the streets, on sidewalks or on lawns was coded in the following manner. If a block contained no items of trash or litter whatsoever a 0 was noted under the categories of street, sidewalk and lawn on the coding sheet. If a block contained between 1 and 3 pieces of trash or litter a 1 was noted under the proper category (street, sidewalk or lawn). If a block contained between 4 and 7 pieces of trash a 2 was noted under the proper category. Finally, if a block contained more than 8 pieces of trash a 3 was noted. It is important to clarify that these categories were coded separately for observations made on the street itself, on the sidewalk, and finally on private lawns. Therefore, for a block to receive a 1 in all three categories meant that block contained between 1 and 3 pieces of trash found in the street, between 1 and 3 pieces of trash found on the sidewalk *and* between 1 and 3 pieces of trash found on private lawns.

To measure signs of social disorder I coded the following characteristics on a 0-3 scale: loud music coming from houses; loud music coming from cars, neighbors talking or yelling loudly; people hanging out in the streets or on street corners; public drunks; illicit drug use in public; stray dogs or cats; prostitution; and panhandlers or beggars. (0=none, 1=minimal, 2=moderate, 3=high levels of physical/social disorder.) Social disorder was coded in the same manner as physical disorder was, with the exception of the trash and litter category.

Analytic Strategy

The analysis focuses on the following first-order questions: Are people who see more signs of disorder in their neighborhoods generally more fearful of crime? Are people who live in neighborhoods that objectively have more signs of disorder generally more fearful of crime? Are people who express more fear of crime also more likely to change their behavior, such as not going out alone after dark, avoiding certain areas, limiting their time spent away from home, or limiting other activities? The analysis also addresses two secondary research questions: are resident perceptions of disorder correlated with objective ratings of disorder? Also, is having either the cognitive component of fear (i.e. expecting that you are more vulnerable to being victimized) or the emotional component (i.e. feeling scared about crime even though you take many protective measures to lower your subjective sense of risk) enough to make people change their behaviors, or is behavioral change much more likely when people have both?

The analysis proceeds in three stages and a visual representation for the paths the analyses take is outlined in figure 1. I first estimate a series of multivariate OLS regression models to explore predictors of fear of crime. First, as a test of the hypothesis that perception of disorder would be a predictor of fear of crime, I present a regression model that illustrates the

link between perceptions of disorder and fear of crime (pathway A in figure 1). In this model I also include observed disorder[3] as a predictor variable to address the question of whether perceived disorder or observed disorder is a better predictor of fear of crime. Next, as a test of the Risk Interpretation Model (Ferraro, 1995), I present a model that introduces perceived risk of victimization as a predictor of fear of crime, controlling for sex, age, and race. This model tests the hypothesis that perceived risk of victimization is a mediating variable in the relationship perception of disorder and fear of crime (pathway B in figure 1).

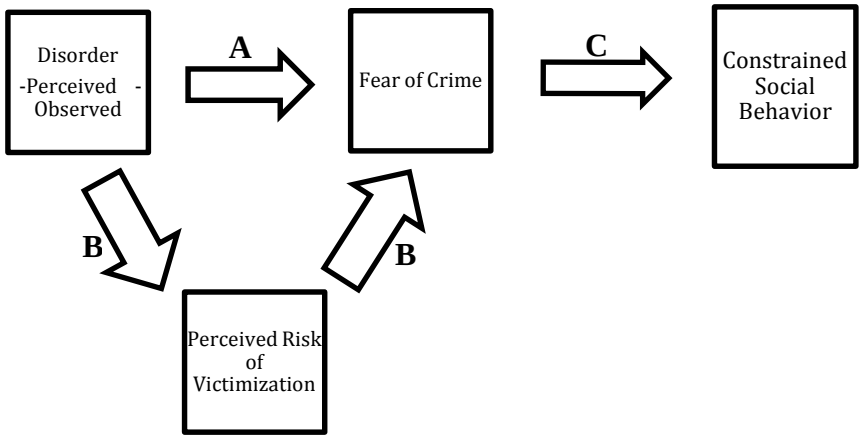
The second stage focuses specifically on the pathway C (figure 1). I estimate a series of logistic and ordered logistic regression models to explore predictors of constrained social behavior, using four factors to measure constrained social behavior. This series of models tests the hypothesis that fear of crime would be a predictor of constrained social behavior. The first series of models predicts the frequency of going out after dark, the second series predicts the amount of time residents spend away from home, the third series predicts the probability of residents changing or limiting their behavior and the fourth series of models predicts the probability of residents avoiding certain areas of the city. All four series of models use fear of crime as a predictor of constrained social behavior, next adding perceptions of risk, and then controlling for observed disorder, perceived disorder, and sex, age, and race.

I was also interested in whether having either high levels of fear of crime or risk perception was enough for residents to report changing their behaviors, or if residents were more likely to change their behaviors when they expressed high levels of both fear of crime and perceived risk. Thus the third and final stage of analysis combines measures of fear of crime and

[3] Originally I intended to estimate all of the models with tract-level fixed effects however I was not able to include them in the same models as the SSO variables (observed disorder measures), because those were also measured at the tract level. However, I did estimate all the models with tract-level fixed effects, omitting the SSO variables and the results were unchanged.

perceived risk of victimization (using risk/fear typology scales which are described in greater detail in the Study Variables section) to test how their interaction is associated with constrained social behavior. The final series of models estimates ordinal logistic and logistic regression using the combined fear of crime and perceived risk typologies as predictors to examine the link between fear and risk, and the four factors contributing to the social behavior variable (frequency of going out after dark, amount of time spent away from home, changing or limiting activities, and avoiding certain areas of the city). All analyses were conducted using Stata/SE 14.0 (StataCorp 2016).

Figure. 1: Visual Representation of Analytic Strategy*



*The arrows are not meant to represent causality or suggest a causal effect, they are meant only to represent the path the analysis will take

Study Variables

Fear of Crime. I used a scale of fear of crime (based on multiple survey questions) as the dependent variable in this study. Fear of crime is the affective dimension of crime, which is the emotionally based response to crime (Ferraro 1995; Abdullah et al. 2014). This measure of fear

of crime is considered an improvement upon previous measures, which combined the emotional response to crime with the cognitive assessment of crime under one variable "fear of crime" (Ferraro 1995; Gainey et al. 2010; Rengifo and Bolton 2012; Abdullah et al. 2014) This study captures both measurements as distinct variables (fear of crime, and perceived risk) by using separate survey questions.

Fear of crime was measured with the following survey questions. Respondents were asked: "How afraid are you of…" a) "walking alone after dark" b) "being robbed on the street" c) "being approached by a beggar or panhandler" d) "someone breaking in while you are at home" e) "someone breaking in while you are away" f) "being sexually assaulted" g) "being attacked in public with a weapon" h) "having your car stolen" i) "having your property damaged by vandals" and j) "being murdered" Response categories were: "not afraid at all" (1), "slightly afraid" (2), "neutral" (3), "moderately afraid" (4) and "very afraid" (5).

The fear of crime scale was generated using 8 of the above items (bothered after dark, robbed, break in-home, break in-away, attacked with weapon, car theft, vandals, murder). The two additional items measured in the survey (being approached by a panhandler or beggar, and being sexually assaulted) were dropped from the scale due to low inter-item correlation. The fear of crime scale was simply the sum of the individual item scores, using raw unstandardized item scores. A scale was also generated using the standardized item scores, however differences in the two were insignificant, so I decided to proceed with the unstandardized item scores to preserve the meaningful distance between the units of each item. The fear of crime scale is a summative scale of eight items with a 0.92 reliability coefficient. Each item contributes roughly equally to the scale.

Perceived Risk of Victimization. I used a scale of perceived risk of victimization (based on multiple survey questions) as an independent variable in this study. This is a respondent's cognitive assessment of their risk of being victimized by a crime (Ferraro 1995). The response categories and coding methods for perceived risk are the same as those used for fear of crime. However, the survey question for perceived risk asks instead, "how likely do you think it is that you will…" a) "be bothered while walking alone after dark" b) "be robbed on the street" c) "be approached by a beggar or panhandler" d) "have someone break in while you are home" e) "have someone break in while you are away" f) "be sexually assaulted" g) "be attacked in public with a weapon" h) "have your car stolen" i) "have your property damaged by vandals" j) "be murdered". The crimes captured here range from minor to serious offenses and cover both interpersonal crime and property crime.

The scale of perception of risk of victimization was also generated for the analysis using 8 items (bothered after dark, robbed, break in-home, break in-away, attacked with weapon, car theft, vandals, murder). These items are similar to the 8 items that make up the fear of crime scale, however, the perceived risk scale measures how likely respondents think it is that they will be victims of the above events, rather than how much they fear those items. Each item was measured across five response categories: very unlikely, unlikely, neutral, somewhat likely, and very likely. The perception of risk scale was generated using the sum of the 8 individual unstandardized item scores and had a 0.92 reliability coefficient. Each item contributes roughly equally to the scale.

Risk/Fear Typologies. The risk/fear typology variables combine fear, the emotionally-based response to crime, with perceived risk, the cognitive response to crime. I was interested in

assessing how those combined variables were linked to constrained social behavior. Would combining measures of fear of risk of victimization be a better predictor of changed behavior, or would having either fear or perceived risk be enough for people to change their behavior? In order to measure this interaction I generated risk/fear typology scales using the fear of crime and perceived risk 5-point scales crafted from the survey data. There were four possible categories a respondent could fit into: (1) low perceived risk, low fear; (2) low perceived risk, high fear; (3) high perceived risk, low fear; (4) high perceived risk, high fear. If the value for the fear scale was less than 3, the respondent was sorted into the low fear category. If the value was equal to, or greater than 3 the respondent was sorted into the high fear category. The same standard was used to sort respondents into high/low perceived risk categories. I chose 3 as the cutoff because in the 5-point scale 3 represented a meaningful category of "neutral" with the respondents given the following response categories to questions about fear of crime: not afraid at all, slightly afraid, neutral, moderately afraid, and very afraid. The same standard was used to sort respondents into high/low perceived risk categories, using 3 (on a 5-point scale) as a cutoff. Table 1 presents the distribution of respondents in the four typologies.

Table 1: Distribution of Respondents in the Typology

Variables	Frequency	Percent
(1) Low victim risk, low fear	66	52.8%
(2) Low victim risk, high fear	11	8.8%
(3) High victim risk, low fear	14	11.2%
(4) High victim risk, high fear	34	27.2%
Total	125	100%

Perception of Disorder. Perception of disorder is also an independent variable in this study. Survey questions corresponding with this variable capture how residents interpret disorder in

their neighborhood. Perception of disorder was measured with the following survey questions. The survey asked respondents, "how great a problem is…" a) "trash and litter lying around your neighborhood" 2) "graffiti on walls or on sidewalks" 3) "vacant or boarded up houses" 4) "signs of vandalism" 5) "abandoned cars" 6) "noisy or disruptive neighbors" 7) "people hanging out in the streets or on street corners" 8) "public drinking or intoxication" 9) "stray dogs or cats" 10) "panhandlers or beggars". Response categories were: "not a problem at all" (1), "a mild problem" (2), "neutral" (3), "a moderately big problem" (4) and "very problematic" (5). These ten measurements were intended to capture both social and physical disorder.

Previous studies have disaggregated perceptions of neighborhood disorder by type and found that two types of disorder are represented: social and physical disorder (Sampson and Raudenbush, 2004; LaGrange et al., 1992; Skogan, 1990). Thus when generating the perception of neighborhood disorder scale I expected the ten items (litter, graffiti, vacant houses, vandalism, abandoned cars, noisy neighbors, people hanging out, public intoxication, strays, and beggars) to represent two separate components of disorder—social disorder and physical disorder. The items emerged on two separate scales largely as hypothesized. Among the items to load on the physical dimension were: trash and litter, vacant houses, vandalism, and abandoned cars. Among the items to load on the social dimension were: noisy neighbors, people in streets, public intoxication, strays, and beggars.

The only measure of disorder to not load as I anticipated was graffiti. This item loaded higher on the social scale than the physical scale, which is consistent with the findings of previous work (LaGrange et al., 1992). I believe this to be so because graffiti has a social component as much as a physical one. Graffiti is an expression of human presence and also a

potential cue to gang activity. Because of this, I decided to include graffiti in the social disorder scale.

The physical disorder scale consisted of the 4 above-mentioned items and had an alpha score of 0.86, and the social disorder scale, which consisted of the above stated 6 items (including graffiti) had an alpha score of 0.88. However, because there were high inter-correlations between the two scales, and because there was more scale reliability when combining the two measures, I used the combined perception of disorder scale (with all ten items) in the final analysis. The combined perception of disorder scale used the unstandardized values of the ten above stated items and had an alpha score of 0.93.

Observed Disorder. Observed disorder was another independent variable in this study that was measured by systematic social observation using the previously discussed coding method. This variable was intended to capture both physical and social conditions of the city block in an objective, rather than subjective manner. Information on the following items of disorder was recorded: trash or litter in the streets, on sidewalks or on lawns; vacant or boarded up houses; vacant or boarded up businesses; graffiti on walls or sidewalks; broken out windows of property or cars; people hanging out in the streets or on street corners; illicit drug use in public; stray dogs or cats; apparent fire damage; graffiti on sidewalks; broken out windows of cars; abandoned cars; neighbors talking or yelling loudly; public drunks; prostitution; panhandlers or beggars; loud music coming from cars; and loud music coming from houses.

The above items represented two separate scales of disorder, social and physical, in the same manner as the perceived disorder scales. However, unlike the perceived disorder measures the social and physical observed disorder scales were not highly correlated, so they were left as

separate scales for the final analysis. The observed physical disorder scale included both measures of trash and litter, vacant houses, boarded up houses, vacant or boarded up businesses, and broken out windows of property. The items were standardized and averaged, with an alpha score of 0.75. The observed social disorder scale included both measures of graffiti, individuals publically intoxicated, illicit drug use, and prostitution. Those items were standardized and averaged with an alpha of 0.81. The following items were not included in the analysis due to lack of observations or low inter-item correlation with the scales: panhandlers or beggars, loud music from cars, loud music from houses, abandoned cars and fire damage.

Constrained Social Behavior. Constrained social behavior was another dependent variable in this study. Constrained social behavior is a response to fear of crime that involves modification of public activity space. This variable was measured using the following questions. The survey asked respondents, "in general, have you limited or changed your activities in the past year because of crime?" (1= yes, 0=no). "In general, have you avoided certain areas of the city because of crime?" (1=yes, 0=no). "How often do you go out after dark for entertainment, such as to restaurants, theaters, bars etc. within the city?" (1= less than once a month, 2= once a month, 3= 2-3 times a month, 4= once a week, 5= 2-3 times a week, 6=daily) and "How many hours during the day do you spend away from home NOT INCLUDING work or school-related activities?" (1=none, 2=1-2 hours, 3= 3-4 hours, 4= 5-6 hours, 5= 7 or more hours).

Demographics. The following demographics were included in the analysis: gender (1=male, 2=female, 3=other), race (1= African American, 2=Asian/Pacific Islander, 3=Caucasian, 4=Hispanic/Latino, 5=Native American, 6=other) and age (1= 18-24, 2= 25-34, 3= 35-54, 4= 55-

64, 5= 65 or older). However, in the analysis the "other" category was removed because of lack of responses, and male and female were recoded 0 and 1 respectively (with male serving as the dummy variable). Also, because of the limited number of respondents who fit the "Asian/pacific islander", "Hispanic/Latino", "native American" or "other" categories for the race variable, these were summed in an "other" category and the race variable was recoded as 1=African American, 2= White and 3=Other. These demographic variables served as control variables to allow the other variables of this study to be better understood. Demographic statistics are presented in Table 1 to illustrate the representativeness of the sample in relation to the population of Flint.

Table 2: Demographics of Respondents in Study

	Survey Sample Demographics[a]		City of Flint Demographics[b]	
Variables	Frequency	Percent	Frequency	Percent
Gender				
Male	59	47.20%	48,228	48.00%
Female	66	52.80%	52,341	52.00%
Race				
African American	55	44.00%	55,260	56.60%
White	55	44.00%	39,672	40.50%
Other	15	12.00%	5,637	2.90%
Age				
18-24	13	10.40%	4,902	2.10%
25-34	26	20.80%	13,423	13.30%
35-54	32	25.60%	25,874	34.70%
55-64	30	24.00%	11,868	11.80%
65 or older	24	19.20%	11,737	11.70%

[a]Data taken from the Neighborhood Incivilities: Effects of Disorder on Fear of Crime Survey(2015-2016)
[b]Data taken from 2010 census

Sample Description

Table 2 presents descriptive statistics for all variables used in this study. Survey responses for individual measures of fear indicated that the majority of residents were either not at all afraid or only slightly afraid of crime. For example, only 23.3% of respondents expressed

that they were moderately or very afraid of being sexually assaulted, whereas 57.6% reported that that they were not at all afraid of having this happen. However, the fear of being sexually assaulted is likely to vary by gender, and in fact it was positively correlated (p= .425) with female gender. Thus the low average levels of fear for that item could be hiding gender differences. However there were other items, such as being approach by a beggar or panhandler, which did not have high levels of fear associated with them. 46.34% of respondents reported they were not at all afraid of being approached by a beggar or panhandler. Conversely, certain items had higher levels of fear associated with them than others. For example, 41.13% of respondents expressed that they were either moderately or very afraid of having someone break in while they were away from home.

Survey responses for residents' perceptions of risk of victimization follow a similar distribution as their fear of crime, with a scaled mean of 2.73. Notably, across all ten items, respondents perceived they were at the greatest risk of being approached by a beggar or panhandler. 56.45% of respondents reported that they believed they were somewhat or very likely to be approached by a beggar or panhandler. Interestingly, this is also the item least feared by respondents. It is unsurprising that residents would perceive this to be a high-risk item given that homelessness[4] is a large problem for the city of Flint. Consequently it is reasonable that respondents would perceive themselves to be at high-risk of being approached by a beggar, yet not be fearful of its occurrence because it is not a particularly threatening item in comparison to the other items asked about.

[4] This is unsurprising, given the aforementioned fact that on October 20th, 2014 an ordinance was passed by the Flint Township Board in response to the panhandling and homelessness problem. See http://www.flinttownship.org/Portals/68/2015%20all/TRAFFIC%20SAFETY.pdf

Table 3: Summary Statistics for Variables Used in Analysis (*n*=125)

Variables	M	SD	Range
Outcome Vars			
Fear	2.67	1.19	1-5
Out After Dark	3.22	1.72	1-6
Time Away From Home	2.66	1.15	1-5
Change Activities	0.27	0.45	0-1
Avoid Areas	0.74	0.44	0-1
Individual-Level Vars			
Perceived Risk	2.73	1.07	1-5
Perceived Disorder	2.21	1.06	1-5
Female	0.53	0.50	0-1
Race			
African American	0.44	0.50	0-1
White	0.44	0.50	0-1
Other	0.12	0.33	0-1
Age			
18-34	0.31	0.47	0-1
35-54	0.26	0.44	0-1
55-64	0.24	0.43	0-1
65+	0.19	0.40	0-1
Tract-Level Vars from SSO			
Physical Disorder	0.19	0.69	-1.21-1.10
Social Disorder	-0.08	0.75	-0.35-2.91
Risk/Fear Typology			
Low victim risk, low fear	0.53	0.50	0-1
Low victim risk, high fear	0.09	0.28	0-1
High victim risk, low fear	0.11	0.32	0-1
High victim risk, high fear	0.27	0.45	0-1

Another item markedly worrisome for respondents was the risk of having someone break into their house while away from home. 47.2% of respondents expressed that this was either somewhat or very likely to occur, similar to the 41.13% of respondents who expressed high levels of fear for this item. This is consistent with expectations, considering that fear of crime and perceived risk are strongly positively correlated (*r*=.68). Respondents expressed the lowest

levels of perceived risk of being sexually assaulted, with only 13% of respondents expressing that it was somewhat or very likely, and 48% responding that it was very unlikely. Again, these low levels of perceived risk could be attributed to gender differences, and provide further justification for dropping this item from the analysis.

Next I turn to a discussion of the measures of disorder, first examining perceptions of disorder. The frequency distribution of perceptions of disorder for all 10 items measured in the survey is presented in Figure 2. The majority of respondents indicated that they did not perceive disorder to be much of a problem in their neighborhoods. Out of the ten items of disorder I asked about, the majority of respondents answered "not a problem at all" for all of the items except the trash and litter item. Even then the majority answered "a mild problem" rather than one of the higher categories. Nonetheless, there were still a substantial number of respondents who reported that disorder was a problem in their neighborhood. For example, although the majority of respondents (40%) answered that signs of vandalism were "not a problem" in their neighborhood, the overall scale mean (2.21) suggests that there is significant enough variation in the responses for meaningful analysis.

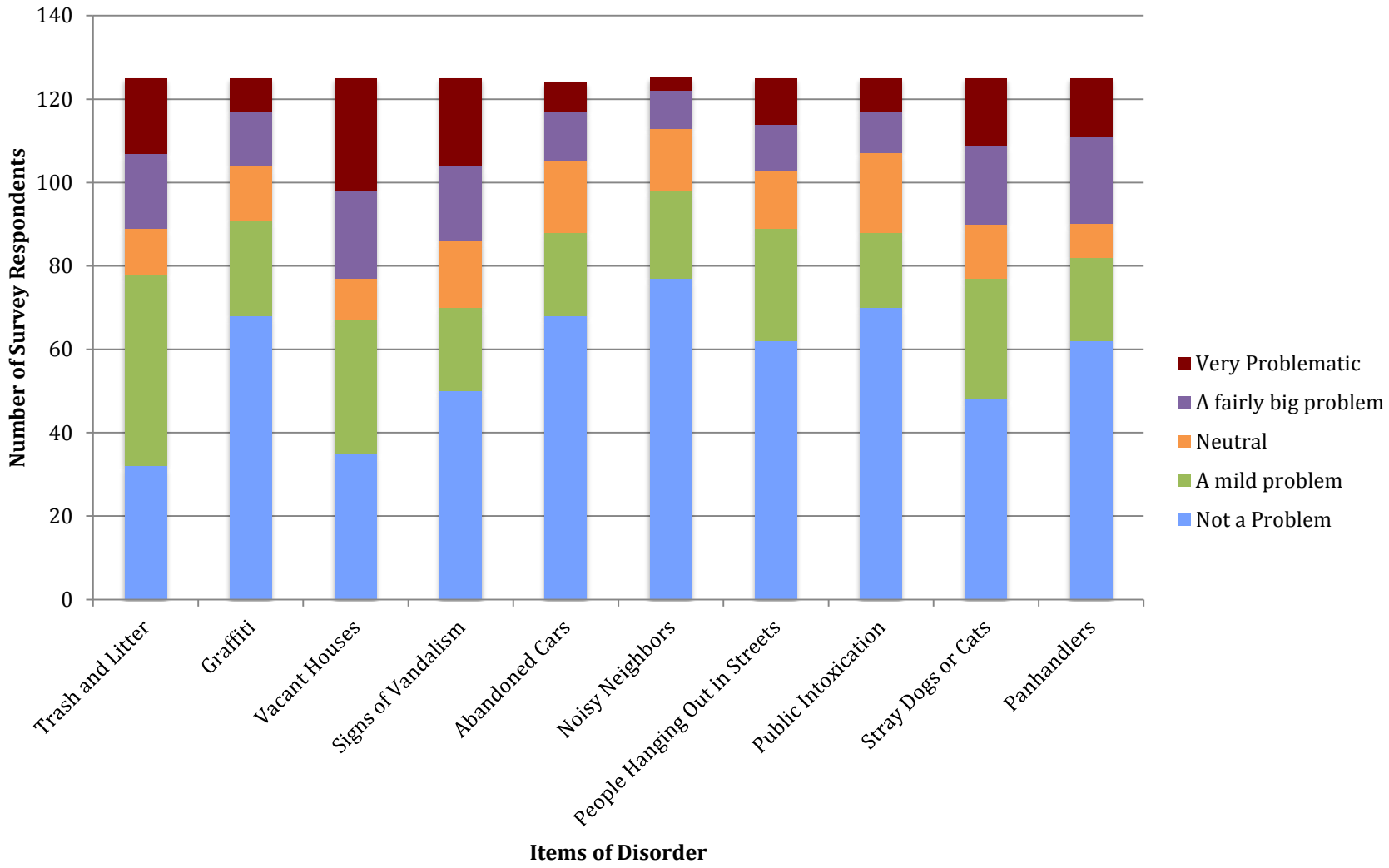
The data reveal some forms of disorder to be more of a problem for residents than others. The most problematic forms of disorder, based on the responses, were vacant houses, signs of vandalism, and trash and litter with 21.6%, 16.8%, and 14.4% of respondents reporting that these items were "very problematic", respectively. Interestingly, the three forms of disorder perceived to be the most problematic are all forms of physical disorder. Conversely, respondents found graffiti, noisy neighbors, and publicly intoxicated individuals least problematic, and all of these loaded on the social disorder scale. The fact that the survey data reveal that social disorder is less problematic for residents than physical disorder aligns with the data collected during the

systematic social observation, where I found more signs of physical disorder than social disorder overall.

Next looking at observed disorder, which was measured using the systematic social observation (SSO) data, the following were the observed frequencies of disorder for all 19 blocks combined in declining order: trash or litter in the streets (11), on sidewalks (8) or on lawns (8); vacant or boarded up houses (6); vacant or boarded up businesses (6); graffiti on walls (4); broken out windows of property (3); people hanging out in the streets or on street corners (3); illicit drug use in public (2); stray dogs or cats (2); apparent fire damage (2); graffiti on sidewalks (1); broken out windows of cars (1); abandoned cars; neighbors talking or yelling loudly (1); public drunks (1); prostitution (1); and panhandlers or beggars (0); loud music coming from cars (0); loud music coming from houses (0).

To be clear, the frequencies are not the actual number of times a given item was observed. For example, the number 11 following 'trash or litter in the streets' should not be interpreted as if there were only 11 pieces of trash or litter observed overall. Instead the number 11 represents the summed scores of all 19 blocks based on the 0-3 prescribed coding scale outlined in the methods section. As discussed previously, I expected less serious forms of disorder such as litter to occur more frequently than vacant houses or public drunks, and designed the original coding method to account for that. Even so, the trash and litter item was still the most frequently observed form of disorder, followed by vacant or boarded up houses and businesses, graffiti on walls, and then broken out windows of property (which is categorized as a sign of vandalism).

Figure 2: Frequency Distribution of Perceptions of Disorder (n=125)



RESULTS

Predicting Fear of Crime

Table 4 presents coefficients and standard errors for key predictors from regression models of fear of crime. Model 1 is a baseline model that predicts fear of crime using observed disorder and perceived disorder. Model 2 adds gender, race and age. Model 3 further adds perceived risk, to assess the extent to which it mediates the association between disorder and fear of crime.

Results for Model 1 show that perceived disorder was a statistically significant positive predictor of fear of crime, such that those who reported higher levels of perceived disorder also reported higher fear of crime. After additional adjustments were made for gender, age and race in Model 2 perceived disorder remained significant. Results for Model 2 also show that gender is a statistically significant positive predictor of fear of crime, such that female respondents expressed higher levels of fear of crime. This finding is consistent with prior research, which has shown that females are more fearful of crime (Gainey et al., 2010). Model 4 adjusts for perception of risk and in this model gender remained statistically significant, though less significant than in model 2. However, the association between perceived disorder and fear of crime is altered. After adjusting for perceived risk, the disorder coefficient was reduced in magnitude and was no longer statistically significant. Perceived risk was a strong and statistically significant predictor of fear of crime, such that respondents who worried more about being victimized by crime reported higher levels of fear of crime. Thus the results are consistent with the hypothesis that perceived risk would mediated the association between disorder and fear. These results are consistent with LaGrange's (1999) findings and are supportive of the risk

Table 4: Regression Models Predicting Fear of Crime

	Model 1			Model 2			Model 3		
Variables	Coef	SE		Coef	SE		Coef	SE	
Perceived Disorder	0.42	(0.10)	***	0.39	(0.10)	**	0.11	(0.09)	
Observed Disorder (physical)	0.00	(0.15)		0.03	(0.15)		-0.01	(0.12)	
Observed Disorder (social)	0.12	(0.13)		0.12	(0.14)		0.16	(0.11)	
Perceived Risk				-	-		0.69	(0.08)	**
Gender (ref=male)				0.55	(0.20)	**	0.31	(0.16)	*
Race (ref=African American)									
White				-0.10	(0.21)		0.11	(0.17)	
Other				0.52	(0.33)		0.45	(0.26)	
Age (ref=18-34)									
35-54				-0.27	(0.26)		-0.17	(0.21)	
55-64				-0.01	(0.28)		-0.15	(0.22)	
65+				0.04	(0.30)		-0.09	(0.24)	
Constant				1.60	(0.35)		0.40	(0.31)	
Adj. R-squared	0.13			0.17			0.48		

*** $p<.001$, ** $p<.01$, * $p<.05$

interpretation model and illustrate the importance of examining fear of crime as two separate components: emotional (fear) and cognitive (risk assessment).

Interestingly, neither social nor physical observed disorder were statistically significant predictors of fear of crime across any of the models, whereas perceived disorder was found to be a predictor of fear of crime, although indirect and mediated by perceived risk of victimization. Perceived disorder was also found to be a statistically significant positive predictor (at $p < .02$) of perceived risk of victimization even after adjusting for observed disorder, race, age, gender, and fear. Observed disorder was not found to have any direct effect on perceived risk. Thus observed disorder was not found to have any effect on fear of crime, either directly or indirectly through perceived risk of victimization. This is contrary to previous findings where both observed and perceived disorder were predictors of fear of crime, though perceived disorder was a much stronger predictor and mediated the relationship between observed disorder and fear (Covington and Taylor, 1991). These findings provide support for the hypothesis that perceived disorder is a better predictor of fear of crime than observed disorder.

To further analyze the relationship between observed and perceived disorder I ran a series of regression models using observed disorder to predict perceived disorder. In Table 5, Model 1 predicts overall perceptions of disorder using overall observed disorder. Model 2 adjusts for gender, race and age. Model 3 predicts perceptions of physical disorder using observed physical disorder. Model 4 adds gender, race and age to model 3. Model 5 predicts perceptions of social disorder using observed social disorder. Model 6 adds gender, race and age to model 5.

Observed disorder was not a significant predictor of perceived disorder across any of the models presented in Table 5. In models 2, 4, and 6 the age groups 55-64 and 65+ were significant positive predictors of perceptions of disorder. These results are interesting since previous studies found that older residents perceived less disorder than younger residents (Sampson and Raudenbush 2004). Yet the question of how age affects perceptions of disorder is outside the scope of this study, thus I suggest future studies investigate this topic further.

Measurements of overall observed disorder were not strongly positively correlated with measurements of overall perceived disorder. A Pearson correlation of $r = .02$ was estimated between overall observed and perceived disorder. When examining the correlation between physical and social disorder independently, a Pearson correlation of $r = .11$ emerged between observed and perceived physical factors of disorder, and a Pearson correlation of $r = -.12$ emerged between observed and perceived social factors of disorder. These results differ from many previous findings in which observed disorder predicts perceived disorder (Sampson and Raudenbush 1999; Skogan 1986; Lewis and Maxfield 1980). Instead these findings are more aligned with Perkins (1993) who found that observed disorder was not predictive of perceived disorder, neither were the two strongly correlated, though they were weakly positively correlated. However Perkin's study did not measure social disorder, only physical disorder.

Table 5: Regression Models Predicting Perceptions of Disorder

	Perceptions of Overall Disorder						Perceptions of Physical Disorder						Perceptions of Social Disorder					
	Model 1		Model 2				Model 3		Model 4				Model 5		Model 6			
Variables	Coef	SE	Coef	SE			Coef	SE	Coef	SE			Coef	SE	Coef	SE		
Observed Overall Disorder	0.02	(0.09)	0.03	(0.17)														
Observed Physical Disorder							0.11	(0.09)	0.07	(0.09)								
Observed Social Disorder													-0.12	(0.09)	-0.09	(0.09)		
Gender (ref=male)			-0.12	(0.18)					-0.17	(0.18)					-0.04	(0.17)		
Race (ref=African American)																		
White			-0.19	(0.19)					-0.20	(0.18)					-0.13	(0.18)		
Other			0.58	(0.30)					0.35	(0.29)					0.59	(0.29)		
Age (ref=18-34)																		
35-54			-0.24	(0.25)					-0.23	(0.23)					-0.26	(0.23)		
55-64			-0.57	(0.25)	*				-0.51	(0.24)	*				-0.58	(0.24)	*	
65+			-0.76	(0.27)	**				-0.69	(0.26)	**				-0.67	(0.25)	**	
Constant	0.00	(0.09)	2.63	(0.22)			0.00	(0.09)	0.45	(0.21)			0.00	(0.09)	0.34	(0.21)		
Adj. R-squared	-0.01		0.11				0.00		0.08				0.01		0.12			

*** $p<.001$, ** $p<.01$, * $p<.05$

Note: All measures of observed and perceived disorder were standardized to a mean of zero and standard deviation of one.

Surprisingly observed disorder and perceived disorder are not strongly correlated, and even more surprisingly observed social disorder and perceived social disorder are negatively correlated. A likely explanation is that because indicators of social disorder are more temporally relative than indicators of physical disorder it is more difficult to capture the presence of social disorder during a precise moment in time than to capture physical disorder. For example, it is much easier to observe a vacant house that has likely been present for days, months or even years, than to observe the precise moment that an individual is engaging in illicit drug use. It is likely that because my observations were all made during daylight hours during a single visit that signs of social disorder were missed. Thus despite respondents perceiving social disorder to be a problem in their neighborhood, signs of social disorder being problematic are not reflected in the observed disorder measurement.

Although observed physical and perceived physical disorder are positively correlated, the strength of the correlation is weak (r=.11). Interestingly, the signs of physical disorder I observed to be most problematic across all 19 neighborhoods were litter/trash, vacant buildings, and signs of vandalism. These are the same forms of disorder that residents reported in the survey being most problematic in their neighborhoods. Hence I hypothesized that these two measures of physical disorder would be correlated, however when linking resident responses to their city block numbers and then comparing their responses to what was objectively measured on *their own* city block, the measures are not strongly correlated. I believe this is because respondents who live on blocks that contain the highest levels of disorder, based on objective measures, are not reporting high levels of a given item. Conversely, the respondents who live on blocks with lower levels of objectively measured disorder are reporting disorder to be more problematic than it objectively is. Skogan (1990) and Hunter (1978) theorize that this is because various levels of

disorder affect different neighborhoods in different ways. Neighborhoods that are objectively high in disorder may not perceive high levels of disorder in their neighborhood because they are desensitized to it. Conversely, a few pieces of litter or trash in a neighborhood with otherwise no disorder is likely to be far more noticeable than in a neighborhood where trash is everywhere.

Predicting Constrained Social Behavior

The next series of tables (Table 6-9) address the question: how does fear of crime influence residents' movement and social behavior within the city? Table 6 presents odds ratios and standard errors for key predictors from ordered logistic regression models predicting the frequency of going out (e.g., to restaurants, theaters, bars) after dark. An ordered logistic regression model is used to handle the categorical nature of the outcome variable, which gave respondents the following response categories to the question about how often they go out after dark: less than once a month, once a month, 2-3 times a month, once a week, 2-3 times a week, or daily. The ordered logistic model assumes that the levels of response have a natural ordering from low to high, but the distance between adjacent levels is unknown.

The odds ratios in Table 6 indicate how a one unit change in a given predictor variable changes the odds of going out after dark more frequently (i.e., the odds of giving a response in a higher category compared to the one below it). Model 1 is a baseline model that uses only fear of crime to predict the frequency of going out after dark. Model 2 adds perceived risk of being victimized. Model 3 further adds gender, race and age, and model 4 further adds perceived disorder and observed disorder (physical and social).

Results for Model 1 showed fear of crime as a highly statistically significant negative predictor of the frequency of going out after dark. The odds ratio for fear (.60) indicated that a one-unit increase in a respondent's fear level was associated with a 40% decrease in the

Table 6: Ordered Logistic Regression Models Predicting Going Out After Dark

	Model 1			Model 2			Model 3			Model 4		
Variables	OR	(SE)		OR	(SE)		OR	(SE)		OR	(SE)	
Fear	0.60	(0.09)	***	0.66	(0.12)	*	0.68	(0.13)	*	0.68	(0.13)	*
Perceived Risk				0.85	(0.17)		0.82	(0.17)		0.83	(0.17)	
Female							0.48	(0.16)	*	0.48	(0.17)	*
Race												
African American (ref)												
White							1.05	(0.36)		1.04	(0.36)	
Other							0.96	(0.51)		0.97	(0.52)	
Age												
18-34 (ref)												
35-54							1.62	(0.72)		1.62	(0.73)	
55-64							1.29	(0.57)		1.25	(0.58)	
65+							0.45	(0.22)		0.44	(0.22)	
Perceived Disorder										0.96	(0.17)	
Tract-Level Variables from SSO												
Physical Disorder										1.02	(0.24)	
Social Disorder										1.01	(0.25)	

*** $p<.001$, ** $p<.01$, * $p<.05$

proportional odds of being in a higher category of going out after dark. Fear of crime remained statistically significant after adjusting for perceived risk in Model 2, though now at $p < .05$, and after adjusting for gender, race and age in Model 3 (now with an odds ratio of .68, a .02 increase from Model 2). Results in Model 3 also showed that for females there was a 52% decrease in the proportional odds of being in a higher category of going out after dark. Both of these predictors remained statistically significant (fear with an odds ratio of .68, and gender with an odds ratio of .48) after adjusting for perceived and observed disorder in Model 4. Thus the findings are consistent with the hypothesis that residents who express higher levels of fear of crime are less likely to report frequently going out after dark.

Table 7 presents odds ratios and standard errors for focal predictors from ordered logistic regression models predicting the amount of day-time hours residents spend away from home (not including work or school). An ordered logistic regression model is used to handle the categorical nature of the outcome variable, which offered respondents the following response categories to the question about how many hours a day they spend away from home: none, 1-2 hours, 3-4 hours, 5-6 hours, or 7 or more hours. The fear odds ratios in Model 1 indicates how a one unit increase in the fear of crime variable changes the odds of spending more hours away from home (i.e., the odds of giving a response in a higher category compared to the one below it). Model 2 adds perceived risk. Model 3 further adds gender, age and race and model 3 still further adds perceived and observed disorder.

Results for both Model 1 and Model 2 showed no statistically significant predictors of hours away from home. However, after adjusting for gender, age, and race in Model 3 the age category of 65+ was shown to be a statistically significant negative predictor of hours away from home. The odds ratio (.31) revealed that if a respondent was in the age category of 65+ there was

Table 7: Ordered Logistic Regression Models Predicting Time Spent Away From Home

	Model 1		Model 2		Model 3			Model 4		
Variables	OR	(SE)	OR	(SE)	OR	(SE)		OR	(SE)	
Fear	1.00	(0.13)	1.08	(0.21)	1.02	(0.21)		1.05	(0.22)	
Perceived Risk			0.89	(0.20)	0.85	(0.19)		0.85	(0.20)	
Female					0.76	(0.26)		0.72	(0.25)	
Race										
African American (ref)										
White					0.72	(0.26)		0.73	(0.26)	
Other					2.03	(1.12)		2.03	(1.16)	
Age										
18-34 (ref)										
35-54					0.72	(0.32)		0.67	(0.31)	
55-64					0.83	(0.37)		0.75	(0.36)	
65+					0.31	(0.15)	*	0.29	(0.15)	*
Perceived Disorder										
Tract-Level Variables from SSO								0.92	(0.17)	
Physical Disorder								0.91	(0.23)	
Social Disorder								0.85	(0.21)	

*** $p<.001$, ** $p<.01$, * $p<.05$

a 69% decrease in the proportional odds of being in a higher category of hours spent away from home. After adjusting for perceived and observed disorder in Model 4 the age category of 65+ remained a significant predictor and its effect increased from 69% to 71%. Thus respondents age 65 or older were more likely to report spending less time away from home than respondents in the younger age categories.

Table 8 presents odds ratios and standard errors for key predictors from logistic regression models predicting whether respondents limited or changed their activities because they worry about being victimized by crime. The outcome variable gave respondents the option of answering 'yes' or 'no' to the question of whether or not they have limited or changed their activities (in the past year) because of worry about being a victim of a crime. The odds ratio associated with fear of crime in Model 1 indicates how a one unit increase in the fear of crime variable changes the odds of a respondent answering yes, that they have limited or changed their activities in the past year. Model 2 adds perceived risk to the baseline model. Model 3 further adds gender, age and race. Model 4 again adds perceived and observed disorder.

Results for Model 1 showed that fear of crime was a highly statistically significant positive predictor of changed activity. The odds ratio for fear (3.19) indicates that for a one unit increase in the fear level, a respondent is 219% more likely to report that they do change or limit their activities because they worry about being victimized by crime. In Model 2 fear remains a significant positive predictor with the odds ratio lowering to 2.25. Perceived risk is also a statistically significant positive predictor. The odds ratio for perceived risk (1.91) indicates a respondent is 91% more likely to report a change or limit in their activities, if they expressed high levels of perceived risk. Both predictors remained significant (fear of crime with an odds ratio of 2.17, and perceived risk with an odds ratio of 1.87) after adjusting for gender, race and

Table 8: Logistic Regression Models Predicting Changed Activity

	Model 1			Model 2			Model 3			Model 4		
Variables	OR	(SE)		OR	(SE)		OR	(SE)		OR	(SE)	
Fear	3.19	(0.73)	***	2.25	(0.61)	**	2.17	(0.64)	**	2.28	(0.70)	**
Perceived Risk				1.91	(0.59)	*	1.87	(0.59)	*	1.86	(0.64)	
Female							1.15	(0.63)		1.10	(0.62)	
Race												
African American (ref)												
White							0.68	(0.39)		0.72	(0.42)	
Other							3.43	(2.59)		3.13	(2.48)	
Age												
18-34 (ref)												
35-54							1.00	(0.67)		0.83	(0.58)	
55-64							0.78	(0.55)		0.75	(0.55)	
65+							0.28	(0.24)		0.29	(0.25)	
Perceived Disorder										1.09	0.28	
Tract-Level Variables from SSO												
Physical Disorder										0.63	(0.24)	
Social Disorder										0.47	(0.36)	

*** $p<.001$, ** $p<.01$, * $p<.05$

age in Model 2. However, after adjusting for perceived disorder and observed disorder in Model 3 perceived risk ceased to be a statistically significant predictor. Fear of crime remained significant and its effect increased such that a respondent would be 128% more likely to report changing or limiting their activity if they expressed higher levels of fear. I hypothesized that respondents would be more likely to report changing or limiting their behavior if they expressed higher levels of fear of crime. It is interesting that the association between perceived risk and changed activity ceased to be significant after adjusting for the disorder variables. However, the change after adjusting for the disorder variables was not large and significance only dropped off slightly. I believe this occurred because this study had a relatively small number of survey respondents (n=125).

Table 9 presents odds ratios and standard errors for key predictors from logistic regression models predicting whether or not respondents avoid certain areas of the city because of crime. The outcome variable gave respondents the option of answering ‘yes’ or ‘no’. Model 1 uses fear as the only predictor variable. Model 2 adds perception of risk to the baseline. Model 3 further adds gender, age and race, and Model 4 still further adds perceived and observed disorder. In model 1 fear is found to be a statistically significant predictor of avoiding certain areas of the city, such that for a one-unit increase in a respondent’s fear level they would be 68% more likely to report avoiding certain areas of the city. However after adjusting for perceived risk in Model 2 fear ceases to be a statistically significant predictor. In fact across all three models (Model 2-4) there was found to be no statistically significant predictors of avoiding certain areas of the city.

Table 9: Logistic Regression Models for Predicting Avoidance of Areas

	Model 1			Model 2		Model 3		Model 4	
Variables	OR	(SE)		OR	(SE)	OR	(SE)	OR	(SE)
Fear	1.68	(0.33)	**	1.40	(0.36)	1.35	(0.36)	1.39	(0.38)
Perceived Risk				1.36	(0.38)	1.32	(0.37)	1.35	(0.39)
Female						1.44	(0.64)	1.46	(0.68)
Race									
African American (ref)									
White						1.00	(0.46)	1.01	(0.47)
Other						1.85	(1.65)	1.74	(1.57)
Age									
18-34 (ref)									
35-54						0.46	(0.26)	0.43	(0.26)
55-64						1.45	(0.93)	1.23	(0.85)
65+						1.08	(0.71)	0.98	(0.68)
Perceived Disorder								0.87	(0.23)
Tract-Level Variables from SSO									
Physical Disorder								1.23	(0.40)
Social Disorder								0.89	(0.27)

*** $p<.001$, ** $p<.01$, * $p<.05$

Predicting Constrained Social Behavior Using Risk/Fear Typologies

Finally I turn to an examination using risk and fear in combination to predict constrained social behavior. Table 10 presents odds ratios and standard errors for ordered logistic and logistic regression models using risk/fear typologies as predictors, as well as gender, age, race, and disorder. Model 1 presents an ordered logistic regression model predicting the frequency of going out after dark. Model 2 presents an ordered logistic regression model predicting the amount of time away from home. Models 3 and 4 use logistic regression models instead of ordered logistic regression models because the response categories for changing or limiting behavior" (model 3) and for avoid certain areas of the city (model 4) are binary response categories. Table 10 sets high risk/high fear as the reference category rather than low risk/low fear because when generating the typologies the high/high category had a more even internal distribution than the low/low category which was better suited to be the reference value for the other variables.

Results for Model 1 show that low risk/low fear and gender were statistically significant predictors of going out after dark, with low risk/low fear being a positive predictor and gender being a negative predictor. If a respondent expressed low levels of perceived risk *and* low levels of fear of crime, there was a 284% increase in the proportional odds (with an odds ratio of 3.84) of them being in a higher category for frequency of going out after dark. For female respondents, there was a 58% decrease in the proportional odds (with an odds ratio of .42) of them being in a higher category for frequency of going out after dark.

Results for Model 2 show that the age category of 65+ is the only statistically significant predictor of amount of time spent away from home. The age category 65+ was found to be a

negative predictor such that if a respondent fit this category they were 69% less likely to spend more time away from home.

Table 10: Regression Models Predicting Constrained Social Behavior Using Fear/Risk Typologies

	Ordinal Logit						Logit					
	Alone at night			Time away from home			Change behavior			Avoid areas		
Variable	OR	(SE)		OR	(SE)		OR	(SE)		OR	(SE)	
Risk/Fear Typology												
Low victim risk, low fear	3.84	(1.70)	**	1.35	(0.59)		0.03	(0.02)	***	0.26	(0.18)	*
Low victim risk, high fear	2.49	(1.51)		2.37	(1.61)		0.51	(0.44)		0.36	(0.33)	
High victim risk, low fear	1.68	(0.95)		0.82	(0.47)		0.21	(0.17)	*	0.61	(0.54)	
High victim risk, high fear (ref)												
Female	0.42	(0.14)	*	0.70	(0.24)		1.45	(0.82)		1.69	(0.77)	
Race												
African American (ref)												
White	0.97	(0.34)		0.72	(0.26)		0.66	(0.40)		1.07	(0.50)	
Other	0.82	(0.44)		2.05	(1.17)		3.83	(3.10)		1.98	(1.76)	
Age												
18-34 (ref)												
35-54	1.65	(0.75)		0.71	(0.33)		0.87	(0.61)		0.40	(0.24)	
55-64	1.29	(0.62)		0.80	(0.39)		1.00	(0.80)		1.21	(0.85)	
65+	0.45	(0.23)		0.31	(0.16)	*	0.32	(0.30)		0.97	(0.67)	
Perceived Disorder	0.95	(0.17)		0.93	(0.17)		1.03	(0.27)		0.90	(0.23)	
Tract-Level Variables from SSO												
Physical Disorder	1.08	(0.26)		0.92	(0.23)		0.56	(0.22)		1.21	(0.40)	
Social Disorder	0.96	(0.24)		0.86	(0.21)		0.46	(0.37)		0.93	(0.27)	

*** $p<.001$, ** $p<.01$, * $p<.05$

Results for Model 3 show that low risk/low fear and high risk/low fear are statistically significant negative predictors of changing or limiting activity. If a respondent expressed both low levels of perceived risk and low levels of fear of crime they were 97% less likely to report changing or limiting their activities because of crime. In addition, if a respondent expressed high

levels of perceived risk but low levels of fear of crime, they were 79% less likely to report changing or limiting their activities because of crime.

Results for Model 4 showed that low risk/low fear was a statistically significant negative predictor of avoiding certain areas within the city. If a respondent expressed low levels of both perceived risk and fear of crime they were 74% less likely to report that they avoided certain areas of the city because of crime.

Now I turn to a comparison between the results found in the models predicting measures of constrained social behavior using fear of crime and perceptions of risk as independent variables, and the results found in the models predicting constrained social behavior using the risk/fear typologies. Results from Table 6 showed fear of crime and gender to be statistically significant negative predictors of frequency with which a respondent goes out after dark. This is consistent with the typology results from Table 10, which showed that respondents with low levels of risk and low levels of fear were more likely to go out frequently after dark. Thus, respondents with high levels of risk and high levels of fear would be less likely to go out after dark. Similarly, female respondents were less likely to frequently go out after dark.

Results from Table 7 showed the age category of 65+ to be a statistically significant negative predictor of amount of time spent away from home. Results from the typologies presented in Table 10 were also consistent with those findings.

Results from Table 8 showed fear of crime to be a statistically significant positive predictor of a respondent changing or limiting their activity. This is also consistent with the typology results from Table 10 which showed both the low risk/low fear and the high risk/low fear to be statistically significant negative predictors of changing activity such that if a

respondent expressed low levels of fear they would be less likely to report changing or limiting their activity because of crime.

Importantly, where the results from Table 9 showed no statistically significant predictors of avoiding areas of the city, the results from the typologies in Table 10 showed that the low risk/low fear category was a statistically significant negative predictor of avoiding areas of the city. Compared to low risk/low fear individuals, respondents in the high perception of risk/high fear of crime category would be more likely to report avoiding certain areas of the city because of crime. Thereby the comparison between both sets of results suggests that using risk and fear in combination is a better way to predict constrained social behavior than using the variables independently.

DISCUSSION

Evidence presented in past research suggests that high levels of perceived disorder result in resident fear of crime and that high levels of fear are likely to result in withdrawal from public spaces (Liska et al. 1988; Markowitz et al. 2001; Gainey et al. 2010; Rengifo and Bolton 2012). Withdrawal from public spaces is theorized to present more opportunities for the creation of crime and disorder, which instills still more fear. Although this study is not longitudinal and therefore cannot draw conclusions about the causal links between these concepts, theory suggests that these concepts are part of an "escalating causal loop" which contributes to the decline of a neighborhood (Liska 1988:835). As such, examining the association between disorder, fear of crime and constrained social behavior is paramount to understanding neighborhood decline.

Consistent with prior research on incivilities (also referred to as disorder) and social disorganization as well as my first hypothesis, this study identified a significant association

between residents' perceptions of disorder and fear of crime only, however, indirectly and mediated by perception of risk of victimization. Perceived disorder did however have direct effects on perceptions of risk, which suggests that perceptions of disorder are still predictive of fear of crime, however only if the signs of disorder first trigger an increase in the residents' perceived risk of being victimized by crime. These results support previous findings about the indirect effects of disorder on fear of crime, and its direct effects on perceived risk (LaGrange et al. 1992). The results also provide support for the operationalization of Ferraro's (1995) Risk Interpretation Model, which emphasizes the importance of studying fear and risk as separate entities (for other examples of studies that have employed this method see Gainey et al. 2010; Rengifo and Bolton 2012; and Abdullah et al. 2014). This study distinguished between the cognitive (risk) and emotional (fear) aspects of fear of crime both when analyzing fear as an outcome and in understanding how fear is related to behavior changes.

This study adds to the growing evidence of an association between disorder and fear of crime and further extends past research by distinguishing between objectively and subjectively rated measures of disorder in analyzing the relationship between disorder and fear of crime. I found that perceived disorder is a better predictor of fear of crime than measures of observed disorder. Observed disorder was not found to be a significant predictor of either perceived risk or fear of crime, nor did I find it to be strongly positively correlated with perceived disorder. Previous findings on this topic are mixed such that some findings provide support that observed and perceived disorder are strongly correlated, (Covington and Taylor, 1991; LaGrange et al. 1992; Sampson and Raudenbush 1999) while others do not (Perkins et al. 1993). It is unclear why the research findings are currently mixed, however Sampson and Raudenbush (1999) hypothesize that it is because the number of studies employing both observational and subjective

ratings of disorder is small, and because these measures vary by study site, types of measurements used, as well as level of aggregation. Therefore the contributions of this study are useful in understanding how observed and perceived disorder are related, since there are presently so few studies to examine both measures in unison.

This study also contributes to the existing literature on constrained social behavior as a response to fear of crime by assessing social behavioral differences based on different levels of residents' fear of crime. Previous studies have found links between heightened resident fear of crime and constrained social behavior, however due to inconsistencies with measurements of fear (use of one construct or two) and differences in measurements of behavioral modifications (considering either preventative, adaptive or avoidant behavior) the supporting evidence is shaky (Liska et al. 1988; Rengifo and Bolton 2012). I add to the existing literature by first measuring the effects of fear of crime on social behavior using the two constructs separately. I then extended prior research by considering the two constructs as typologies and measuring their combined effects on social behavior. Moreover, I measured four constructs of constrained social behavior, each of which was intended to measure preventative, adaptive or avoidant behavior.

My findings provide support an association between fear of crime and constrained social behavior. I found the amount of time a resident spends away from home after dark (going out to restaurants, theaters, bars etc.) is influenced by their fear of crime. Residents who expressed high levels of fear leave home after dark less often than residents who expressed low levels of fear of crime. The measure of going out after dark captures preventative social behavior such that residents reduce the amount of time they spend away from home at night to avoid being victimized by crime. In addition, I also found that females spend less time away from home at night than males. This supports vulnerabilities theories, which posit that individuals who feel

physically vulnerable, due to their feelings of inability to protect themselves from crime, are more likely to be affected by fear of crime and thus more likely to react with changes in social behavior (Abdullah et al. 2014; Skogan and Maxfield 1981).

I also found that whether or not residents will change or limit their behavior is influenced by their fear of crime. This measure was intended to capture the adaptive aspect of constrained social behavior, examining how residents adapt based on fear of crime. I found that if a resident expressed higher levels of fear of crime they were more likely to change or limit their activities because of crime. Yet I did not find a significant link between fear of crime and whether or not a resident avoids certain areas of the city, the avoidant aspect of constrained social behavior. However, when examining the interaction between fear and perceived risk in the typology models, high fear and high risk combined was found to be a significant predictor of residents avoiding areas of the city. The risk/fear typology was also a significant predictor of the whether or not a resident will change or limit their activities, as well as the frequency with which residents go out after dark. These findings support my hypothesis and suggest that although fear of crime was found to be a significant predictor of both preventative and adaptive social behavior, considering fear of crime and perceived risk of victimization in unison is a better overall predictor because it also works to predict avoidant social behavior.

Neither fear of crime, nor perceived risk of victimization were predictors of the amount of time residents spend away from home during the day. This suggests that the amount of time a resident spends away from home during the day might be driven by necessity, rather than preference. Stage of life course would influence the amount of time a resident spends away from home during the day, for example whether or not they were retired, employed, or a student. Regardless of whether a resident experiences high levels of fear of crime and would prefer

spending less time away from home, necessities even outside of work or school, such as grocery shopping, daycare paying bills etc. prevent them from staying home.

Although these findings make significant contributions, this study is not without limitations. Lack of longitudinal data meant I could not examine the temporal and reciprocal relationships between key variables of the risk interpretation model. As a result, a feedback loop amongst crime, fear and disorder may not be apparent. Future studies should examine the relationship between not only these variables but also neighborhood cohesion and neighborhood stability, two variables that may influence disorder by decreasing neighborhood informal social control and organization, over time. Furthermore, future studies should measure and compare the various effects of fear and risk perception on other preventative measures taken against victimization, such as direct intervention in crime and informal neighborhood surveillance of crime.

Moreover, the study of fear of crime and neighborhood incivility could benefit from more qualitative research, which at this time appears to be limited. This study was unable to examine with more depth the relationship between behavioral modifications in response to crime and the composition of the areas within the city that are most frequently avoided. Furthermore, this study was unable to discover how residents themselves define the boundaries of the neighborhoods they live in, which may or may not be congruent with the way the census defines blocks. This variance could create a mismatch between the way in which respondents thought about neighborhoods as they were completing the survey, and the way in which neighborhoods were objectively observed and coded. Future research might address this issue by considering a more geographically nuanced approach.

Finally, the systematic social observation coding method that I used to collect the observed disorder data constrained by data collection to daylight hours which did not allow me to code for the presence of disorder, specifically social disorder, after dark. Future studies might consider coding during both daylight and nighttime hours, as well as coding a specific block on multiple occasions to account for temporal variance.

Despite these limitations, this study has made significant theoretical contributions. The current paper is one of few to combine questions of disorder, fear of crime, and constrained social behavior within one study. This study also illustrates the importance of measuring fear of crime and perceived risk as separate constructs. Moreover, this research contributes findings to two areas of research—research on objective and perceived disorder, and research on constrained social behaviors—that are both currently inconsistent or lacking in empirical evidence. Finally, and perhaps most important, this paper is one of the first to examine the interaction between cognitive and emotional aspects of fear of crime when analyzing the association between fear and behavioral changes. These results suggest that behavioral change is more likely when residents express high levels of both fear and perceived risk. As such, I hope that the findings presented in this study will spur future investigators to simultaneously consider perceived risk and fear of crime in predicting constrained social behavior.

APPENDIX A
CONSENT FORM

UNIVERSITY OF MICHIGAN
CONSENT TO BE PART OF A RESEARCH STUDY

Consent to Participate in a Research Study

Title of the Project: Neighborhood Incivilities: Effects of Disorder on Fear of Crime and Constrained Social Behavior
Principal Investigator: Karina Lopez, Sociology honors student, University of Michigan
Faculty Advisor: Jeffrey Morenoff, Professor of Sociology, College of Literature, Science and the Arts, Research Professor, Population Studies Center and Residential Professor, Survey Research Center, Institute for Social Research, University of Michigan

Invitation to Participate in a Research Study

We invite you to be part of a research study about the effects of neighborhood disorder on fear of crime and how fear shapes movement within the city. The research from this study might lead to increased knowledge of the effects disorder has on resident fear of crime, which is known to lead to urban decay within cities.

Description of Your Involvement

If you agree to be part of the research study, we will ask you to answer a series of ten questions that cover topics of fear of crime, neighborhood characteristics and routine daily activity. This survey should take no longer than ten minutes to complete. Your participation in the study will end after the completion of the survey on the date that it is administered.

Benefits of Participation

Although you may not directly benefit from being in this study, others may benefit because this study might lead to increased knowledge of the effects disorder has on crime and urban decay which could help shape future policies.

Risks and Discomforts of Participation

There may be some risk or discomfort from your participation in this research. You face no more than minimal risk, which means that any discomfort that may be experienced during this study is not greater than the risk ordinarily encountered in daily life. For example, because this survey is conducted face-to-face there may be the risk of embarrassment and unwillingness to answer the survey questions.
We will mitigate this risk by assuring you that your recorded answers, name, address and location will remain confidential. Your recorded answers will be stored in a password-protected computer and no identifying information will be attached to your answers or shared with anyone outside of the researchers conducting this study. Also, if at any point during the study you feel uncomfortable you are free to leave a question unanswered or withdraw from the study.

Compensation for Participation

For your participation in this research project, after your completion of the survey you will be entered into a drawing for a $25 Visa gift card. Your chances of winning are approximately 1 in 25. Your address will be recorded in order to notify you if you are the winner of the gift card. Your address will be used solely for this purpose and will not be connected in any way to your survey response, will not be included in the study, and will be destroyed after the drawing. You must complete the survey to qualify for this drawing.

Confidentiality

We plan to publish the results of this study. We will not include any information that would identify you. Your privacy will be protected and your research records will be confidential. It is possible that other people may need to see the information you give us as part of the study, such as organizations responsible for making sure the research is done safely and properly like the University of Michigan.

Storage and Future Use of Data

We will store your data in a spreadsheet on a password-protected computer for the duration of this study, which will not exceed two years. At the completion of this study your data will be destroyed. Your name and any other identifying information will be secured and stored separately from your research data. Only Karina Lopez and Jeffrey Morenoff will have access to your research files and data. Research data may be shared with other investigators but will never contain any information that could identify you.

Voluntary Nature of the Study

Participating in this study is completely voluntary. Even if you decide to participate now, you may change your mind and stop at any time. You do not have to answer a question you do not want to answer. Just tell us and we will go to the next question. If you decide to withdraw before this study the data you provided us with may still be retained for the duration of the study but will be destroyed at the completion of the study.

Contact Information for the Study Team

If you have questions about this research, including questions about scheduling or your compensation for participating, you may contact:

Principal Investigator: Karina Lopez
Mailing Address: 1300 S. University Ave. Apt705 Ann Arbor, MI 48104
Telephone: (810) 919-9298

Or

Faculty Advisory: Jeffrey Morenoff
Mailing Address: 500 South State Street #3001, Ann Arbor, MI 48109
Telephone: (734) 936-2949

Contact Information for Questions about Your Rights as a Research Participant

If you have questions about your rights as a research participant, or wish to obtain information, ask questions or discuss any concerns about this study with someone other than the researcher(s), please contact the:

University of Michigan Health Sciences and Behavioral Sciences Institutional Review Board
2800 Plymouth Road
Building 520, Room 1169
Ann Arbor, MI 48109-2800
Phone: (734) 936-0933 or toll free, (866) 936-0933
Email: irbhsbs@umich.edu

Consent

We will give you a copy of this document for your records. We will keep one copy with the study records. Be sure that we have answered any questions you have about the study and that you understand what you are being asked to do. You may contact the researcher if you think of a question later.

APPENDIX B
DOOR-TO-DOOR SURVEY SCRIPT

Hello, My name is Karina Lopez I'm a student from the University of Michigan sociology department and I am conducting research for my thesis. I am conducting a research study on neighborhood characteristics and fear of crime. This research will help better understand the problem that is fear of crime and how people react based on their fear of crime.

The survey will take approximately 10 to 15 minutes to complete. As compensation for your time, if you agree to participate in this survey you will be included in a drawing for a $25 Visa gift card. Your chances of winning are approximately 1 in 30. Any information you provide me with will be confidential.

Would you be willing to participate in this survey today?

If yes: *continue to the Consent Script*

If no: "Thank you for your time, you will not be contacted again. Have a great day!

APPENDIX C
IRB SAFETY PLAN

In preparation for Social Systematic Observation field research and door-to-door survey distribution this Safety Plan has been developed to ensure the safety of the study's Principal Investigator: Karina Lopez.

The following information will be documented:

1) The location where I will be conducting research (block number with street names)
2) All arrival and departure dates and times
3) Emergency contact: the name, phone number and address of a person to contact in case of emergency
4) A local contact: the name of an individual near my fieldwork site who I will check in and out with before and after traveling to a location site

Field research will be conducted within the city of Flint, Michigan during daylight hours. Due to the potential danger of some of the neighborhoods in the study's sample I intend to hire a research assistant to accompany me during field research. Utilizing the "buddy system" will ensure that I am not alone in potentially dangerous areas. Before traveling to a location I will log the location, time of arrival and expected time of departure on a Google document to be shared with my local contact. If I do not check out with my local contact within the allotted time frame on the Google document they are instructed to attempt to contact me. Failing that, they are instructed to attempt to contact my research assistant. If still failing to make contact the local contact person is instructed to contact local authorities providing them with my location, and to inform my emergency contact.

Check-ins and outs will be conducted via text message and then reflected on the Google document using the statuses "active" and "inactive" to reflect when the PI is in the field or is not. The emergency contact will have access to the PI's health insurance information in case of emergency.

APPENDIX D
SURVEY INSTRUMENT

LSA SOCIOLOGY
UNIVERSITY OF MICHIGAN

Neighborhood Incivilities: Effects of Disorder on Fear of Crime Survey

Q1 With which gender do you identify?
- ❍ Male
- ❍ Female
- ❍ Other

Q2 What is your race or ethnicity? (select all that apply)
- ❑ African American/African/Black
- ❑ Asian/Pacific Islander
- ❑ Caucasian
- ❑ Hispanic/Latino
- ❑ Native American
- ❑ Other

Q3 What is your age?
- ❍ 18-24
- ❍ 25-34
- ❍ 35-54
- ❍ 55-64
- ❍ 65 or older

Q4 How afraid are you of...

	Not afraid at all	Slightly afraid	Neutral	Moderately afraid	Very afraid
Walking alone after dark (1)	❍	❍	❍	❍	❍
Being robbed on the street (2)	❍	❍	❍	❍	❍
Being approached by a beggar or panhandler (3)	❍	❍	❍	❍	❍
Someone breaking in while you are at home (4)	❍	❍	❍	❍	❍
Someone breaking in while you are away (5)	❍	❍	❍	❍	❍
Being sexually assaulted (6)	❍	❍	❍	❍	❍
Being attacked in public with a weapon (7)	❍	❍	❍	❍	❍
Having your car stolen (8)	❍	❍	❍	❍	❍
Having your property damaged by vandals (9)	❍	❍	❍	❍	❍
Being murdered (10)	❍	❍	❍	❍	❍

Q5 How likely do you think it is that you will...

	Very unlikely	Unlikely	Neutral	Somewhat likely	Very likely
Be bothered while walking alone after dark (1)	❍	❍	❍	❍	❍
Be robbed on the street (2)	❍	❍	❍	❍	❍
Be approached by a beggar or panhandler (3)	❍	❍	❍	❍	❍
Have someone break in while you are at home (4)	❍	❍	❍	❍	❍
Have someone break in while you are away (5)	❍	❍	❍	❍	❍
Be sexually assaulted (6)	❍	❍	❍	❍	❍
Be attacked in public with a weapon (7)	❍	❍	❍	❍	❍
Have your car stolen (8)	❍	❍	❍	❍	❍
Have your property damaged by vandals (9)	❍	❍	❍	❍	❍
Be murdered (10)	❍	❍	❍	❍	❍

Q6 In your neighborhood, how great a problem is...

	Not a problem at all	A mild problem	Neutral	A fairly big problem	Very problematic
Trash and litter lying around (1)	❍	❍	❍	❍	❍
Graffiti on walls or sidewalks (2)	❍	❍	❍	❍	❍
Vacant or boarded up houses (3)	❍	❍	❍	❍	❍
Signs of vandalism (4)	❍	❍	❍	❍	❍
Abandoned cars (5)	❍	❍	❍	❍	❍
Noisy or disruptive neighbors (6)	❍	❍	❍	❍	❍
People hanging out in the streets or on street corners (7)	❍	❍	❍	❍	❍
Public drinking or intoxication (8)	❍	❍	❍	❍	❍
Stray dogs or cats (9)	❍	❍	❍	❍	❍
Panhandlers or Beggars (10)	❍	❍	❍	❍	❍

Q7 In general, have you limited or changed your activities in the past year because of worry about being a victim of crime?

- ❍ Yes
- ❍ No

Q8 In general, have you avoided certain areas of the city because of crime?

- ❍ Yes
- ❍ No

Q9 How often do you go out after dark to restaurants, theaters, bars etc. within the city?

- ❍ Less than Once a Month
- ❍ Once a Month
- ❍ 2-3 Times a Month
- ❍ Once a Week
- ❍ 2-3 Times a Week
- ❍ Daily

Q10 How many hours during the day do you spend away from home NOT INCLUDING work or school-related activities?

- ❍ none
- ❍ 1-2 hours
- ❍ 3-4 hours
- ❍ 5-6 hours
- ❍ 7 or more hours

Q11 Please provide your address so that we may notify you if you are the winner of the gift card (this is the address the gift card will be sent to).

END OF SURVEY

Thank you for your participation!

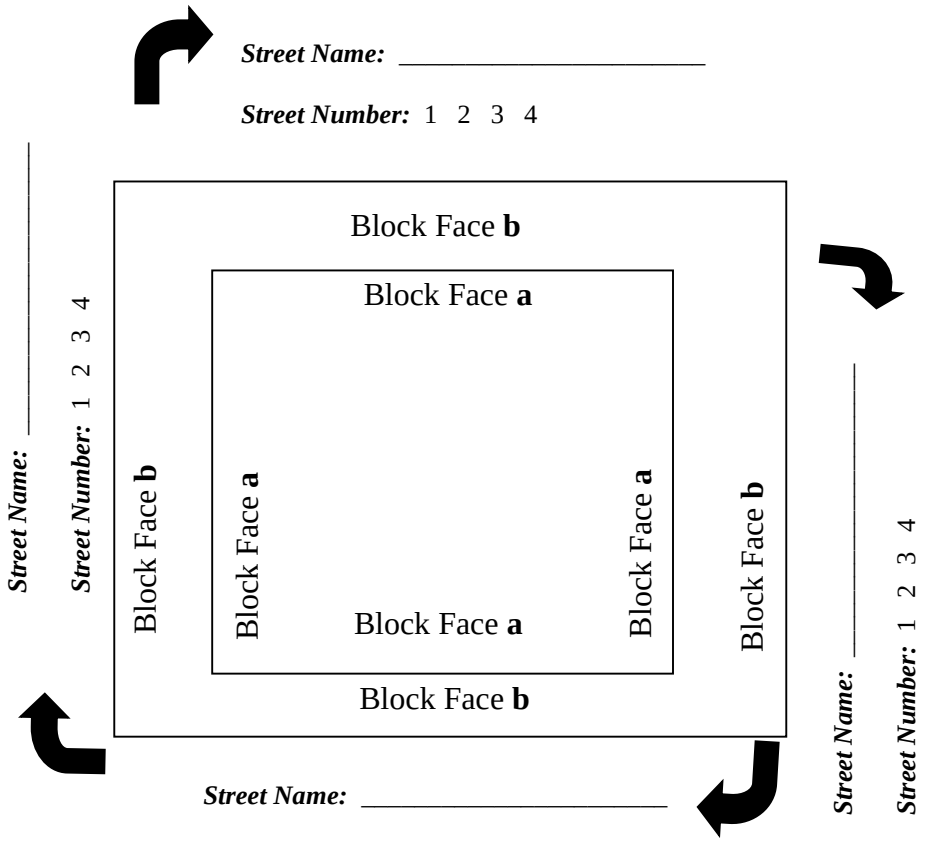
APPENDIX E
SYSTEMATIC SOCIAL OBSERVATION CODING SHEET

Block ID # _____ ***Mode of Transportation:*** _____

Observer Name: _____

Date:_____ ***Start Time:*** _____am pm ***End Time:*** _____ am pm

On the diagram below, circle the street numbers and write the street names to indicate the starting point of observation. All of the block faces on the inside of the block will be coded "a" and all block faces on the outside will be coded "b." If this diagram in no way resembles the block under observation, use the blank space at the bottom to sketch a diagram, identifying streets with both a number and a name.



GENERAL QUESTIONS ABOUT ENTIRE STREET

QUESTION	STREET NUMBER			
	1	**2**	**3**	**4**
Volume of Traffic (CHECK ONE)				
1) No Traffic				
2) Light (occasional cars)				
3) Moderate				
4) Heavy (steady stream of cars)				
	1	**2**	**3**	**4**
Condition of the Street (CHECK ONE)				
1) Under Construction				
2) Very Poor (many sizeable cracks, potholes, or broken curbs)…				
3) Fair				
4) Moderately Good (no sizeable cracks, potholes, or broken curbs)				
5) Very Good				
	1	**2**	**3**	**4**
How noisy is the street? (CHECK ONE)				
Very Quiet – easy to hear almost anything				
Fairly Quiet – can hear people walking by talking, though you may not understand them				
Somewhat Noisy – voices are not audible unless very near				
Very noisy - difficult to hear a person talking near to you.				
	1	**2**	**3**	**4**
Are there any people visible on the street? (CHECK ONE)				
1) Yes				
2) No				

QUESTIONS ABOUT INDIVIDUAL BLOCK FACES

PHYSICAL INCIVILITIES

QUESTION	BLOCK FACE							
	1a	**2a**	**3a**	**4a**	**1b**	**2b**	**3b**	**4b**
6. Which of the following are present on the block face? (RATE 0, 1, 2, OR 3.)								
1) Abandoned cars								
2) Trash or litter in the streets or gutters								
3) Trash or litter on the sidewalks								
4) Trash or litter on private yards								
QUESTION	**1a**	**2a**	**3a**	**4a**	**1b**	**2b**	**3b**	**4b**
Is there graffiti present? (RATE 0, 1, 2, OR 3)								
1) On walls								
2) On sidewalks								

QUESTION	BLOCK FACE							
	1a	2a	3a	4a	1b	2b	3b	4b
Vacancy (RATE 0, 1, 2, OR 3)								
1) Vacant or boarded up houses								
2) Vacant or boarded up businesses								
QUESTION								
Are there signs of property damage or vandalism? (RATE 0, 1, 2, OR 3)	1a	2a	3a	4a	1b	2b	3b	4b
1) Broken out windows of property								
2) Apparent fire damage								
3) Broken out windows of cars								

SOCIAL INCIVILITIES

QUESTION	BLOCK FACE							
	1a	2a	3a	4a	1b	2b	3b	4b
Level of Noise (RATE 0, 1, 2, OR 3)								
1) Music coming from houses								

2) Music coming from cars								
3) 3) Neighbors talking loudly or yelling								
QUESTION	**1a**	**2a**	**3a**	**4a**	**1b**	**2b**	**3b**	**4b**
Loitering (RATE 0, 1, 2, OR 3)								
1) Individuals hanging out in the streets or on street corners								
2) Individuals publicly intoxicated								
3) Individuals engaging in illicit drug use in public								
4) Prostitution								
5) Panhandlers or beggars								
6) Stray dogs or cats								

REFERENCES

Abdullah, A., & Marzbali, M.H., & Woolley, H., & Bahauddin, A., & Maliki, N.Z. (2014). *European Journal of Criminal Policy Research*, *20*(1), 1-22.

Bursik, Robert J., Jr. (1988). Social Disorganization and Theories of Crime and Delinquency: Problems and Prospects. *Criminology,* 26, 519-551.

Christie-Mizell CA, Steelman LC, Stewart J. Seeing their surroundings: the effects of neighborhood setting and race on maternal distress. Social Science Research. 2003;32:402–428.

Covington, J., & Taylor, R. B.. (1991). Fear of Crime in Urban Residential Neighborhoods: Implications of Between- and Within-Neighborhood Sources for Current Models. *The Sociological Quarterly*, *32*(2), 231–249. Retrieved from http://www.jstor.org.proxy.lib.umich.edu/stable/4120959

Ferraro, K. F. (1995). *Fear of crime: Interpreting victimization risk*. Albany, NY: State University of New York Press.

Ferraro, K. F., & Grange, R. L. (1987). The measurement of fear of crime*. *Sociological Inquiry*, *57*(1), 70-97.

Gainey R., & Alper, M. & Chappell, A.T. (2010). Fear of Crime Revisited: Examining the Direct and Indirect Effects of Disorder, Risk Perception, and Social Capital. *The American Journal of Criminal Justice*, *36*(1), 120-137.

Hunter, A. (1978). Symbols of Incivility: Social Disorder and Fear of Crime in Urban Neighborhoods. Paper presented at the 1978 meeting of the American Society of Criminology, Dallas TX, November 8-12, 1978.

Karb, R. A., Elliott, M. R., Dowd, J. B., & Morenoff, J. D. (2012). Neighborhood-level stressors, social support, and diurnal patterns of cortisol: The chicago community adult health study. *Social Science & Medicine, 75*(6), 1038-1047.

Kelling, G. L., & Coles, C. M. (1996). *Fixing broken windows: Restoring order and reducing crime in our communities*. New York: Martin Kessler Books.

Kelling G.L., & Wilson, J.Q. (1982). Broken Windows: The Police and Neighborhood Safety. *The Atlantic*:127. Retrieved from http://www.theatlantic.com/magazine/print/1982/03/broken-windows/304465.

LaGrange, R.; Ferraro, K. (1989). Assessing Age and Gender Differences in Perceived Risk and Fear of Crime. *Criminology* 27(4), 697-720.

LaGrange R.L., & Ferraro K., & Supanic M. (1992). Perceived risk and fear of crime: Role of social and physical incivilities. *Journal of Research in Crime and Delinquency 29*(3), 311-334.

Lewis, D. A., & Maxfield, M. G. (1980). Fear in the neighborhoods: An investigation of the impact of crime. *Journal of Research in Crime and Delinquency, 17*(2), 160.

Liska, A. E., Sanchirico, A., & Reed, M. D. (1988). Fear of crime and constrained behavior specifying and estimating a reciprocal effects model. *Social Forces, 66*(3), 827-837.

Markowitz F.E., & Bellair P.E., & Liska A.E., & Liu J. (2001). Extending social disorganization theory: Modeling the relationships between cohesion, disorder, and fear*. *Criminology 39*(2), 293-320.

Perkins, D. D., Wandersman, A., Rich, R. C., & Taylor, R. B. (1993). The physical environment of street crime: Defensible space, territoriality and incivilities. *Journal of Environmental Psychology, 13*(1), 29.

Reiss, Albert J., Jr. 1971. "Systematic Observations of Natural Social Phenomena." Pp. 649 American Journal of Sociology 3–33 in Sociological Methodology, vol. 3, edited by Herbert Costner. San Francisco: Jossey-Bass

Rengifo A.F., & Bolton A. (2012). Routine Activities and Fear of Crime: Specifying individual-level mechanisms. *European Journal of Criminology, 9*(2), 99-119.

Sampson, R. J., & Raudenbush S.W. (1999). Systematic social observation of public space: A new look at disorder in urban neighborhoods. *American Journal of Sociology, 105*, 603-651.

Sampson, R. J., & Raudenbush, S. W. (2004). Seeing disorder: Neighborhood stigma and the social construction of "broken windows". *Social Psychology Quarterly, 67*(4), 319-342.

Shaw C., McKay H. (1942). Juvenile delinquency and urban areas. University of Chicago Press, Chicago.

Skogan W.G. (1986a). The Fear of Crime and Its Behavioral Implications*. *In Ezzat A. Fattah. From Crime Policy to Victim Policy: Reorienting the Justice System.* London: Macmillan, 167-188.

Skogan W.G. (1986b). Fear of Crime and Neighborhood Change. The University of Chicago.

Skogan W.G. (1987). The Impact of Victimization on Fear. *Crime & Delinquency, 33*(1), 135-154.

Skogan, W. G. (1990). *Disorder and Decline: Crime and the Spiral of Decay in American Neighborhoods.* NY. The Free Press.

Skogan, W.G., & Lewis, D.A. (1979). The Reactions to Crime Project. *Law & Policy Quarterly, 1* (4), 497-500.

Skogan, W.G., & Maxfield M.G. (1981). *Coping with Crime: Individual and Neighborhood Reactions.* Beverley Hills, CA. Sage Publications, Inc.

StataCorp. 2015. *Stata Statistical Software: Release 14*. College Station, TX: StataCorp LP.

United States Census Bureau; American Community Survey, 2010 Population Census, Table POP010210; Quick Facts: Retrieved from http://www.census.gov/quickfacts/table/POP010210/2629000,00.

United States Department of Justice, Federal Bureau of Investigation. (2010-2014). *Crime in the United States.* Retrieved from https://www.fbi.gov/about-us/cjis/ucr/crime-in-the-u.s/2010/crime-in-the-u.s.-2010/tables/table-8/10tbl08mi.xls.