

THE EFFECTS OF REPORTED CRIME AND NEIGHBORHOOD CONTEXT ON
CITIZENS' PERCEPTIONS OF NEIGHBORHOOD CRIME AND DISORDER IN
HOUSTON

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ABSTRACT

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Perceptions of neighborhood crime and disorder are important for life quality in the community. Often the time, perceptions are not consistent with reality due to the complicity of human perceptions. Previous studies predominately focused on fear of crime. However, fear of crime is different from people's interpretation of the prevalence and severity of crime and disorder issues in the neighborhood. Therefore, the current study attempted to examine the major factors that affect citizens' perceptions regarding the frequency and severity of crime and disorder issues in the neighborhood. Four data sources were used, including data collected from a random telephone survey of Houston citizens, data collected from citizen participants in the Houston Police Department's Positive Interaction Program (PIP), calls for service data in Houston, and census data of Houston city.

Structural Equation Modeling (SEM) was employed. Results derived from the analyses indicated that perceptions are consistent with reality to a certain extent. This is because reported crime was found to be a significant predictor across models although the strength was moderate. Neighborhood structure related variables failed to reach significance when predicting perceptions of neighborhood crime, but concentrated disadvantage was significantly related to perceptions of neighborhood disorder. Likewise, collective efficacy was a significant predictor of perceptions of neighborhood disorder, but not for perceptions of neighborhood crime. Two community policing related factors were the most significant predictors. Participants of PIP were more likely to perceive

crime and disorder issues in the neighborhood. Residents with positive attitudes toward the police tended to perceive less crime and disorder issues in the neighborhood.

Individual associated factors, such as age, race, and immigration status were found significant across models. It suggested that systematic perceptual difference on the part of residents did exist.

Findings derived from this study demonstrated that although crime and disorder are the original sources of crime-related perceptions, factors associated with the control of crime and disorder are the most important elements when it comes to residents' recognition of crime and disorder problems. Hence, making efforts to enhance crime control as well as citizen participation in the control are crucial to enhance community quality.

KEY WORDS: Perceptions of neighborhood crime; Perceptions of neighborhood disorder; Reported crime; Neighborhood structure; Collective efficacy; Community policing; Citizen participation

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CHAPTER I

Introduction

Perceptions of crime have been studied for decades in the United States.

Disentangling the predictors of perceptions of crime is one of the primary goals in the burgeoning criminological literature. Indeed, a plethora of theories and theses have been developed to understand individual's perceptions of crime, such as social disorganization theory (Shaw & McKay, 1942[1969]), collective efficacy framework (Sampson, Raudenbush, & Earls, 1997), and broken window thesis (Wilson & Kelling, 1982). Programs and policies aiming at shaping residents' perceptions of crime in a correct way have also been implemented in practice, including community policing, neighborhood watch, and urban or physical design, just to name a few. Perceptions of crime are important since crime is not just an economic issue. It concerns social and psychological issues that can generate fear and stresses among community residents, and adversely impact life quality among residents (Wilson, 1983).

First, perceptions of crime can affect individual's life satisfaction. Life satisfaction is closely connected with people's feeling of safety and financial capital (Ambrey, Fleming, & Manning, 2014; Sirgy & Cornwell, 2002). Violent crime is undoubtedly the issue that can lead physical and psychological injuries/hurts to individuals, which would bring in unhappiness, fear, anxiety, and/or even mental health issues (Cornaglia & Leigh, 2011). For instance, in the study of New Zealand datasets,

Breetzke and Pearson (2014) reported that fear of crime is a significant predictor of detrimental mental health outcomes and physical wellbeing, even after controlling for the individual-level and area-level factors. Property crime is a prominent risk factor for monetary loss. For example, Powdthavee's study (2005) found that self-reported life satisfaction decreased in local areas with higher level of crime rates. Hence, understanding the sources of perceptions of crime is important and necessary to improve residents' quality of life.

Another reason for the significance of doing research on perceptions of crime is that perception is not always consistent with reality, which may advance unnecessary fear of crime or an overreaction of crime (Beckett & Sasson, 2004; Chiricos, Padgett, & Gertz, 2000; Colen, Ramey, & Browning, 2016; Felson & Eckert, 2016; Gest, 2001; Indermaur & Roberts, 2005). Studies on the formation of crime-related attitudes/beliefs suggested that there is a gap between public perceptions of crime and the official record of crime and disorder or surveys on victimization rates (Ambrey et al., 2014; Barton et al., 2012; Davis & Dossetor, 2010; DeFrances & Smith, 1995; Duffy et al., 2008; Felson & Eckert, 2016; Indermaur & Roberts, 2005). For example, DeFrances and Smith's (1995) analysis of neighborhood crime suggested that household perceptions of crime remained relatively constant while the reported crime dropped sharply from 1994 to 1995. Residents from communities with higher-level of crime rates did not always

possess higher-level of fear than those from low-crime-rate communities (Lewis & Maxfield, 1980).

More importantly, residents' misperceptions of crime in the neighborhood may lead to ineffective crime-reduction policies or criminal justice relevant activities (Davis & Dossetor, 2010; Jackson, 2004; Shi, Roche, & McKenna, 2019). For instance, if residents perceive more criminal incidents in the neighborhood than the actual level of crime, they may demand more public services to protect their neighborhood, resulting in a waste of resources. In contrast, if residents believed that crime is not a serious issue in the neighborhood whereas criminal incidents happen frequently in the area, it can increase the chances that more residents would become victims or even repeat victims.

Historically, the public perceptions of crime and associated preventive policies have been one of the prior concerns among citizens in the United States for more than half a century (Gibson, Zhao, & Lovrich, 2002; Zhao, Lawton, & Longmire, 2015). However, the misperceptions of crime have resulted in some ineffective policies in society, to a certain extent. Since the 1960s, for example, the arguments of crime control policies have been divided into two opposite positions on a continuum (Wilson, 1983). Traditionally, the liberal position on crime argued that crime was not increasing and public concern about crime was "a rhetorical cover for racist sentiments" (Alexander, 2010, p.45-56; Wilson, 1983, p.3). They blamed crime on the unequal distribution of economic resources and attached significance to the community rehabilitation rather than

prison after admitting the sharply increasing situation of crime. Otherwise, the conservative position held that crime was a benefit-cost calculation of criminal offenders and thus preferred the “get-tough on crime” philosophy (Dilulio, 1991; Packer, 1968; Ren, Zhao, Lovrich, 2008).

In general, public sentiment about crime has led to the punitive policies on crime since the 1960s (Gest, 2001; National Research Council, 2014; Rose & Clear, 1998; Ren et al., 2008; Shi et al., 2019). Several years later, however, this partisan viewpoint gradually altered, and a consensus reached in society that both rehabilitation and deterrence were not effective in reducing crime (Cullen & Gendreau, 2001). Actually, the American society had experienced a prolonged increase in urban crime (particularly violent street crimes) from 1960s to the early 1990s and the crime rates have dropped significantly since the later 1990s (Federal Bureau of Investigation, 2015). However, public sentiment about crime and their support for punitive crime control policy is not consistent with the fluctuations of reported crime rate in society (Baumer & Wolff, 2014; Beckett, 1997; Colen et al., 2016; Gest, 2001; Shi et al., 2019; Spleman, 2005). For example, Gest (2001) argued that it is always the case that the public overestimate the level of violent crime and recidivism rate in the United States. Ambrey and colleagues’ study (2014) on the relationship between crime and life satisfaction in Australia revealed that “individuals’ perception of crime in their local area are far greater than actual levels

of crime” and “the gap between perceived and real crime is widening as real crime rates fall faster than the perceived rate of crime” (p.877).

Background of the Current Study

Based on the lessons of the past several decades, we are confident to argue that it is important to disentangle the myth of individual’s perceptions of crime. Put it differently, either from the aspect of the quality of contemporary life among residents or from the history of past experiences, there is sufficient evidence to point out that understanding the predictors of individuals’ perceptions of crime and how those factors related to their perceptions can improve community safety, life quality, and life satisfaction as well as develop effective policies and programs.

Human perception is a complicated issue and perceptions of crime can be influenced by factors from diverse resources. As Lee and Ulmer (2000) pessimistically noted, “One can never be certain of the risks of victimization. One can only gather the information related to the risk and make a judgment about it” (p.1176). From the perspective of the classical model, scholars stated that “residents’ perceptions of crime are a combination of the following three components, including actual level of crime and disorder in their environment, systematic bias on the part of residents, and idiosyncratic error on the part of residents” (Bollen, 1989, p.207; Hipp, 2010a, p.480). Since “the idiosyncratic error on the part of the residents” can be treated as random error in statistical models (Bollen, 1989; Hipp, 2010a, p.480), it is reasonable to speculate that the

actual level of crime and disorder (reported crime and disorder) and the systematic difference on the part of residents¹ are the two primary factors that can influence residents' perceptions of crime in their neighborhoods. In other words, residents' interpretations of community crime and disorder are subject to the influence of reported amount of crime and disorder in the community (e.g., calls for service data) and the social structures/dynamics of the community.

Reported Crime/Disorder and Perceptions

Indeed, empirical studies have consistently found that the reported level of crime and disorder can influence residents' perceptions of crime and disorder. For example, in the analysis of data collected from New Zealand, Breetzke and Pearson (2014) suggested that crime within an individual's neighborhood influenced his/her fear of crime while crime occurred in the neighboring communities had little or no effect on individual's perception of crime. More importantly, existing research has documented those different types of crime (e.g., disorder, violent crime, and property crime) do exert distinct influence on the public's perception of crime (Block & Long, 1973; Hipp, 2013; Skogan

¹ Here I use the phrase "systematic difference" instead of "systematic bias" because the original statement of systematic bias concentrated on understanding individuals' perceptions of crime from a statistical perspective (Bollen, 1989; Hipp, 2010a). In the current study, I argue that the difference between reality of crime (reported crime) and perception of crime is not necessarily related to bias. More specifically, my application here concerns the inconsistency between perceptions of crime and disorder and reported level of crime and disorder (calls for service data), along with the associated factors that contribute to the recognition gaps.

& Maxfield, 1981; Zimring, 1997). For example, Wilson (1983) argued that robbery is the primary source of fear of crime since it usually happens among strangers with the use of force (also see: Skogan & Maxfield, 1981; Warr & Stafford, 1983). Lewis and Maxfield (1980) reported that individual's perception of local crime conditions is more likely to be affected by disorder comparing to the influence of other types of crime. More recently, Hipp's (2013) analysis of household-level data and official crime rate data at the census tract level found that violent crime is the strongest predictor of residents' perceptions of crime (also see: Zimring, 1997).

Systematic Perceptual Difference on the Part of Residents

For the second important source of people's perceptions of crime, *systematic difference on the part of residents*, there are two important groups of factors contributing to their attitudinal divergence: neighborhood structures/contexts and individual characteristics. Before moving forward upon the introduction of these two groups of factors, it is important to define the meaning of resident's systematic attitudinal differences in short. In the current study, residents' systematic difference in terms of perceptions of crime and disorder is mainly referred to the inconsistency between the reported level of crime and disorder and resident's recognition of the criminal issues in the area. Perceptions of crime and disorder are heavily influenced by the reality that individuals have observed or experienced in the neighborhood, or their pre-determined impression of the neighborhood context in addition to the reported level of crime

happened in the neighborhood. Under most of the circumstances, individuals cannot get the whole picture of the criminal issues in the neighborhood. Again, perceptions of crime and disorder could be misled by the neighborhood structures and/or context, or the pre-determined impressions based on individual demographics or experiences. For example, individuals living in New York City may report different perceptions of crime and disorder comparing to individuals living in Iowa. Residents in neighborhood with a high level of economic status may possess different perceptions of crime and disorder comparing to residents living in a lower economic area. Residents with more exposure to criminal incidents (e.g., communication with the police) may develop relatively accurate attitudes toward the crime and disorder issues in the neighborhood comparing to those who did not have such exposure. Elders may be more sensitive to criminal incidents and thus their perceptions of neighborhood crime and disorder may be different from the younger individuals. Those are just a few examples in our daily life that can contribute to our perceptual discrepancies toward the neighborhood criminal issues.

Indeed, previous research has consistently reported that neighborhood structures/contexts can play a vital role in shaping residents' perceptions of crime and disorder (Bursik & Grasmick, 1993; Brunton-Smith & Sturgis, 2011; Shaw et al., 1929; Shaw & McKay, 1942; Sherman, Gartin, & Buerger, 1989; Taylor, 1999; Weisburd, Lum, & Yang, 2004; Zhang et al., 2015). This is because perceptions of crime and disorder are situated in residents' understandings of their neighborhoods and the generally accepted

norms and values within the neighborhood (Jackson, 2004). During the 1930s, neighborhood related factors, such as racial heterogeneity, residential stability, and economic status have been found correlated with perceptions of crime, as what social disorganization theory proposed (Shaw & McKay, 1942[1969]). Later, scholars found that the common norms and values formed in the neighborhood could also influence resident's perceptions of crime, for example the collective efficacy framework (Sampson et al., 1997). Wilson and Kelling's (1982) classical study on neighborhood safety discovered that social disorder is closely connected with crime-prone environment, affecting people's feeling of safety. Police behaviors are considered as formal controls of criminal activities. Therefore, the public's satisfaction with police behaviors is conducive to their understanding of criminal issues in the neighborhood.

Sherman, Gartin, and Buerger's (1989) study in Minnesota reported that more than half of the calls to the police were concentrated on approximately three percent of the places (also see: Spelman, 1995; Taylor, 1999; Weisburd et al., 2004). Perceptions of crime and disorder are undoubtedly conducive to the variation of neighborhood characteristics. For example, in the analysis of data collected from a survey of residents in Louisville, Kentucky, Austin and colleagues (2002) found a positive relationship between the quality of life and residents' perceptions of personal safety in the neighborhood. Based on social disorganization theory and broken window thesis, previous studies have consistently found a significant link between fear of crime and

neighborhood disadvantage (e.g., ethnic diversity, residential stability, level of socio-economic status, level of collective efficacy, etc.) (Brunton-Smith, Sutherland, & Jackson, 2013; Fitzgerald, 2008; Gibson et al., 2002; Hipp, 2007; Kershaw & Tseloni, 2005; Smith, Frazee, & Davison, 2000). Specifically, Rountree and Land (1996b) argued that the relationship between neighborhood characteristics and perceptions of crime is particularly pronounced in heterogeneous neighborhoods.

Individual level factors can also lead to resident's systematically perceptual difference toward the criminal issues in the neighborhood. In the language of Wilson (1983), "the more we understand the causes of crime, the more we are drawn into the complex and subtle world of attitudes, predispositions, and beliefs, a world in which planned intervention is exceptionally difficult" (p.47). Individuals with different demographic characteristics (e.g., gender, age, race, and SES) possess different values/beliefs and lifestyles, which may influence their perceptions of crime and disorder (Ambrey et al., 2014; Hipp, 2010a; King & Maruna, 2009; Ross & Jang, 2000; Ross & Mirowsky, 2001). For instance, older residents tend to spend more time in the local neighborhood comparing to their counterparts because of physical restraints and limited social activities. Thus, they may be more sensitive to the crime and disorder issues. Females are likely to pay more attention to the neighborhood crime and disorder issues due to their fear of unwanted physical and sexual attack (Macmillan, Nierobisz, & Welsh, 2000; Quillian & Pager, 2001; Sampson & Raudenbush, 2004). Moreover, individuals

that actively participated in the community policing programs tend to have more communications with the police. Their unique experiences may have different effects on their understanding of crime and disorder in the community comparing to the residents that did not have such exposure.

Statement of the Problem

Although we have accumulated our knowledge of crime over time, individual's interpretation of crime and disorder remains a myth for us to make instrumental policies. It is unclear whether the social context, in particular the neighborhood structure and crime/disorder-related calls for service can influence resident's perceptions of crime and disorder. What also remains unresolved concerns the issue: which criminological theory is more robust to explain people's perceptions of crime and disorder? There is a solid theoretical foundation of the neighborhood effect in the field of criminology and criminal justice, including the social disorganization theory, the collective efficacy framework, and the broken window thesis. All of the theories provide in-depth understanding of the neighborhood effect, such as disadvantaged neighborhood, social cohesion, and social disorder. Nevertheless, little research combines all of the factors into one model to discover which one is more useful in illustrating individual's perceptions of crime and disorder. There is little study testing the perceptual difference between general citizens and citizen volunteers of community policing programs regarding crime related issues as well.

Previous studies on the relationship between neighborhood characteristics and perceptions of crime and disorder mainly fell in the fear of crime paradigm because of the hypothesized link between crime and fear of crime (Hipp, 2010a). Fear of crime has been traditionally considered as a primary form of indirect victimization, and reaction to it has remained a significant element of American culture (Conklin, 1971; Warr, 1984). Several analytical models, based on the two above dimensions, have been employed to explain variation in fear of crime, including the victimization model, the disorder model, and the social integration model (for a review: Gibson et al., 2002; Zhao et al., 2015). In general, the existing studies tend to agree that the risk of victimization, the level of incivilities, and the relational networks among neighborhoods in a community are significantly correlated with residents' general fear of crime (Bursik & Grasmick, 1993; Hunter & Baumer, 1982; Rountree & Land, 1996a; Gibson et al., 2002). Recently, studies have found that perceived collective efficacy among residents has a moderating effect on the linkage between social integration and fear of crime (Gibson et al., 2002; Sampson et al., 1997). Focusing on the crime-place pattern, research also suggested that residents are able to distinguish fear in the neighborhood from fear at home (Luo, Ren, & Zhao, 2016), and residents' proximity to crime incidents could influence their fear of crime (Breetzke & Pearson, 2014; Zhao et al., 2015).

However, fear of crime (risk perception) is different from perceptions of crime and disorder (Hipp, 2010a, p.619; also see Furstenberg, 1971; LaGrange & Ferraro, 1989;

Taylor, 2001). Ferraro and LaGrange (1987) defined fear of crime as the “negative emotional reactions generated by crime or symbols associated with crime” (p.73). In contrast, perceptions of crime and disorder are relatively more related to the seriousness or the frequency of crime and disorder instead of the emotional expression of crime/disorder or psychological reaction to crime/disorder. Hence, it is reasonable to argue that perceptions of crime and disorder are mediators of the logical linkage between neighborhood characteristics (e.g., reported crime) and fear of crime (Bursik & Grasmick, 1993; Ferraro & LaGrange, 1987; Hipp, 2010a; LaGrange & Ferraro, 1989; Robinson et al., 2003; Rountree & Land, 1996b; Warr, 1984; Wilcox, 2003). To make it clear, the perceived seriousness and/or perceived frequency of the offenses in the neighborhood are one of the primary factors that could generate fear of crime (Hipp, 2010a; Warr, 2000). For example, Ferraro and LaGrange (1987) demonstrated that general fear of crime is different from individual’s recognition (perceptions) of actual crime. Research on the rationality of fear also claimed that “when perceived risk is congruent with objective risk”, fear is justified (Warr, 2000, p.478). However, if perceived crime and disorder is overestimated, it can generate unnecessary fear of crime among citizens. Therefore, an exploration of the relationship between perceptions of and reality of crime and disorder events under the neighborhood context warrants additional attention.

Recently, there is growing body of research on the spatial relationship between reported amount of crime and disorder, neighborhood structure, and perceived levels of crime and disorder using geographical units, such as census tracts, census block groups, census blocks, household clusters, or clusters of street segments (Ambrey et al., 2013; Breetzke & Pearson, 2014; Hipp, 2007, 2010, 2013; Lai, Zhao, & Longmire, 2012; Weisburd et al., 2016). Systematic social observation has also been employed to investigate the influence of reported crime and disorder incidents on residents' perceptions under the neighborhood context (Sampson & Raudenbush, 1999, 2004). Hipp (2010a) summarized the status of the research in the following way: "these recent studies were important contributions in that they included these independent measures of crime or disorder in the model (which prior studies often failed to do)" (p.481). However, most of the place-based studies have noted that unit of analysis is crucial and challenging for spatial analysis. While it is often argued that the smaller area unit, the better measurement, "there can be a tendency for crime researchers to aggregate to relatively larger units." (Weisburd et al., 2016, p.95). "This is because crime is a somewhat rare event and therefore larger units of aggregation are preferable in order to achieve sufficient counts for statistical purposes" (Weisburd et al., 2016, p.95; also see: Brantingham et al., 2009). In conclusion, there is no consistency regarding whether we should use larger or smaller units when analyzing spatial data (the modifiable areal unit problem).

Beyond the limited existing research and potential conceptual/methodological challenges on this linkage, there are several additional issues regarding the studies on the relationship between perceived crime and disorder, neighborhood structure, and reported crime and disorder. First, it concerns the measurement of perceptions of crime and disorder. Most of the previous studies asked residents' general perceptions of crime and disorder without going into specific types of crime and disorder. For example, Hipp (2013) asked three general questions, including whether crime is a problem; whether crime is a bother; and whether they wish to move due to the bother of crime. There is little research differentiating perceptions of crime from perceptions of disorder as well. Though Hipp's study (2010a) included perceptions of physical disorder and perceptions of social disorder in the model, these variables were all measured by a single yes/no question and measures of reported crime were not included in the model.

Second, there is a lack of study using a relatively comprehensive model to examine perceptions of crime and disorder, including reported crime and disorder incidents, community environment (e.g., social and physical deterioration, disadvantaged neighborhood, and collective efficacy), the public attitudes toward the criminal justice system (e.g., satisfaction with the police, attitudes toward the police), vulnerability to crime (e.g., age and gender) (Box, Hale, & Andrews, 1988; Garofalo, 1981; Ito, 1993; Skogan & Maxfield, 1981). Weisburd and Piquero's (2008) systematic review of empirical publications in the journal, *Criminology*, found that the typical explanatory

power of criminological theories remained modest. However, we know little about the explanatory power of a combined model of several related theories on perceptions of crime and disorder.

Third, little research has examined the perceptual difference regarding crime and disorder between general citizens and community-policing volunteers. Community policing has been part of policing for a long time (Dobrin, 2017; Lee & Zhao, 2016). Since community-policing volunteers have more opportunities to gain crime-related information during their meetings with local police officers, it is rational to argue that they may have different perceptions of crime/disorder in their neighborhoods than general citizens.

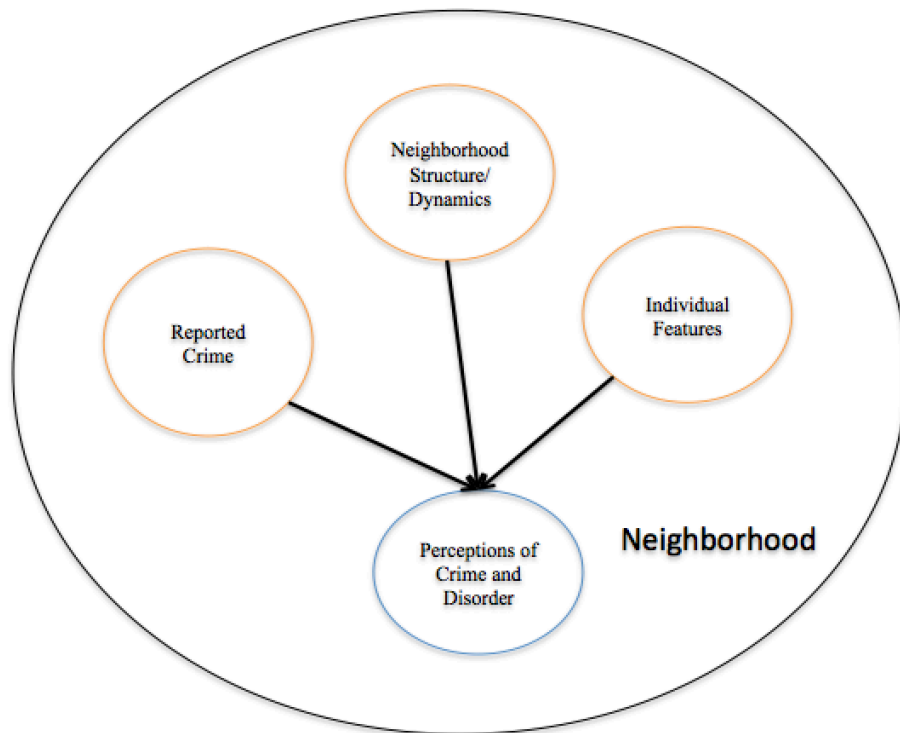
Purpose of the Study

Given the cost of inaccurate understanding of crime and the limitations of the previous research, this study seeks to find explanations for the predictors of the perceived crime/disorder in neighborhoods and to compare the explanatory power of these factors (reported crime and neighborhood conditions) on residents' subjective assessment of neighborhood crime and disorder issues between general citizens and community-policing volunteers. In this regard, both the government and the society are able to develop effective policies, to reduce unnecessary "panic" of crime and to improve residents' satisfaction with life in their immediate neighborhoods. Specifically, the purpose of this study is to investigate the theoretically relevant predictors of perceptions

of crime and disorder such as neighborhood structural characteristics, community cohesion, attitudes toward the police, and reported crime incidents and disorder issues (calls for service) (see Figure 1). This study can make the following contributions:

Figure 1

Theoretical Relationships



First, it aims to examine the influence of reported crime/disorder incidents (calls for service) and neighborhood structures on perceptions of crime incidents and disorder issues. Specifically, this study used a survey instrument that asked respondents questions regarding different types of crime, such as robbery, burglary, and violent physical attack. Also, the current study differentiated crime from disorder by asking separate questions regarding disorder, such as vandalism, graffiti, and excessive drinking in the public. For

all of these questions, researchers asked whether they think these types of crime and disorder are serious problems in their immediate neighborhood instead of asking questions regarding fear of crime. Calls for service data were used to measure the reported crime/disorder incidents (Groff, Weisburd, & Yang, 2010; Sherman et al., 1989). This study chose calls for service data because it is more appropriate to capture the linkage between perception and reality in the current study (Mazerolle, Price, & Roehl, 2000; Sherman et al., 1989; Warner & Pierce, 1993). UCR data are one of the most frequently used data to measure actual crime rates or crime trends. However, calls for service data are predominately initiated by the public, which can provide a better understanding of the public's observation or experience of crime and disorder (Warner & Pierce, 1993). Neighborhood structure variables based on the social disorganization theory were included in the models to discover the role of neighborhood in residents' formation of perception of crime.

Second, a broader model regarding perceptions of crime and disorder is employed in the current study. As mentioned above, the public's sentiment of crime and disorder can be influenced by factors from different perspectives. Specifically, this study includes factors from both the individual level and the neighborhoods level. Only a few contemporary empirical studies, to the best of my knowledge, are able to combine these factors together (Hipp, 2013). This is primarily due to the unavailability of existing data. For example, Brunton-Smith and co-authors (2013) noted, "These likely include the sorts

of community level processes not easily captured by available administrative data. The use of ecometrics – neighborhood measures constructed from individual survey data – may provide a way forward in filling this conceptual gap, with considerable progress now being made in improving the estimation of these contextual effects” (p.82) (also see: Raudenbush and Sampson 1999). The current study used survey data collected from individuals in the fourth largest city in the United States. Additionally, I choose data from a large city rather than the overall data in the United States because national samples may overlook some crucial and specific aspects of perceptions.

Third, the current study seeks to compare the perceptual differences of crime and disorder between general citizens and community-policing volunteers. Even though there is no homogeneous definition, community policing in general is consist of three primary dimensions, including “community partnerships, problem solving, and organizational transformation” (Maguire et al., 2019, p.492). Citizen participation in policing is a cornerstone of the community partnership dimension. A unique characteristic of citizen participation is that it is voluntary in nature. Citizens who are willing to regularly attend the community-policing meetings are those who care about their neighborhood and are willing to work with the local police in order to building a safe and orderly community than the general citizens (Zhao et al., 2002). Therefore, they are assumed to have more interest in participation in crime prevention efforts initiated by the police and likewise pay more attention to the local crime and disorder issues than the

general citizens. Additionally, community-policing volunteers are undoubtedly exposed to more crime-related information from the police agencies when participating in the community-policing meetings than the general citizens. It is reasonable to speculate that those volunteer's perceptions of crime and disorder can be quite different from that of the general citizens who do not have such kind of police and crime related exposures. It is important to note that Houston is one of the few pioneering cities that have a long history of implementing community policing and citizen mobilization. The systematic involvement of community policing in the city can be traced back to the 1980s when foot patrol and storefront stations were implemented (Lee & Zhao, 2016; Wycoff, 1989). Even today, there are more than two dozen of storefront stations that are in operation in Houston (Lee & Zhao, 2016).

Research Questions

Research Question #1: Does reported crime have a significant influence on people's perceptions of crime in their neighborhood in Houston?

Research Question #2: Do factors derived from social disorganization theory have a significant influence on people's perceptions of crime in their neighborhoods in Houston?

Research Question #3: Does collective efficacy have a significant influence on people's perceptions of crime in their neighborhoods in Houston?

Research Question #4: Do community policing related factors have a significant influence on people's perceptions of crime in their neighborhood in Houston?

Research Question #5: Does reported crime have a significant influence on people's perceptions of disorder in their neighborhood in Houston?

Research Question #6: Do factors derived from social disorganization theory have a significant influence on people's perceptions of disorder in their neighborhoods in Houston?

Research Question #7: Does collective efficacy have a significant influence on people's perceptions of disorder in their neighborhoods in Houston?

Research Question #8: Do community policing related factors have a significant influence on people's perceptions of disorder in their neighborhood in Houston?

Organization of Dissertation

This dissertation is organized into five chapters. Following the introduction, a review of the relevant theories and research literature set forth in Chapter II. It will focus on the theoretical identification of the major endogenous and exogenous variables associated with individual's perceptions of crime and disorder. A brief review of the development of social disorganization theory and collective efficacy will be highlighted in this chapter. Finally, the historical background (community-oriented policing) and current situation of the Positive Interaction Program (PIP) in Houston Community Policing will be discussed. This is closely related to the rationale of the perceptual

differences regarding crime between general citizens and citizen volunteers in community policing. Chapter III will describe the research design and research methodology used in this study. A detailed introduction of the strategies used to measure and examine the research questions will be presented, including datasets, variables, and analytical strategies. Chapter IV will present the results and findings of the statistical analysis along with the descriptive analyses of variables used in the models. In chapter V, a conclusion and a discussion of the findings will be presented in light of policy implications. Limitations of the current study will be discussed at the end of the dissertation.

CHAPTER II

Literature Review

According to the psychological definition, perception refers to “a single unified awareness derived from sensory processes while a stimulus is present” (Dictionary, 2020). Perception can be influenced by the environmental features one experiences on a regular basis. Crime-related perceptions² are stimulated by the crime incidents and crime-related environments based on the definition. Consistently, perceptions of neighborhood crime concerns individual’s recognition and interpretation of sensory information regarding neighborhood crime. Perceptions of neighborhood disorder involve individual’s recognition and interpretation of sensory information regarding neighborhood disorder.

In the current study, perceptions of crime and disorder refer specifically to citizens’ judgments of the frequency and seriousness of neighborhood crime and disorder. This is different from fear of crime, a commonly studied concept regarding crime-related perceptions. As mentioned in chapter one, perceptions of crime and disorder are different from fear of crime. Perceptions of crime and disorder are relatively more related to the seriousness or the frequency of neighborhood crime and disorder while fear of crime refers to the emotional expression of crime/disorder or psychological reaction to crime/disorder among citizens. To examine the factors that can influence citizens’ perceptions of crime and disorder is the primary contribution of the current study. However, fear of crime is close related to citizens’ perceptions of crime and disorder, and

² Note. Crime-related perceptions refer to both fear of crime and perceptions of crime and disorder in the current study. Perceptions of crime and disorder refer to citizens’ recognition and interpretation of the seriousness and frequency of crime and disorder issues in the associated neighborhood, which are the outcome variables of the current study.

most of the existing studies regarding crime-related perceptions have been focused on fear of crime. Therefore, the summary of literature in chapter two covers not only the body of literature on perceptions of crime and disorder, but also the body of literature on fear of crime. The rationale is that factors associated with fear of crime could also affect citizens' perceptions of crime and disorder since perceptions of crime and disorder occur prior to the generation of fear.

Perceptions of Crime and Disorder

If you are a scholar of criminal justice and criminology (CJC), it is very likely that crime is the word you are most familiar with. Almost every research area in CJC is associated with the phenomenon of crime, including policing (e.g., deterrence of crime), prosecution (e.g., conviction of criminal offenders), sentencing (e.g., punishment of criminal offenders), and corrections (e.g., recidivism). Accordingly, crime-related perceptions from the lens of ordinary people have attracted scholars' attention since the 1960s (President's Commission on Law Enforcement and Administration of Justice, 1967). Topics range from fear of crime (Baumer, 1985; Covington & Taylor, 1991; Ferraro & LaGrange, 1987), perceived risk of crime victimization (Ferraro, 1995; Ferguson & Mindel, 2007; Rountree & Land, 1996b), to the subjective assessment of the seriousness and frequency of criminal issues in the neighborhood (Bolger & Bolger, 2019; Dansie & Fargo, 2009; Hipp, 2007; Schaefer & Mazerolle, 2018; Snedker, 2015).

These crime-related perceptions are important as it concerns the well-being of both the residents in the neighborhood and the neighborhood environment, let alone the well-functioning of our criminal justice system (Ambrey et al., 2014; Cornaglia & Leigh, 2011; Ferraro, 1995; Breetzke & Pearson, 2014; Powdthavee, 2005). Understanding the

needs of residents and their communities are crucial for an effective criminal justice system. Inputs derived from the viewpoint of community members are the fundamental channel to identify and address community problems (Jackson, 2004). A step further is to unpack the factors associated with residents' attitudes toward neighborhood crime and disorder, which could contribute directly to the improvement of personal safety, mental health, and neighborhood satisfaction.

With an alarming high crime rates in the United States, it is almost impossible to ignore the specific impact of crime and associated perceptions (Austin, Furr, & Spine, 2002; Warr, 2000). First, perceptions of crime and disorder can affect individual behaviors, such as social isolation (e.g., constrain to safe areas at safe time, avoid unsafe areas and commercial locations, curtail social interactions with strangers, and moving out of the community) and the consumption of self-protection equipment (e.g., firearm, extra door locks, and anti-burglary monitoring devices) (Clarke & Lewis, 1982; Skogan & Maxfield, 1981; Skogan, 1990). Liska, Sanchirico, and Reed (1988) analyzed data collected from 26 cities in the United States and concluded that there was a reciprocal relationship between constrained behaviors and fear. They found that fear of crime would increase people's constrained behaviors while constrained behaviors in turn strengthened fear (Liska et al., 1988, p. 835). Taub, Taylor, and Dunham (1984) reported that residents' perceptions of neighborhood crime was a stronger predictor of their desire to emigrate from the community in comparison to the official crime rates in the community.

Second, crime-related perceptions also affect individual's mental health (Blakey & Snyder, 1997; Breetzke & Pearson, 2014; Cornaglia & Leigh, 2011; Jackson & Stafford, 2009; Stafford, Chandola, & Marmot, 2007; Warr, 1987). For instance, Liska

and co-authors (1988) summarized that fear of crime is linked to “deleterious psychological states, such as anxiety, mistrust, alienation, dissatisfaction with life, and even mental illness” (p.828). Third, knowledge of crime and disorder among residents affects neighborhood quality, such as strained relationships with criminal justice official (e.g., police officers), loose community ties among residents, and the breakdown of social control (Ferraro, 1995; Gibson et al., 2002; Hale, 1996; LaGrange, Ferraro, & Supanic, 1992; Markowitz et al., 2001; Reisig & Parks, 2004; Skogan, 1986; Taylor & Hale, 1996). Warr (1994, 2000) argued that fear of crime becomes an important part of American culture.

The empirical research on fear of crime has faced measurement challenges since its inception due to the lack of a clear-cut definition of the fear of crime conception. Initial research usually employed the unidimensional measurement derived from the National Crime Survey (NCS) or the General Social Survey (GSS) with a single question or two questions: “How safe do you feel or would you feel being out alone in your neighborhood during the day/at night”; or similarly, “how afraid to walk alone at night and/or afraid to walk alone during the daytime” (Baumer, 1985; Covington & Taylor, 1991; Ferraro & LaGrange, 1987; Franklin, Franklin, & Fearn, 2008; Haynie, 1998; Hindelang, Gottfredson, & Garofalo, 1978; Garofalo, 1979; Kennedy & Krahn, 1984; Lewis & Salem, 1986; Lewis & Maxfield, 1980; Liska, Lawrence, & Sanchirico, 1982; Liska et al., 1988; Liu & Polson, 2016; Maxfield, 1984; Schafer, Huebner, & Bynum, 2006; Skogan & Maxfield, 1981; Taylor, Gottfredson, & Brower, 1984; Yin, 1982), whereas some studies added more similar items to capture people’s emotional reaction to crime (e.g., “afraid if a stranger stopped you at night in your neighborhood” and “feel

uneasy if you heard footsteps behind you at night”) (Bolger & Bolger, 2019; Oh & Kim, 2009; Perkins & Taylor, 1996; Roberson et al., 2003). Response options for each question usually arranged as either dichotomous or four/five-point Likert-type scale. This approach to conceptualize fear of crime has been “routinely used by the Gallup Organization and the National Opinion Research Center (NORC)” since the 1960s (Warr, 2000, p.458).

However, this type of measure was problematic due to the multi-dimensional attribution of perceptions of crime (Bursik & Grasmick, 1993; Ferraro & LaGrange, 1987, 1989; Rountree & Land, 1996b). Specifically, these aforementioned questions are not capturing fear of crime. For example, LaGrange, Ferraro, and Supancic (1992) argued that these NCS questions were “a better measure of perceptions of risk than feeling of fear.” (p.315). In the language of LaGrange and Ferraro (1989), “judgments of risk and feelings of fear are two distinct perceptions” (p.699). They also pointed out that these vague measurements tended to lead to exaggerated level of fear of crime due to the fact that “walking alone at night” was not a routine activity for most ordinary people. Scholars also argued that these questions mentioned above only revealed individual’s general/overall understanding of risk rather than specific crime fears. Moreover, some of the research employed one single question to measure fear of crime, provoking more concerns regarding measurement error and the insensitivity to variation in concrete crime types. Because of these measurement challenges, Gerber et al. (2010) noted that the use of these fear questions had decreased overtime.

Later scholars outlined that perceived risk of crime victimization “is a proximate cause of fear—not fear itself” (Warr, 2000, p.454; also see: Ferraro, 1995; Ferguson &

Mindel, 2007; Oh & Kim, 2009; Rountree & Land, 1996a, 1996b; Warr & Stafford, 1983; Warr, 1984). To address the issues associated with the operationalization of fear of crime, scholars started to use more specific measures by differentiating between particular criminal offenses, for instance, worry about being the victim of sexual assault, physical attack, murder, burglary, and auto theft, to name a few (Brunton-Smith & Sturgis, 2011; Chiricos, McEntire, & Gertz, 2001; Chiricos, Hogan, & Gertz, 1997; Dansie & Fargo, 2009; Ferguson & Mindel, 2007; Kershaw and Tseloni, 2005; LaGrange et al., 1992; Rountree & Land, 1996b; Warr & Stafford, 1983) or asking question a bit more general (e.g., “worry about being the victim of a property crime”, and “worry about being the victim of a personal crime”) (LaGrange & Ferraro, 1989, p.701). Warr and Stafford (1983) further argued that fear of crime for a particular offense was “a function of the perceived seriousness and perceived risk associated with that offense” (p.1034). They noted, “If fear of victimization for various offenses were solely a function of the perceived seriousness of those offenses, then fear would almost certainly be immutable. Thus, it would be astonishing if fear of armed robbery in a particular community could be reduced by convincing residents that armed robbery was not a serious crime” (p.1034). In this regard, disentangling the predictors of perceived serious of crime/disorder within a particular neighborhood is necessary and practical.

Recently, several studies included perceptions of crime to capture individual’s subjective/cognitive assessment of the seriousness and frequency of criminal issues in the neighborhood (Bolger & Bolger, 2019; Dansie & Fargo, 2009; Hipp, 2007; Luo et al., 2016; Schaefer & Mazerolle, 2018; Snedker, 2015). In some studies, they used the phrase concern about crime to describe the difference between these perceptual measures from

perceived risk of victimization and fear of crime (Lewis & Maxfield, 1980; McGarrell, Giacomazzi, & Thurman, 1997). Some scholars differentiated perceptions of crime from perceptions of disorder (Bolger & Bolger, 2019; Dansie & Fargo, 2009; Hipp, 2010a; Hinkle & Yang, 2014; Lewis & Maxfield, 1980; Maxfield, 1984; McGarrell et al., 1997; Snedker, 2015; Warr & Stafford, 1983). However, most of the extant research incorporated this type of perceptions of crime/disorder as explanatory variables for the variation of fear of crime. Only few studies directly examined the predictors of perceptions of crime/disorder (Bolger & Bolger, 2019; Lewis & Maxfield, 1980). As Schaefer and Mazerolle (2018) noted, “Research on residents’ recognition of disorder and crime is lacking, and greater insights are needed into the factors that are associated with these observations” (p.187).

The contribution of this study, therefore, is to discover the factors that could influence individual’s assessment of the seriousness and frequency of crime and disorder issues in the neighborhood with a relatively comprehensive model. It takes a different approach to compare the predictors between perceptions of disorder and perceptions of crime. A review of the literature indicated that there are dearth research distinguishing perceptions of crime from perceptions of disorder. A potential concern is the discriminant validity of perceptual measures of disorder and crime (Maguire, Armstrong, & Johnson, 2017; Worrall, 2006). In the current study, it does not examine the causal relationship between perceptions of crime and perceptions of disorder; rather, it aims to discover the potential predictors associated with these perceptions. Likewise, this study examines whether being a citizen volunteer of the community-oriented policing program is a significant influential factor of crime and disorder perceptions.

The Importance of Reported Crime and Disorder

Although crime is the major concern in the field of criminal justice and criminology, it would be an exaggeration to say that a consensus has emerged on how to record crime and how to study crime. Generally, there are three types of data we can use to examine crime incidents, including official crime data from the police (e.g., the Uniform Crime Reports), calls for service data from citizens (CFS), and self-reported crime victimization data from victims, for example the National Crime Victim Survey (NCVS) data. However, none of these datasets are perfectly accurate for the measure of actual level of crime regardless of the extent of variation of the measurement error.

Specifically, the reliability of official crime reports is usually critiqued by the dark figure of crime. Police records are the most frequently used data in terms of crime incidents in criminology and criminal justice research. However, those official records are subject to police discretion, resulting in a high level of unreported crime (Maxfield, Weiler, & Widom, 2000). For example, NCVS revealed that approximately sixty percent of aggravated assaults, robberies, and burglaries were reported to the police in 2005 (Hipp, 2013; Klaus & Maston, 2006). As an alternative, self-reported victimization data usually produce a higher level of crime and delinquency incidents (Maxfield et al., 2000). The shortcoming lies in the subjective assessment of crime incidents from victims and their reticence to report. Likewise, calls for service data usually produce a higher level of crime and delinquency incidents. This set of data is reported from the citizen and is “considered the most reliable and complete source of geographic crime data, as they provide a less filtered picture of actual crime distribution” (Porter et al., 2020, p.444; also see: Braga & Bond, 2008). Although the current study used crime data derived from the

calls for service for the best consideration (please find more explanation in the methods section), it is better to understand the whole picture of crime incidents instead of just a corner. Therefore, the current study summarized the existing literature that used either type of the crime data.

A cursory review of the existing literature in terms of crime associated perceptions showed that there is not much research including reported/official crime in the analysis. And among these limited studies, they are predominately focused on fear of crime (e.g., Breetzke & Pearson, 2015; Brunton-Smith & Sturgis, 2011; Haynie, 1998; Hipp, 2013; Lai et al., 2012; Rountree & Land, 1996b; Taylor et al., 1984; Wyant, 2008; Zhao et al., 2015). Although the crime-fear of crime link has been put forward for decades (Poveda, 1972), puzzles remain in terms of people's crime associated perceptions. For instance, Rountree (1998) stated "while it is often assumed that crime and fear of crime are linked, the precise nature and strength has yet to be determined with any degree of consensus in the literature" (p. 341). Likewise, Zhao and colleagues (2015) advanced that "another 12 years have elapsed and there is not a single study resting the crime-fear link at the individual level except for Rountree's study (1998), which used crime-specific victimization as a proxy for actual crime incidents" (p.27).

If different types of crime incidents can influence individual's feeling of neighborhood safety, there is good reason to expect that perceptions of crime and disorder would be influenced by the actual crime incidents following the same logic. The assumption behind this argument is that fear of crime is generated after residents' awareness/assessment of the seriousness and frequency of criminal issues in the neighborhood (LaGrange et al., 1992; Wyant, 2008). For instance, in the study of 45

neighborhoods in Philadelphia, Wyant (2008) indicated that perceptions of neighborhood crime were “an important determinant of fear of crime” (p.59). Moreover, if the objective level of crime is associated with residents’ perceptions of crime, it is self-evident that people’s reactions to crime is rational and justified, and vice versa. Following the tradition of previous literature, the current study summarized these results into three categories, namely violent crime, property crime, and disorder crime.

Violent Crime and Associated Perceptions

The relationship between violent crime and citizen’s crime-related perceptions has been studied since the 1960s (Presidential Commission, 1967; Warr, 2000). As Brooks (1974) noted that violent crime “produce more intense alarm than others” (p.243). A primary reason is that violent crime is far more serious in nature than other types of crime (Wolfgang et al., 1985). In most of the extant research studies, some calculated the amount of violent crime by adding the number of different types of violent crime incidents together at a certain geographical unit (Haynie, 1998; Hipp, 2013; Lai et al., 2012; Luo et al., 2016; Wilcox, Quisenberry, & Jones, 2003; Wyant, 2008; Zhao et al., 2015) while others analyzed the influence a particular type of violent crime (e.g., robbery, homicide, and aggregated assault) (Block & Long, 1973; Liska et al., 1988; Oh & Kim, 2009; Wilson, 1983). The aggregated approach of measuring violent crime is a reasonable proxy for the bigger picture of the patterns associated with violent crime and crime perceptions. Likewise, the specific measure of a particular violent crime type is more appropriate to provide knowledge at the micro-level. Therefore, neither way is useful for us to understand the relationship of interest.

Most of the research studies reported that violent crime was positively and significantly related to residents' perceptions of crime or fear of crime (Block & Long, 1973; Haynie, 1998; Hipp, 2013; Luo et al., 2016; Warr and Stafford, 1983; Wilcox et al., 2003; Zirming, 1997). Aggregating the amount of violent crime at the census-tract level, Wilcox, Quisenberry, and Jones (2003) found that the higher level of violent crime tended to lead to a higher level of fear of crime in Seattle in the late 1990s. A more robust conclusion was drawn in a recent research study, employing data collected over a 25-year period (Hipp, 2013). Specifically, Hipp (2013) analyzed the recorded crime data for census tracts at seven time points in 22 cities in the U.S. HLM analyses indicated that violent crime was the most significant predictor on individual's perceptions of neighborhood crime, "with an average standardized effect over these seven waves of .71" (Hipp, 2013, p.638). More importantly, robbery had the strongest effect in comparison to aggravated assaults and homicide. Luo and coauthors (2016) investigated the influence of official violent crime on perceptions of crime in Houston, TX and reported a similar relationship using SEM.

Another body of scholarship, however, seems disagree with the statement of the significant relationship between violent crime and crime-related perceptions (Brunton-Smith & Sturgis, 2011; Franklin et al., 2008; Hinkle & Yang, 2014; Lai et al., 2012; Oh & Kim, 2009). The insignificant relationship leads to the speculation that resident's fear of crime is an "irrational" reaction, unrelated to the objective level of crime (Brunton-Smith and Sturgis, 2011). For instance, in a study of survey data collected from 2,599 citizens in Washington State, Franklin et al. (2008) found that both property crime and violent crime were not significant in the prediction of perceived risk and worry of

victimization. However, the crime rates were aggregated at the city level in their study, which may obscure the effect of crime rates given the fact that crime was not evenly distributed across neighborhoods within a city.

There are several empirical studies that did not categorize crime types into different groups; rather they combined the crime types into a single variable—crime. A general conclusion drawn from these studies is that crime is positively related to residents' fear of crime (Breetzke & Pearson, 2015; Brunton-Smith and Sturgis, 2011; Chiricos et al., 2001; Dansie & Fargo, 2009; Hinkle & Yang, 2014; Maxfield, 1984). Hinkle and Yang (2014) analyzed street-level data sets collected from both telephone survey and systematic observations in the later 1990s in Jersey City, NJ. They found that crime rate based on police calls for service data was positively related to resident's perceptions of disorder but was insignificant when predicting perceived safety (fear of crime).

Property Crime and Associated Perceptions

Even though violent crime is traditionally considered as the most serious type of crime, property crime is reported to be the type of crime events that is most likely to happen (Skogan & Maxfield, 1981; Warr & Stafford, 1983; Warr, 2000). As Warr and Stafford (1983) argued “violent crimes are uniquely capable of producing the greatest fear due to their higher perceived seriousness, but that potential is offset by the fact that the perceived risk of these offenses is typically low” (p.1040). Noteworthy, the perceived seriousness aforementioned refers to individual's assessment of the severity of a particular type of crime, which is different from the perceived seriousness of neighborhood crime for the purpose of the current study.

From this perspective, the higher level of property crime is particularly salient for increasing fear of crime or negative neighborhood crime perceptions. A particular focus has been exerted on the effect of recorded level of burglary according to the existing literature. For instance, in their study Warr and Stafford (1983) asked respondents to rate a list of 16 specific crime offenses regarding fear, perceived risk, and perceived seriousness. They found that burglary was rated the highest for fear of crime. Late research utilizing more complex statistical models (e.g., OLS, SEM, and HLM) has arrived at a similar conclusion that property crime, especially for burglary was a significant and positive predictor of crime related perceptions (Lai et al., 2012; Rountree & Land, 1996a; Rountree, 1998; Skogan & Maxfield, 1981; Taylor, 2001; Wilcox et al., 2003). For example, Taylor (2001) found that the level of neighborhood burglary was positively associated with people's fear of crime after controlling for signs of disorder and neighborhood structure characteristics. Some of the previous research aggregating burglary at the census tract level (Rountree & Land, 1996a; Rountree, 1998; Wilcox et al., 2003; Wilcox Rountree, 1998) while others using smaller geographical unit to examine this type of crime-fear nexus (Lai et al., 2012). Evidence of the positive relationship between property crime and fear of crime has been quite solid according to the limited amount of research. For example, Lai, Zhao, and Longmire (2012) aggregated the official burglary incidents using the buffer at a 0.1-mile range and a 0.5-mile range. Their analysis of data collected from 737 Houstonian based on a random telephone survey demonstrated that the effect of official burglary events close to their residences was significantly strong after controlling for reported violent crime and disorder crime incidents.

On the other side, several studies found a non-significant relationship between property crime and crime-related perceptions (Franklin et al., 2008; Hinkle & Yang, 2014; Rountree, 1998). One explanation of the insignificant correspondence argues that individual characteristics play a more salient role than people's knowledge of the actual level of crime (Ferraro & LaGrange, 1992; Hinkle & Yang, 2014). Another plausible reason involves the disorder model on fear of crime. That is to say that the level of disorder has the strongest relationship with individual's perceptions of crime (Franklin et al., 2008). From a methodological standpoint, Franklin and co-authors (2008) argued that the insignificant relationship might also be ascribed to the multiple dimensions of fear of crime. There are research studies also found mixed results with respect to the impact of property crime. For example, Rountree (1998) reported a significant relationship between the level of property crime and burglary-specific fear. However, this relationship did not apply to fear of violent crime.

Disorder Crime and Associated Perceptions

Disorder has been brought into scholars and practitioners' attention since the 1980s, when Wilson & Kelling (1982) published the striking article of broken window thesis (BWT) in *Atlantic Monthly*. It postulates that when a broken window left untended in a building, it is a sign of "no one cares". Consequently, these signs may decay into disorder, fear of crime will arise among residents in the neighborhood, and crime will ultimately occur. The broken window metaphor was based on Philip Zimbardo's quasi-experiments on untended property in the late 1960s. These experiments consistently demonstrated that the abandoned car, either in a stable neighborhood or in a crime-ridden neighborhood, is a clue suggesting that criminal behavior is acceptable. Disorder

addresses problems with dilapidated areas and different forms of uncivil behaviors, such as abandoned buildings, public drinking, aggressive panhandling, prostitution, loitering, rowdy youth, and vandalism, to name a few (Wilson & Kelling, 1982). According to LaGrange, Ferraro and Supancic (1992), disorder is incivility that can breach “community standards that signal an erosion of conventionally accepted norms and values” (p.312; see also Kelling & Coles, 1996). The empirical research during the 1980s and 1990s resulted the broken windows policing in practice, which is also called the order-maintenance policing or quality-of-life policing. It has become an integral part of police strategy to reduce disorder and crime. For instance, Lum & Vovak (2018) found that since the 1980s there is an increased trend in the misdemeanor arrests due to the embracing of broken windows thesis by police officials.

Deriving from the BWT, *the disorder model* that has been frequently used to explain the phenomenon of fear of crime (e.g., Covington & Taylor, 1991; Ferraro, 1995; Franklin et al., 2008; Garofalo & Laub, 1978; Gibson et al., 2002; Hinkle & Weisburd, 2008; Hinkle & Yang, 2014; Hunter, 1974; Lewis & Maxfield, 1980; LaGrange et al., 1992; McGarrell et al., 1997; Oh et al., 2019; Ren, Zhao, & He, 2017; Skogan, 1990; Skogan & Maxfield, 1981; Wilson, 1983; Zhao et al., 2015). Specifically, it argues that the level of disorder is strongly and positively linked with the level of fear of crime (Garofalo & Laub, 1978; Hunter, 1978; Sousa & Kelling, 2006; Wilson & Kelling, 1982; Xu, Fielder, & Flaming, 2005). However, a potential challenge of the empirical examination of this linkage concerns the measurement of disorder. Extant research studies argue that the public’s perceptions of disorder may be different from the law enforcement official’s interpretations of disorder (Hinkle & Yang, 2014). Hence, a large

body of literature employed perceptions of disorder from the residents as indicators of fear of crime in the model (e.g., Bolger & Bolger, 2019; Covington & Taylor, 1991; Ferguson & Mindel, 2007; Franklin et al., 2008; Gibson et al., 2002; McGarrell et al., 1997; Maxfield, 1984; Taylor & Hale, 1986; Wyant, 2008) while another body of literature, which is relatively scant and sparse, incorporated official/recorded disorder crime incidents to test the relationship (e.g., Hinkle & Weisburd, 2008; Hinkle & Yang, 2014; Oh, Ren, & He, 2019; Ren et al., 2017; Zhao et al., 2015).

In general, the research studies conclude that higher level of disorder is associated with an increased level of fear of crime. The correspondence between disorder incidents and fear of crime is stronger than that of violent crime and property crime (Hope & Hough, 1988; Taylor & Hale, 1986; Xu et al., 2005). For example, in their analysis of citizen's fear of crime in Seattle, Franklin and co-authors (2008) reported that individual's perceptions of neighborhood disorder "accounted for the greatest proportion of variation in fear of crime at the city level" after controlling for the city-level violent crime and property crime (p.219). A handful of studies argued that the relationship between disorder and fear of crime is mediated by other factors, such as perceptions of risk, perceptions of disorder, local responses to crime, and police effectiveness (DuBow, McCabe, & Kaplan, 1979; Hinkle & Yang, 2014; LaGrange et al., 1992; Oh et al., 2019; Wyant, 2008). For example, in the meta-analysis of 77 studies, O'Brien and co-authors (2019) found that there is no consistent evidence of the relationship between disorder and perceptions of the neighborhood. Instead, they argued that the omitting of socioeconomic status and social process within the neighborhood might exaggerate the effect of disorder on fear of crime. The evaluation of the "Safe and Clean Neighborhood Program" in the

1970s concluded that residents in the foot-patrolled neighborhoods tended to feel secure and possess a favorable attitude toward the police even though crime rates were not reduced in these areas. Extant research also indicated that the level of disorder is not related to the specific crime-fear linkage (e.g., burglary and fear of burglary) (Zhao et al., 2015). Longitudinal research reported that the magnitude of disorder influence on fear of crime is weaker than expected (Link et al., 2017; Robinson et al., 2003).

Recently, a growing body of research focus specifically on the relationships between recorded/observed disorder incidents and perceptions of disorder (not fear of crime), resulting in inconsistent findings (Hinkle & Yang, 2014; Perkins & Taylor, 1996; Perkins et al., 1993; Piquero, 1999; Ren et al., 2017; Sampson & Raudenbush, 2004; Taylor, Shumaker, & Gottfredson, 1985). For example, Ren and colleagues' (2017) study among Houston residents revealed that the level of disorder incidents within 0.3-mile buffer of individual's residency was positively related to their perceptions of disorder. However, in their analysis of systematic observations of disorder, Hinkle and Yang (2014) found that observed physical disorder (visible incivilities) was significantly related to residents' perceptions of disorder whereas the influence of observed social disorder (disruptive behaviors) was not statistically significant (for more information about the theoretical differentiation between physical disorder and social disorder, please review: Perkins & Taylor, 1996; Skogan, 1990). Another study of the linkage between observed disorder and perceived disorder at the census block level shed light on the explanatory power of the neighborhood social structure (e.g., racial, ethnic, and class composition) (Sampson & Raudenbush, 2004). Their study demonstrated that "social

structure proved a more powerful predictor of perceived disorder than carefully observed disorder” (Sampson & Raudenbush, 2004, p.336).

The Significance of Neighborhood Context

Until now, a fair amount of theoretical and empirical research has established a robust linkage between neighborhood context and crime as well as perceptions of neighborhood crime. However, a question that remains in the puzzle is what a neighborhood is? Different people may have different answers and a consistent definition of neighborhood remains unresolved for decades, which challenges researchers as well as policymakers interested in the improvement of community quality (Bursik & Grasmick, 1993). However, several key elements of a neighborhood have reached agreement among scholars, including “a small physical area embedded within a larger area in which people inhabit dwellings”, “a collective life that emerges from the social networks that have arisen among the residents and the sets of institutional arrangements that overlap these networks”, and “some tradition of identity and continuity over time” (Bursik & Grasmick, 1993, p.6; see also: Hallman, 1984). Accordingly, the impact of neighborhood context in the current study is derived from three aspects, including the social disorganization theory, the collective efficacy perspective, and the effectiveness of community-oriented policing programs.

Social Disorganization in Neighborhoods

Research on the linkage between neighborhood and crime can be traced back to the 1920s, with a specific focus on the mass immigration in Chicago. Using interdisciplinary knowledge, Roderick MacKenzie (1925[1967]) borrowed the plant/animal ecology to investigate the immigration phenomenon in Chicago. In this

regard, environments are dynamic where the invasion of new species would conflict with the existing weaker species and accommodate to the dominance of the stronger species (MacKenzie, 1925[1967]). This process of assimilation applies to the human ecology as well (Hawley, 1950). MacKenzie (1925[1967]) emphasized, the “general effect of the continuous process of invasions and accommodations is to give to the developed community well-defined areas, each having its own peculiar selective and cultural characteristics” (p.77; see also: Wilcox, Cullen, & Feldmeyer, 2018). Zorbaugh (1929[1976]) noted that “transportation, business organization and industry, park and boulevard systems, and topographical features” (p.231) could shape the human ecological evolution by breaking up the area into different smaller units (Wilcox et al., 2018).

At the same time, Ernest Burgess (1925[1967]) developed the concentric zone theory, providing a detailed illustration of the growth of city. He identified five concentric zones in Chicago. The loop (Zone I) was called the central business district, from which the city expanded radially. In this area, most of the buildings were designed for business purpose and few residential facilities existed. Zone II was the transition area invaded by some of the business manufactures. Rental housing dominated in this area. It was considered as the most impoverished and aged area of the city (e.g., physical decay and racial heterogeneity). Zone III was the area where blue-collar workers inhabited. People living in this area wanted to move away from the deteriorate places (Zone II) while they were not far away from their working places. Hence, occupants in this area possessed more stability and resources than those living in Zone II. Zone IV was the residential area dominated by “high-class apartment buildings or exclusive ‘restricted’ districts of single family dwellings” (Burgess, 1925[1967], p. 55). Residents in this area

had a higher level of socio-economic status comparing to those in Zone II and Zone III. Zone V was the commuter zone, which was also called the suburban areas or the satellite cities (Burgess, 1925[1967]). Dwellers in this area had a high level of home ownership and had the means to commute to the other areas of the city, particular the central business district (Battin, 2015).

Since the city was dynamic and growing at the beginning of the 20th century, the adjacent of each zone expanded outwardly accordingly. As Burgess (1925[1967]) noted, in this process, there is a “tendency of each inner zone to extend its area by the invasion of the next outer zone” (p.50; see also Battin, 2015; Wilcox, Cullen, & Feldmeyer, 2018, p.22). Initially, immigrant ethnic groups typically stayed in the Zone II area because of the inexpensive housing. However, as they “became fully integrated to the economic structure” (Bursik & Grasmick, 1993), they were assumed to move outward toward the more attractive and expensive housing units (Bursik & Grasmick, 1993). Therefore, areas near the central district possessed a high level of population turnover, which is difficult for residents in these neighborhoods to form strong formal and informal social ties.

The concentric zone theory explained the growth of a city with newly immigrated population but failed to directly connect the growth of different zones to crime and delinquency (Battin, 2015). One of the most famous works on the relationship between neighborhood characteristics and crime known to researchers in the field of criminology and criminal justice (or even social science) was derived from Shaw and McKay— the social disorganization theory (1942[1969]). While Lombroso’s classical study of crime centered on individual-related factors, Shaw and McKay (1942[1969]) diverted their focus directly to the community context. They were not the pioneers to investigate the

geographical distribution of juvenile delinquency (Bursick & Webb, 1982). However, they were the first to propose, “the spatial distribution of delinquency in a city was a product of larger economic and social processes characterizing the history and growth of the city and of the local communities which comprise it” (Bursick & Webb, 1982, p. 25; Shaw & McKay, 1942, p.14). Indeed, the concentric zone theory provided a visual depiction of the social disorganization theory. Specifically, social disorganization is concentrated in zone II—the transition area and decreases as immigrants moving outward. In the meantime, crime and delinquency decreased from the central zone to the outside suburban zone. Hence, crime is not an issue of ethnic/race; rather it is a problem of community dynamics. As Shaw and McKay (1969) noted, “High or low rates of delinquents are not permanent characteristics of any ethnic or racial group. Each population group experienced high rates of delinquents when it occupied the areas of first settlement, and these rates went down as the groups either move out to better areas or move toward stability in the same areas” (p.385).

Connecting crime to communities, mixed methods (e.g., participant observation, interviews, document analysis, and case studies) were used to the study of Chicago school associated with the application of crime mapping. A hallmark of the Chicago school is that they embraced the value of personal contact with the subject of research interest. Building on the knowledge of Chicago school (Thomas & Znaniecki, 1920 [1984]; Thrasher, 1927), Shaw and McKay (1942 [1969]) argued that social disorganization is composed of two main factors: cultural disorganization and institutional disorganization. High level of racial heterogeneity, high level of residential mobility, and low level of economic status (the major features of the transition zone or

the disorganized community) are conducive to the breakdown of cultural and institutional control over juveniles. Specifically, juveniles living in the disorganized communities face the loose control of traditional culture and come into contact with a series of contradictory norms and values, the so-called criminal social values. The community dynamics in disorganized areas also result in a “weakened capacity of core institutes to supervise and socialize youngsters” (Wilcox et al., 2018, p.31). Thus, youths are exposed to a high level of criminal and delinquent activities with a culture that is lack of norms and constraints. Consequently, their interaction with these activities leads them to criminal careers. Indeed, empirical research has reported a consistently significant correlation between the community-characteristic variables and delinquency. However, a drawback of these cornerstone studies on community and delinquency is that there is a lack of empirical evidence regarding the effect of informal social control on crime and delinquency (Arnold, 2011; Kornhauser, 1978). Accordingly, a complete model of social disorganization theory was not examined during that period (Batin, 2015; Sampson & Groves, 1989; Wilcox et al., 2018). Moreover, the failure of the Chicago Area Project (CAP), a program aiming to reduce crime and delinquency by providing positive community-related sources, led to a loss of interest in social disorganization theory from both the lens of scholars and the perspectives of policymakers in the 1950s and 1960s (Miller, 1962; Short, 1969; Bernard, Snipes, & Gerould, 2009).

The Revitalization of Social Disorganization Theory. If we argue that from the 1920s to the 1960s was the period of large city growth, it is reasonable to claim that from the 1960s to the 1990s was the time of large city decline, for example whites fleeing to the suburban areas (Wilcox et al., 2018). The large waves of European immigrations

disappeared; instead, homogeneous clusters of African Americans flooded into the urban areas in the north of the United States. A prominent result of the large city declines, such as Cleveland and Cincinnati, is that social problems concentrated in inner-city neighborhoods, such as concentrated economic disadvantage, rising drug crime and violent crime, and high level of disorder issues (Wilcox et al., 2018). For example, the amount of Black population in poverty increased by more than 1.5 times, and the number of female-headed families grew by more than 60% during the 1970s (U.S. Census Bureau, 2015). According to the U.S. Bureau of Labor Statistics, more than one in five African Americans was unemployed in the 1980s. Likewise, homicide rates and violent crime rates increased more than three times in the 1980s comparing to that of the 1960s (Wilcox et al., 2018). As the concentric zone theory assumed, the middle- and upper-class black families move out of the inner-city communities, leaving the most disadvantaged group of population in the kernel urban areas (Wilson, 1987).

Under this social context, social disorganization within neighborhoods gained scholar's attention again. An innovative view of crime and community at that time period was the non-recursive model provided by Kornhauser (1978). It proposed that community is *a system of social networks and associational ties*, within which informal control (e.g., friendship ties and organizational participation) is the key of maintaining order and safety. The community relevant factors identified by Shaw and McKay (i.g., race/ethnic heterogeneity, residential mobility, and low economic status) would affect the quality of informal control in the neighborhood, and subsequently influence the level of crime in the associated neighborhood.

Kornhauser (1978) re-conceptualized social disorganization theory with a clear causal mechanism. She interpreted Shaw and McKay's work as a mixed and non-recursive model, including elements of control theory, strain theory, and cultural deviance theories) (Kornhauser, 1978, p.26). Her primary contribution to the development of social disorganization theory is the removal of strain theory and cultural deviance theory from the model and the emphasis of weakened informal social control when explaining the relationship between community and crime (Kornhauser, 1978). Specifically, Kornhauser (1978) argued that strain theory (Merton, 1938; Cohen, 1955; Cloward & Ohlin, 1960) could not explain the variation in terms of commitment to the consensual values. "Strain is not produced by culture, but by the weakness or absence of culture" (Kornhauser, 1984, p.165). Everyone can experience strain, but individuals with a high level of control would be less likely to commit a crime comparing those with less control. As for the cultural deviance theories, she criticized that they were based on untenable assumptions (Kornhauser, 1984, p.34). For example, Kornhauser claimed that cultural deviance theories assumed that human beings only had socialized nature. In other words, human beings had no individual drives or motivations, and their criminal behaviors were a result of conformity to the group norms. This was a flawed assumption because people could commit crime not simply because they are intensively exposed to a certain type of culture but because it could satisfy their personal needs.

Relatedly, Kornhauser (1978) viewed the blending of the three conflict theories as problematic and identified Shaw and McKay's theory as a "pure control theory" (Wilcox et al., 2018, p.43). In this regard, it defined "informal social control" as the key intervening variable between neighborhood dynamics and crime rates in the community,

making the causal mechanism more clear and easier to test. It assumed that crime would decrease if the community conditions allowed residents to interact with each other (e.g., being able to recognize strangers in the neighborhood and being able to constrain deviant behaviors), forming a trustworthy and cooperative environment.

The Contemporary Development of Social Disorganization Theory. Social disorganization was not fully tested until the late 1980s (Sampson & Groves, 1989). Sampson's early work focused explicitly on the explanation of social disorganization theory, including low economic status, residential instability, and racial heterogeneity. He also incorporated an additional variable in the model—the community-level family disruption (e.g., single mother headed households) (Messner & Sampson, 1991; Sampson, 1985, 1987). He argued, “It is suggested that areas with pronounced family disorganization are less able to provide an effective network of social controls. In contrast, communities with a strong familial base are likely to be areas where families know each other and provide mutual support; consequently, there is a functional youth social control” (Sampson, 1985, p.11).

In 1989, Sampson and Groves got access to and analyzed the data collected from 10,905 residents living in 238 localities in England and Wales, which is ideal for the comprehensive test of social disorganization theory. Specifically, neighborhood structure related variables that have been mentioned in the previous literature were all examined in their model, such as socioeconomic status, residential instability, racial heterogeneity, family disruption, urbanization, and informal social control and social ties (i.e., local friendship networks, unsupervised teenager peers, and organizational participation). As social disorganization theory posits, socially disorganized neighborhoods (low economic

status, high residential mobility, high racial heterogeneity, high family disruption, and urbanization) have a high level of self-reported victimization and criminal behaviors. The examination of the intervening effect of informal control and social ties demonstrated that neighborhoods featuring with sparse friendship networks, unsupervised teenager peers, and low organizational participation had high levels of criminal incidents and high rates of victimization. Sampson and Groves' (1989) comprehensive test of social disorganization theory has been replicated across locations and cultures by the following studies (e.g., Breetzke, 2010; Clear et al., 2003; Elliott et al., 1996; Hipp, 2010b; Law & Quick, 2013; Lowenkamp, Francis, & Pratt, 2003; Sampson et al., 1997; Sundquist et al., 2006; Warner & Rountree, 1997). The results, to a large extent, are consistent with Sampson and Groves' (1989) original research.

However, the structural characteristics of neighborhoods started to shift again in the 21st century. For example, "Neighborhoods racked by the most extreme concentrated disadvantages began to see some relief. Economic conditions in urban Black communities were far from stable, but they saw improvements. Disadvantage became less concentrated. Education and employment opportunities for African Americans increase. The Black middle class began to grow, and urban poverty and crime began to fall" (Peterson & Krivo, 2010; Wilcox et al., 2018, p.86; Wilson, 2009). Therefore, it is necessary to examine the influence of the ongoing shifting regarding neighborhood structures on crime as well as crime-related perceptions.

The Empirical Evidence of Social Disorganization and Perceptions of Crime.

Neighborhood structures have been found theoretically and empirically associated with neighborhood crime based on the social disorganization theory. Therefore, it is

reasonable to claim that the social structures can also influence residents' perceptions of crime given the fact that residents live in the neighborhood at a daily basis. Indeed, the extant empirical tests of the relationship between socially disorganized neighborhood characteristics and their associations with crime-related perceptions have produced a relatively consistent support (Box, Hale, & Andrews, 1988; Brunton-Smith & Sturgis, 2011; Gibson et al., 2002; Liu & Polson, 2016; Markowitz et al., 2001; McGarrell et al., 1997; Taylor & Covington, 1993).

Taylor and Covington (1993) extended the concept of social disorganization theory from neighborhood structure-crime linkage to neighborhood structure-fear of crime correspondence. Using data collected from 562 blocks across 66 neighborhoods in Baltimore in 1982, they found that the change of neighborhood structure resulted in neighborhood-level racial composition changes that can raise structural dynamics, such as a high level of physical incivilities and unsupervised teenagers or hangout individuals. As a consequence, the diversified racial composition inspired residents' fear of crime and that influence was stronger during the daytime than the fear at night. Similar results regarding the significant effect of racial composition after controlling for crime rates, personal characteristics and other relevant variables have been reported by other studies (Bursik & Grasmick, 1993; Jackson, 2004; Liu & Polson, 2016; Oh & Kim, 2009; Sampson & Raudenbush, 2004). Bursik and Grasmick (1993) argued, "the fear of crime is partly a specific realization of a more general fear of unfamiliar racial/ethnic groups that one may find threatening because of their 'strangeness'" (p.107-108). A limitation of the prior research, however, is that most of them focused on the effect of minority concentration, such as the percentage of African Americans in the neighborhoods or the

percentage of Hispanics in the neighborhood and dismissed the impact of racial/ethnic heterogeneity (Liu & Polson, 2016).

Likewise, other neighborhood-level factors derived from the social disorganization theory have been found a significant and positive relationship with fear of crime, such as concentrated disadvantage, urbanization, larger population density, low economic status, greater proportion of youth population, and low level of community integration (Allen, 2006; Bankston et al., 1987; Covington & Taylor, 1991; Fitzgerald, 2008; Hale, Pack, & Salked, 1994; Holmes, 2003; Lewis & Salem, 1986; Liu & Polson, 2016; Reisig & Parks, 2000; Sampson & Raudenbush, 2004; Skogan & Maxfield, 1981; Taylor & Hale, 1986; Wilcox-Rountree & Land, 1996; Wyant, 2008). Scholars adopting the more advanced statistical method—multilevel modeling strategy to explore the neighborhood structure effect also yield consistent evidence with the existing research (e.g., Liu & Polson, 2016; Morenoff et al., 2001; Robinson et al., 2003; Sampson et al., 1997; Wilcox-Rountree et al., 2003). For example, combining survey data with police recorded crime data and census data of England and Wales, Brunton-Smith and Sturgis's (2011) multilevel analysis confirmed the significant explanatory power of the neighborhood structures concerning fear of crime. However, they also pointed out that these effects were considerably weaker comparing to the influences of other level variables.

In contrast, there is a line of scholarship demonstrated different results (Hale, 1996; Hinkle & Weisburd, 2008; Lai et al., 2012; Scarborough et al., 2010; Wilcox-Rountree, 1998). Specifically, these studies found that individual-level factors, such as race and gender in general play a more important role in the explanation of fear of crime,

net of the contribution of the neighborhood structure variables. Moreover, in their study of the burglary-fear of burglary correspondence, Lai and colleagues (2012) suggested that concentrated disadvantage did not significantly influence residents' expressed fear of burglary when taking the actual level of burglary and individual-level factors into account. In conclusion, disregard of the mixed results among the existing literature, a prominent limitation of the studies on the effect of neighborhood structures on fear of crime is that there is scant research adopting a comprehensive model featuring with variables from different levels. In particular, only little research includes reported or official crime rates and the objective neighborhood structure variables that are not from the same survey associated with respondents' perceptions in the analysis (Brunton-Smith & Sturgis, 2011). This is necessary to identify a non-spurious relationship and it is important to explore the consistency between perception and reality.

Collective Efficacy in Neighborhoods

According to the social disorganization theory, social ties and social integration are crucial elements to reduce crime and delinquency in neighborhoods (Sampson & Groves, 1989). However, a dilemma occurred among the research focusing on the community-tie and crime connection in the later 1990s. Research suggested that strong neighborhood ties (friendship and kinship) exist in crime-ridden neighborhoods, and crime rates are low in suburban areas where residents have little opportunity of face-to-face encounters. Collective efficacy theory was born under this background (Morenoff et al., 2001; Sampson, 2002, 2006, 2012; Sampson et al., 1997). Specifically, it gives credence to Kornhauser's (1978) systemic model that informal social control holds the accountability for the explanation of crime distribution across neighborhoods. However,

collective efficacy is not narrowly referred to the intimate relationships among residents; rather, it is composed of two fundamental dimensions: “*social cohesion* (the ‘collectivity’ part of the concept) and *shared expectations for control* (the ‘efficacy’ part of the concept)” (Sampson, 2012, p.152; see also: Wilcox et al., 2018, p.180). In other words, crime is less likely to proliferate if residents in the neighborhood are willing to work together (mutual trust) and take actions to intervene anti-social behaviors for the common good of the community (e.g., intervene incivilities and illegal markets in the public place of the neighborhood). The goal of informal control of crime is achieved in socially cohesive neighborhoods. Therefore, extensive friendship and kinship are not necessarily associated with crime control if the two mechanisms (social cohesion and shared expectations for control) are off course. Indeed, collective efficacy theory modernizes the social disorganization theory with respect to the systemic model. It recognized that neighborhood in the contemporary society is no longer in the form of the idyllic urban village; instead, it is combination of residents with no or little friendship and kinship ties (Sampson, 2006; Wilcox et al., 2018). Therefore, the well-being of the neighborhood and the control of crime rely on collective efficacy rather than traditional social ties.

Sampson, Raudenbush, and Earls originally tested collective efficacy theory in 1997. They analyzed data collected from the Project on Human Development in Chicago Neighborhoods (PHDCN) by combining 847 census tracts into 343 neighborhood clusters. They operationalized collective efficacy into two independent scales: informal social control and social cohesion and trust. As to the informal social control index, they asked questions regarding “the likelihood that their neighbors could be counted on to intervene in various ways if (i) children were skipping school and hanging out on a street

corner, (ii) children were spray-painting graffiti on a local building, (iii) children were showing disrespect to an adult, (iv) a fight broke out in front of their house, and (v) the fire station closest to their home was threatened with budget cuts” (p.919-920). For the scale of social cohesion and trust, they asked respondents’ agreement on questions: “people around here are willing to help their neighbors; people in this neighborhood can be trusted; people in this neighborhood generally don’t get along with each other, and people in this neighborhood do not share the same value” (p.920). Employing the hierarchical statistical model, Sampson and colleagues (1997) found that the concentration of social and economic disadvantage and the concentration of immigration were negatively related to perceived neighborhood violent crime after controlling for the individual level factors. However, the influence of these neighborhood social structure variables became substantially weaker when collective efficacy was incorporated into the model. Similar results were reported that collective efficacy mediated the relationship between neighborhood social composition and violent victimization as well as the correspondence between neighborhood social composition and officially recorded homicide events. Moreover, they found that collective efficacy remained the strongest predictor of perceived violence, violent victimization, and homicide rate even after controlling for friendship and kinship ties, organizational participation, and neighborhood service. Yet, a limitation of this study pertains to the fact that they did not include measures capturing residents’ “partnerships with agencies of formal social control (community policing)” (Sampson et al., 1997, p.923).

A notable advancement of the first examination of collective efficacy theory involves the measurement of social composition and the conceptualization of collective

efficacy. To begin with, the neighborhood-related variables that made up the exogenous sources were measured based on the factor analysis. Concentrated disadvantage was a measure of six items based on the weighted factor score, including below poverty line, on public assistance, female-headed families, unemployment, density of children, and percentage of black population. Immigration concentration was an aggregated measure of two items (the percentage of Latinos and the percentage of foreign-born persons) based on the weighted factor score. Likewise, two items (the percentage of people living in the same house as five years ago and the percentage of owner-occupied households) were used to measure residential stability based on the exploratory factor analysis. They found that these three exogenous variables accounted for 70.3% of the variability of collective efficacy across the 343 neighborhoods. This study provided a classical example of measuring neighborhood structure relevant concepts. The other advantage of Sampson et al.'s study is the conceptualization of collective efficacy. Sampson and colleagues (1997) employed two variables to capture the concept of collective efficacy, namely *informal social control* and *social cohesion and trust*. However, research found that there was a high correlation between these two measures, suggesting a single latent construct. Therefore, combining them into one variable addresses the critiques of multicollinearity issue in the past.

Considered as a refinement of the collective efficacy theory illustrated by Sampson, Raudenbush, and Earls in 1997, Morenoff, Sampson, and Radenbush's study in 2001 reported that friendship and kinship is indirectly related to the rate of neighborhood crime moderating by collective efficacy. They also found that spatial proximity was a mediator of the linkage between collective efficacy and neighborhood crime rates. In

particular, collective efficacy is not only influential concerning crime control in the focal neighborhood but also more effective in the control of crime when the imminent neighborhood featuring with a high level of collective efficacy or a low rate of crime. Another innovative finding of their research is the potential reciprocal relationship between collective efficacy and crime control. That is to say, prior crime rates negatively affect collective efficacy, and collective efficacy negatively impact subsequent neighborhood crime incidents. Likewise, research using longitudinal data also found a reciprocal relationship between collective efficacy and concentrated disadvantage and neighborhood violent crime incidents (Hipp & Wickes, 2017).

Another refinement of the collective efficacy theory involves the effect of immigration on crime rates. The traditional assumption argues that residential stability and population homogeneity are overly important because the development of collective efficacy takes time. Therefore, immigration would decrease residential stability and increase population heterogeneity, which consequently would boost the crime issues in the neighborhood through low levels of collective efficacy (Shaw & McKay, 1942). However, in Sampson, Raudenbush, and Earls' (1997) study, they found that immigration concentration failed to reach the statistically significant level when collective efficacy was incorporated into the model. Indeed, recent research has overwhelmingly suggested that immigration is not statistically significant when predicting neighborhood crime and disorder (see reviews: Feldmeyer, Harris, & Scroggins, 2015; Feldmeyer et al., 2017; Sampson, 2008; Vaughn et al., 2014; Wilcox et al., 2018). This line of scholarship demonstrated that immigration tends to play a protective or at least neutral role in the development of neighborhood crime and disorder issues. More specifically, immigration

is prone to “attract employers and business, reinforce traditional family structures, and foster connections to protective institutions, which may help strengthen communities and reduce social problems like crime” (Wilcox et al., 2018, p.191).

In a recent review of collective efficacy, Warner and Sampson (2015) accentuated that collective efficacy covers both the structural and cultural dimensions of community issues. Indeed, cross-national studies have established a consensus that collective efficacy is illuminating in the explanation of community crime across different cultural contexts (Jiang, Land, & Wang, 2013; Mazerolle, Wickes, & McBroom, 2010; Sampson & Wikstrom, 2008; Zhang, Messner, & Liu, 2007). For instance, in the analysis of survey data collected from 2,859 residents in Brisbane, Mazerolle and colleagues (2010) found that collective efficacy was a strong predictor of self-reported violent victimization across Australia, the United States, and Sweden. Conversely, there is empirical evidence shown that collectivity (shared norms and values for the common good of the community) does not necessarily result in engagement in informal social control (Warner, 2007; Wickes et al., 2017). For example, Wickes and co-authors’ study using data collected from Australia indicated that collective efficacy was not associated with parochial control (e.g., directly intervene the neighborhood problems) and public control (e.g., call the police).

Linking Collective Efficacy Theory Directly to Perceptions of Crime and Disorder. Although social disorganization theory and collective efficacy theory were originally developed to explain neighborhood crime, they have been found instrumental in disentangling the myth of crime-related perceptions. In Sampson and colleagues (1997) original study of collective efficacy, one of the outcome variables was perceived neighborhood violence. They found that collective efficacy was negatively related to

residents' perceptions of neighborhood violent crime. Later studies found similar outcomes that collective efficacy was negatively related to perceptions of neighborhood disorder issue (Hipp, 2016; Reisig & Cancino, 2004) and perceptions of neighborhood violent crime (Armstrong, Katz, & Schnebly, 2015; Hipp, 2016; Liska et al., 1988; Stein & Griffith, 2017). For example, Armstrong and co-authors (2015) used data collected from Mesa, Arizona, where the demographics are different from Chicago. Their research indicated that collective efficacy theory could be generalized to other communities. In particular, the neighborhood related variables were significantly related to residents' perceptions of collective efficacy, and perceptions of collective efficacy were negatively and significantly associated with perceptions of neighborhood violent crime. Stein and Griffith (2017) found that citizens living in neighborhoods featuring with a low level of collective efficacy were more likely to perceive crime as a problem in the neighborhood.

However, scholars argued that different operationalization approaches of collective efficacy might result in inconsistent results (Bursik & Grasmick, 1993). For example, operationalizing collective efficacy in a slightly different way than previous studies (e.g., Gibson et al., 2002), Wells and colleagues (2006) found that collective efficacy had no significant effect on residents' responses to perceived neighborhood problems. Specifically, they employed eight items to capture the concept of collective efficacy based on the confirmatory factor analysis, including "residents are willing to take responsibility for safety of their own neighborhoods; how often do you agree to watch a neighbor's home when they are on vacation; how often do you keep an eye on kids who live on your block to see that they are not getting into trouble; how often do you keep an eye out for anything suspicious happening on your block; in general, what kind

of neighborhood would you say your is: one where people usually help each other or one where people usually go their own way; how often do you have a friendly chat with neighbors on your block when you are outside; how often do you get together socially with neighbors on your block; how often do you share tools or other things with your neighbors; and residents will share what they are learning about working on local problems with their neighbors” (p.533). They speculated that the insignificant relationship may be a clue that collective efficacy is linked to citizen’s reactions to neighborhood problems in a different mechanism. For example, establishing the shared expectations of the community by “expressing disapproval in subtle, informal ways” (Wells et al., 2006, p.541).

In addition to the measurement discrepancy of collective efficacy, studies also found that the influences of collective efficacy vary based on the time lag (Hipp, 2016; Stein, Conley, & Davis, 2016). For example, in the analysis of longitudinal data collected from North Carolina, Hipp (2016) examined the process of collective neighborhood perceptions. The cross-sectional models revealed that collective efficacy was negatively related to perceptions of neighborhood crime and perceptions of neighborhood disorder. However, the cross-lagged structural equation models indicated an unexpected finding that the higher level of collective efficacy in one year was not significantly related to perceptions of neighborhood crime and disorder in the following year. Hipp (2016) further explained, “collective efficacy was only associated with lower perceived crime or disorder at the next time point when it occurred in the context of high cohesion” (p.41). In this regard, social cohesion and trust is distinct from collective efficacy. Another surprising result of Hipp’s (2016) research is that perceived neighborhood crime at one

time point was significantly associated with collective efficacy at the next time point while perceived neighborhood disorder at one time point was indirectly related to collective efficacy at the next time point (mediating by perceptions of crime). Thus, it calls doubt on the causal relationship between perceptions of crime and collective efficacy.

Community Policing in Neighborhoods

While collective efficacy theory focuses on the reduction of crime and fear through informal control, community policing pays more attention to the formal control of crime. Indeed, research found that community policing played a more important role in improving perceived safety and controlling fear of crime (Maguire et al., 2019; Xu et al., 2005). In particular, community policing emphasizes the cooperation between residents and police officers to improve community quality (e.g., crime and disorder, citizens' fear of crime, perceptions of crime and disorder, satisfaction with the police, neighborhood conditions and dynamics, and life quality), instead of rapid response, aggressive police patrol, and strict law enforcement (Goldstein, 1990; Manning, 1984). In this vein, community policing is considered as a progressive policing strategy with prior functions of order maintenance and non-emergency service provision (Goldstein, 1990).

Back to the 1970s, despite the intensive fear regarding crime drug abuse problems, the Kansas patrol experiment showed that the different levels of preventive police patrol made no difference regarding reported crime, victimization, and fear of crime. Consequently, the approach of community service was put forward as an alternative of policing, including asking policemen to be familiar with the community, to be aware of residents' complaints/calls for assistance, and to win the heart of local

residents so that they can gather more intelligence for crime control (Greene, 2000). It has been frequently noted, “lack of citizen cooperation and support is a major barrier to crime control”, such as “bystanders claimed they saw nothing g, witness refused to testify, victims dropped charges, and no one would come to an officer’s aid when he was being overpowered in a scuffle” (Wilson, 1983, p.100). In sum, there are three core dimensions of community policing—community partnerships, problem solving, and organizational transformation (Maguire et al., 2019). Generally, extant research on the effects of community policing holds promises for this policing philosophy or framework. For example, Gill and co-authors’ (2014) systematical review of 25 reports on community policing demonstrated that community policing strategies were positively related to citizen satisfaction with the police and perceptions of disorder. In the first meta-analysis of policing disorder, Brag and co-authors (2015) found that community policing (i.e., community problem-solving policing) was significant in the explanation of crime reductions while zero-tolerance disorderly policing was insignificant, calling for attention to the police-citizen relationship. Zhao, Scheider, and Thurman (2002) also reported that communities with the grant funding from the Office of Community Oriented Policing Service had significant reductions in crime rates.

Citizen Participation and Crime-related Perceptions. Citizen involvement in community-policing programs is a key dimension for the implementation of community policing (Community Policing Consortium, 1994; Greene, 2000; Lee & Zhao, 2016; Ren et al., 2006; Wells et al., 2006; Zhao et al., 2002). Zhao, Lovrich, and Robinson (2001) summarized that several typical community-policing programs have been implemented in the United States policing practices, such as “foot patrol, storefront and mini-stations,

school resource officers, geographic assignment, and citizen-engaged neighborhood crime prevention activities” (p. 367). Studies on the influence of community-policing regarding citizen perceptions in the fields of criminology and criminal justice are predominately focused on fear of crime. However, as aforementioned, perceptions of the frequency and seriousness of community crime and disorder occurs before the generation of fear of crime. Therefore, it is reasonable to argue that factors that can affect fear of crime could also influence citizens’ perceptions of the frequency and seriousness of neighborhood crime and disorder. In the following paragraphs, I summarize the findings of the previous research on fear of crime due to the lack of study on perceptions of the frequency and seriousness of neighborhood crime and disorder.

Since one of the goals of community policing is to improving community quality of life by reducing fear, it is reasonable to argue that participant in community policing program would develop higher levels of feeling of safety in the neighborhood. Quite opposite, based on the victimization model of fear of crime both direct victimization experience and indirect victimization experience (e.g., witness a crime) in the neighborhood can increase people’s anxiety and fear (for a review: Gibson et al., 2002; Zhao et al., 2015). Interactions with the police by participating community policing programs facilitate participants to obtain more crime-incident information, which may serve as an indirect victimization function to explain one’s sentiment of neighborhood crime and disorder. Indeed, the empirical research does demonstrate mix results on this linkage as the two different theses assumed. For example, a body of scholars and practitioners posit that citizen participation in the community policing programs could reduce their fear of crime by interacting with the police, collaborating with the police on

problem-oriented policing projects, or simply being aware of the community-policing programs (e.g., Dansie & Fargo, 2009; Trojanowicz & Bucqueroux, 1990; for a review: Maguire et al., 2019). However, some of the research studies argued that community policing did not decrease fear of crime and even worse increased citizens' fear because of the detailed information regarding the risk of victimization in the neighborhood (for a review: Gill et al., 2014; Maguire et al., 2019).

Likewise, investigations of the association between community policing and fear of victimization or perceived safety yield complicated results when comparing citizen volunteers of the community policing program and the citizen volunteers that do not participate in the associated program (Dansie & Fargo, 2009, p.126; LaGrange et al., 1992; Maguire et al., 2019; Scheider, Rowell, & Bezdikian, 2003; Zhao et al., 2002). For instance, in their comparison of 192 community policing volunteers and 421 general citizens, Zhao and his colleagues (2002) found that volunteers of police work were more likely to fear violent and property crime because of the heightened level of suspicious toward others. They also suggested that the voluntary participation might be due to the high level of perceived collective efficacy in the community. Lavrakas and Hert (1982) reported that people' fear of crime did not significantly differentiate between participators and non-participators in neighborhood crime prevention programs. They did point out that residents tended to take part in the community policing programs in the neighborhoods where crime and disorder issues are salient (see also: Pattavina, Byrne, & Garcia, 2006). In conclusion, previous research studies on citizen participation are predominately concentrated on the characteristics of participants and the factors that affect their participation in collaborative police work. Though there is a line of

scholarship on the correspondence between citizen participation and fear of crime, it remains unclear how the participation in community policing programs affect their perceptions of neighborhood crime and disorder.

Research argues that different types of community-policing programs have distinct effects (Weisburd & Eck, 2004). For example, police foot patrol may have little effect on citizens' worry about crime whereas door-to-door visits or frequent interaction with the community could reduce fear. The focus of the current study is the crime prevention program in Houston. Citywide program of citizen participation in police work has been part of the Houston Police Department (HPD) community policing since 1980s (Lee & Zhao, 2016). The primary goals of these crime prevention programs are to establish a good police-citizen relationship and to reduce community crime and associated fear (Frank et al., 1996). Indeed, Houston is one of the pioneering cities to implement community-policing and relative programs, including storefront stations, fear reduction programs, community newsletters, and positive interaction programs (Cordner, 2014; Lee & Zhao, 2016). After Chief Lee Brown's considerable efforts on community outreach and volunteerism in Houston since the late 1990s, the HPD now has operated about 30 police mini-stations in residential neighborhoods and maintained a system of community outreach programs of 40 neighborhood meetings (Houston Police Department, 2014). Positive interaction program (PIP) is part of HPD's innovative programs started from 1983 with a primary goal to inform citizens of how the police work in their neighborhoods, what are the crime and disorder problems in the neighborhood, and to establish a cooperative police-citizen relationship (Lee & Zhao, 2016; See also: HPD, 2015). Since 1983, PIP has grown dramatically and expanded to

the whole city of Houston with the cooperation of civic associations in the city (HPD, 2015).

Previous research reported that the community-policing program in Houston is in favor of community/common good. For example, in their comparison of 324 citizen volunteers in police work and 1,197 non-voluntary citizens in Houston, Lee and Zhao (2016) found that volunteers possess higher level of diffuse support of the police in their neighborhoods. Another example of the effectiveness of community policing was Hurricane Katrina in 2005 when the HPD successfully kept peace and order in the city with a drop of violent crime during that period of time (Lee & Zhao, 2016). However, it remains unclear whether residents participating in the PIP possess distinct perceptions of crime and disorder issues in the neighborhood in comparison to residents that do not participate in the program. Citizens that participate in the PIP are more likely to acquire more specific and detailed information of the neighborhood crime and disorder by attending associated meetings with the police. Since the participation is voluntary, it is evident that those participants care about the neighborhood problems regarding crime and disorder. Based on the existing literature, the influence of participation in community-policing programs on fear or perceived safety is mixed. Therefore, it is possible that the availability of considerable crime-related information from the program would lead to a relatively more accurate recognition of the neighborhood crime and disorder issues; or on the other hand, the disproportionate exposure to the dark side of the community would make them “uncommonly aware of the potential risks to public safety and social disorder” in the neighborhood (Zhao et al., 2002, p.43). Disentangling the different factors associated with crime/disorder perceptions between citizen volunteers and general

citizens can make policy informs, such as encouragement in crime prevention program, enhancement of police-citizen interaction, or reform of the community policing program.

Citizen Perceptions of the Police and Crime-related Perceptions. The general philosophy of community policing aims at the cooperation and coproduction between the police and the community for the quality of life. Citizens' perceptions of the police play a significant role in making effective collaboration between the two parties. Accordingly, two groups of citizen perceptions have been developed by the existing literature to evaluate police work—namely, satisfaction with the police and attitudes toward the police. Recently, the procedural justice framework highlighted the importance of fair and just interaction between the police and citizens. It claims that citizens are more likely to voluntarily follow police instructions and cooperate with the police if they believe the police authorities' decision-making is fair, accompanied with respect (Taylor & Huo, 2002). According to these theoretical assumptions, positive attitudes toward the police and satisfaction with the police work would lead to a lower level of fear of crime.

Empirical research on the nexus between citizens' perception of police and fear of crime, however, was more complicated than theoretical assumptions. For example, consistent with the community policing philosophy assumption, Xu and co-authors (2005) argued that the level of residents' fear on neighborhood crime depends on their satisfaction with the police. The more commitment that police officers devote to the community, the less likely those residents would develop fear. Zhao, Scheider, and Thurman (2002) systematically reviewed 26 studies on the police-citizen fear linkage from 1974 to 2000. Their results indicated that high level of police-citizen interaction was significantly associated with a lower level of fear of crime in the public (see also: Bolger

& Bolger, 2019; Dansie & Fargo, 2009; Luo et al., 2016; Scheider et al., 2003; Trojanowicz & Bucqueroux, 1990). However, several studies suggest an opposite result (Reisig & Parks, 2004; Scarborough et al., 2010). Reisig and Parks (2004) reported that the more interactions between residents and the police, the more likely residents would worry about their safety after controlling for the neighborhood structural variables. Scarborough and colleagues (2010) argued that satisfaction with the police was not a significant predictor of fear of crime. However, a limitation of Scarborough and colleagues' (2010) study was that they did not include items capturing citizens' perceptions of police performance and crime prevention, such as response time to calls for service and crime prevention efforts. These omitted items may have an effect on their perceived neighborhood crime and disorder problems.

The Influence of Individual Factors

A substantial body of scholarship has consistently examined the effect of individual-level factors on people's worry about crime. Accordingly, several theoretical frameworks have been established. The victimization model on fear of crime argues that victims of crime have a tendency to possess higher levels of fear in comparison to individuals that do not have victimization experiences (Baumer, 1978; Garofalo, 1979; Gibson et al., 2002; Skogan & Maxfield, 1981; Zhao et al., 2015). The victimization model is considered as a reflection of personal vulnerability regarding crime victimization (Gibson et al., 2002). Therefore, there is a line of scholarship focuses on the vulnerability perspective to explain the crime fear phenomenon. Specifically, the vulnerability model of fear of crime is based on the assumption that individuals who perceive themselves as physically or socially disadvantaged to fight against potential

crime incidents tend to develop greater crime related fear than their counterparts (Franklin et al., 2008; Hale, 1996; Wyant, 2008). Two groups of vulnerability are assumed to be associated with crime fear, including physical vulnerability and social vulnerability. With respect to physical vulnerability, it refers to the perceived risk of physical assault, such as the ability to move and the competence/strength to fight against the offense. The representative factors of physical vulnerability commonly used in previous studies are age and gender. Social vulnerability pertains to the degree of exposure to victimization due to a range of factors, such as neighborhood crime rates, the availability of material sources to protect their homes and properties, the education level, and race/ethnicity. In sum, the frequently examined factors in this line of research include age, gender, education, and race/ethnicity (Clemente & Kleiman, 1977; Franklin et al., 2008; Gibson et al., 2002; Hale, 1996; Lai et al., 2012; Schafer et al., 2006; Warr, 1984; Warr & Stanford, 1983; Wyant, 2008; Oh & Kim, 2009; Yin, 1982).

Age and Crime Related Perceptions

Most of the empirical results are consistent with the theoretical framework. Older people are more likely to express worry about criminal victimization, but in fact they are less likely to be victims of crime than their counterparts (Clemente & Kleiman, 1977; Franklin et al., 2008; Garofalo & Laub, 1978; Hale, 1996; Lai et al., 2012; Schafer et al., 2006; Zhao et al., 2015). Others suggested a negative relationship between age and fear of crime (Dansie & Fargo, 2009; Ferraro & LaGrange, 1987; LaGrange & Ferraro, 1989; LaGrange et al., 1992; Luo et al., 2016). That is to say, young individuals tend to express a higher degree of fear in comparison to their older counterparts. Several studies reported that the level of fear differs among different types of crime regarding age. They found

that younger individuals are more likely to fear violent crime whereas elders tend to have a greater fear of property crime (Moore & Shepherd, 2007). Alternatively, some of the existing research reported a non-significant relationship between age and fear (Gibson et al., 2002; Wyant, 2008).

Another issue regarding the age-fear linkage is the measurement of fear of crime. Questions asking whether people are afraid of going outside alone at night is not applicable to elders since they are less likely to walk outside at night. Indeed, research has suggested that the influence of age differs when prediction fear of crime (e.g., worry about being out at night), perceived risk of victimization (e.g., worry of being burglarized), and perceptions of neighborhood crime problem (Bolger & Bolger, 2019; Franklin et al., 2008; LaGrange et al., 1992; Rountree & Land, 1996b). For instance, in the analysis of mailed survey data collected from 396 households, Bolger and Bolger (2019) found that age was negatively related to perceived neighborhood crime problem, but it failed to reach significance in the explanation of fear of crime. Similarly, Hipp (2010) reported that older residents tended to perceive less crime and disorder in the neighborhood than their younger counterparts. Luo and colleagues (2016) also found that younger individuals were more likely to perceive a higher level of neighborhood crime issues than the elders.

Gender and Crime Related Perceptions

Similar to the effect of age, research has found that women are more likely to be fearful of crime or perceive higher level of neighborhood crime than men (Bolger & Bolger, 2019; Clemente & Kleiman, 1977; Gibson et al., 2002; Hipp, 2010; Quillian & Pager, 2001; Wyant, 2008; Zhao et al., 2015), although they are less likely to experience

crime incidents in practice (Garofalo & Laub, 1978). An explanation of this fear paradox is that certain types of violence against women are underreported, such as rape and domestic abuse. Therefore, it is difficult to investigate the influence of these women-targeted crime incidents. Additionally, women are disproportionately the victims of sexual crime. It is possible that their intensified worry about crime derives from their fear of sexual-related threats.

Extant research on the correspondence between gender and fear yield complex results as well. Some of the research found a significant, but reverse relationship. For example, in Dansie and Fargo's (2009) study of a nationally representative sample, they found that being male was a significant predictor of greater degree of fear (Dansie & Fargo, 2009). However, the examination of interaction effect between age and gender suggested that older males were more likely to report fear of victimization comparing to older females. On the contrary, Ortega and Myles (1987) indicated that fear of crime victimization was higher among older females than older males. Some of the studies suggested that there is no relationship between gender and fear (Breetzke & Pearson, 2014; Lane, 2009).

Education and Crime Related Perceptions

Consistent with the theoretical assumptions, individuals with a lower level of education are related to a higher level of fear of crime than their counterparts (Baumer, 1978; Clement & Kleiman, 1977; Covington & Taylor, 1991; Gibson et al., 2002; Luo et al., 2016; Scarborough et al., 2010; Skogan & Maxfield, 1981; Taylor & Hale, 1986; Zhao et al., 2015). However, several extant studies found a non-significant relationship between education attainment and fear of crime (Schafer et al., 2006; Wyant, 2008).

What makes the relationships more complex is that a different direction of the relationship has been found when employing educational status to predict fear, worry of victimization, and perceptions of crime. For example, Franklin, Franklin, and Fearn (2008) suggested that individuals with a higher level of education were less likely to fear of crime while they were more likely to worry of being victimized by criminal offenses in comparison to people with a relatively lower level of education. Bolger and Bolger (2019) found that educational level was negatively related to perceived neighborhood crime problems while it was not a significant predictor of fear of crime. Put differently, people with less educational experience tend to perceive more neighborhood crime problems than their counterparts.

Race/ethnicity and Crime Related Perceptions

A predominant body of literature suggests that residents that are racial/ethnic minorities are more likely to be fearful of crime (Clemente & Klieman, 1977; Covington & Taylor, 1991; Dansie & Fargo, 2009; Hale, 1996; Liska et al., 1988; Ortega & Myles, 1987; Wyant, 2008). For example, Dansie and Fargo (2009) found that non-white individuals reported a higher level of worry about crime victimization. Hale (1996) argued that the preeminent fear of crime among minorities may derive from either their feeling of being neglected by the police (a sense of powerless) or the fact that they live in socially disorganized neighborhoods. In contrast, there is a line of research found that race/ethnicity is not related to fear of crime (Gibson et al., 2002; Scheider et al., 2003; Wyant, 2008; Lai et al., 2012). Additionally, in a study of 2,599 citizens across 21 cities in Washington, Franklin and co-authors' (2008) reported that white people were less likely to express fear (feel unsafe when walking alone during the daytime/nighttime in

the area where they live) than non-white people, but they were more likely to worry about being victims of specific crime incidents. Likewise, Zhao and co-authors' (2011) examination of the linkage between burglary and fear of burglary found that African Americans were less likely to fear of being burglarized than Whites.

While these individual level factors have been found predictors of fear of crime, the explanatory power is limited. Many scholars put emphasize on the neighborhood and contextual level factors (Bolger & Bolger, 2019; Franklin et al., 2008; Lai et al., 2012; Luo et al., 2016; Robinson et al., 2003; Sampson & Raudenbush, 2004; Scarborough et al., 2010; Wyant, 2008; Zhao et al., 2015). For example, Bolger and Bolger's (2019) analysis of data collected from Pennsylvania found that age and education were significant factors when predicting perceived neighborhood crime problems, but the R-square was around 4%. When adding the neighborhood level factors into the model, all of the demographic factors failed to reach significance. Neighborhood disorder issues and satisfaction with the police were the strongest predictors and the model R-square arrived at approximately 70%.

In conclusion, though the existing literature predominately focus on fear of crime, it is important to examine the explanatory power of the individual- and neighborhood-level factors when predicting residents' perceptions of neighborhood crime and disorder issues due to the close connection between perceptions of crime/disorder and fear of crime (as discussed in chapter one).

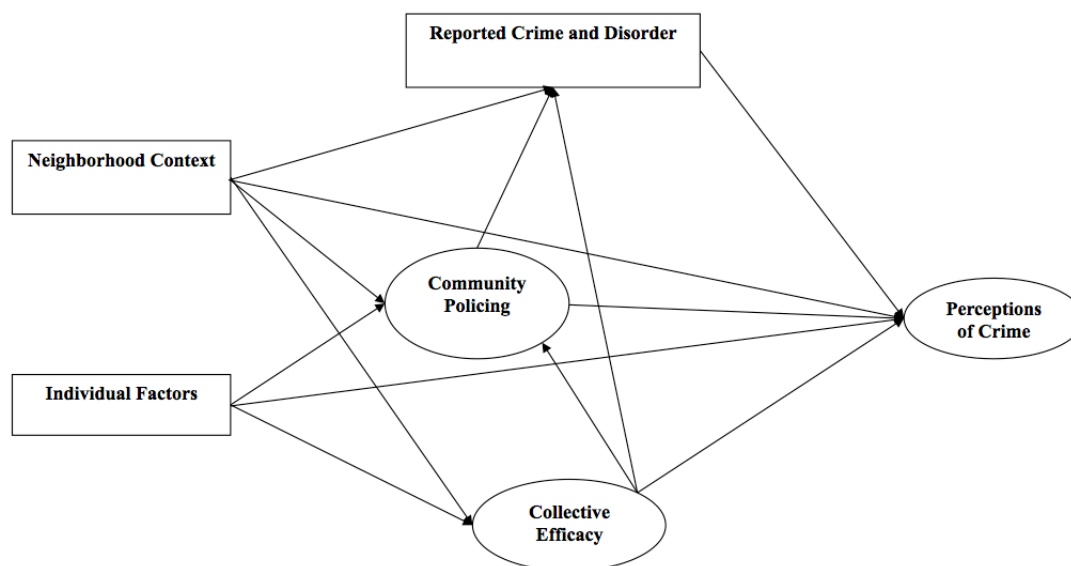
Conceptual Models and Hypotheses

A unique feature of the current study is to examine factors associated with people's perceptions of crime and disorder rather than their fear of crime. More

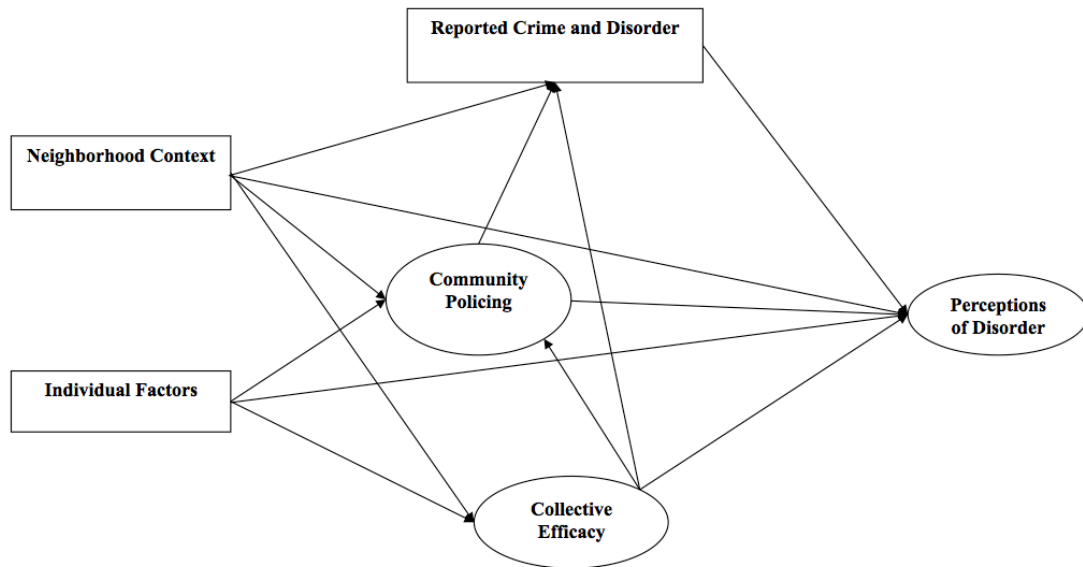
importantly, the current study employs a comprehensive model to investigate potential significant factors based on the existing theories and practices, including social disorganization theory, collective efficacy, and participation in community policing. The ultimate purpose of this study is to improve our understanding of individual's perceptions related to neighborhood crime and disorder as well as enhance crime-reduction practices/policies. Based on the research questions put forward in chapter one and the forgoing literature review, the following four hypotheses have been postulated (please see Figure 2 and Figure 3).

Figure 2

Conceptual Model One



Note. Rectangle represents all of the observed variables, and ellipses represent latent variables.

Figure 3*Conceptual Model Two*

Note. Rectangle represents all of the observed variables, and ellipses represent latent variables.

First, there is a positive relationship between reported crime to the police and perceptions of neighborhood crime and disorder. The amount of neighborhood crime and disorder incidents is a direct signal of the criminal issues in the neighborhood. The more criminal incidents happened, the more opportunities for the residents to observe them and consequently make a judgment of their seriousness. Hence, higher number of crime/disorder incidents is assumed to associate with a higher level of perceived crime/disorder issues in the neighborhood.

Second, there is a positive relationship between socially disorganized neighborhoods and perceptions of crime and disorder. According to the social disorganization theory, crime (juvenile delinquency) is more likely to occur in

neighborhoods featuring with a concentrated disadvantage (e.g., low economic status) and a higher level of mobility (Shaw & McKay, 1942[1969]). Therefore, it is reasonable to speculate that residents in these neighborhoods are more likely to perceive a higher level of neighborhood crime and disorder issues.

Third, there is a negative relationship between collective efficacy and perceptions of crime and disorder. Based on the collective efficacy thesis, neighborhoods with a higher level of collective efficacy tend to experience a lower level of criminal issues (Sampson et al., 1997). Because of the lower level of neighborhood criminal activities, residents in the associated neighborhoods are less likely to observe crime/disorder incidents. Therefore, a higher level of collective efficacy is associated with a lower level of perceived neighborhood crime and disorder issues.

Last, there is a positive relationship between participation in community policing (PIP) and perceptions of crime and disorder. Policing is a formal control of crime and disorder issues in the neighborhood. Community policing aims at improving community quality and perceived safety through the cooperation between residents and police officers (Maguire et al., 2019). Volunteers of the community-policing program (PIP) have more opportunity to communicate with local police officers regarding the neighborhood criminal issues. Therefore, they are more likely to perceive a higher level of neighborhood crime and disorder issues because of their acquirement of more crime and disorder information and their sentiment of crime and disorder information. There is also a negative relationship between attitudes toward the police and crime-related perceptions. This is because residents with a positive perspective of the police are more

likely to develop trust in the police. Hence, they are less sensitive about crime and disorder issues in the neighborhood.

CHAPTER III

Methodology

Datasets

Data for the current project stemmed from four sources: a random telephone survey sample of general citizens in Houston, a survey sample of citizen participants in the Positive Interaction Program (PIP), a community policing program hosted by Houston Police Department, the calls for service data reported to Houston Police Department, and the 2014 American Community Survey (ACS) data from the Census Bureau of the United States.

The general citizen sample was collected from August to December in 2014, with the original goal of understanding the public's attitudes toward the police and their expectations of the police. A professional survey company was employed to collect the data. The firm utilized a random computer-assisted telephone interviewing technology. It consisted of an address-based landline sample and a cellular random digit dial sample. The pre-test of the questionnaire with a randomly selected cross-section of area households suggested that the questionnaire was in a good quality of research. The survey interview was conducted at the Behavior Research Center's central location telephone facility and lasted for approximately 15-16 minutes long of each participant. This sample included address information of each participant, which allows for the geographical coding of the respondents in the census shapefile of Houston through ArcGIS. This was the fourth wave of Houston citizen survey. Comparing to the previous three waves of data, this wave of data was more representative of the racial/ethnic composition in Houston (Zhao & Ren, 2015). Respondents at the age of 18 or above were selected from

the four quadrants (Northeast, Northwest, Southeast, and Southwest) within the city. A total of 1,396 residents living in Houston were interviewed, among which 1,108 residents were interviewed from the landline sample with a response rate of 20.9% and 288 cellphone-only residents were interviewed from the cellular sample with a response rate of 21.2%³. The geo-mapping results showed that there are 49 (3.5%) outliers. List-wise deletion was conducted, resulting in a final sample size of 1,347.

The volunteer survey sample was collected from citizen volunteers who participated in the Positive Interaction Program (PIP) from October 2015 to January 2016 in Houston, Texas, with the original goal of understanding volunteers' attitudes toward the police and their satisfaction with the police. The PIP consists of several types of meetings sponsored by HPD, including regional civic meetings, apartment managers meetings, and Hispanic group meetings (Lee & Zhao, 2016). The primary goal of these meetings is to establish citizen-police collaboration works. There are 21 PIP meetings every month, and the researchers from the local university attended all of the 21 meetings during the three months, which covered the entire Houston metropolitan area. The survey questionnaires were distributed to participants before the meeting started and collected after the meeting was over. Participants were informed of the purpose of this study, and aware of the voluntary of participation in the project. They were told to leave at any time if they feel uncomfortable with the research. A total of 532 participants attended the 21

³ “There has been a well-documented serious erosion in response rates to landline telephone surveys in general (Battaglia, Link, Frankel, Osborn, & Mokdad, 2008). For example, Curtin, Presser, and Singer (2005) reported that the University of Michigan’s monthly Survey of Consumer Attitudes experienced an accelerated decline in response rate in the last 25 years, going from a high of 72% in 1979 to 67% in 1996, and then to only 48% in 2003. The deterioration since 1996 had been twice as steep as prior to the 1996 period, averaging 1.5 percentage points a year. There are good reasons to believe that the response rate of landline telephone surveys has been continuing to drop, both due to the expansion of cell-phone-only service and the unwillingness of citizens to participate in telephone survey, regardless of the study’s goals (Battaglia et al., 2008)” (Zhao & Ren, 2015, p.4; also see: Lee & Zhao, 2016).

PIP meetings, and 429 of them completed the survey with specific information of residential addresses. Since our study is based on spatial analysis using ArcGIS, address information is a crucial element. Thus, we defined the 103 respondents who did not provide location information as missing values (24%). In order to check whether these values were systematically missing associated with demographics (e.g., age, race, gender, immigration, and education), the mean comparisons through T-tests and Chi-Square analyses were conducted. The results suggested that there was no statistically significant difference between the participants who did not provide address information and those who provided address information regarding the major demographical variables (one exception was the variable of race) ($p = .841$ for age, $p = .032$ for race, $p = .649$ for gender, $p = .615$ for immigration, and $p = .220$ for education). There are 35 outliers in the sample regarding the provided address information. Therefore, these values were deleted, yielding a sample size of 394. The check of missing values of the remaining dataset indicated that those values are missing at random (Little's MCAR test: Chi-Square = 201.149, $df = 234$, $p = .914$). Therefore, Expectation Maximization (EM) technique was used to replace the missing data, which is more accurate than mean substitution or regression substitution (Schafer, 1997; Schafer & Olsen, 1998). In addition, 28 (approximately 7%) of the cases were overlapped with general citizen survey participants. After the list-wise deletion of these overlapping cases, the final sample size was 366.

Calls for service data from August 2013 to October 2015 were also used in the current study, representing the official indicators of crime and disorder reported by residents in Houston neighborhoods. The data were provided by Houston Police

Department along with geographic (X- and Y-) coordinates associated with each reported incident so that it is possible to map the incidents in a geographic information systems (GIS) software package (ArcGIS). Calls for service data are widely used for evaluating crime trends, crime patterns, and police behaviors (Braga & Bond, 2008; Bursik & Grasmick, 1993; Groff et al., 2010; Sherman et al., 1989; Sherman & Weisburd, 1995; Stein, Conley, & Davis, 2016; Wu & Lum, 2017). At the same time, it is important to note that calls for service data are not without shortcomings. More specifically, this set of data tends to have the problems of under-reporting and/or over-reporting (Brag & Bond, 2008; Klinger & Bridges, 1997). However, comparing to the arrest data, which may be heavily affected by police discretion, calls for service data are likely the natural response from citizens. Call for service data are often considered as more reliable measures of crime and disorder than UCR data. As Warner & Pierce (1993) mentioned, “Data on calls to the police, although still an ‘official’ measure of crime, are not influenced by the most criticized element of official measures, police discretion, and therefore may be a valuable measurement tool” (p.498). A unique advantage of the calls for service data is that it includes disorder related incidents comparing the police arrest records. Additionally, the purpose of this study is to examine individual’s perception of crime and disorder. Calls for service are initiated by citizens seeking for assistance from the police regarding crime and disorder issues. Therefore, calls for service data are more representative of the crime and disorder issues from the perspective of the public than the arrest data.

The last dataset is the census tract data from American Community Survey (ACS) in 2014 based on the average of a five-year estimation. ACS is the largest survey that the Census Bureau takes in the United States. The survey is administrated to more than three

million people living in the United States every year (Rennison & Hart, 2019). It collects national data on social characteristics (e.g., educational attainment, marital status, and citizenship status), economic characteristics (e.g., employment status, poverty status, and income), housing characteristics (e.g., occupancy/vacancy status, household styles, and household mobility), and demographic characteristics (e.g., age, sex, and race). After the data collection, “the Census Bureau aggregates responses with previously collected data on one, three, or five years prior to produce several sets of estimates” (Rennison & Hart, p.291). The five-year estimation is generated for all census administrative areas called block groups (approximately 600 to 3000 residents in a single block group). Comparing to the other two estimations, the five-year estimation has the largest sample size and is more reliable when analyzing data aggregated at the census tract level or smaller geographies. Noteworthy, recent changes to the Census Bureau’s American Community Survey (ACS) have brought in more precise and timely indicators of neighborhood disorganization, thereby making these data even more attractive to the scientific study of community/neighborhood characteristics.

Measures

Outcome Variables

The key outcome measures in the current study are perceptions of crime and perceptions of disorder among general citizens and citizen volunteers. More specifically, there are two outcome variables—perceptions of crime problems in the neighborhood and perceptions of disorder problems in the neighborhood. Previous studies have used different approaches to conceptualize perceptions of crime. While some studies included a general question about respondents’ estimation of the level of crime in a specified

community (e.g., Ball, 2001; Bedard, Eschholz, & Gertz, 1994; Hipp, 2010a), others have taken a more detailed way by aggregating different types of crime into a few questions (Battin, 2015; Wyant, 2008). In the current study, respondents' perceptions of crime were measured by detailed questions because these questions cover people's perception of both crime and disorder without being too broad or too general. In this regard, it is better to tap into people's understanding of the crime and disorder issues in their neighborhoods. Importantly, the same questions were asked in the sample of general citizens in Houston as those in the sample of citizen volunteers in Houston.

For the outcome variable regarding **perceptions of crime problems**, respondents were asked which of the following types of crime problems they know have occurred in their neighborhood in the last 12 months: 1) Robbery; 2) Breaking and entering to steal personal property, burglary, and 3) Violent physical attack. Respondents were asked to rate these items on a four-point Likert scale ranging from 1 = *no problem*, 2 = *uncertain*, 3 = *a problem*, to 4 = *a serious problem*. This variable was an additive scale of the three items. The Cronbach's alpha for this variable in the sample of general citizen was .76, while it was .78 in the sample of citizen volunteers, suggesting a robust internal consistency.

The next outcome variable concerns their **perceptions of disorder problems**. Respondents were asked which of the following types of disorder problems they know have occurred in their immediate neighborhood in the past 12 months: 1) Drunk drives on the road; 2) People drinking excessively in public; 3) People using illegal drugs; 4) Vandalism; 5) Abandoned houses and/or buildings, and 6) Graffiti on sidewalks, walls, or buildings. Respondents were asked to rate their perceptions on a four-point Likert scale

ranging from 1 = *no problem* to 4 = *a serious problem*. This variable was also an additive scale. The Cronbach's alpha for this variable in the sample of general citizen was .79, whereas it was .85 in the sample of citizen volunteers.

Endogenous and Exogenous Variables

Predictors of these two types of perceptions are derived from four data sources, the calls for service data, the ACS census data, and the first-hand survey datasets. The calls for service data were used to examine the actual level of crime and disorder reported by residents in their neighborhoods. Based on the nature of the dataset and the previous literature, the records were categorized into three different variables, including **disorder crime** (e.g., disorderly conduct, public drinking, threat contact, and illegal parking), **property crime** (e.g., burglary, arson, and theft), and **violent crime** (e.g., robbery, aggravated assault, and homicide) (Braga & Bond, 2008; Hipp, 2013; Hipp & Wickes, 2017; Wu & Lum, 2016; Yang, 2010). The number of each type of crime incidents at the census tract level were calculated using ArcGIS, representing the actual level of crime and disorder issues in their neighborhoods⁴. Thereafter, the counts of these categories were divided by the total population in each census tract. Put differently, the rate of each type of crime per individual at the census tract level was included as endogenous variable in the statistical models.

⁴ This study chose to aggregate the calls for service data at the census tract level because census tracts have been frequently used as a proxy for neighborhoods (e.g., Armstrong et al., 2015; Boggess & Hipp, 2010a; Oh et al., 2019; Quillian & Pager, 2001; Rountree & Land, 1996a, 1996b; Sampson & Raudenbush, 2001; Stein & Griffith, 2017; Weitzer, 2000; Wilcox et al., 2003; Zhang et al., 2015). Also, census tracts “were initially constructed by the Census Bureau to be relatively homogeneous neighborhoods” (Hipp, 2013, p. 625; also see: Green & Truesdell, 1937; Lander, 1954). Specifically, according to the U.S. Census Bureau (2000), “census tract boundaries are defined according to population characteristics, economic status, and living conditions to contain relatively homogeneous populations” (p.143).

Neighborhood structures were measured by using the census data in 2014 based on an average of five-year estimation. According to the social disorganization theory and collective efficacy theory, **concentrated disadvantage** was a scale with five items employing the census data, including the percentage of black people in the neighborhood, the percentage of unemployment in the neighborhood, the percentage of single-mother headed households with children under the age of 18 in the neighborhood, the percentage of households on public assistance, and the percentage of people below the poverty line in the neighborhood (see Sampson et al., 1997). Exploratory factor analysis of these items suggested a single factor with high loadings ($> .60$) (see Table 1). Therefore, “to represent this dimension parsimoniously, I calculated a factor regression score that weighted each variable by its factor loading” (Sampson et al., 1997, p.920).

For the scale of **immigration concentration**, the current study followed the measurement of Sampson, Raudenbush, and Earls’s (1997) study as well. It is composed of two items, including the percentage of Latino or Hispanic and the percentage of foreign-born population. Factor analysis also reported a single factor with high loadings ($> .70$) (see Table 1). Similar to the concentrated disadvantage variable, this scale was calculated by the weighted factor score. The third neighborhood-related variable is **residential stability**. It is composed of the percentage of population living in the same house as five years earlier and the percentage of owner-occupied households. Similarly, the factor analysis indicated a single factor with an average loading of .818 (see Table 1). The current study separated the measurements of neighborhood structure into concentrated disadvantage, immigration concentration, and residential stability based on

weighted factor score because previous studies have pointed out the issue of inherent multicollinearity problems regarding these community variables.

Table 1

Principle Component Factor Analysis (Census Tract Level in Houston City)

Concentrated Disadvantage	
Items	Factor Loading
Percentage of below poverty line	0.853
Percentage of on public assistance	0.908
Percentage of female-headed family households	0.775
Percentage of unemployed	0.809
Percentage of black only population	0.664
Immigration Concentration	
Items	Factor Loading
Percentage of Latino or Hispanic population	0.751
Percentage of foreign-born population	0.751
Residential Stability	
Items	Factor Loading
Percentage of population living in the same house as 5years earlier	0.818
Percentage of owner-occupied households	0.818

Beside these scales, three alternative variables regarding the neighborhood structure— racial/ethnic heterogeneity, GINI index and population density, were also included in the analysis. **Racial/ethnic heterogeneity** was calculated by “an identity based on a Herfindahl index of several racial/ethnic groupings” (Gibbs & Martin, 1962, p.670; also see: Hipp, 2007, p.666). It followed the formula below (Gibbs & Martin, 1962, p.670). Specifically, the percentage of each ethnic group (i.e., white population

alone, black/African American alone, American Indian and Alaska alone, Asian alone, Native Hawaiian and other Pacific islander alone, some other race alone, and two or more races) in the census tract level was calculated. Then the sum of each group percentage square was subtracted from 1, making this a measure of heterogeneity. **GINI index** was a variable calculated by the Census Bureau in the dataset.

$$EH_k = 1 - \sum_{j=1}^{j=J} G_j^2$$

The following two variables were measured based on the two types of survey research in Houston: the sample of general citizens and the sample of citizen volunteers, capturing the neighborhood dynamics. Specifically, two variables were used to capture their perceptions of the formal control (police related attitudes) and informal control (collective efficacy) in the neighborhoods, which have been reported to interplay with individual's fear of crime.

The variable of **attitudes toward the police** was conceptualized by seven survey questions. The respondents were asked to rate their perception of the police in Houston Police Department: 1) Officers are courteous; 2) Officers are honest; 3) Officers are respectful toward people like me; 4) Officers are hardworking; 5) Officers are fair; 6) Officers are well trained, and 7) Officers communicate very well. A Likert scale arranged from 1 = *strongly disagree* to 5 = *strongly agree* was used to tabulate the answers. The Cronbach's alpha for this scale in the sample of general citizens was .90, while it was .94 in the sample of citizen volunteers.

Collective efficacy was a measure of their perceptions of informal control in the neighborhood. Prior research on collective efficacy demonstrated that social ties and informal control were highly correlated to one another, suggesting that an overarching

variable combining the two constructs is more appropriate (see reviews: Battin, 2015; Wilcox et al., 2018). In the current study, collective efficacy was conceptualized with four survey questions followed the guidelines set forth by Sampson, Raudenbush and Earls's (1997) original study on the linkage between neighborhood and violent crime. Slightly different from previous studies, the current study asked about their intentions to intervene if an abnormal or suspicious situation happened rather than asking participants about actual control of scenarios (Battin, 2015). Specifically, the current study asked: 1) How likely are adults in you your neighborhood to take responsibility for notifying the police about illegal activity occurring in this neighborhood (response options were: 1 = *never*, 2 = *rarely*, 3 = *sometimes*, 4 = *often*, and 5 = *always* for the citizen survey; response options were: 1 = *never*, 2 = *rarely*, 3 = *sometimes*, and 4 = *often* for the volunteer survey)? 2) If there is a suspicious person hanging around my block, someone is likely to call the police (response options were: 1 = *strongly disagree*, 2 = *disagree*, 3 = *neutral*, 4 = *agree*, and 5 = *strongly agree*); 3) When you do a favor for a neighbor, can you generally trust the neighbor to return the favor (response options were: 1 = *seldom*, 2 = *sometimes*, 3 = *most of the time*, 4 = *nearly always*, and 5 = *always*)? And 4) If you were in need of help with your car in front of your residence, how much faith do you have that your neighbors would come to your assistance (response options were: 1 = *very little faith*, 2 = *little faith*, 3 = *undecided*, 4 = *some faith*, and 5 = *high level of faith*)? The Cronbach's alpha for this variable both in the sample of general citizens and the citizen volunteer sample was .68.

Control Variables

A set of control variables was also included in the current analysis. The existing literature has suggested that individuals with different demographic background may have different perceptions of crime. **Gender** was coded as 0 = *female* and 1 = *male*. **Race** was originally coded as a nominal variable with six options, including 1 = *White*, 2 = *Black*, 3 = *Asian*, 4 = *Native American Indian/Alaska Native*, 5 = *Native Hawaiian/Other Pacific Islander*, and 6 = *others*. However, it is possible that some people of Hispanic ethnicity recognize themselves as white while others recognize themselves as the “others” category. To avoid misunderstanding, I recoded race into a dummy variable (1 = *Black*, 0 = *non-Black*). **Age** was measured by six ordinal categories, including 1 = *under 25*, 2 = *25-34*, 3 = *35-44*, 4 = *45-54*, 5 = *55-64*, and 6 = *65 or over*. Similarly, six ordinal categories were used to capture participants’ **educational attainment**, including 1 = *less than high school*, 2 = *high school or General Educational Development*, 3 = *training school certification*, 4 = *associate degree or some college*, 5 = *college graduate or above*, and 6 = *professional or graduate degree*. Houston is a diverse city with a large proportion of minority population. Therefore, one variable was included to capture their citizenship status: did you immigrate to the United States (1 = *yes* and 0 = *no*). It was labeled as **immigration status**.

Analytical Strategy

Analyses for the current study were carried out through multiple stages. First, the spatial distribution of participants was displayed in the Houston map to provide a visual impression of their geographical distribution. Bivariate correlation analysis was conducted to diagnose multicollinearity issues. Confirmatory factor analyses for the

latent variables were also conducted to prove whether it is useful consolidating numerous items into an underlying structure based on the existing literature and theories. Second, descriptive analysis was carried out to provide an introduction of the used samples regarding crime/disorder counts, neighborhood variables, demographics, and the outcome variables. Finally, structural equation modeling (SEM) was used to examine the relationships among exogeneous variables, endogenous variables, and outcome variables. SEM was employed because it is able to incorporate both observed and latent variables in the model. It has the ability to assess or correct measurement errors. More importantly, the model can be pictorially presented based on the structural relations derived from theories under study (Byrne, 2011). All analyses were conducted using Mplus 8. In order to make the process as simple as possible, the citizen data and the volunteer data were combined into one dataset. Accordingly, a dichotomous variable was created to identify whether the participant was a volunteer of the PIP (1 = *yes*, 0 = *no*).

CHAPTER IV

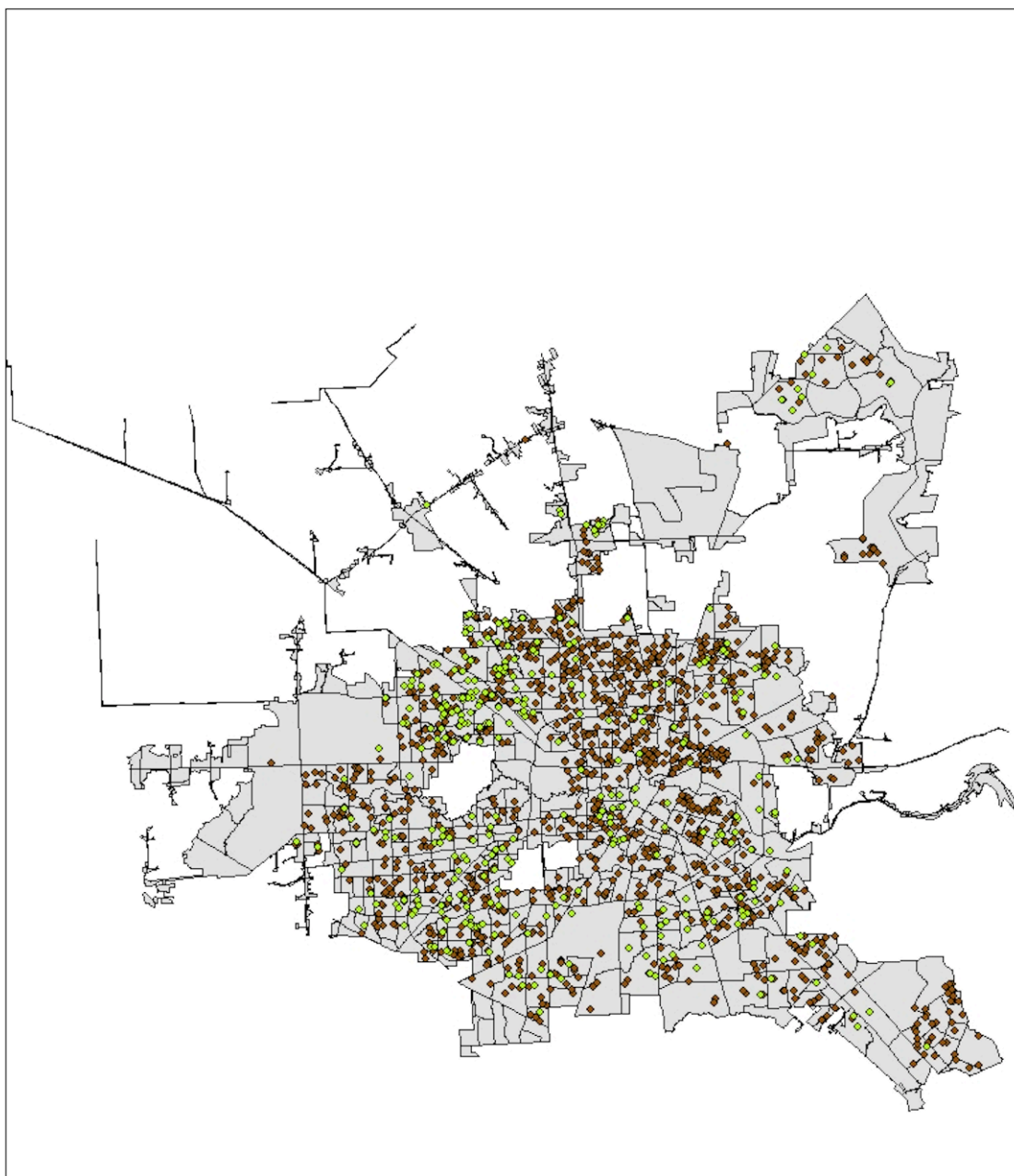
Findings

Preliminary Analysis

The geographical distribution of the participants was displayed in Figure 4. The yellow points represented citizens of Houston city while the green points stood for volunteers of the PIP in Houston. It showed that participants covered almost all of the Houston area. Therefore, the combined dataset of the current study is relatively representative of the citizens in Houston concerning the geographical locations.

Figure 4

The Spatial Distribution of Surveyed General Citizens (Yellow Points) and Citizen Volunteers (Green Points) in Houston at the Census Tract Level



Bivariate correlation analysis for all variables in the current study was conducted. The bivariate correlation matrix is the simplest approach to diagnose potential multicollinearity issue. Multicollinearity is a problem if there are high inter-correlations for the variables used in the analysis. This is because if two or more variables are highly correlated, they are essentially measuring the same thing (Sprinthall, 2007). More importantly, multicollinearity can confound the effect of individual independent variable and limit the explanatory power of the predictors, leading to biased and unstable results (Agresti, 2018; Stevens, 2001). Table 2 represents the results of bivariate correlation analyses for the combined data.

The results of the correlation matrix suggested that multicollinearity was a potential threat in the combined dataset. In particular, the rate of reported violent crime was highly correlated with the rate of reported disorder crime ($r = .805$), which is slightly higher than the traditional cut-off value of .80 for multicollinearity (Mertler & Reinhart, 2017). Likewise, the Pearson correlation in the correlation matrix was high for reported disorder crime and reported property crime ($r = .681$). Similarly, the Pearson's r for reported property crime and reported violent crime was also very high, even though it was still under the cut-off point ($r = .645$). Therefore, in order to minimize the multicollinearity problem in the models, a new variable labeled as total crime was created by adding the three types of crime together (Stevens, 2001). However, the current study also aimed at exploring the influence of different types of crime on perceptions of crime and disorder. Therefore, a model with only one type of crime included in addition to the other endogenous and exogenous variables was conducted respectively. Stated differently, four SEM models were conducted to examine the influence of each type of

crime on individual's perceptions of crime and another four SEM models were used to investigate the influence of each type of crime on individuals' perceptions of disorder.

The two outcome variables (perceptions of crime and perceptions of disorder) and two endogenous variables (attitudes toward the police and collective efficacy) in the current analysis are underlying constructs. Therefore, it is necessary to examine the dimensionality of these unobservable concepts. Exploratory factor analysis (EFA) and confirmatory factor analysis (CFA) are commonly used for the purpose. However, CFA is more advanced and sophisticated than EFA. The primary difference is that CFA is theoretically driven while EFA is more likely data driven (Mertler & Reinhart, 2017). The underlying concepts in the current study have already been theoretically studied in the existing literature. Hence, CFA is more appropriate to test the factorial validity of these theoretical constructs in the study. The results of CFA are presented in Table 3 (see below). Results derived from the analysis showed that all factor loadings of the variables were statistically significant. That is to say, the observed variables were able to sufficiently measure each construct in the model. Evaluation of model fit indexes revealed that the postulated model was held in the sample ($RMSEA = .05$, $90\% C.I. = .47 - .05$; $CFI = .95$; $TLI = .94$; $SRMR = .04$) (Byrne, 2011).

Table 2

Bivariate Correlation of the Combined Data (N = 1,713)

Variables	Gender	Race	Age	Education	Immigrate	ATP	CE	PCP	PDP	GINI	FConcen	FImmigr	FReside	RHete	Disorder	Property	Violent	Volunteer
Race	-.067**																	
Age	-.080**	.245**																
Education	.058*	-.058*	.092**															
Immigrate	.028	-.216**	-.228**	-.207**														
ATP	-.012	-.227**	.085**	-.020	.096**													
CE	-.010	-.034	.134**	.171**	-.144**	.088**												
PCP	-.019	-.039	-.089**	.030	-.008	-.091**	-.181**											
PDP	-.045	.002	-.112**	-.046	.029	-.120**	-.286**	.635**										
GINI	-.004	.093**	.087**	.003	-.031	-.022	.008	-.016	-.035									
FConcen	-.052*	.372**	.020	-.251**	-.006	-.105**	-.177**	.063**	.167**	.111**								
FImmigr	-.026	-.233**	-.137**	-.224**	.155**	-.005	-.134**	.016	.099**	-.203**	.084**							
FReside	.020	-.015	.071**	.153**	-.095**	-.037	.183**	-.071**	-.104**	-.162**	-.471**	-.383**						
RHete	.025	.034	-.051*	-.025	.106**	.045	-.104**	.025	.020	-.042	.154**	.219**	-.338**					
Disorder	-.042	.303**	.046	-.133**	-.067**	-.084**	-.130**	.089**	.166**	.262**	.567**	-.054*	-.247**	-.020				
Property	-.022	.106**	.030	-.048*	-.025	-.014	-.089**	.064**	.088**	.291**	.156**	-.057*	-.223**	-.024	.681**			
Violent	-.062**	.165**	.046	-.085**	.049*	.053*	-.165**	.157**	.187**	.215**	.348**	-.045	-.231**	.046	.805**	.645**		
Volunteer	-.058*	-.074**	.061*	-.062**	.273**	.294**	-.296**	.240**	.266**	-.003	.061*	.040	-.129**	.137**	.052*	.019	.345**	
All Crime	-.044	.245**	.046	-.110**	-.039	-.045	-.136**	.102**	.161**	.288**	.451**	-.058*	-.260**	-.011	.960**	.843**	.868**	.100**

Note. ** $P < .01$; * $P < .05$. FConcen = Concentrated Disadvantage; FImmigr = Immigration concentration; FReside = Residential Stability; RHete = Racial Heterogeneity.

Table 3*Confirmatory Factor Analysis of the Combined Data (N = 1,713)*

Latent Factors	Observed Items	Standardized Estimate	S.E.	Est./S.E.
Attitudes Toward the Police	Officers are courteous	0.807	0.010	83.393***
	Officers are honest	0.825	0.009	91.740***
	Officers are respectful toward people like me	0.826	0.009	91.957***
	Officers are hardworking	0.705	0.013	53.049***
	Officers are fair	0.841	0.008	99.717***
	Officers are well trained	0.713	0.013	54.918***
	Officers communicate very well	0.772	0.011	70.667***
Collective Efficacy	How likely are adults in you your neighborhood to take responsibility for notifying the police about illegal activity occurring in this neighborhood	0.782	0.018	43.763***
	If there is a suspicious person hanging around my block, someone is likely to call the police	0.700	0.018	38.782***
	When you do a favor for a neighbor, can you generally trust the neighbor to return the favor	0.512	0.023	22.317***
	If you were in need of help with your car in front of your residence, how much faith do you have that your neighbors would come to your assistance	0.445	0.024	18.374***
Perceptions of Crime	Robbery	0.781	0.014	54.965***
	Breaking and entering to steal personal property, burglary	0.748	0.015	50.457***
	Violent physical attack	0.686	0.017	40.595***
Perceptions of Disorder	Drunk drives on the road	0.617	0.017	35.445***
	People drinking excessively in public	0.690	0.015	44.795***
	People using illegal drugs	0.708	0.015	47.667***
	Vandalism	0.682	0.016	43.177***
	Abandoned houses and/or buildings	0.583	0.018	31.835***
	Graffiti on sidewalks, walls, or buildings	0.597	0.018	33.180***

Note. *** $P < .001$; Model fit indexes: $RMSEA = .05$, $90\% C.I. = .47 - .054$; $CFI = .95$; $TLI = .94$; $SRMR = .04$.

Descriptive Analysis

Descriptive statistics for the outcome variables, endogenous variables, and exogenous variables are displayed in Table 4 (see below). The means of the observed items that measured the outcome variable of perceptions of crime problem in the neighborhood ranged from 1.55 to 2.07 (out of 4), indicating a relatively low level of perceived criminal issues in the neighborhood. It also suggested that perceived violent physical attack was the type of crime that was least likely to occur in the neighborhood in comparison to the other two types of perceived crime—robbery as well as breaking and entering to steal personal property and burglary. The means of the observed items that captured the outcome variable of perceptions of disorder problems in the neighborhood ranged from 1.59 to 1.97 (out of 4). It suggested a relatively low level of perceived disorder issues in the neighborhood. Drunk drives on the road and people using illegal drugs were the most frequently occurred disorder issues in the neighborhood.

Two latent endogenous variables were incorporated in the analysis. The first one is the variable of attitudes toward the police. The means of the seven observed items measuring attitudes toward the police ranged from 3.37 to 3.77 (out of 5), indicating a relatively positive viewpoint of the local police. The items “Officers are hardworking” had the highest mean value of 3.77 with a standard deviation of .97. The second latent endogenous variable is collective efficacy. The mean rating of the four observed items capturing the construct of collective efficacy were all above 3 (out of 5) with a minimum value of 3.39 and a maximum value of 4.04. It revealed that residents in the current study possessed a high level of collective efficacy in their neighborhoods. In particular, residents in the current study rated the item “If you were in need of help with your car in

front of your residence, how much faith do you have that your neighbors would come to your assistance” at a value of 4.04 out of 5 ($SD = 1.20$). It conveyed a strong message of the willingness to help for the common good of the community as proposed in the collective efficacy theory (Sampson, 2012; Sampson et al., 1997).

Total reported crime extracted from the CFS data manifested a relatively low level of reported criminal and disorder issues in the neighborhood ($M = .22$, $SD = .14$, $range = 0 - 1.94$). Specifically, the mean of reported disorder crime at the census tract level was .13 (out of 1.01) with a standard deviation of .08, indicating a low level of reported disorder problems in the neighborhood. Likewise, the mean rating of reported property crime at the census tract level was .07 out of .45 with a standard deviation of .04, suggesting a low level of reported property crime in the neighborhood. Reported violent crime at the census tract level had a mean value of .02 out of .48 with a standard deviation of .03, demonstrating a low level of reported violent crime in the neighborhood. It also showed that the most frequently occurred criminal issues in the neighborhood were disorder incidents in comparison to property crime and violent crime issues. Generally speaking, the low level of reported crime and disorder issues in the neighborhood was consistent with residents’ perceptions of low level of crime and disorder problems.

Observed variables for neighborhood characteristics derived from the social disorganization theory exhibited rather complex results. The variable of concentrated disadvantage possessed a mean of .30 ($SD = 1.03$) with a range of -1.54 to 6.15. Put differently, most of the neighborhoods at the census tract level in the current study tended to be concentrated on disadvantaged and low economic status. The mean rating of the

immigration concentration variable was 0.17 ($SD = .86$) with a minimum value of -1.60 and a maximum value of 1.85. It showed that the immigration distribution across neighborhoods at the census tract level was relatively even (close to the mean). The mean of the variable of residential stability was -.11 with a standard deviation of .90, fluctuating from -4.25 to 2.19. It indicated a high level of residential stability. Racial heterogeneity had a mean value of .45 with a standard deviation of 0.16, ranging from .07 to .76. The mean of racial heterogeneity showed that there is a relatively even distribution of race/ethnicity in the neighborhood. Gini index was used to measure the unequal distribution of income among neighborhoods in the current study. The mean of Gini index in the current study was .44 with a standard deviation of .06, ranging from .30 to .64. It indicated that the income distribution was disproportionate.

The results of individual demographical related variables in the current study indicated that approximately 57% of the participants were female, 72.6% of them were non-black, and about 80% of the participants were not immigrated to this country for the current generation. The average age of the sample was 3.82 with a standard deviation of 1.73, ranging from 1 to 6. A closer look at the distributions of each age category showed that participants in each age category were relatively even distributed. The mean of educational attainment was 3.60 with a standard deviation of 1.65, fluctuating from 1 to 6. The frequency distributions of each educational category suggested that more than half of the participants got an associate degree or some college degree or higher. Approximately 21% of the participants were citizen volunteers of the PIP in Houston.

Table 4*Descriptive Statistics of the Combined Data (N = 1,713)*

	Min	Max	Mean	S. D.
Outcome Variables				
Perceptions of Crime Problems				
Robbery	1	4	2.00	1.03
Breaking and entering to steal personal property, burglary	1	4	2.07	1.06
Violent physical attack	1	4	1.55	0.87
Perceptions of Disorder Problems				
Drunk drives on the road	1	4	1.97	1.05
People drinking excessively in public	1	4	1.77	1.02
People using illegal drugs	1	4	1.94	1.05
Vandalism	1	4	1.76	0.98
Abandoned houses and/or buildings	1	4	1.59	0.94
Graffiti on sidewalks, walls, or buildings	1	4	1.62	0.93
Endogenous Variables				
Attitudes toward the Police				
Officers are courteous	1	5	3.60	1.02
Officers are honest	1	5	3.37	1.05
Officers are respectful toward people like me	1	5	3.59	1.08
Officers are hardworking	1	5	3.77	0.97
Officers are fair	1	5	3.42	1.07
Officers are well trained	1	5	3.58	1.02
Officers communicate very well	1	5	3.48	1.05
Collective Efficacy				
How likely are adults in you your neighborhood to take responsibility for notifying the police about illegal activity occurring in this neighborhood	1	5	3.87	1.21
If there is a suspicious person hanging around my block, someone is likely to call the police	1	5	3.90	1.18
When you do a favor for a neighbor, can you generally trust the neighbor to return the favor	1	5	3.39	1.39
If you were in need of help with your car in front of your residence, how much faith do you have that your neighbors would come to your assistance	1	5	4.04	1.20
Rate of Disorder Crime	0	1.01	0.13	0.08
Rate of Property Crime	0	0.45	0.07	0.04
Rate of Violent Crime	0	0.48	0.02	0.03
Rate of Total Crime	0	1.94	0.22	0.14

(continued)

	Min	Max	Mean	S. D.
Exogenous Variables				
Concentration Disadvantage	-1.54	6.15	0.30	1.03
Immigration Concentration	-1.60	1.85	0.17	0.86
Residential Stability	-4.25	2.19	-0.11	0.90
Racial Heterogeneity	0.07	0.76	0.45	0.16
GINI Index	0.30	0.64	0.44	0.06
Volunteer	0	1	0.21	0.41
Race	0	1	0.27	0.45
Age	1	6	3.82	1.73
Education	1	6	3.60	1.65
Immigration Status	0	1	0.21	0.41

SEM Analyses for Perceptions of Crime

The results from SEM analyses are presented from Figure 5 to Figure 12. In order to make the visual presentation and the interpretation of the results straightforward, only significant standardized coefficients ($p < .05$) were reported. Based on the research questions of the current study, the first four models (Figure 5 to Figure 8) focused on the prediction of participants' perceptions of crime in the neighborhood.

The first model of perceptions of crime included reported violent crime, neighborhood characteristics, participation in community policing, attitudes toward the police, and control variables in the analysis (see Figure 5). The goodness-of-fit statistics for the first model suggested the model held the data very well (see Figure 5). More specifically, the incremental indices which compare the hypothesized model to the restricted baseline model were all close to .95, suggesting a well-fitting model ($CFI = .96$; $TLI = .94$) (Byrne, 2011; Hu & Bentler, 1999). The absolute indices which test how well the hypothesized data fits the sample data were all below .05, indicating a good

model fit ($RMSEA = .04$, 90% $C.I. = (.035 - .041)$; $SRMR = .03$) (Browne & Cudeck, 1993; Byrne, 2011). The R^2 suggested that 14% of the variance was explained by the factors included in the model.

The standardized coefficients of SEM analysis from Figure 6 showed that reported violent crime was a statistically significant predictor of perceptions of crime ($\beta = .08$). That is to say, reported violent crime was positively related to perceptions of crime in the neighborhood. However, the coefficient was very small, demonstrating a very limited influence of reported violent crime on perceptions of crime. The variable of volunteer was the most significant predictor of perceptions of crime ($\beta = .28$), suggesting that citizen volunteers of the PIP were more likely to perceive neighborhood crime issues in comparison to general citizens. Attitudes toward the police was negatively and significantly related to perceptions of crime, possessing a standardized coefficient of $-.19$. Put differently, participants with a more positive attitude toward the police were less likely to perceive crime issues in the neighborhood. Four control variables were also found statistically significant. Specifically, race, age, and immigration status were all negatively related to perceptions of crime ($\beta = -.10$, $-.10$, and $-.11$, respectively). Therefore, black and immigrations were less likely to perceive neighborhood crime issues than the respectively associated counterparts. Older participants were also less likely to perceive crime issues in the neighborhood. On the contrary, participants who had a higher level of educational attainments were more likely to perceive crime issues in the neighborhood ($\beta = .06$).

Neighborhood characteristics were not directly related to perceptions of crime. Yet, they were statistically significant when explaining reported violent crime. In

particular, immigration concentration and residential stability were negatively related to reported violent crime ($\beta = -.09$ and $-.06$, respectively). In other words, participants from neighborhoods that had a higher level of immigration population, or a higher level of permanent residents were less likely to report violent crime. In contrast, concentrated disadvantage was the most significant predictor of reported violent crime, suggesting that participants from more concentrated disadvantaged neighborhoods were more likely to report violent crime ($\beta = .28$). Neighborhoods with a higher level of income inequality (Gini Index) also tended to report violent crime ($\beta = .16$). Participant possessed a higher level of collective efficacy in the neighborhood showed a lower level of possibility to report violent crime ($\beta = -.22$) whereas participant holding a more positive attitude toward the police tended to report violent crime ($\beta = .12$).

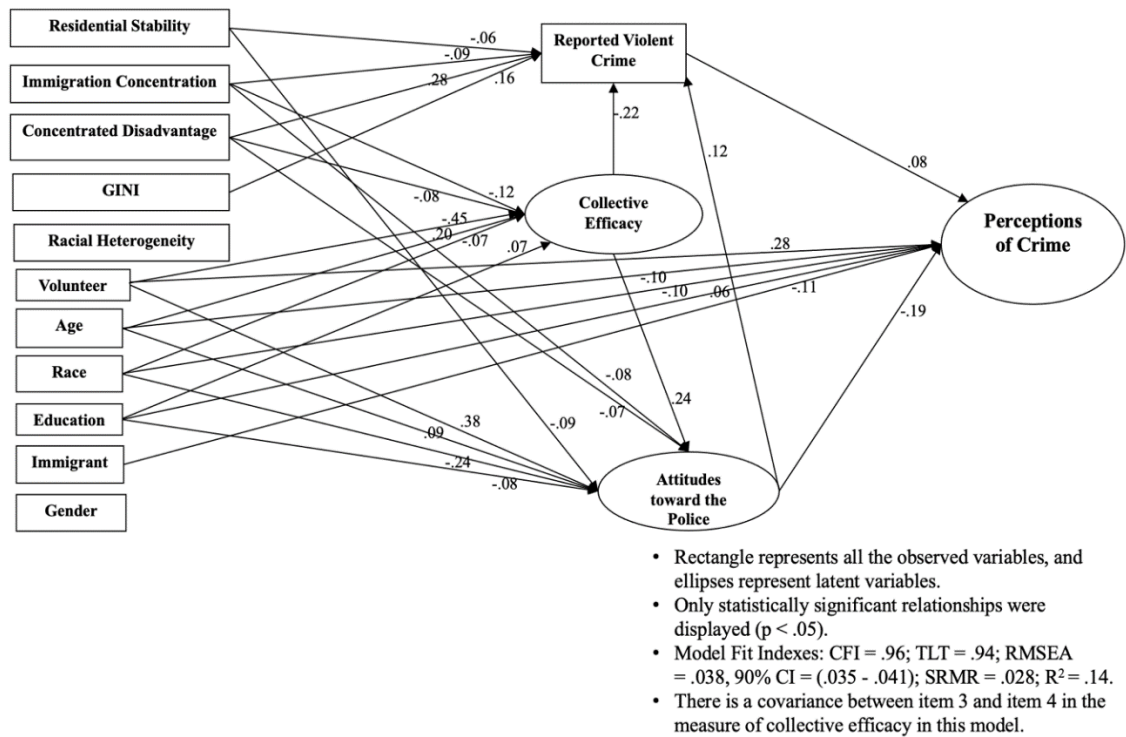
Collective efficacy was explained by the neighborhood characteristics and demographical variables to a certain degree. There was a negative relationship between immigration concentration and collective efficacy, so was the relationship between concentrated disadvantage and collective efficacy. Participants from neighborhoods with a higher level of immigration population or a higher level of concentrated disadvantage were less likely to perceive collective efficacy in the neighborhood ($\beta = -.12$ and $-.08$, respectively). Older participants or participants with a higher level of educational attainment were more likely to perceive collective efficacy in the neighborhood ($\beta = .20$ and $.07$, respectively). Black residents were less likely to perceive collective efficacy in the neighborhood ($\beta = -.07$). More importantly, there was a negative relationship between being a volunteer of PIP and perceived collective efficacy ($\beta = -.45$). In other words,

volunteers who participated in PIP were less likely to perceive collective efficacy in the neighborhood.

Likewise, attitudes toward the police were explained by the neighborhood characteristics and demographical variables to a certain extent. All of the three significant neighborhood characteristics were negatively related to attitudes toward the police. In particular, neighborhoods with a higher level of immigration population were less likely to perceive the police positively ($\beta = -.08$). Neighborhoods with a higher level of permanent residents were less likely to rate the police positively ($\beta = -.09$). Also, neighborhoods with a higher level of concentrated disadvantage were less probably to have a positive attitude toward the police ($\beta = -.07$). Black participants were less likely to rate the police positively ($\beta = -.24$) and participants with a higher level of education tended to rate the police lower ($\beta = -.08$). Older participants were prone to have a positive attitude toward the police ($\beta = .09$). Being a volunteer of PIP was strongly and positively related to attitudes toward the police ($\beta = .38$). Residents who participated in the PIP were more likely to hold a positive viewpoint of the local police. Perceived collective efficacy was positively related to attitudes toward the police ($\beta = .24$). Put differently, residents who perceived a higher level of collective efficacy in the neighborhood were more likely to hold a positive perspective of the police.

Figure 5

Empirical Model One: Perceptions of Crime (Violent Crime Included) (N = 1,713)



The second model of perceptions of crime incorporated reported property crime, neighborhood characteristics, participation in community policing, attitudes toward the police, and control variables in the analysis (see Figure 6). Model fit indexes suggested a good model fit of the data ($CFI = .97$; $TLT = .96$; $RMSEA = .03$, 90% C.I. = (.030 - .036); $SRMR = .03$). The model accounted for 14% of the variance in the outcome variable. Results derived from the SEM analysis were quite similar to the aforementioned model (see Figure 6). In particular, reported property crime produced a significant and positive effect on perceptions of crime although the strength was very small ($\beta = .06$). Volunteer was the strongest predictor of perceptions of crime ($\beta = .31$), indicating that volunteers of PIP were more likely perceive neighborhood crime issues. There was a negatively significant relationship between attitudes toward the police and perceptions of

crime ($\beta = -.19$). Race, age, and immigration status were all negatively related to perceptions of crime whereas education was positively related to perceptions of crime, featuring with similar standardized coefficients of the first SEM model ($\beta = -.10, -.10, -.11$, and $.06$, respectively).

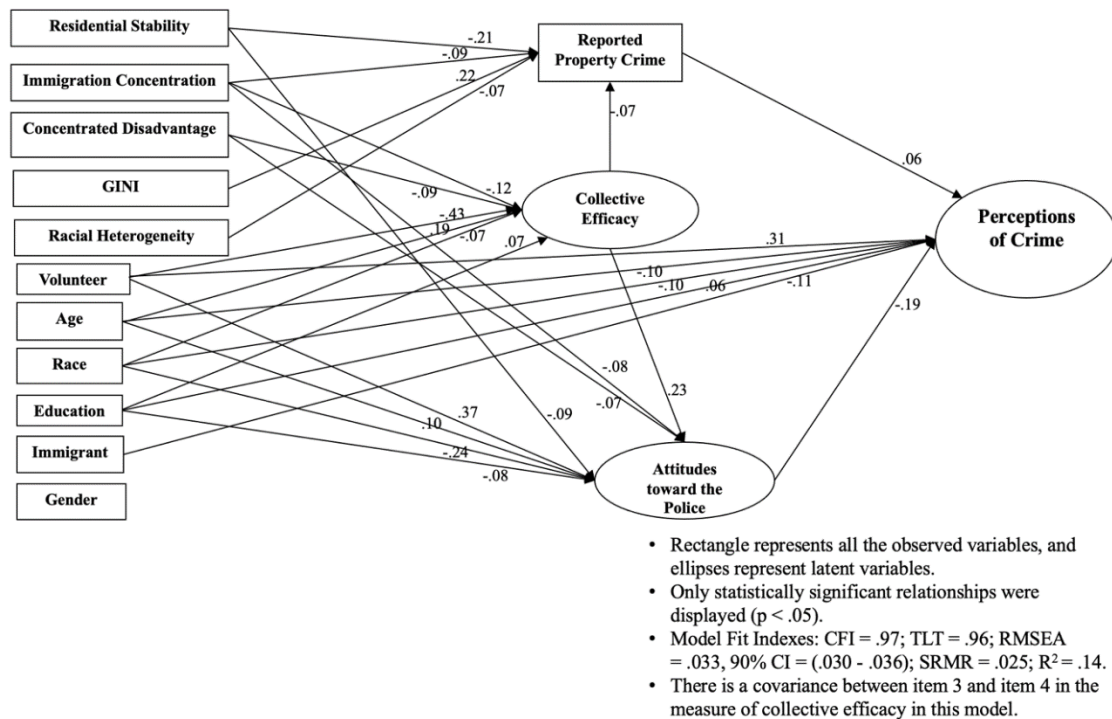
Reported property crime was explained by the neighborhood structures and perceived collective efficacy based on the analysis. Immigration concentrated neighborhoods were less likely to report property crime ($\beta = -.09$). Neighborhoods featuring with a high level of permanent residents were less likely to report property crime ($\beta = -.21$). GINI index was positively related to reported property crime ($\beta = .22$). Slightly different from the first SEM model, the effect of residential stability and GINI index were stronger. Another difference is that concentrated disadvantage was no longer significant in the prediction of reported property crime; rather, racial heterogeneity was negatively significant ($\beta = -.07$). Collective efficacy exerted a negative influence on reported property crime, whose influential power was much smaller in comparison to the first SEM model ($\beta = -.07$). The variable of attitudes toward the police failed to reach the significant level when explaining reported property crime.

Perceived collective efficacy was explained by neighborhood characteristics and demographical factors. Both the direction and strength of each relationship were identical to the first SEM model. A slight difference was the variable of being a volunteer of PIP, concentrated disadvantage, and the variable of age, whose standardized coefficient was a little smaller ($\beta = -.43, -.09$, and $.19$, respectively). Likewise, the variable of attitudes toward the police was illustrated by neighborhood characteristics and demographical factors. The direction and strength of each relationship were identical to the first SEM

analysis. A slight difference was variables regarding being a volunteer of PIP, age, and collective efficacy, whose standardized coefficients changed a little bit ($\beta = .37, .10$, and $.23$, respectively).

Figure 6

Empirical Model Two: Perceptions of Crime (Property Crime Included) (N = 1,713)

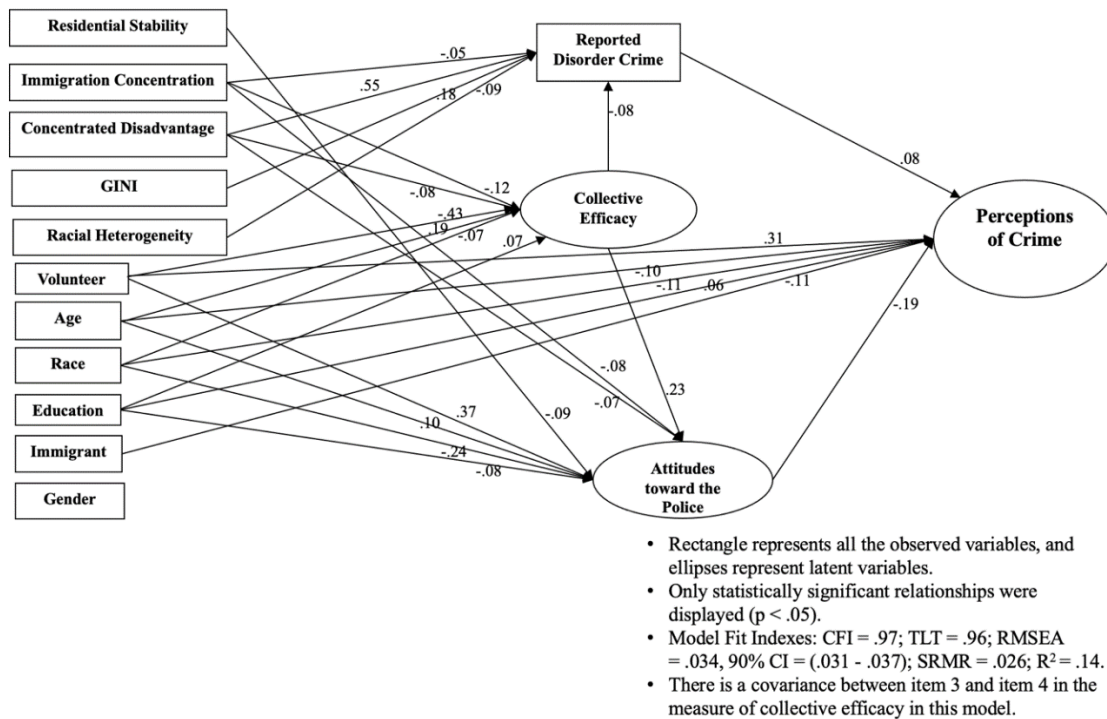


The third model of perceptions of crime contained disorder crime, neighborhood characteristics, participation in community policing, attitudes toward the police, and control variables in the analysis (see Figure 7). Model was adequately fit with the data ($CFI = .97$; $TLT = .96$; $RMSEA = .03$, 90% C.I. = (.031 - .037); $SRMR = .03$; $R^2 = .14$). Results were quite similar to the aforementioned two SEM models. One difference is that the influence of reported disorder crime on perceptions of crime was identical to that of the reported violent crime, which was slightly stronger than reported property crime. The other difference is that when explaining reported disorder crime, the variable

of residential stability was no longer significant. Concentrated disadvantage was the strongest predictor of reported disorder crime ($\beta = .55$).

Figure 7

Empirical Model Three: Perceptions of Crime (Disorder Crime Included) (N = 1,713)

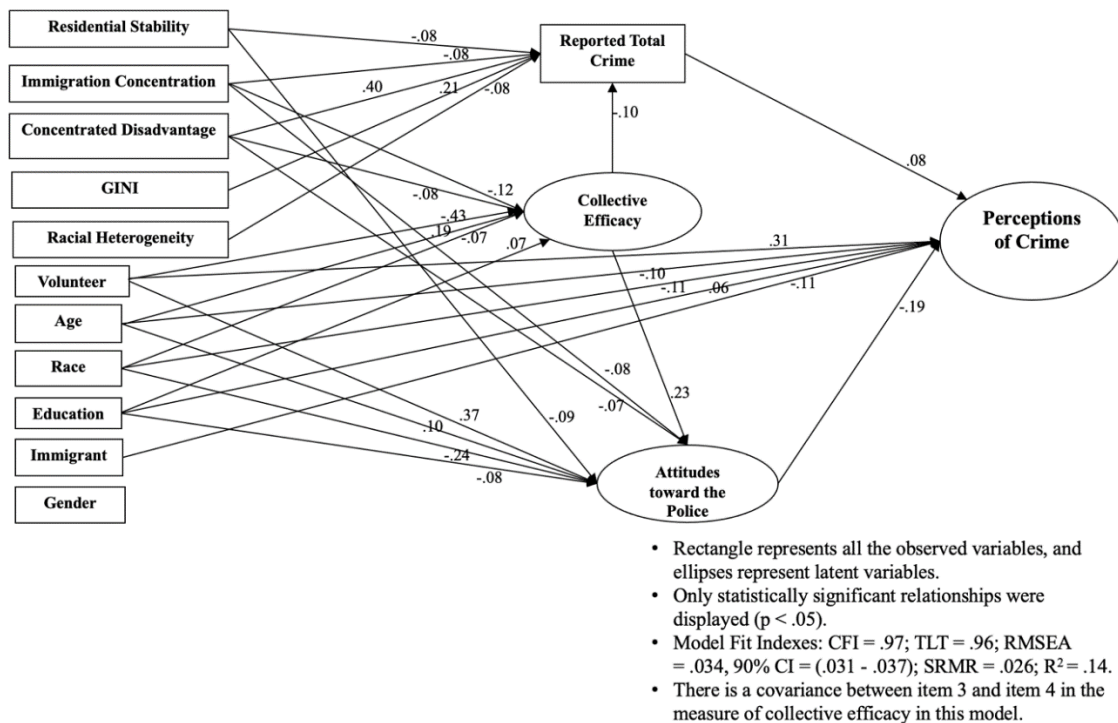


The last model of perceptions of crime included total crime, neighborhood characteristics, participation in community policing, attitudes toward the police, and control variables in the analysis (see Figure 8). A good model fit was reported ($CFI = .97$; $TLT = .96$; $RMSEA = .03$, 90% C.I. = (.031 - .037); $SRMR = .03$; $R^2 = .14$). The strength and direction of each relationship almost remained the same as the previous three SEM models. Significant predictors of perceptions of crime in the first three SEM models persisted in this model. This situation carried on to the explanation of the other variables. One difference is the prediction of reported total crime. All of the neighborhood characteristics were significantly related to reported total crime. Yet, concentrated

disadvantage and GINI index were the two strongest predictors of reported total crime ($\beta = .40$ and $.21$, respectively).

Figure 8

Empirical Model Four: Perceptions of Crime (Total Crime Included) (N = 1,713)



SEM Analyses for Perceptions of Disorder

According to the research questions, the last four models focused on the explanation of participants' perceptions of disorder in the neighborhood (from Figure 9 to Figure 12). **The first model of perceptions of disorder** in the neighborhood incorporated reported violent crime, neighborhood characteristics, participation in community policing, attitudes toward the police, and control variables in the analysis (see Figure 9). Model indexes all met the statistical requirements, suggesting a good fit of the sample ($CFI = .95$; $TLT = .93$; $RMSEA = .04$, 90% C.I. = (.036 - .041); $SRMR = .03$). The model accounted for 24% of the variance in perceptions of neighborhood disorder.

Eight statistically significant predictors of perceptions of disorder were reported in the SEM analysis. The strongest predictor was being a volunteer, indicating that being a volunteer of the PIP was more likely to perceive disorder issues in the neighborhood ($\beta = .25$). Perceived collective efficacy was negatively related to perceptions of disorder with the second strongest influence ($\beta = -.24$). In other words, participants who had a higher level of perceived collective efficacy in the neighborhood was less likely to be sensitive to neighborhood disorder issues. Attitudes toward the police also had a strong influence on perceptions of disorder, indicating that participants holding a positive view of the police were less likely to perceive disorder issues in the neighborhood ($\beta = -.18$). There was a significant relationship between reported violent crime and perceptions of disorder ($\beta = .07$). Still, the strength of this linkage was very small, suggesting a limited effect of reported violent crime. Different from the models explaining perceptions of crime, one neighborhood related variable produced directly significant influences on perceptions of disorder. In particular, concentrated disadvantage was positively related to perceptions of disorder ($\beta = .15$). Three demographical variables also reported significant relationships with the outcome variable. Specifically, older participants were less likely to perceive neighborhood disorder issues ($\beta = -.09$), black residents were less likely to perceive disorder issues in the neighborhood ($\beta = -.06$), and immigrated participants were less sensitive to neighborhood disorders in comparison to non-immigrations ($\beta = -.09$).

Reported violent crime was explained by neighborhood characteristics, collective efficacy, and the community policing related factor. In terms of the effect of neighborhood characteristics, concentrated disadvantage was the strongest influencer with a standardized coefficient of .28 and GINI index had the second strongest impact

size with a standardized coefficient of .16. Negative relationships with reported violent crime were found regarding the variable of immigration concentration ($\beta = -.09$) and residential stability ($\beta = -.06$). Collective efficacy was negatively associated with reported violent crime, indicating that participants who perceived a higher level of collective efficacy were less likely to reported violent crime ($\beta = -.22$). Surprisingly, the variable of attitudes toward the police was positively significant ($\beta = .12$). Stated differently, participants holding positive attitudes toward the police were more likely to report violent crime to the police.

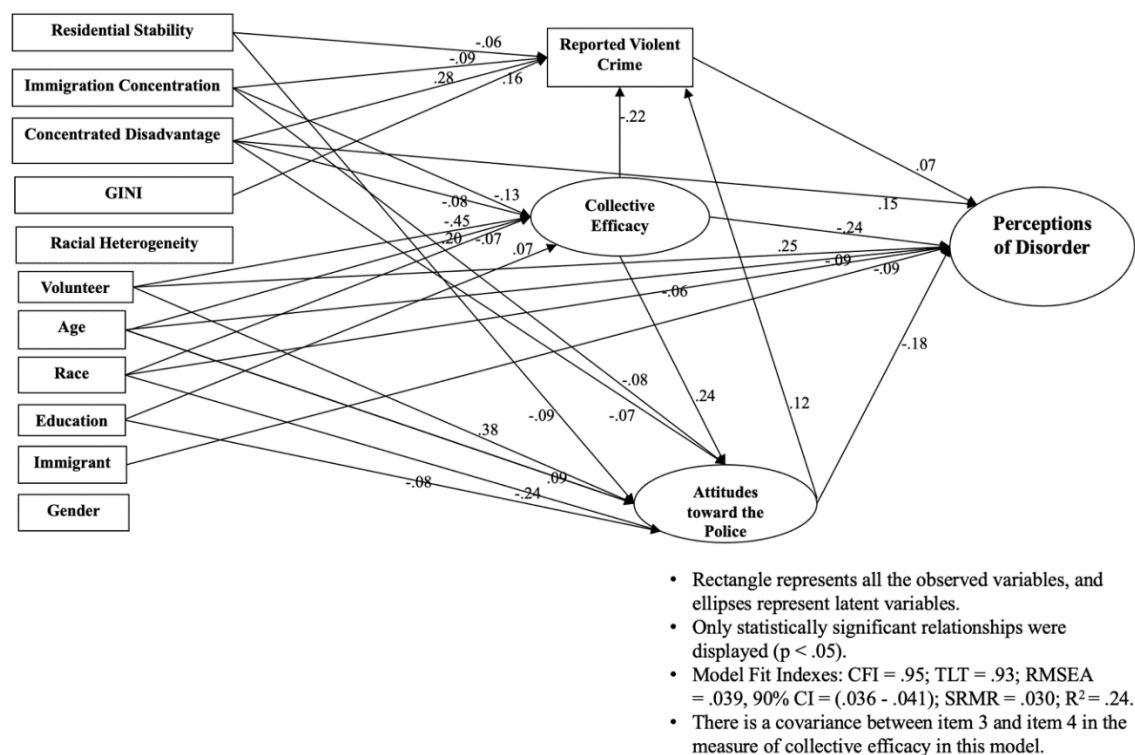
Collective efficacy was illustrated by two neighborhood characteristic relevant variables, three demographical variables, and being a volunteer of PIP. Specifically, both immigration concentration and concentrated disadvantage were negatively associated with perceived collective efficacy, featuring with the standardized coefficients of -.13 and -.08 respectively. In terms of demographical factors, older participants or participants with a higher level of education tended to perceive collective efficacy ($\beta = .20$ and $.07$, respectively) whereas black participants were less likely to perceive collective efficacy ($\beta = -.07$). Volunteer was the strongest predictor of collective efficacy ($\beta = -.45$). That is to say, being a volunteer of PIP was less likely to perceive collective efficacy in the neighborhood.

Likewise, the variable of attitudes toward the police was explained by three neighborhood characteristic related variables, three demographical variables, collective efficacy, and being a volunteer of PIP. With respect to neighborhood characteristics, participants from neighborhoods featuring with a high level of immigration population, a high level of permanent residents, or a high level of concentrated disadvantage were less

likely to rate the police positively ($\beta = -.08, -.09$, and $-.07$, respectively). Older participants tended to hold positive perspectives toward the police ($\beta = .09$). However, black participants or participants with a lower level of educational attainment were less likely to possess a positive mindset concerning the police ($\beta = -.24$ and $-.08$, respectively). Collective efficacy was positively related to perceptions of the police ($\beta = .24$). Residents who perceived a higher level of collective efficacy in the neighborhood were more likely to rate the police positively. Being a volunteer of PIP was more likely to hold a favorable attitude toward the police ($\beta = .38$).

Figure 9

Empirical Model Five: Perceptions of Disorder (Violent Crime Included) (N = 1,713)



The second model of perceptions of disorder in the neighborhood incorporated reported property crime, neighborhood characteristics, participation in community policing, attitudes toward the police, and control variables in the analysis (see Figure 10).

Model indexes all met the statistical requirements, suggesting a good fit of the sample ($CFI = .95$; $TLT = .95$; $RMSEA = .04$, 90% $C.I. = (.033 - .038)$; $SRMR = .03$). The model accounted for 25% of the variance in perceptions of neighborhood disorder.

Results derived from the SEM analysis were quite similar to the aforementioned model. Volunteer was the strongest predictor of perceptions of disorder ($\beta = .28$) while collective efficacy had the second strongest influence ($\beta = -.23$). Attitudes toward the police was negatively related to perceptions of disorder with an identical standardized coefficient as the first model ($\beta = -.18$). Reported property crime was positively correlated with perceptions of disorder ($\beta = .08$). Likewise, there was a positive relationship between concentrated disadvantage and perceptions of disorder ($\beta = .16$). Older or immigrated participants were less likely to perceive disorder issues in the neighborhood ($\beta = -.10$ and $-.09$, respectively). Black residents were also less likely to perceive neighborhood disorder issues ($\beta = -.06$). Different from the previous model, one more neighborhood construct was found significant – immigration concentration. Residents from the neighborhoods with a higher level of immigration concentration were more likely to perceive disorder issues ($\beta = .06$).

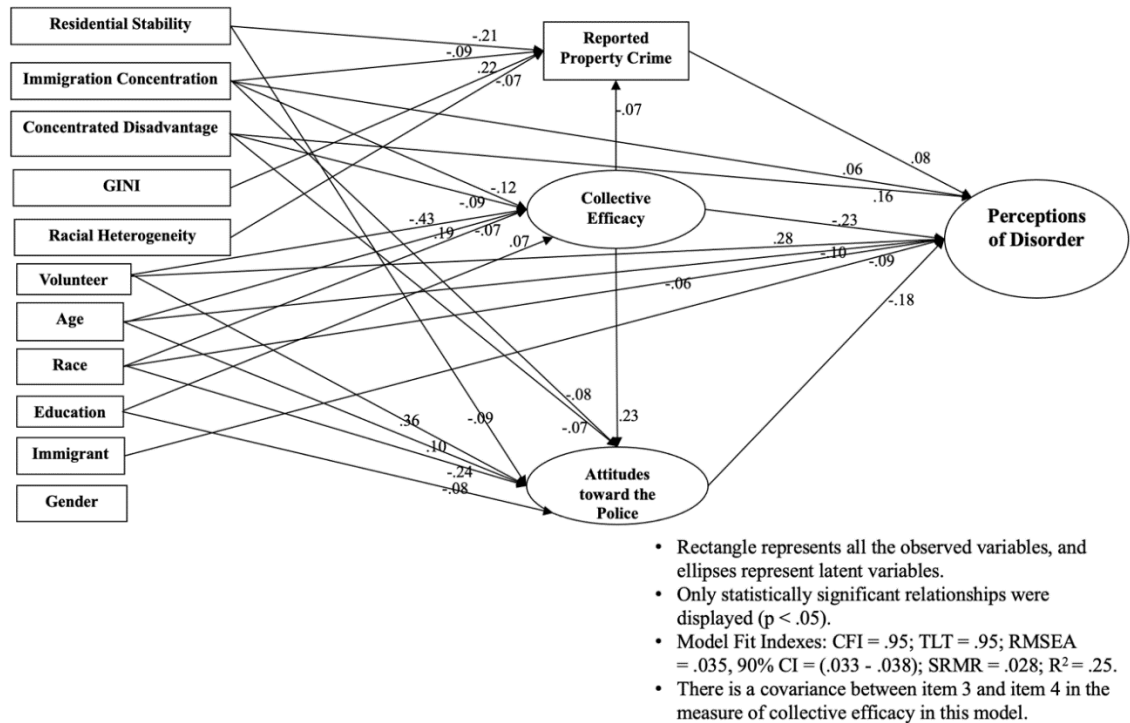
With respect to the explanation of reported property crime, five factors demonstrated significant influences. Similar to the first model of perceptions of disorder, immigration concentration was negatively correlated with reported property crime ($\beta = -.09$) while GINI index was positively connected with reported property crime ($\beta = .22$). The effect of residential stability become stronger in comparison to the first model ($\beta = -.21$). Concentrated disadvantage failed to reach the significant level whereas racial heterogeneity become a significant predictor of reported property crime ($\beta = -.07$).

Attitudes toward the police was not significantly related to reported property crime, and the influence of collective efficacy on reported property crime decreased a lot although it was still statistically significant ($\beta = -.07$).

Perceived collective efficacy were explained by two neighborhood characteristics, three demographical factors, and being a volunteer of PIP. Both the standardized coefficients and the directions of the relationships were similar to the first model of perceptions of disorder. A slight difference was that the power of immigration concentration, being a volunteer of PIP, and age decreased a bit ($\beta = -.12$, $-.43$, and $.19$, respectively) whereas the power of concentrated disadvantage increased a bit ($\beta = -.09$). Slight differences regarding the standardized coefficients were also found when explaining the exogenous variable of attitudes toward the police. The explanatory power of collective efficacy and being a volunteer of PIP decreased a bit ($\beta = .23$ and $.36$, respectively). The standardized coefficient of race increased a bit ($\beta = .10$).

Figure 10

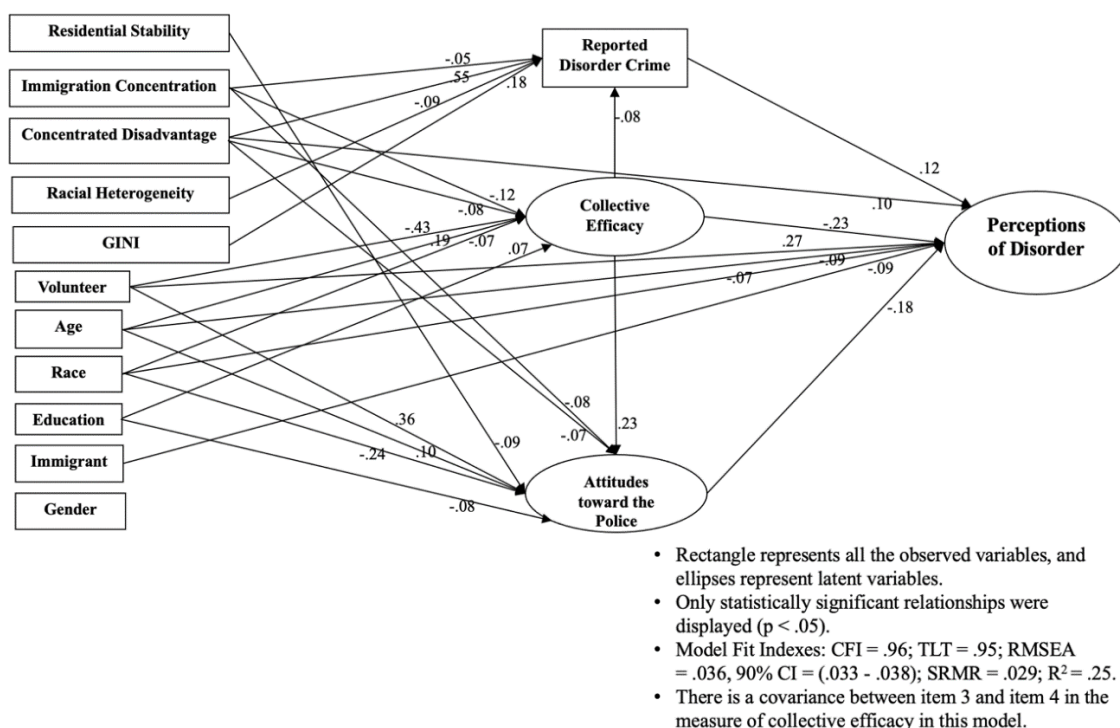
Empirical Model Six: Perceptions of Disorder (Property Crime Included) (N = 1,713)



The third model of perceptions of disorder in the neighborhood incorporated reported disorder crime, neighborhood characteristics, participation in community policing, attitudes toward the police, and control variables in the analysis (see Figure 11). Model indexes suggested a good fit of the sample ($CFI = .96$; $TLT = .95$; $RMSEA = .04$, $90\% C.I. = (.033 - .038)$; $SRMR = .03$). The model accounted for 25% of the variance in perceptions of neighborhood disorder.

The standardized coefficients and directions of all the relationships in the model were almost the same to the models mentioned above in addition to a few differences. The first difference was that the influence of reported disorder crime on perceptions of disorder was stronger than the other two types of crime ($\beta = .12$). In other words, perceptions of disorder were consistent with reality of disorder crime. Residential

Empirical Model Seven: Perceptions of Disorder (Disorder Crime Included) (N = 1,713)



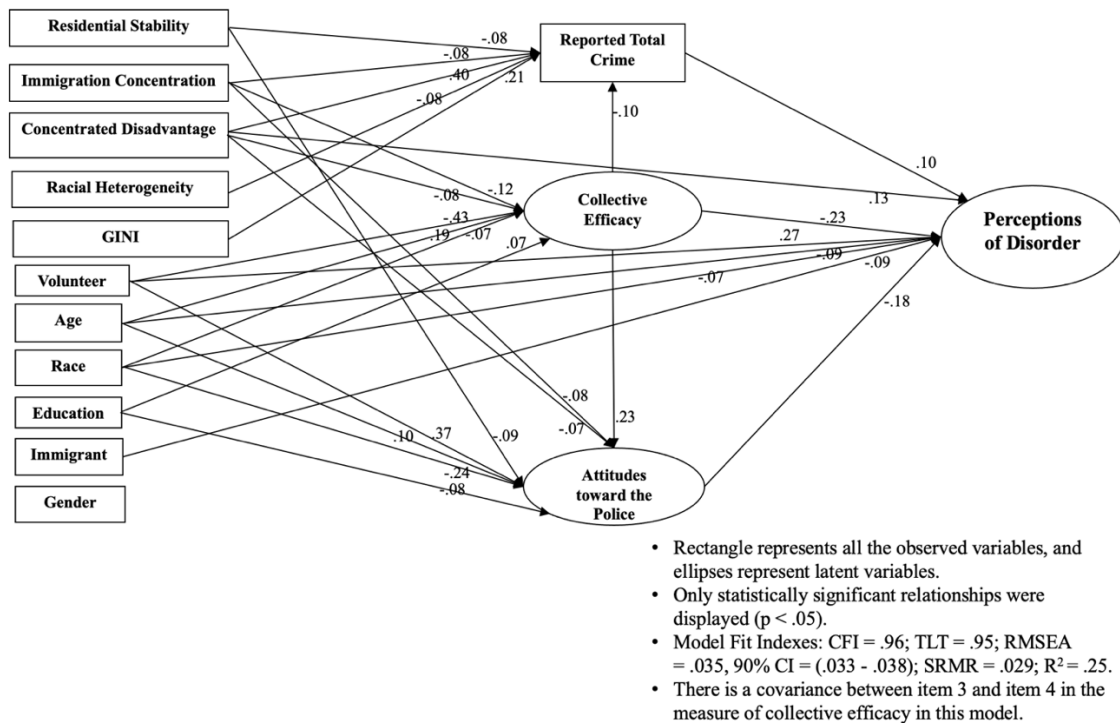
The last model of perceptions of disorder in the neighborhood incorporated reported total crime, neighborhood characteristics, participation in community policing, attitudes toward the police, and control variables in the analysis (see Figure 12). Model indexes suggested a good model fit ($CFI = .96$; $TLT = .95$; $RMSEA = .04$, $90\% C.I. = (.033 - .038)$; $SRMR = .03$). The model accounted for 25% of the variance in perceptions of neighborhood disorder.

The strengths and directions of all the relationships in the model remained almost the same to the models mentioned above in addition to a few differences. Specifically,

predictors of perceptions of disorder were the same with quite similar standardized coefficients. With regard to the explanation of reported total crime, all five neighborhood characteristics were significant, among which concentrated disadvantage and GINI index were the strongest influential factors ($\beta = .40$ and $.21$, respectively). Predictors of collective efficacy, attitudes toward the police, and being volunteers remained the same with similar strengths as well.

Figure 12

Empirical Model Eight: Perceptions of Disorder (Total Crime Included) (N = 1,713)



Summary of Findings

A series of SEM analyses were conducted to examine factors that can influence citizens and volunteers' perceptions of neighborhood crime and disorder. In the SEM analyses for perceptions of neighborhood crime, four models were conducted. Results of these analyses indicated that reported crime exerted significant influences on perceptions

of neighborhood crime, among which reported violent crime and reported disorder crime had slightly more powerful effects. Yet, the overall strength of reported crime was minimal irrespective of the type of crime. Contrary to the second hypothesis of the current study, neighborhood characteristics failed to significantly and directly affect people's perceptions of neighborhood crime. Yet, neighborhood characteristics were found to be significant predictors of reported crime, perceived collective efficacy, and attitudes toward the police. Collective efficacy was not significantly related to perceptions of crime in all four models, which is inconsistent with the associated research hypothesis. Community policing related factor – attitudes toward the police was significantly correlated with perceptions of crime. In particular, the influence of attitudes toward the police was stable across models. The other community policing related factor – being a volunteer of PIP remained the strongest predictor of perception of crime across models. These findings were consistent with the last hypothesis of the current study.

In the SEM analyses for perceptions of neighborhood disorder, four models were also conducted. Results of these models demonstrated that reported crime was a significant predictor of perceptions of neighborhood disorder, which is consistent with the first hypothesis of the current study. In particular, reported disorder crime was the strongest predictor in comparison to the other two types of crime. In harmony with the second hypothesis, one of the neighborhood characteristics—concentrated disadvantage was positively related to perceptions of neighborhood disorder. Distinct from the models concerning perceptions of neighborhood crime, collective efficacy was a significant and powerful predictor of perceptions of neighborhood disorder. This is in agreement with the third hypothesis of the current study. Regarding the last hypothesis of this research, both

attitudes toward the police and being a volunteer were significant factors related to perceptions of disorder. Likewise, being a volunteer was the strongest predictor whereas the impact size of attitudes toward the police left unchanged across models.

In general, it is evident that perceptions of neighborhood crime possessed distinct predictors from perceptions of neighborhood disorder (see Table 5). More specifically, collective efficacy was a significant predictor for perceptions of disorder, but not for perceptions of crime. Neighborhood characteristic was a significant predictor for perception of disorder instead of perceptions of crime. However, being a volunteer of PIP was the strongest predictor for both perceptions. Also, reported crime and the variable of attitudes toward the police were significant predictors for both perceptions. Three demographic variables – age, race, and immigration status were found significant across models.

Table 5*Summary Table for Significant Variables*

Variables	Perceptions of Crime	Perceptions of Disorder
Reported Violent Crime	+	+
Reported Property Crime	+	+
Reported Disorder Crime	+	+
Reported Total Crime	+	+
Volunteer of PIP	+	+
Attitudes toward the Police	-	-
Collective Efficacy		-
Immigration Concentration		
Residential Stability		
Concentrated Disadvantage		+
Racial Heterogeneity		
GINI		
Race	-	-
Age	-	-
Education	+	
Immigrant	-	-
Gender		

Note. + represents positive significant relationship; - represents negative significant relationship.

CHAPTER V

Conclusions and Discussions

Conclusions

The purpose of the current study was to examine factors derived from reported crime and criminological theories that can influence individual's perceptions of crime and perceptions of disorder in the neighborhood in Houston. Accordingly, the following steps were taken to accomplish this goal. First, a spatial distribution of the surveyed participants was presented to provide a visualization of the geographical locations of the samples. Bivariate correlation analysis was conducted to diagnose multicollinearity issue and CFA was conducted to test the reliability of the underlying constructs in the analysis. Second, a series of SEM analyses were conducted to investigate the relationship among endogenous/exogenous factors and perceptions of crime in the neighborhood. Likewise, a series of SEM analyses associated with perceptions of disorder in the neighborhood were conducted as well. These analyses aimed at identifying factors that can contribute to the understanding of crime-related perceptions and the comparison of the perceptual differences between general citizens and citizen volunteers of PIP. Finally, the results derived from the analyses were used to answer the research questions developed in Chapter one and the research hypotheses developed in Chapter two.

Research Question One

Does reported crime have a significant influence on people's perceptions of crime in their neighborhood in Houston? Specific hypothesis for this research question was that there is a positive relationship between reported crime and perceptions of neighborhood crime. As shown from Figure 5 to Figure 8, reported violent crime, reported property

crime, reported disorder crime, as well as the reported total crime were all positively related to perceptions of crime in the neighborhood. More specifically, the more crime incidents reported in the neighborhood regardless of the crime type, the more prevalence and severity of criminal issues residents would perceive in the neighborhood. This finding is consistent with previous studies (Block & Long, 1973; Garofalo & Laub, 1978; Haynie, 1998; Hipp, 2013; Hunter, 1978; Lai et al., 2012; Luo et al., 2016; Skogan & Maxfield, 1981; Sousa & Kelling, 2006; Taylor, 2001; Warr and Stafford, 1983; Wilcox et al., 2003; Xu et al., 2005; Zirming, 1997). Yet, a slight difference from the previous findings is that the strength of reported crime was very limited (Hipp, 2013). Based on the standardized coefficients across the four models, reported violent crime, reported disorder crime, and reported total crime had similar strengths of a standardized coefficient of .08 whereas property crime had a lower standardized coefficient of .06. That being said, reported crime was relatively less influential on citizens' perceptions of crime in the neighborhood. In addition, two neighborhood structure factors, including immigration concentration and GINI index were significant predictors of reported crime. Collective efficacy was negatively related to reported crime in the neighborhood.

Research Question Two

Do factors derived from social disorganization theory have a significant influence on people's perceptions of crime in their neighborhoods in Houston? Specific hypothesis for this research question was that there is a positive relationship between social disorganization theory derived factors and perceptions of neighborhood crime. Inconsistent with the hypothesis (Liu & Polson, 2016; Reisig & Parks, 2000; Shaw & McKay, 1942[1969]; Wilcox et al., 2003), models of the current study failed to report a

significant and positive relationship. That is to say, social disorganization theory was not applicable to the explanation of residents' perceptions of neighborhood crime in Houston. However, results from model 1 to model 4 found that neighborhood factors derived from social disorganization theory had significant relationships with reported crime, perceived collective efficacy of the neighborhood, and attitudes toward the police.

Research Question Three

Does collective efficacy have a significant influence on people's perceptions of crime in their neighborhoods in Houston? Specific hypothesis for this research question was that there is a negative relationship between collective efficacy and perceptions of crime. Inconsistent with the findings of previous research (Armstrong et al., 2015; Hipp, 2016; Reisig & Cancino, 2004; Sampson et al., 1997; Stein & Griffith, 2017), the current study discovered that there was no significant relationship between perceived level of collective efficacy in the neighborhood and the perceived frequency and severity of neighborhood crime. In addition, perceived collective efficacy was negatively related to reported crime. In other words, collective efficacy was a significant predictor of reported crime (crime in reality) but was not associated with perceptions of crime in the neighborhood. Two factors derived from social disorganization theory were significantly related to collective efficacy, including immigration concentration and concentrated disadvantage. Three individual associated factors – race, age, and educational attainment were also reported to be significant predictors of collective efficacy. Being a volunteer of PIP was the most significant predictor of collective efficacy.

Research Question Four

Do community policing related factors have a significant influence on people's perceptions of crime in their neighborhood in Houston? Specific hypothesis for this research question was that there is a positive relationship between participation in community policing and perceptions of crime, and a negative relationship between attitudes toward the police and perceptions of crime. Attitudes toward the police has been considered as an evaluation of community policing in previous studies. Results from the SEM analyses found that being a volunteer of PIP was the strongest predictor of perceptions of neighborhood crime accompanied by a positive relationship. This is expected based on the existing literature (Maguire et al., 2019; Xu et al., 2005; Zhao et al., 2002). On the other hand, the variable of attitudes toward the police was negatively related to perceptions of neighborhood crime, which is the second strongest predictor in the models. That is to say, residents with positive attitudes toward the police were less likely to perceive neighborhood crime (Bolger & Bolger, 2019; Dansie & Fargo, 2009; Luo et al., 2016; Scheider et al., 2003; Trojanowicz & Bucqueroux, 1990). Being a citizen volunteer of PIP possessed with significantly different characteristics than general citizens. More specifically, being a volunteer of PIP were less likely to perceive collective efficacy in the neighborhood and more likely to rate the police in a positive manner. In addition, the variable of attitudes toward the police was significantly influenced by immigration concentration, residential stability, concentrated disadvantage, race, age, and educational attainment.

Research Question Five

Does reported crime have a significant influence on people's perceptions of disorder in their neighborhood in Houston? Specific hypothesis for this research question was that there is a positive relationship between reported crime and perceptions of neighborhood disorder. As shown from Figure 9 to Figure 12, reported disorder crime had the strongest influence on perceptions of neighborhood disorder in comparison to the other types of crime as well as the total crime incidents. Consistent with the models regarding perceptions of neighborhood crime, the influence of reported was significant but its strength was quite limited. In addition, immigration concentration and GINI index were found significant when explaining reported crime in the neighborhood. Collective efficacy was negatively related to reported crime in the neighborhood. The variable of attitudes toward the police was significantly and positively related to reported violent crime in the neighborhood.

Research Question Six

Do factors derived from social disorganization theory have a significant influence on people's perceptions of disorder in their neighborhoods in Houston? Specific hypothesis for this research question was that there is a positive relationship between social disorganization theory derived factors and perceptions of neighborhood disorder. Consistent with previous studies, concentrated disadvantage was positively related to perceptions of neighborhood disorder (Liu & Polson, 2016; Reisig & Parks, 2000; Wilcox et al., 2003). In particular, residents from a concentrated disadvantaged neighborhood were more likely to perceive disorder issues in the neighborhood.

Research Question Seven

Does collective efficacy have a significant influence on people's perceptions of disorder in their neighborhoods in Houston? Specific hypothesis for this research question was that there is a negative relationship between collective efficacy and perceptions of disorder. Consistent with previous studies (Armstrong et al., 2015; Hipp, 2016; Reisig & Cancino, 2004; Sampson et al., 1997; Stein & Griffith, 2017), collective efficacy was the second strongest predictor of perceptions of neighborhood disorder. More specifically, residents with a higher level of perceived collective efficacy in the neighborhood were less likely to perceive disorder issues in the neighborhood. In addition, two neighborhood related factor derived from social disorganization theory were found to be significant when predicting collective efficacy, including immigration concentration and concentrated disadvantage. Likewise, three individual associated factors were significantly related to collective efficacy as well, including age, race, and educational attainment.

Research Question Eight

Do community policing related factors have a significant influence on people's perceptions of disorder in their neighborhood in Houston? Specific hypothesis for this research question was that there is a positive relationship between community policing and perceptions of disorder, and a negative relationship between attitudes toward the police and perceptions of disorder. Consistent with the models regarding perceptions of neighborhood crime, both the variable of being a volunteer and the variable of attitudes toward the police were significantly related to perceptions of neighborhood disorder. Also, being a volunteer of PIP remained the strongest predictor across models. Besides,

being a volunteer of PIP were also significantly related to perceived collective efficacy and attitudes toward the police.

Discussions

Human perceptions are complicated. Often the time, perceptions are not consistent with reality. The clash between misperceptions and the reality may lead to negative emotions, such as disappointment, rage, and depression, which can further influence one's life quality and social behaviors. Likewise, crime-related perceptions, in particular perceptions of neighborhood crime and perceptions of neighborhood disorder are important for the improvement of community quality, along with residents' life satisfaction and mental health (Breetzke & Pearson, 2014; Cornaglia & Leigh, 2011; Gibson et al., 2002; Jackson & Stafford, 2009; Liska et al., 1988; Wyant, 2008). However, as Schaefer and Mazerolle (2018) noted, there is dearth research on people's recognition of crime and disorder. The majority of existing research focused on fear of crime, which is closely related to individual's emotional expression of crime and/or psychological reaction to crime (Furstenberg, 1971; Hipp, 2010a; LaGrange & Ferraro, 1989; Taylor, 2001). In contrast, perceptions of crime and disorder pay more attention to individual's understanding and interpretation of crime and disorder issues in the neighborhood, such as the frequency of neighborhood crime and disorder and the seriousness of neighborhood crime and disorder. That is to say, perceptions of neighborhood crime and disorder are likely to be more closed connected with reality of crime. Therefore, disentangling factors associated perceptions of crime and disorder in the neighborhood is necessary and crucial.

Based on the existing knowledge, one's crime-related perceptions are mainly affected by three broad groups of factors, including the actual level of crime and disorder in the neighborhood (e.g., reported crime), the characteristics or structures of the neighborhood, and individual associated factors (Bollen, 1989; Hipp, 2010a). More specifically, different types of crime (i.e., violent crime, property crime, and disorder crime) have been reported to influence crime-related perceptions at distinct levels (Hipp, 2013; Lai et al., 2012; Luo et al., 2016; O'Brien et al., 2019; Skogan & Maxfield, 1981; Wilcox et al., 2003; Xu et al., 2005). With respect to the neighborhood influence, criminological theories and practices, such as social disorganization theory, collective efficacy, and community policing provided insightful perspectives (Armstrong et al., 2015; Battin, 2015; Bursik & Grasmick, 1993; Clear et al., 2003; Hipp, 2010b; Hipp & Wickes, 2017; Lee & Zhao, 2016; Maguire et al., 2019; Oh & Kim, 2009; Sampson & Raudenbush, 2004; Sampson et al., 1997; Sampson & Groves, 1989; Shaw & McKay (1942[1969]; Wilcox et al., 2018; Zhao et al., 2002; Zhao et al., 2015). Also, a substantial body of scholarship have tested the impact of individual associated factors, especially their influence on fear of crime (Baumer, 1978; Garofalo, 1979; Gibson et al., 2002; Skogan & Maxfield, 1981; Zhao et al., 2015). Hence, the purpose of the current study was to examine the specific factors that can make a difference concerning perceptions of neighborhood crime and disorder. SEM analyses of the current study revealed that factors from all three broad groups did exert significant influence on residents' perceptions of crime and/or disorder in the neighborhood. Yet, the strengths of factors from each group varied across models. More specifically, there are five important observations derived from the current study.

First, reported crime was a significant predictor of the two types of crime-related perceptions — namely, perceptions of neighborhood crime and perceptions of neighborhood disorder. In particular, reported violent crime and reported disorder crime had a stronger influence on perceptions of neighborhood crime than reported property crime. These results demonstrated that perceptions are consistent with reality to a certain degree. Residents' perceptions of crime are affected by the actual level of crime in their environment (Bollen, 1989; Hipp, 2010a). However, reported violent crime and reported disorder crime may matter more than reported property crime. In Houston, reported disorder crime occurred almost twice as much as reported property crime ($M = .13$ and $.07$, respectively) whereas reported violent crime happened much less ($M = .02$). Therefore, these results were consistent with previous findings concerning fear of crime that the frequency of crime (disorder crime) and the severity of crime (violent crime) did produce more intense alarm than property crime (Brook, 1974; Hipp, 2013; Quisenberry & Jones, 2003; Wolfgang et al., 1985; Xu et al., 2005). As Franklin and coauthors (2008) argued the level of disorder has the strongest relationship with individual's perceptions of crime. However, in their study, the level of violent crime failed to reach significance. The reason for this finding can be contributed to the aggregated crime at the city level (Franklin et al., 2008). In the current study, reported crime was aggregated at the census tract level, and both violent crime and disorder crime were significant.

With respect to perceptions of neighborhood disorder, reported disorder crime had the strongest influence than the other two types of crime. These results specifically revealed that there is a close link between perceptions and reality. In other words, more reported disorder crime at the census tract level is associated with a higher level of

perceived neighborhood disorder (Hope & Hough, 1988; Taylor & Hale, 1986; Sampson & Raudenbush, 2004; Xu et al., 2005). It is also consistent with findings regarding crime and fear of crime linkage derived from the broken window thesis that disorder represents a sign of no one cares, which would increase resident's sentiment about crime and disorder issues in the neighborhood as well as crime rates (Franklin et al., 2008; Gibson et al., 2002; Oh et al., 2019; Ren et al., 2017; Wilson & Kelling, 1982; Zhao et al., 2015). One thing needs to be mentioned is that in the current study reported disorder only included social disorder incidents, such as noise, disorderly conduct, public drinking, threat contact, and illegal parking. Previous studies indicated that physical disorder (visible incivilities, such as abandoned cars, graffiti, and vacant or abandoned housing) had different influence on crime-related perceptions in comparison to social disorder (Hinkle & Yang, 2014; Perlins & Taylor, 1996; Skogan, 1990). Hinkle and Yang (2014) conducted an analysis of systematically observed disorder issues, reporting that physical disorder was a significant predictor of perceived disorder whereas social disorder was not significant. On the contrary, results from the current study suggested that social disorder (disorder crime incidents) was indeed a significant predictor of perceived disorder at the census tract level in Houston. Yet, physical disorder related variables were not incorporated in the models. Therefore, future research that includes both observed physical disorder and reported social disorder in the analysis deserves more attention.

Previous research also argued that the precise nature and strength of actual level of crime on crime-related perceptions have yet been determined at a consensus degree (Rountree, 1998). In the current study, results demonstrated that the actual level of crime had a marginal influence on crime-related perceptions (both perceptions of neighborhood

crime and perceptions of neighborhood disorder). The standardized coefficients ranged from .05 to .12 across models. Lai and colleagues (2012) also found similar findings when examining the linkage between fear of burglary and actual level of burglary within 0.1-mile and 0.5-mile buffers of crime incidents. The weak magnitude of reported crime suggested that crime-related perceptions are complicated and affected by other factors that are more important and competitive (Hipp, 2010a). More specifically, although reported disorder and crime are the original sources related to beliefs of neighborhood crime and disorder, these beliefs are reinforced much more than the actual levels of crime and disorder in the neighborhood (Hipp, 2010a; Sampson & Raudenbush, 2004).

Second, neighborhood structure-related factors derived from social disorganization theory had different influences on perceptions of neighborhood crime and perceptions of neighborhood disorder. In particular, there was no direct significant relationship between neighborhood factors and perceptions of neighborhood crime in the current study. The results were inconsistent with the findings derived from some of the existing studies (Allen, 2006; Liu & Polson, 2016; Sampson & Raudenbush, 2004; Wyant, 2008). However, some of the existing research did offer a plausible explanation of the insignificant relationship. Lai and colleagues (2012) studied the specific link between burglary and fear of burglary. They also found that neighborhood structure-related variables, for instance, concentrated disadvantage did not significantly influence residents' expressed fear of burglary when taking the actual level of burglary and individual-level factors into account. Therefore, it is reasonable to argue that the insignificant relationship reported in the current study could be caused by the inclusion of actual level of crime in the models, although the magnitude of coefficients of actual level

of crime was weak. That is to say, the effects of neighborhood structure-related variables were intervened by the actual level of crime. Indeed, it is interesting to find that these neighborhood structure-related factors were significantly related to reported crime regardless of the type of crime in the current study. This is also consistent with social disorganization theory that socially disorganized neighborhoods are conducive to the breakdown of informal social control and the proliferating of crime and disorder issues (Kornhauser, 1978; Messner & Sampson, 1991; Sampson & Groves, 1989; Shaw & McKay, 1942 [1969]; Wilcox et al., 2018).

Different from the models regarding perceptions of neighborhood crime, neighborhood structure-related factors derived from social disorganization theory were found significant when predicting perceived neighborhood disorder issues. More specifically, concentrated disadvantage was positively related to perceptions of neighborhood disorder, with more powerful standardized coefficients than those of reported crime across models. As what Sampson and Raudenbush (2004) reported, social structure, including neighborhood ethnic and social composition as well as concentrated poverty proved to be a powerful predictor of perceived disorder (p. 336). This is because residents' prior knowledge and beliefs of ethnicity, poverty, and community structure could shape their current assessment of neighborhood disorder issues (Sampson & Raudenbush, 2004). In particular, the influence of these prior knowledge and beliefs is salient when they are closely associated with actual level of crime and disorder in the neighborhood. Another explanation of the significant relationship between neighborhood structures and perceptions of neighborhood disorder is that disorder issues are more closely connected with residents' routine activities (e.g., parking, disposing garage, and

drinking) in comparison to crime problems. Moreover, disorder issues happen much more frequently than do crime problems. Hence, communities associated with a higher level of disorder potentials are salient for the prediction of perceived neighborhood disorder.

Third, it is interesting to find that collective efficacy had distinct effects on perceptions of neighborhood crime and perceptions of neighborhood disorder. Similarly, collective efficacy was not a significant predictor of perceived neighborhood crime, which is inconsistent with previous findings (Armstrong et al., 2015; Hipp, 2016; Liska et al., 1988; Sampson et al., 1997; Stein & Griffith, 2017). Existing studies in different areas of neighborhoods, such as Chicago neighborhood and Mesa neighborhood in Arizona reported collective efficacy to be the strongest predictor of perceived violence (Armstrong et al., 2015; Sampson et al., 1997). However, the current results did not support such assumptions. One possible explanation is that collective efficacy does not necessarily result in engagement in informal crime control (Warner, 2007; Wickes et al., 2017). Crime is more serious than disorder. According to broken window thesis and collective efficacy framework, disorder creates conducive environments for crime occurrence. Collective efficacy is not directly related to crime control. Hence, collective efficacy may not be sufficient enough to influence perceptions of neighborhood crime. Further, the measurement of collective efficacy in the current study captured residents' perceptions of the likelihood of neighbors to intervene instead of their personal willingness to intervene. It is more accurate to examine the influence of collective efficacy on perceived neighborhood disorder than measurements capturing the likelihood of residents themselves to intervene.

On the contrary, collective efficacy was negatively related to perceptions of neighborhood disorder, with the second most powerful standardized coefficient than the rest of significant predictors (Hipp, 2016; Reisig & Cancino, 2004). It suggests that collective efficacy does not necessarily lead to the establishment of an effective informal crime control in a neighborhood; rather, it does necessarily result in informal disorder control. Indeed, the informal control function of collective efficacy is more closely connected with disorder issues than that of crime problems. It encourages residents to take actions to intervene disruptive behaviors for the common good of a community, such as intervening incivilities and illegal markets in the public place of the neighborhood. These types of informal control practices are more feasible for residents living in the same neighborhood in comparison to the informal crime control (e.g., violent crime and property crime). More importantly, disorder incidents happen more frequently than crime incidents and are easier to be spotted by residents living in the same area than do crime incidents. Therefore, it is reasonable that collective efficacy exerted a significant influence on perceived disorder issues in the neighborhood.

Consistent with the existing knowledge, neighborhood related variables, including immigration concentration and concentrated disadvantage were both significantly and negatively related the level of collective efficacy in the neighborhood (Hipp & Wickes, 2017; Shaw & McKay, 1942). Since collective efficacy requires a considerable amount of time to develop and establish among residents, neighborhood structures and dynamics do make a difference. As what social disorganization theory proposed, neighborhoods with a stable group of population sharing similar cultural values are more likely to work together and intervene anti-social behaviors in the neighborhood. Likewise, residents

with a higher level of economic status do have more motivations to intervene crime and disorder problems in the neighborhood, for instance property crime. So, it is easy for them to engage in collective efficacy related activities for community safety.

Fourth, the findings of community policing engagement emphasize its important role in shaping residents' crime-related perceptions at the neighborhood level. In particular, residents who participated in the Proactive Intervention Program in Houston city perceived a higher level of crime and disorder issues in the neighborhood. This variable was consistently the strongest predictor of crime and disorder perceptions across all the models. Community policing aims at the coproduction between the police and residents to improve community quality rather than rapid response from the police, aggressive police patrol, and strict law enforcement (Goldstein, 1990; Manning, 1984). The police attempt to be familiar with their community, to be aware of residents' complaints/calls for assistance, and to win the heart of local residents so that they can gather more intelligence for crime control (Greene, 2000). Participants in the PIP in Houston were able to meet with local police officers to discuss crime and disorder issues in their neighborhood on a monthly basis (Lee & Zhao, 2016; HPD, 2015). This type of interaction and communication between the police and residents are conducive to shaping residents' interpretation and understanding of neighborhood crime and disorder problems. Indeed, the current study supported this assumption. Residents who participated in the community policing program were more sensitive of neighborhood crime and disorder problems. An explanation for this phenomenon is that participants of PIP were more knowledgeable of neighborhood crime and disorder problems due to their constant exposure of crime-related information from the police. Another explanation is that

participants of PIP possess a different crime victimization experience than residents who did not participate in the program (Gibson et al., 2002; Zhao et al., 2015). It is possible that participants in the PIP might have at least one experience of crime victimization and are fearful of being a repeat victim. Unfortunately, the current study cannot test the influence of victimization experience because of the data limitation. Further research from this perspective is worth to conduct. But the current study did find that participants of PIP were less likely to perceive collective efficacy in the neighborhood. The lack of information regarding informal crime control may be another reason for the significant and positive relationship.

Noteworthy, citizens' participation in the PIP was negatively related to collective efficacy. That is to say, residents who participated in the community policing program perceived a lower level of collective efficacy in the neighborhood. It suggests that the level of perceived informal control among residents was associated with their participation in the PIP. Put it differently, establishing a positive community tie among residents may serve as a better or an alternative approach to enhance community quality in comparison to community policing. However, further research is required to make this finding more valid and reliable.

The variable of attitudes toward the police was negatively related to neighborhood crime and disorder perceptions, featuring with a constant standardized coefficient around $-.19$ across models. Police-citizen relationship as a core element of community policing has been reported to be influential on fear of crime (Luo et al., 2016; Xu et al., 2005; Zhao et al., 2002). The current study extended this finding to residents' perceptions of the prevalence and severity of neighborhood crime and disorder problems. A positive police-

citizen relationship is conducive to the mitigation of residents' intensive concerns on neighborhood crime and disorder. Yet, it is also interesting to find that being a volunteer of PIP was positive related to crime and disorder perceptions whereas satisfactory attitude toward the police was negative related crime and disorder perceptions, which produces a seemingly contradictory finding. Volunteers of PIP tend to perceive more neighborhood crime and disorder problems because of their knowledge about and/or experiences of neighborhood crime and disorder. However, the current study also reported that volunteers of community policing program were prone to hold positive attitudes toward the police (Lee & Zhao, 2016; Ren et al., 2006). In this regard, volunteers of PIP were supposed to be less likely to perceive neighborhood crime and disorder issues.

Unfortunately, the current study cannot resolve this conflicting finding. Future research that focuses on disentangling this puzzle is important and necessary. However, one thing we can conclude from the results is that participation in PIP could significantly change their crime-related perceptions as well as attitudes toward the police. Therefore, efforts from the law enforcement agencies should also be exerted to encourage positive results of participating in the PIP.

Last, individual demographical factors, including race, age, educational attainment, and immigration status were found to be significant predictors. That is to say, the systematic perceptual difference on the part of residents did exist when explaining residents' perceptions of crime and disorder problems in the neighborhood (Hipp, 2010a). Consistent with the findings derived from the fear of crime literature, black residents, older residents and residents with an immigration status were less likely to perceive neighborhood crime problems in comparison to their respective counterparts (Dansie &

Fargo, 2009; Ferraro & LaGrange, 1987; LaGrange & Ferraro, 1989; LaGrange et al., 1992; Luo et al., 2016). In contrast, residents with a higher level of education were more likely to perceive neighborhood crime problems (Franklin et al, 2008). This is because knowledge is power. The more knowledge people acquired, the more complicated the world becomes. Just as what Wilson (1983) noted, “the more we understand the causes of crime, the more we are drawn into the complex and subtle world of attitudes, predispositions, and beliefs, a world in which planned intervention is exceptionally difficult” (p.47). Therefore, people with a higher amount of knowledge tend to observe more problems, especially crime related problems since they can directly influence community safety and quality.

Different from the perceptions of neighborhood crime model, only three individual associated factors reported were significant when predicting perceptions of disorder model. Age, race, and immigration status were all negatively connected with perceptions of neighborhood disorder. Older residents, black residents, and residents with an immigration status were less likely to perceive neighborhood disorder. A potential explanation is that older residents and immigrated residents are less likely to expose to the neighborhood environment. For instance, they may restrict their social activities in their own houses and are less likely to participate in community activities. Hence, they are less likely to observe neighborhood disorder problems.

Policy Implications

The current study is not conclusive, and the data at this point cannot precisely untangle the complex perceptual mechanism associated with crime and disorder issues in the neighborhood. However, findings derived from the current study do offer important

policy implications for community practices. Generally speaking, the current study implied that crime and disorder themselves do affect the associated perceptions. Yet, their magnitudes were moderate. In contrast, crime control related factors, such as participation in community policing (formal/informal control of crime) and development of collective efficacy (informal control of crime) exerted the first and second strongest influences on perceptions of neighborhood crime and disorder. These results indicated that although crime and disorder are the original sources of crime-related perceptions, factors associated with the control of crime and disorder are the most important elements when it comes to residents' interpretation and recognition of neighborhood crime and disorder problems. Hence, making efforts to enhance crime control as well as citizen participation in the control are crucial to enhance community quality and community safety.

First, participation in community policing was found the most significant factor to predict citizens' perceptions of neighborhood crime and disorder. Hence, local police department needs to take actions to encourage citizen participation in the community policing programs with the goal of providing up-to-date crime and disorder information at the neighborhood level. Information concerning crime control in the community should be provided to volunteers of PIP. This is particular important for elder residents and immigrated residents because it can provide more opportunities for them to get access to the local crime and disorder information. Alternatively, it would be helpful to avoid misperception about the reality of crime if local police department can make the weekly- and monthly- crime statistics available to the public during the community policing meetings. Another approach to distribute the crime statistics to the local residents is to

utilize the Internet, such as social media and official law enforcement website. In this regard, if volunteers of the community policing program cannot participate the meeting due to personal time conflict, there is a chance for them to review the major contents through the official website or the official social media account. The key is to make residents aware of these available sources and encourage them to obtain up-to-date local information.

Second, police-citizen relationship was one of the most significant predictors with respect to perceived neighborhood crime and disorder. Measures involving establishing positive police-citizen relationships and soliciting police-citizen cooperation should be taken accordingly. The police are important forces to formally control crime. As the community policing philosophy proposed, if citizens are willing to work together with the police to control crime, such as reporting to the police, being a witness of criminal incidents, and working together with the police to enforce social norms in their neighborhoods, then crime and disorder are easier to control. Recently, the procedural justice framework highlighted the importance of fair and just interaction between the police and citizens. It argues that citizens are more likely to cooperate with the police if they believe police officers' decision-making is fair and they act with respect (Taylor & Huo, 2002). Therefore, trainings concerning procedural justice for local police officers, especially for community policing officers should be provided for the purpose of developing and maintaining a good police-citizen relationship (trust in the police) in local communities.

Third, collective efficacy was reported to be the second strongest predictor of crime-related perceptions. Making efforts to improve collective efficacy at the

neighborhood level could improve residents' understanding of neighborhood crime and disorder issues, and accordingly make collective efforts to control neighborhood crime and disorder problems. However, the formation of collective efficacy (i.e., mutual trust and social cohesion) requires time and process. In other words, practitioners should make long-term policies to improve collective efficacy. Collaborations between local law enforcement agencies and community organizations to enhance the level of collective efficacy in the neighborhood is also essential. It is also noteworthy that participants of PIP tended to perceive a lower level of collective efficacy in the neighborhood. Hence, specific efforts regarding the improvement of collective efficacy among those volunteers should be exerted.

Limitations and Future Research

The current study has several limitations that need to be acknowledged. First, it is related to the external validity of the findings derived from the current study. This study analyzed data collected from only one city — Houston, Texas. Although Houston is the fourth largest city in the U.S. featuring with diversified cultural backgrounds, it is uncertain whether the findings can be generalized to other research sites in the U.S. In addition, Houston city has a long history of community policing practices since the 1980s. It is not clear whether the results are applicable to other cities that community policing programs haven't been implemented or where community policing is not an important part of the policing practices.

Second, the current study defined neighborhood at the census tract level, which may face the modifiable areal unit problem (Weisburd et al., 2016). As the existing scholarship suggested, there is no consistent definition of neighborhood for research

although census tract is a geographical unit with ecological integrity (Ambrey et al., 2013; Breetzke & Pearson, 2014; Hipp, 2007, 2010, 2013; Lai et al., 2012; U.S. Census Bureau, 2000; Weisburd et al., 2016). It is possible that residents who answered the survey for the current study recalled the neighborhood area that was different from the census tract. In this regard, findings derived from the current study required further exploration at different neighborhood levels.

Third, the current study employed cross-sectional data to examine factors that can influence perceptions of neighborhood crime and disorder problems. Yet, longitudinal research on fear of crime reported that the magnitude of disorder influence on fear of crime is weaker than expected (Link et al., 2017; Robinson et al., 2003). Therefore, it is reasonable to speculate the influence of reported crime as well as its magnitude may be different if longitudinal data were analyzed. In particular, the effect of reported crime in the current study was quite limited. It would be interesting and essential to investigate the influence of actual level of crime from a longitudinal perspective.

Fourth, this study has a limitation to control the effect of two important factors that have been identified by the extant literature to be significant. For instance, Felson and Eckert (2016) argued that there exists a “dramatic fallacy” regarding the public’s understanding of crime (p. 2-5). Specifically, people’s perceptions of crime are misled by the non-representative coverage of crime incidents (Felson & Eckert, 2016; Skogan & Maxfield, 1981; Warr, 1994, 2000). It is often the case that the public media, such CNN, Fox, NBC, HBO, and TBS, seeks to focus on sensational and violent incidents in order to attract audience’s attention. Yet, those extreme cases are always distant from real life (Ambrey et al., 2014; DeFrances & Smith, 1995; Indermaur & Roberts, 2005). Indeed,

real crime incidents in society are most likely minor offenses while the police work is not as exciting as the media depicts. Therefore, it is necessary and important to examine the influence of media coverage on crime-related perceptions, especially the effect of social media nowadays. Another important variable is individual's experience of criminal. The victimization model suggested that direct victimization experience can increase people's fear of crime (Gibson et al., 2002; Zhao et al., 2015). However, it remains unclear whether this finding can be spilled over to understand people's perceptions of the frequency and seriousness of neighborhood crime and disorder problems. Hence, further research that included both the coverage of media and victimization experience in models are worth to be conducted.

Last, the current research found participation in the PIP was a strong and significant predictor. However, it cannot reveal the influence of the specific mechanism of the program. In addition, the variable of attitudes toward the police has been used to evaluate the function of community policing, which is not directly related the mechanism of community program itself. Hence, future research that focuses on the specific mechanism of PIP and/or other similar community policing programs warrants scholars' attention.

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APPENDIX

Census Tract for Both Citizen and Volunteer Datasets (N = 411)

Census Tract ID	Frequency	Percent	Valid Percent	Cumulative Percent
100000	3	0.2	0.2	0.2
210400	6	0.3	0.3	0.5
210500	4	0.2	0.2	0.7
210600	6	0.3	0.3	1.1
210700	3	0.2	0.2	1.3
210800	4	0.2	0.2	1.5
210900	4	0.2	0.2	1.7
211000	4	0.2	0.2	2.0
211100	8	0.5	0.5	2.4
211200	3	0.2	0.2	2.6
211300	14	0.8	0.8	3.4
211500	6	0.3	0.3	3.7
211600	8	0.5	0.5	4.2
211700	3	0.2	0.2	4.4
211900	11	0.6	0.6	5.0
212300	8	0.5	0.5	5.5
212400	4	0.2	0.2	5.7
212500	3	0.2	0.2	5.9
220100	3	0.2	0.2	6.0
220200	3	0.2	0.2	6.2
220300	1	0.1	0.1	6.3
220400	6	0.3	0.3	6.6
220500	13	0.7	0.7	7.4
220600	3	0.2	0.2	7.5
220700	9	0.5	0.5	8.0
220800	4	0.2	0.2	8.3
220900	2	0.1	0.1	8.4
221000	6	0.3	0.3	8.7
221100	7	0.4	0.4	9.1
221200	5	0.3	0.3	9.4
221300	11	0.6	0.6	10.1
221400	3	0.2	0.2	10.2
221500	6	0.3	0.3	10.6
221700	6	0.3	0.3	10.9
222000	1	0.1	0.1	11.0

Census Tract for Both Citizen and Volunteer Datasets (N = 411) (Continued)				
Census Tract ID	Frequency	Percent	Valid Percent	Cumulative Percent
222501	4	0.2	0.2	11.2
222503	3	0.2	0.2	11.5
222600	4	0.2	0.2	11.8
230100	2	0.1	0.1	11.9
230200	9	0.5	0.5	12.4
230300	1	0.1	0.1	12.5
230400	5	0.3	0.3	12.8
230500	5	0.3	0.3	13.0
230600	2	0.1	0.1	13.2
230700	12	0.7	0.7	13.8
230800	4	0.2	0.2	14.1
230900	11	0.6	0.6	14.7
231000	6	0.3	0.3	15.0
231100	5	0.3	0.3	15.3
231200	11	0.6	0.6	16.0
231300	5	0.3	0.3	16.3
231400	6	0.3	0.3	16.6
231500	7	0.4	0.4	17.0
231600	4	0.2	0.2	17.2
231800	2	0.1	0.1	17.3
231900	6	0.3	0.3	17.7
232401	1	0.1	0.1	17.7
232500	6	0.3	0.3	18.1
232600	6	0.3	0.3	18.4
232701	7	0.4	0.4	18.8
232702	6	0.3	0.3	19.2
233200	4	0.2	0.2	19.4
233300	3	0.2	0.2	19.6
233600	6	0.3	0.3	19.9
240100	3	0.2	0.2	20.1
240501	4	0.2	0.2	20.3
240502	4	0.2	0.2	20.6
240600	3	0.2	0.2	20.7
240902	2	0.1	0.1	20.9
250900	5	0.3	0.3	21.1

Census Tract for Both Citizen and Volunteer Datasets (N = 411) (Continued)				
Census Tract ID	Frequency	Percent	Valid Percent	Cumulative Percent
251100	8	0.5	0.5	21.6
251200	6	0.3	0.3	21.9
251300	4	0.2	0.2	22.2
251402	1	0.1	0.1	22.2
251502	5	0.3	0.3	22.5
251503	1	0.1	0.1	22.6
252000	12	0.7	0.7	23.3
310100	4	0.2	0.2	23.5
310300	2	0.1	0.1	23.6
310400	5	0.3	0.3	23.9
310500	8	0.5	0.5	24.4
310600	2	0.1	0.1	24.5
310700	13	0.7	0.7	25.2
310800	3	0.2	0.2	25.4
310900	2	0.1	0.1	25.5
311000	12	0.7	0.7	26.2
311100	7	0.4	0.4	26.6
311200	10	0.6	0.6	27.2
311300	1	0.1	0.1	27.2
311400	3	0.2	0.2	27.4
311500	1	0.1	0.1	27.5
311600	1	0.1	0.1	27.5
311700	2	0.1	0.1	27.6
311800	5	0.3	0.3	27.9
312000	2	0.1	0.1	28.0
312200	2	0.1	0.1	28.1
312300	2	0.1	0.1	28.3
312500	1	0.1	0.1	28.3
312600	7	0.4	0.4	28.7
312700	5	0.3	0.3	29.0
312800	1	0.1	0.1	29.1
312900	6	0.3	0.3	29.4
313100	2	0.1	0.1	29.5
313200	4	0.2	0.2	29.8
313300	2	0.1	0.1	29.9
313400	1	0.1	0.1	29.9

Census Tract for Both Citizen and Volunteer Datasets (N = 411) (Continued)				
Census Tract ID	Frequency	Percent	Valid Percent	Cumulative Percent
313600	10	0.6	0.6	30.5
313800	3	0.2	0.2	30.7
313900	2	0.1	0.1	30.8
314001	1	0.1	0.1	30.8
314002	8	0.5	0.5	31.3
314300	3	0.2	0.2	31.5
314400	1	0.1	0.1	31.5
320100	3	0.2	0.2	31.7
320200	4	0.2	0.2	31.9
320500	3	0.2	0.2	32.1
320601	4	0.2	0.2	32.3
320602	2	0.1	0.1	32.5
320700	4	0.2	0.2	32.7
320900	5	0.3	0.3	33.0
321000	12	0.7	0.7	33.7
321100	5	0.3	0.3	33.9
321300	2	0.1	0.1	34.1
321700	2	0.1	0.1	34.2
321800	2	0.1	0.1	34.3
324200	1	0.1	0.1	34.3
330100	4	0.2	0.2	34.6
330200	3	0.2	0.2	34.8
330301	6	0.3	0.3	35.1
330302	4	0.2	0.2	35.3
330303	3	0.2	0.2	35.5
330400	5	0.3	0.3	35.8
330500	3	0.2	0.2	36.0
330600	3	0.2	0.2	36.1
330700	4	0.2	0.2	36.4
330800	3	0.2	0.2	36.5
330900	3	0.2	0.2	36.7
331100	5	0.3	0.3	37.0
331200	5	0.3	0.3	37.3
331300	1	0.1	0.1	37.3
331400	1	0.1	0.1	37.4
331500	7	0.4	0.4	37.8

Census Tract for Both Citizen and Volunteer Datasets (N = 411) (Continued)				
Census Tract ID	Frequency	Percent	Valid Percent	Cumulative Percent
331601	7	0.4	0.4	38.2
331602	2	0.1	0.1	38.3
331700	4	0.2	0.2	38.5
331800	1	0.1	0.1	38.6
331900	3	0.2	0.2	38.8
332000	6	0.3	0.3	39.1
332100	1	0.1	0.1	39.2
332200	1	0.1	0.1	39.2
332300	1	0.1	0.1	39.3
332400	3	0.2	0.2	39.5
332500	4	0.2	0.2	39.7
332600	5	0.3	0.3	40.0
332700	4	0.2	0.2	40.2
332800	4	0.2	0.2	40.4
332900	5	0.3	0.3	40.7
333000	5	0.3	0.3	41.0
333100	4	0.2	0.2	41.2
333201	2	0.1	0.1	41.4
333202	1	0.1	0.1	41.4
333300	2	0.1	0.1	41.5
333500	11	0.6	0.6	42.2
333600	6	0.3	0.3	42.5
333700	3	0.2	0.2	42.7
333800	7	0.4	0.4	43.1
333901	8	0.5	0.5	43.5
333902	4	0.2	0.2	43.8
334001	2	0.1	0.1	43.9
334003	3	0.2	0.2	44.1
334100	10	0.6	0.6	44.6
340100	2	0.1	0.1	44.7
340201	1	0.1	0.1	44.8
340202	5	0.3	0.3	45.1
340301	2	0.1	0.1	45.2
340302	8	0.5	0.5	45.7
340400	1	0.1	0.1	45.7
340500	3	0.2	0.2	45.9

Census Tract for Both Citizen and Volunteer Datasets (N = 411) (Continued)

Census Tract ID	Frequency	Percent	Valid Percent	Cumulative Percent
340600	6	0.3	0.3	46.2
340700	5	0.3	0.3	46.5
340800	7	0.4	0.4	46.9
341000	1	0.1	0.1	47.0
341301	3	0.2	0.2	47.2
341302	3	0.2	0.2	47.3
350300	5	0.3	0.3	47.6
350400	2	0.1	0.1	47.7
350500	3	0.2	0.2	47.9
410100	1	0.1	0.1	48.0
410200	3	0.2	0.2	48.1
410300	2	0.1	0.1	48.2
410401	2	0.1	0.1	48.4
410402	9	0.5	0.5	48.9
410500	2	0.1	0.1	49.0
410600	1	0.1	0.1	49.1
410701	6	0.3	0.3	49.4
410702	3	0.2	0.2	49.6
410800	3	0.2	0.2	49.7
410900	4	0.2	0.2	50.0
411000	3	0.2	0.2	50.1
411100	1	0.1	0.1	50.2
411400	2	0.1	0.1	50.3
411501	2	0.1	0.1	50.4
411502	2	0.1	0.1	50.5
411600	1	0.1	0.1	50.6
411800	4	0.2	0.2	50.8
411900	3	0.2	0.2	51.0
412000	2	0.1	0.1	51.1
412200	4	0.2	0.2	51.3
412900	5	0.3	0.3	51.6
413000	1	0.1	0.1	51.7
413100	1	0.1	0.1	51.8
413300	10	0.6	0.6	52.3
420100	3	0.2	0.2	52.5
420200	1	0.1	0.1	52.6

Census Tract for Both Citizen and Volunteer Datasets (N = 411) (Continued)

Census Tract ID	Frequency	Percent	Valid Percent	Cumulative Percent
420400	6	0.3	0.3	52.9
420500	1	0.1	0.1	53.0
420600	2	0.1	0.1	53.1
420700	1	0.1	0.1	53.1
420800	1	0.1	0.1	53.2
421101	1	0.1	0.1	53.2
421102	3	0.2	0.2	53.4
421202	2	0.1	0.1	53.5
421300	2	0.1	0.1	53.6
421401	2	0.1	0.1	53.8
421403	2	0.1	0.1	53.9
421500	2	0.1	0.1	54.0
421600	2	0.1	0.1	54.1
421700	5	0.3	0.3	54.4
421800	3	0.2	0.2	54.6
421900	4	0.2	0.2	54.8
422000	3	0.2	0.2	55.0
422100	4	0.2	0.2	55.2
422200	2	0.1	0.1	55.3
422301	5	0.3	0.3	55.6
422302	3	0.2	0.2	55.8
422401	4	0.2	0.2	56.0
422402	3	0.2	0.2	56.2
422500	2	0.1	0.1	56.3
422600	5	0.3	0.3	56.6
422701	7	0.4	0.4	57.0
422702	4	0.2	0.2	57.2
422800	7	0.4	0.4	57.6
422900	4	0.2	0.2	57.8
423000	4	0.2	0.2	58.1
423100	1	0.1	0.1	58.1
423201	4	0.2	0.2	58.4
423202	4	0.2	0.2	58.6
423301	2	0.1	0.1	58.7
423302	3	0.2	0.2	58.9
423401	5	0.3	0.3	59.2

Census Tract for Both Citizen and Volunteer Datasets (N = 411) (Continued)				
Census Tract ID	Frequency	Percent	Valid Percent	Cumulative Percent
423402	4	0.2	0.2	59.4
423500	6	0.3	0.3	59.7
430700	1	0.1	0.1	59.8
430800	1	0.1	0.1	59.9
430900	3	0.2	0.2	60.0
431000	3	0.2	0.2	60.2
431101	2	0.1	0.1	60.3
431102	2	0.1	0.1	60.4
431202	2	0.1	0.1	60.5
431302	5	0.3	0.3	60.8
431401	3	0.2	0.2	61.0
431402	3	0.2	0.2	61.2
431502	3	0.2	0.2	61.3
431700	1	0.1	0.1	61.4
431801	7	0.4	0.4	61.8
431900	2	0.1	0.1	61.9
432001	1	0.1	0.1	62.0
432002	1	0.1	0.1	62.0
432200	9	0.5	0.5	62.6
432400	3	0.2	0.2	62.7
432500	5	0.3	0.3	63.0
432600	2	0.1	0.1	63.1
432701	2	0.1	0.1	63.2
432702	1	0.1	0.1	63.3
432801	4	0.2	0.2	63.5
432802	3	0.2	0.2	63.7
432902	1	0.1	0.1	63.8
433001	1	0.1	0.1	63.8
433003	1	0.1	0.1	63.9
433100	2	0.1	0.1	64.0
433201	1	0.1	0.1	64.0
433202	3	0.2	0.2	64.2
433300	13	0.7	0.7	65.0
433400	2	0.1	0.1	65.1
433502	5	0.3	0.3	65.4
433600	1	0.1	0.1	65.4

Census Tract for Both Citizen and Volunteer Datasets (N = 411) (Continued)

Census Tract ID	Frequency	Percent	Valid Percent	Cumulative Percent
440100	2	0.1	0.1	65.5
450100	1	0.1	0.1	65.6
450200	1	0.1	0.1	65.7
450300	10	0.6	0.6	66.2
450400	3	0.2	0.2	66.4
450500	4	0.2	0.2	66.6
450600	4	0.2	0.2	66.9
450700	4	0.2	0.2	67.1
450801	1	0.1	0.1	67.1
450802	1	0.1	0.1	67.2
450900	8	0.5	0.5	67.7
451001	3	0.2	0.2	67.8
451002	1	0.1	0.1	67.9
451100	2	0.1	0.1	68.0
451200	3	0.2	0.2	68.2
451300	4	0.2	0.2	68.4
451401	11	0.6	0.6	69.0
451402	1	0.1	0.1	69.1
451601	1	0.1	0.1	69.2
451602	5	0.3	0.3	69.4
451800	9	0.5	0.5	70.0
451901	1	0.1	0.1	70.0
451902	3	0.2	0.2	70.2
452000	1	0.1	0.1	70.2
452100	5	0.3	0.3	70.5
452201	4	0.2	0.2	70.8
452202	1	0.1	0.1	70.8
452300	2	0.1	0.1	70.9
452400	2	0.1	0.1	71.1
452500	3	0.2	0.2	71.2
452801	1	0.1	0.1	71.3
452900	9	0.5	0.5	71.8
453000	9	0.5	0.5	72.3
453100	3	0.2	0.2	72.5
453200	6	0.3	0.3	72.8
453300	1	0.1	0.1	72.9

Census Tract for Both Citizen and Volunteer Datasets (N = 411) (Continued)				
Census Tract ID	Frequency	Percent	Valid Percent	Cumulative Percent
453402	3	0.2	0.2	73.1
453403	8	0.5	0.5	73.5
453502	1	0.1	0.1	73.6
453602	4	0.2	0.2	73.8
453700	1	0.1	0.1	73.9
453800	1	0.1	0.1	73.9
454301	3	0.2	0.2	74.1
510100	2	0.1	0.1	74.2
510200	2	0.1	0.1	74.3
510300	4	0.2	0.2	74.6
510400	5	0.3	0.3	74.8
510500	2	0.1	0.1	75.0
510600	7	0.4	0.4	75.4
510800	4	0.2	0.2	75.6
510900	6	0.3	0.3	75.9
511002	5	0.3	0.3	76.2
511100	2	0.1	0.1	76.3
511200	4	0.2	0.2	76.6
511301	7	0.4	0.4	77.0
511302	2	0.1	0.1	77.1
511400	4	0.2	0.2	77.3
511500	5	0.3	0.3	77.6
511600	2	0.1	0.1	77.7
520300	3	0.2	0.2	77.9
520500	18	1.0	1.0	78.9
520601	2	0.1	0.1	79.0
520602	8	0.5	0.5	79.5
520700	13	0.7	0.7	80.2
521000	5	0.3	0.3	80.5
521100	2	0.1	0.1	80.6
521200	7	0.4	0.4	81.0
521300	17	1.0	1.0	82.0
521400	17	1.0	1.0	83.0
521500	10	0.6	0.6	83.6
521600	8	0.5	0.5	84.0
521700	13	0.7	0.7	84.8

Census Tract for Both Citizen and Volunteer Datasets (N = 411) (Continued)				
Census Tract ID	Frequency	Percent	Valid Percent	Cumulative Percent
521800	7	0.4	0.4	85.2
521900	7	0.4	0.4	85.6
522000	7	0.4	0.4	86.0
522100	1	0.1	0.1	86.0
522201	7	0.4	0.4	86.4
522202	4	0.2	0.2	86.7
522301	5	0.3	0.3	87.0
522302	2	0.1	0.1	87.1
522401	3	0.2	0.2	87.2
522402	6	0.3	0.3	87.6
530100	8	0.5	0.5	88.1
530200	3	0.2	0.2	88.2
530300	4	0.2	0.2	88.5
530400	5	0.3	0.3	88.7
530500	7	0.4	0.4	89.1
530600	2	0.1	0.1	89.3
530700	8	0.5	0.5	89.7
530800	19	1.1	1.1	90.8
530900	3	0.2	0.2	91.0
531000	7	0.4	0.4	91.4
531100	1	0.1	0.1	91.4
531200	2	0.1	0.1	91.6
531300	5	0.3	0.3	91.8
531400	1	0.1	0.1	91.9
531500	5	0.3	0.3	92.2
531600	4	0.2	0.2	92.4
531700	1	0.1	0.1	92.5
531800	6	0.3	0.3	92.8
531900	8	0.5	0.5	93.3
532001	5	0.3	0.3	93.6
532002	3	0.2	0.2	93.7
532100	13	0.7	0.7	94.5
532200	5	0.3	0.3	94.8
532300	7	0.4	0.4	95.2
532400	6	0.3	0.3	95.5
532501	1	0.1	0.1	95.6

Census Tract for Both Citizen and Volunteer Datasets (N = 411) (Continued)

Census Tract ID	Frequency	Percent	Valid Percent	Cumulative Percent
532502	7	0.4	0.4	96.0
532600	1	0.1	0.1	96.0
532700	5	0.3	0.3	96.3
532800	5	0.3	0.3	96.6
533000	4	0.2	0.2	96.8
533100	10	0.6	0.6	97.4
533200	9	0.5	0.5	97.9
533300	12	0.7	0.7	98.6
533400	9	0.5	0.5	99.1
533500	5	0.3	0.3	99.4
540200	3	0.2	0.2	99.6
541700	1	0.1	0.1	99.7
543200	2	0.1	0.1	99.8
550200	2	0.1	0.1	99.9
550302	1	0.1	0.1	99.9
552800	1	0.1	0.1	100.0
Total	1741	100.0	100.0	

Note. The total cases here were 1,741 (not 1,713) because of the overlapped cases.

Noteworthy, the overlapped cases were list-wise deleted when conducting SEM analyses.

VITA**Xinting Wang**

Department of Criminal Justice and Criminology
 College of Criminal Justice
 Sam Houston State University

EDUCATION

2017 – 2021

Doctor of Philosophy, Criminal Justice
 Sam Houston State University
 Huntsville, TX
 Dissertation: *The effects of reported crime and neighborhood context on citizens' perceptions of neighborhood crime and disorder in Houston*
 Chair: Dr. Jihong Solomon Zhao
 Committee Members: Dr. Michael S. Vaughn and Dr. Yan Zhang

2012-2015

Master of Law, Criminal Investigation
 People's Public Security University of China
 Beijing, China

2008-2012

Bachelor of Law, Criminal Investigation
 People's Public Security University of China
 Beijing, China

RESEARCH INTERESTS

Policing, Juvenile delinquency, Comparative studies, and Quantitative research.

ACADEMIC POSITIONS

2019 – 2021

Graduate Teaching Fellow
 College of Criminal Justice
 Sam Houston State University

2017 – 2019

Graduate Research/Teaching Assistant
 College of Criminal Justice
 Sam Houston State University

REFEREED JOURNAL PUBLICATIONS

- Wang, X.**, Zhao, J., & Qu, J. (2020). The link between police cadets' field training and attitudes toward police work in China: A longitudinal study. *Policing: An International Journal of Police Strategies and Management*, 43, 591-605.
- Zhao, J., **Wang, X.**, & Zhang, H. (2020). Rational choice theory applied to the explanation of juvenile offender decision-making in China. *International Journal of Offender Therapy and Comparative Criminology*, DOI: 10.1177/0306624X20931429.
- Qu, J., & **Wang, X.** (2020). Pre-arrest drug use and associated risk factors among incarcerated offenders in China. *China Journal of Social Work*, DOI: 10.1080/17525098.2020.1774984.
- Hayes, B. E., Connolly, E. J., **Wang, X.**, Ingham, C., & Mason, M. (2020). Prevalence of child maltreatment and the effects of the intergenerational transmission of violence on attitudes toward domestic violence in Chinese police cadets. *Journal of Family Violence*, DOI: 10.1007/s10896-020-00182-0.
- Hayes, B. E., Connolly, E. J., **Wang, X.**, Mason, M., & Ingham, C. (2020). Chinese police cadets' attitudes toward domestic violence: A pretest/posttest design. *Crime and Delinquency*, DOI: 10.1177/0011128719901110.
- Wang, X.**, Hayes, B. E., & Zhang, H. (2020). Correlates of Chinese police officer decision-making in cases of domestic violence. *Crime and Delinquency*, DOI: 10.1177/0011128719850502.
- Wang, X.**, Zhao, J., & Zhang, H. (2020). The impact of two different cultures on juvenile attitudes toward the police in China. *International Journal of Offender Therapy and Comparative Criminology*, 64, 124-143.
- Zhao, J., **Wang, X.**, & Zhang, H. (2020). The role of perceived legitimacy and its effect on prison adaptation: A longitudinal study on a Chinese juvenile prison. *International Journal of Offender Therapy and Comparative Criminology*, 64, 100-123.
- Qu, J., **Wang, X.**, & Zhao, J. (2020) Correlates of endorsement of two competing policing styles among police cadets in China. *Police Practice and Research: An International Journal*, 21, 313-328.
- Zhao, R., Zhang, H., Zhao, J., & **Wang, X.** (2019). When the west meets the east: Cultural clash and its impacts on anomie in a sample of Chinese adolescents. *Deviant Behavior*, 40, 1187- 1205.

Manuscript under Review:

Wang, X., Zhao, J., & Zhang, H. Factors associated with prison victimization experiences among juvenile offenders in a Chinese prison: A longitudinal study. *Criminal Justice and Behavior*.

Zhao, J., **Wang, X.,** & Qu, J. Change in cadets' attitudes toward police occupation. *International Journal of Police Science & Management*.

Manuscript in Progress:

Wang, X., Zhao, J., & Qu, J. Factors associated with self-identified occupational commitment among police cadets: Nature or nurture?

Wang, X., Zhao, J., Zhang, Y., & Zhang, H. The utility of system theory to explain the perceived legitimacy of corrections among adjudicated juvenile offenders in China.

Journal Publications in Chinese:

Wang, X., & Zhang, K. (2014). Characteristics and strategies dealing with the current social violent terroristic activities in China. *Peoples Tribune*, 7, 170-172.

Wang, X., & Zhang, K. (2014). Judicial cases that are appropriate for the application of the beyond a reasonable doubt standard. *Journal of Fujian Police College*, 4, 70-73.

Zhang, K., & **Wang, X.** (2014). Challenges and strategies related to how public agencies are able to tell their stories in the social-media era. *Peoples Tribune*, 8, 56-58.

Mao, X., Zhang, K., & **Wang, X.** (2014). A critical evaluation of Internet consensus management reported by foreign countries: Lessons learned. *Journal of the People's Public Security University of China, Social Sciences Edition*, 2, 116-123.

Zhang, K., & **Wang, X.** (2011). An evaluation of how police departments investigate slander cases. *Consume Guide*, 6, 142-143.

RESEARCH EXPERIENCE

2019 – 2020

Assistant editor of the special issue: School Violence and Safety in the Greater China Area in the Journal of School Violence.

Responsibilities: disseminating the call for papers, communicating and connecting with reviewers/authors.

2018

Research project on domestic violence in China with Dr. Brittany E. Hayes and Dr. Eric J. Connolly.

Responsibilities: data collection, instrument translation, and making lectures regarding domestic violence

COURSES TAUGHT

2019 – 2021

Fall 2019 CRIJ 3378.10: Introduction to Methods of Research

Spring 2020 CRIJ 3378.18: Introduction to Methods of Research

Fall 2020 CRIJ 3378.12: Introduction to Methods of Research (online)

2019

Guest lecture at Sam Houston State University (Survey Research)

TEACHING ASSISTANT

2017 – 2021

Graduate Teaching Assistant, Dr. Jihong (Solomon) Zhao

Fall 2017 CRIJ 2361: Introduction to the Criminal Justice System

Spring 2018 CRIJ 2367: Police Systems and Practices

Fall 2018 CJ 2361: Introduction to the Criminal Justice System

Spring 2019 CRIJ 2361: Introduction to the Criminal Justice System

Fall 2019 CRIJ 2361 Introduction to the Criminal Justice System

Spring 2020 CRIJ 2361: Introduction to the Criminal Justice System

Spring 2020 CRIJ 2362: Criminology

CONFERENCE PRESENTATIONS

2019

Wang, X., Qu, J., & Zhao, J. The link between police cadets' field training and hypothetical change in their views of the job in China: A longitudinal study. Paper presentation at the American Society of Criminology, held in San Francisco, CA.

2019

Wang, X., Zhao, J., Zhang, Y., & Zhang, H. The utility of system theory to explain the perceived legitimacy of corrections among adjudicated juvenile offenders in China. Paper presentation at the Academy of

- 2018 Criminal Justice Sciences, held in Baltimore, Maryland.
- Wang, X., Zhao, J., & Zhang, H. The impact of two different cultures on juveniles' attitudes toward the police in China. Paper presentation at the American Society of Criminology, held in Atlanta, GA.
- 2018 Qu, J., Zhao, J., & Wang, X. Correlates of endorsement of two competing policing styles among police cadets in China. Paper presentation at the Academy of Criminal Justice Sciences, held in New Orleans, LA.

AD HOC REVIEWER

Criminal Justice and Behavior
 Crime and Delinquency
 Journal of Family Violence
 Journal of Criminal Justice Education Asian Journal of Criminology

AWARDS, SCHOLARSHIPS & FELLOWSHIPS

- 2019 CJC Graduate Student Summer Research Fellowship (\$6,000), SHSU
- 2018 CJC Graduate Student Summer Research Fellowship (\$6,000), SHSU
- 2018-2019 Rolando, Josie, & Jocelyn del Carmen Criminal Justice Scholarship (\$1,000), SHSU
- 2014 National Scholarship Sponsored by Ministry of Education in P.R. China
- 2012-2015 Outstanding Graduate Student Leadership Award by the People's Public Security University of China
- 2011 National Scholarship Sponsored by Ministry of Education in P.R. China
- 2011 Excellent Interpreter Honor Awarded by People's Public Security University of China
- 2009-2015 First Class Merit Student Scholarship Sponsored by the People's Public Security University of China
- 2009 National Scholarship Sponsored by Ministry of Education in P.R. China

TRAINING & CERTIFICATION

- | | |
|------|---|
| 2020 | The 17 th Annual SHSU Teaching & Learning Conference |
| 2019 | The 16 th Annual SHSU Teaching & Learning Conference |
| 2019 | Teaching Assistant Certification Series at SHSU Teaching Online with Blackboard Certification |
| 2018 | CITI Training Certification; IRB training at SHSU 2015 Lawyer licensed to practice in China |

PROFESSIONAL AFFILIATIONS

- | | |
|----------------|---|
| 2018 – Present | Academy of Criminal Justice Science (ACJS) |
| 2018 – Present | Association of Chinese Criminology and Criminal Justice in the U.S. (ACCCJ) |
| 2017 – Present | American Society of Criminology (ASC) |

INTERNSHIPS

- | | |
|------|---|
| 2011 | Guangzhou Police Department, Guangzhou, China |
| 2009 | Shenzhen Police Department, Shenzhen, China |