

ABSTRACT

Title of Thesis: ANTI-LGBTQ HATE CRIME AND PLACE IN WASHINGTON, DC: A MULTILEVEL ANALYSIS

Casey Kindall, Master of Arts, 2023

Thesis Directed By: Associate Professor, María B. Vélez, Department of Criminology and Criminal Justice

The current study assesses how neighborhood-level LGBTQ prevalence, concentrated disadvantage, residential mobility, and racial diversity and the micro-spatial presence of LGBTQ establishments uniquely and jointly predict anti-LGBTQ hate crime. Extant research utilizes neighborhood-level explanations of crime to understand anti-LGBTQ hate crime but does not account for the influence of opportunity at the micro-place, and particularly the role of LGBTQ establishments as facilitators of anti-LGBTQ crime opportunity, for understanding where anti-LGBTQ hate crimes occur. The current study uses official hate crime data, demographic data from the US Census Bureau, and publicly available data on the location of LGBTQ-centered establishments to assess the roles of neighborhood-level and micro-spatial predictors of anti-LGBTQ hate crime in Washington, DC from 2017 to 2019. Results suggest that more anti-LGBTQ hate crimes occur in places with higher LGBTQ prevalence, more residential mobility, and more LGBTQ establishments. Residential mobility also interacts with the presence of

LGBTQ establishments. Findings indicate that LGBTQ establishments are associated with more risk of hate crime in less mobile (i.e., more stable) neighborhoods.

ANTI-LGBTQ HATE CRIME AND PLACE IN WASHINGTON, DC: A
MULTILEVEL ANALYSIS

by

Casey Kindall

Thesis submitted to the Faculty of the Graduate School of the
University of Maryland, College Park, in partial fulfillment
of the requirements for the degree of
Master of Arts
2023

Advisory Committee:

Associate Professor María Vélez, Chair
Assistant Professor Greg Midgette
Associate Professor Lauren Porter

© Copyright by
Casey Kindall
2023

Acknowledgements

I would first like to thank my thesis chair, Dr. María Vélez, for her continued insight, encouragement, and patience. I am so grateful for the help, expertise, and kindness she has lent me throughout the process of writing my thesis. I would also like to thank the other members of my committee, Dr. Greg Midgette and Dr. Lauren Porter, for their valuable contributions that undoubtedly led to a higher quality thesis. In addition, I would like to thank my fellow graduate students in the Criminology and Criminal Justice department who have been consistently willing to lend advice, encouragement, and a listening ear. Finally, I would like to thank my partner, whose support has been monumental and unwavering.

Table of Contents

Acknowledgements.....	ii
Table of Contents.....	iii
List of Tables.....	iv
List of Figures.....	v
Chapter 1: Introduction.....	1
Chapter 2: Conceptual Arguments.....	6
Community and Micro-place Together: Integrated Perspectives.....	6
The Neighborhood Level.....	8
Minority Group Threat.....	8
Social Disorganization.....	12
The Micro-place Level: Spatial Concentration and Opportunity.....	15
Current Study.....	18
Chapter 3: Data.....	21
Sample.....	21
Dependent Variable.....	21
Independent Variables.....	23
Census Block Level (Micro-place).....	23
Census Tract Level (Neighborhood).....	23
Control Variables.....	25
Census Block Level.....	25
Census Tract Level.....	26
Chapter 4: Analytical Method.....	28
Robustness Check.....	30
Chapter 5: Results.....	32
Chapter 6: Discussion and Conclusion.....	35
Appendices.....	43
Bibliography.....	50

List of Tables

Table 1. Descriptive Statistics.....	45
Table 2. Multilevel mixed-effects Poisson regression models, incident rate ratios (standard errors).....	46
Table 3. Multilevel mixed-effects Poisson regression models, incident rate ratios (standard errors), concentrated disadvantage omitted.....	47
Table 4. Aggravated assault multilevel mixed-effects Poisson regression models, incident rate ratios (standard errors).....	48

List of Figures

Figure 1. Theoretical Model.....	43
Figure 2. LISA Cluster Map (999 perm, $p < 0.05$).....	44
Figure 3. Moderating Effect of Residential Mobility: LGBTQ Establishments and Anti-LGBTQ Hate Crime.....	49

Chapter 1: Introduction

In recent years, LGBTQ victims make up over 20% of reported hate crime victims nationwide (Fitzsimons, 2019). Hate crime victimization can spur negative mental health symptoms, such as depression, anxiety, and post-traumatic stress, and fear of crime for LGBTQ victims and is also related to negative psychological and emotional experiences for nonvictims in the LGBTQ community (Bell & Perry, 2015; Burks et al., 2018; Herek et al., 1997). The negative consequences of anti-LGBTQ hate crime are thus widespread and multi-faceted.

A small but important body of literature has begun to explore the spatial patterning of these forms of hate crime, focusing on macro-level (e.g. neighborhood-level, county-level) factors (Alden & Parker, 2005; Green et al., 2001; Mills, 2021; Piatkowska & Messner, 2020; Stacey, 2018; Stotzer, 2010). There are several macro-level characteristics traced to the prevalence of anti-LGBTQ hate crime, including the prevalence of anti-gay attitudes, the size of the gay population, and economic characteristics of cities and communities¹ (Alden & Parker, 2005; Green et al., 2001; Mills, 2021). Several studies use the minority group threat perspective to understand anti-LGBTQ hate crime at the macro level. Using Blalock's (1967) theory, this work contends that a relatively high presence of minority groups threatens the dominant group and leads to violence against the minority group. Some research finds support for this perspective, but other literature finds mixed results or does not find support

¹ For this thesis I utilize "neighborhood" and "community" interchangeably.

for the application of this perspective to the study of anti-LGBTQ hate crime (Green et al., 2001; Mills, 2021; Piatkowska & Messner, 2020; Stacey, 2018; Stotzer, 2010).

Existing research also utilizes social disorganization theory to posit that anti-LGBTQ hate crime is a result of economic disadvantage, racial and ethnic heterogeneity, and residential mobility that prevents residents from engaging in community social controls to prevent crime (Kornhauser, 1978; Shaw & McKay, 1942). There is some empirical support for the application of this perspective to anti-gay hate crime, but evidence is limited (Mills, 2021).

Unfortunately, current assessments of the relationship between anti-LGBTQ hate crime and place have not yet explored the role of opportunity factors at micro-places (e.g. city blocks, street segments, etc.) as predictors of these crime incidents. Existing criminological theories provide reason to believe that opportunity at micro-places, and specifically the presence of suitable targets, motivated offenders, and the absence of capable guardians together in time and space, are important for understanding the occurrence of crime more generally (Cohen & Felson, 1979).

Another opportunity theory, crime pattern theory, additionally argues that physical spaces can facilitate criminal opportunity by serving as crime generators and crime attractors that allow for the convergence of targets, offenders, and the absence of guardians at specific locations (Brantingham & Brantingham, 1993; 2013). One hate crime-specific study finds that hate crime incidents are spatially concentrated at small geographic units, which implies that micro-spatial influences may also be relevant for understanding hate crimes in general, including anti-LGBTQ hate crimes (Wenger & Lantz, 2021).

In addition, the occurrence of hate crime may be jointly driven by both the neighborhood characteristics and opportunity at micro-places. Multilevel opportunity theories of crime anticipate that both neighborhood context and opportunity at micro-places matter together for understanding the geography of crime (Wilcox et al., 2003; 2013). Literature on the integration of social disorganization and routine activities theories suggests that there is value in leveraging both neighborhood and micro-spatial opportunity explanations to understand crime at place (Jones & Pridemore, 2019; Rice & Smith, 2002). Though existing literature explores spatial correlates of hate crime, and specifically anti-LGBTQ hate crime, at the neighborhood level, an analysis of the interactions between neighborhood context and opportunity factors that contribute to these hate crime incidents has yet to be conducted. Relatedly, the current integrated theory literature does not consider how minority group threat perspectives at the macro level contribute to the interaction between neighborhood and micro-place level conditions.

The current study will address the blind spots in the existing literature surrounding the application of place-based perspectives to the study of hate crime in several ways. First, this study will expand upon the theoretical literature by using anti-LGBTQ hate crime as a lens to explore the utility of applying a multilevel theoretical framework to the study of hate crime and place. This project will utilize a multilevel design to assess whether micro-place-level opportunity factors and neighborhood-level structural antecedents of social disorganization and minority group threat individually and jointly predict the prevalence of anti-LGBTQ hate crime incidents in Washington, DC. This study will mirror existing studies that use

census demographic and economic data to measure social disorganization and minority group threat factors at the neighborhood level. It will also incorporate data on the locations of LGBTQ-centered establishments, such as health centers, gay bars, and advocacy organizations, to measure the approximate micro-location of opportunity for anti-LGBTQ hate crime. By doing so, the current study will make substantial contributions to the theoretical literature and to the study of hate crime. In assessing the interactions between social disorganization, minority group threat, and opportunity theories, the current study will expand on the theoretical literature by investigating how minority group threat can contribute to the integrated models used to understand crime and place in previous research. Jointly utilizing these theoretical perspectives is crucial for understanding how place-based criminological theories interact with one another to explain hate crime.

Additionally, this study will contribute nuance to the understanding of the place-based correlates of anti-LGBTQ hate crime specifically. Because the multilevel spatial correlates of this crime type are not fully understood given current literature, any intervention aimed at reducing this type of hate crime in high-risk areas may be spatially misguided because the influence of micro-place-level opportunity factors has not been considered. Using a multilevel model to study the relationships between anti-LGBTQ hate crime and place is crucial for creating a more comprehensive understanding of the concentration of this hate crime and using that understanding to inform responses to this crime type. As such, the present study is necessary both for contributing to the growing literature identifying how neighborhood level theories are

related to opportunity-based theories of crime and for further understanding and responding to the spatial patterns of anti-LGBTQ hate crime.

Chapter 2: Conceptual Arguments

Community and Micro-place Together: Integrated Perspectives

In order to utilize the theoretical value and explanatory power of community-level and micro-spatial perspectives of crime and place, Wilcox and colleagues (2003, 2013) suggest a multilevel opportunity theory. This perspective is rooted in merging place-based perspectives like social disorganization theory and micro-spatial perspectives such as routine activities theory to understand how different levels of geography matter together for understanding crime opportunity. Social disorganization theory spotlights the role of community conditions on community social organization to prevent crime. Routine activities theory emphasizes how the convergence in time and space of a motivated offender, a suitable target, and the absence of a capable guardian create criminal opportunity at micro-places. More broadly, this multilevel opportunity perspective proposes that community-level and micro-level theories of crime can be used together to more comprehensively understand the geography of crime. According to the multilevel opportunity perspective, criminal opportunity is shaped by a variety of factors, such as where people spend their time and what social controls are in place to prevent deviant behavior. These influences occur at multiple spatial levels, including the micro-place level and the community level (i.e., census tracts). Micro-places can facilitate or prevent criminal opportunities on their own, and they also exist within broader

macro-level contexts, such as neighborhoods, which can provide variations in opportunity on their own as well (Wilcox et al., 2003). Theorists also posit that these multilevel factors interact with one another such that different micro-spatial factors can influence crime differently depending on neighborhood context (Wilcox et al., 2003; Wilcox et al., 2013). More specifically, for example, a bar that draws rowdy crowds may facilitate crime on its own, but if that bar is nested in a neighborhood where people are willing to intervene when they see individuals starting to get unruly, the bar may not experience as much crime as it would if it were nested in a different context with less community social organization.

Ample literature utilizes multilevel modeling strategies to assess the contributions of and interactions between community and micro-spatial factors, finding empirical support for the cumulative and interactive effects between community and opportunity theories at multiple spatial levels (Jones & Pridemore, 2019; Sampson & Wooldridge, 1987; Tillyer et al., 2021). For example, Jones and Pridemore (2019) find that the strength of the relationship between the presence of crime generators and violent crime is conditioned by neighborhood concentrated disadvantage. This is just one example supporting the utility of using multilevel strategies to assess crime at place. Given this theoretical and empirical evidence, understanding both the micro-place in which crime occurs and the context of the surrounding community is necessary to best understand spatial patterns of crime.

There is consistent evidence of the interplay between community and micro-level factors, and specifically social disorganization and opportunity factors, where neighborhood factors moderate the relationship between micro-place characteristics

and crime. However, it is not clear from the existing literature how minority group threat, a third theoretical perspective, contributes to the community-level explanations of crime within these interactive multilevel models. Given the existing evidence for the role of both minority group threat and social disorganization for understanding anti-LGBTQ hate crime, detailed below, it is crucial to incorporate the minority group threat perspective into integrative models of social disorganization and opportunity theories to understand the spatial context of anti-LGBTQ hate crime more comprehensively.

In this project, I rely on Wilcox and colleagues' (2003, 2013) work to utilize a multilevel framework to study anti-LGBTQ hate crime. The existing evidence provides theoretical and empirical bases for utilizing this perspective to assess anti-LGBTQ hate crime and place.

The Neighborhood Level

Minority Group Threat

One prominent perspective for understanding community level hate crime is minority group threat. This theoretical perspective suggests that an increasing prevalence of social out-group members in communities leads to the dominant in-group feeling threatened by the out-group (Blalock, 1967). As a result of feeling threatened, the dominant group engages in conflict with the minority group (Blalock, 1967). Blalock (1967) conceptualized the theory as a theory of race relations, but the theoretical arguments apply to other identity-based threat, including threat from the presence of the LGBTQ community. Following the logic of the theory, when the

prevalence of LGBTQ individuals (the group that is perceived as a threat) in a community is relatively high, crime against LGBTQ individuals should be more frequent as the dominant group feels threatened by the size of the LGBTQ population and engages in discrimination and violence against them in response. This description is considered a linear relationship.

Yet, Blalock (1967) also envisioned a nonlinear form such that at different relative sizes of the minority group, the discrimination exhibited by the majority group will be different in magnitude. Blalock (1967) also suggests that different types of threat will result in responses that take on different functional forms. Specifically, as threats to the dominant group's economic resources increases, retaliation against the minority group will increase at a *decreasing* rate (Blalock, 1967). In contrast, as threats to the dominant group's political resources increases, retaliation against the minority group will increase at an *increasing* rate (Blalock, 1967). Given this component of Blalock's theory, the relationship between the relative size of the LGBTQ population and anti-LGBTQ may be nonlinear in form. Though originally conceptualized as a dynamic process, in practice minority group threat is often conceptualized and measured cross-sectionally (Green et al., 2001; Piatkowska & Messner, 2020).

Though the classic threat approach sees threat emanating from large proportions of the threatening population, the defended communities thesis, drawn originally from Suttles' (1972) work, expects threat to result from small proportions of the threatening population. Small numbers may be perceived as "easy targets" by the more prejudiced or violent prone and thus "may go relatively unpunished and

uncontested” (Lyons, 2008, p. 360). In this way, the defended neighborhoods perspective makes the same arguments as minority group threat theory about how demographic shifts are related to responses to threat by majority groups but anticipates this relationship to take a different functional form, and take place when the outgroup is small in size. Applied to hate crime, it suggests that hate crime results from the introduction of an out-group into a community with an otherwise homogenous majority (Suttles, 1972). In addition, this perspective emphasizes that strong community identity coupled with homogeneity will trigger defensive action by those who seek to protect the neighborhood’s interests. Distinct from the minority group threat perspective, this theoretical argument suggests that this effect will be particularly strong in areas with “strong territorial identities” among community members (Lyons, 2008, p. 359). The defended neighborhoods hypothesis would anticipate that stronger community ties and social cohesion among community members in the dominant group should be related to more hate crime against the out-group as in-group members recognize the common goal to defend their neighborhoods against the threats posed by the out-groups. Lyons (2008) finds support for this argument as it applies to anti-Black hate crime, finding that these incidents are most common in predominantly white communities with strong community identities experiencing in-migration of Black residents. Similarly, Lyons (2007) finds that anti-Black hate crimes are more likely in more organized communities with more informal social control. Overall, the defended neighborhoods thesis presents a relevant argument about the community correlates of hate crime that

is consistent with the central thesis of classic threat perspectives but predicts a different functional form and emphasizes the relevance of community identity.

Existing assessments of threat perspectives and their application to crime against the LGBTQ community reveal mixed results. Green and colleagues (2001) find support for the application of minority group threat to anti-LGBTQ crime, finding that the prevalence of the LGBTQ community, measured using gay and lesbian population density, is positively related to anti-gay and anti-lesbian hate crime incidence in New York City. Piatkowska and Messner (2020) similarly find general support for the application of minority group threat perspectives for understand anti-gay hate crime and place. Specifically, they find that threat to heterosexual values, operationalized as same sex marriage prevalence, is predictive of anti-gay hate crime (Piatkowska & Messner, 2020). However, the role of the relative size of the gay population for predicting anti-gay hate crime is inconsistent such that it predicts victimization rates but not incidence rates of anti-gay hate crime (Piatkowska & Messner, 2020). As such, their study reveals general support but some mixed findings surrounding the application of minority group threat for understanding where anti-LGBTQ crimes happen. Stacey (2018) finds no relationship between LGB² prevalence and anti-LGB hate crime at the county level, thus finding that this perspective is not empirically supported. Collectively, the existing literature suggests that minority group threat may be valuable for understanding spatial patterns of anti-LGBTQ hate crime at the community level, but the evidence is mixed, and this theory

² The acronym “LGB” is used to describe samples and populations that are sexual orientation-based, including lesbian, gay, and bisexual individuals, rather than samples and populations designed to include the entire LGBTQ community.

alone cannot consistently explain this crime type at the community level. Thus, this theoretical perspective may be more valuable when considered alongside other predictors of anti-LGBTQ hate crime.

Social Disorganization

Another key theoretical perspective for understanding the role of neighborhoods in shaping crime outcomes is social disorganization theory. According to this theory, communities characterized by poverty, racial and ethnic heterogeneity, and residential mobility have a high prevalence of crime because these community conditions prevent community members from forming unifying social ties with one another (Kornhauser, 1978; Shaw & McKay, 1942). As a result of this lack of social ties, community members are unable to collectively mobilize to utilize resources and solve problems, including criminal activity in the community, and cannot shield community members from criminal influences (Kornhauser, 1978; Shaw & McKay, 1942). This perspective has widespread empirical support, suggesting that it is valuable for understanding crime at the neighborhood level (Lowenkamp et al., 2003; Pratt & Cullen, 2005; Sampson, 2012).

This theoretical perspective has been utilized to explain the spatial nature of hate crime. Following the logic of the theory, neighborhoods characterized by high mobility, high poverty, and high heterogeneity should have more hate crime because the social ties in the community are unable to prevent crime, including the bias-driven victimization of community members. The majority of the literature that utilizes social disorganization theory to understand hate crime spotlights those based on

ethnic/racial status, but the conceptual arguments are relevant to anti-LGBTQ hate crime as well.

Existing hate crime literature reveals the value of disaggregating hate crimes by bias motivation when using the social disorganization framework to study hate crime. For example, one study by Gladfelter and colleagues (2017) finds that community context is differentially related to the prevalence of hate crime depending on bias type (anti-white compared to anti-Black crime). They find that anti-Black hate crime is most common in economically advantaged, predominantly white communities with high residential turnover, whereas anti-white hate crime incidents are most common in economically *disadvantaged* communities with high residential turnover. Similarly, Lyons (2007) finds that anti-Black crimes occur most often in organized communities with high levels of informal social control, whereas anti-white incidents tend to occur in more *disorganized* communities, especially those that have high residential instability. Taken together, this literature suggests that neighborhood context influences hate crime differently depending on the bias type (e.g., anti-Black crimes are associated with different community conditions than anti-white hate crimes). This nuance in the relationship between community context and hate crime depending on bias type provides evidence for the value of using social disorganization to understand hate crime and highlights the need to disaggregate hate crime by bias motivation to understand how community context and hate crime are related. This existing research provides evidence that different community conditions are related to hate crime differently depending on bias motivation, so it appears

important to explore how this perspective applies for understanding anti-LGBTQ hate crime specifically.

Existing research both applies social disorganization theory to anti-LGB hate crime and further investigates the findings surrounding minority group threat as a predictor of anti-LGB hate crime. Mills (2021) assesses LGB population change and economic and demographic characteristics consistent with social disorganization theory as predictors of anti-LGB hate crime. She finds that LGB prevalence, LGB population change, and concentrated disadvantage are all significant and positive predictors of anti-LGB hate crime at the community district level in New York City (Mills, 2021). However, residential mobility and racial and ethnic diversity measures were not significant predictors of anti-LGB hate crime (Mills, 2021). Thus, her findings are consistent with minority group threat but only partially consistent with social disorganization theory. Taken together, these findings suggest that both minority group threat and some structural predictors of crime rooted in social disorganization theory, specifically concentrated disadvantage, are promising tools for understanding anti-LGB hate crime at the community level, and that these perspectives continue to contribute to explanations of anti-LGB hate crime when assessed in conjunction with one another.

To apply this apparent theoretical compatibility between minority group threat and social disorganization theories to Wilcox and colleagues' (2003) integrative multilevel opportunity perspective, it appears valuable to expand upon Mills' promising neighborhood-level framework. First, it may be valuable to not only investigate the role of minority group threat and social disorganization

simultaneously, but to assess how they interact with one another. For example, theoretically, communities characterized by high social organization, and subsequent high informal social control, may not experience as strong of a relationship between minority group size and anti-LGBTQ hate crime compared to more socially disorganized communities. The informal social control generated by the social organization may theoretically help prevent threat-based retaliatory crimes by the majority group if community members work together to control deviant behavior. Conceptually, it appears theoretically and analytically valuable to assess how these macro-level theories work together to explain anti-LGBTQ hate crime in communities.

Continuing to follow Wilcox and colleagues' (2003) multilevel framework, a second valuable expansion of Mills' multi-theory framework of anti-LGBTQ hate crime is to incorporate another spatial level into the framework to better assess the relationship between anti-LGBTQ hate crime and place. Mills' perspective focuses on the macro-level, but Wilcox and colleagues (2003) highlight the value of accounting for predictors of crime at multiple spatial levels.

The Micro-place Level: Spatial Concentration and Opportunity

In exploring spatial patterns of hate crime, Wenger and Lantz (2021) find support for the law of crime concentration, which states that a large proportion of crimes occur at a small subset of locations (Weisburd, 2015). Consistent with the law of crime concentration, they find that hate crime incidents across bias motivations are spatially concentrated at small geographic levels in Washington, DC, and these concentrations are relatively stable over time (Wenger & Lantz, 2021). Opportunity

theories, including routine activities theory and crime pattern theory, are common and relevant theoretical perspectives used to explain why crime concentrates at small geographic levels.

According to routine activities theory, originally formulated by Cohen and Felson (1979), crime occurs when a motivated offender, a suitable target, and the absence of a capable guardian converge in time and space. The everyday activities of individuals influence victimization risk by changing the likelihood of these three factors converging at the same place and at the same time (Cohen & Felson, 1979).

Relatedly, crime pattern theory suggests that crime is concentrated in locations that experience a high convergence of the everyday travel pathways of offenders and targets (Brantingham & Brantingham, 1993; 2013). Moreover, this theory suggests that crime concentrates at specific establishments and locations, referred to as crime generators and crime attractors (Brantingham & Brantingham, 2013). Crime generators are locations where offenders often come into contact with suitable targets in situations that are conducive to criminal behavior (Brantingham & Brantingham, 2013). Crime attractors are locations with known criminal opportunity that motivated offenders seek out in order to offend (Brantingham & Brantingham, 2013). Crime should concentrate at these locations, according to the theory, because of their high levels of criminal opportunity and because motivated offenders are knowledgeable about the targets and guardians located in these spaces. Through the compatible theoretical frameworks, crime pattern theory and routine activities theory, the relationship between crime and place is explained by variations in the physical

environment that create or limit opportunities for offenders, targets, and the absence of guardians to converge at place.

Following the logic of these theories, the location of LGBTQ-centered establishments may be a valuable predictor of where anti-LGBTQ crimes take place at the micro-spatial level because these locations have the potential to facilitate hate crime opportunities. More specifically, Cohen and Felson (1979) suggest that physical visibility and access are components of target suitability. When individuals patronize LGBTQ-centered establishments, their presence at these establishments may identify or “out” them as part of the LGBTQ community to others in the area, making them both visible and accessible hate crime targets at or near these establishments. This role of contact with LGBTQ establishments as an indicator of target suitability would suggest that the convergence of motivated offenders, suitable targets, and the absence of capable guardians will occur at or in close proximity to these establishments. This is consistent with arguments from crime pattern theory, where LGBTQ establishments may serve as hate crime generators for bias-motivated offenses because offenders are able to come into contact with and identify suitable (i.e. LGBTQ targets) at these locations due to the sheer volume of suitable targets present at these locations. Similarly, these locations may act as crime attractors if motivated offenders actively seek out these establishments to commit anti-LGBTQ hate crimes.

The existing literature on the application of opportunity theories to hate crime is consistent with this idea. In applying routine activities theory to anti-LGBTQ crime at the victim level, Waldner and Berg (2008) find that attendance at LGBTQ-centered

establishments increases anti-gay hate crime victimization. They argue that attendance at LGBTQ-centered establishments openly identifies individuals as part of the LGBTQ community, creating an opportunity for offenders motivated against LGBTQ individuals to act criminally because the target has identified themselves as vulnerable to this type of offense (Waldner & Berg, 2008). Thus, they theorize that contact with these establishments allows for the convergence of factors that leads to a criminal event. Similarly, McNeeley and Overstreet (2018) find that, at the individual level, contact with racial or ethnic establishments is positively related to racial or ethnic hate crime victimization. Despite this literature's focus on contact with identity-based establishments as an individual level predictor of victimization, the theoretical underpinnings are also relevant for understanding anti-LGBTQ hate crime at place. If identity-based establishments identify individuals as potential victims, the presence of a motivated offender, a suitable LGBTQ target, and the absence of a capable guardian should uniquely converge in physical locations near these establishments to facilitate anti-LGBTQ hate crime opportunities and generate these crimes. Thus, according to opportunity theories, LGBTQ-centered establishments may contribute to the spatial concentration of anti-LGBTQ hate crime at micro-places.

Current Study

Though several theoretical frameworks seek to investigate the ecological patterning of hate crime, I argue that no one theory holistically explains the spatial patterns of hate crime, and specifically anti-LGBTQ hate crime. Utilizing multiple theoretical perspectives in a multilevel assessment can contribute nuance to the understanding of

the spatial correlates of this crime type. As such, the current study will apply multilevel perspectives to the study of anti-LGBTQ hate crime, investigating the independent and joint roles of minority group threat, social disorganization, and opportunity theories for explaining the relationship between anti-LGBTQ hate crime and place. The current study assesses the following hypotheses:

Hypothesis 1 (H1): Neighborhood LGBTQ prevalence will predict anti-LGBTQ hate crimes in micro-places.³

Hypothesis 2 (H2): More anti-LGBTQ hate crime will occur in micro-places that are nested in neighborhoods with more concentrated disadvantage, residential mobility, and racial and ethnic heterogeneity.⁴

Hypothesis 3 (H3): Neighborhood concentrated disadvantage, residential mobility, and racial and ethnic heterogeneity will condition the influence of LGBTQ prevalence on anti-LGBTQ hate crime.⁵

Hypothesis 4 (H4): Micro-places with more LGBTQ establishments will experience more anti-LGBTQ hate crime.⁶

Hypothesis 5 (H5): Neighborhood LGBTQ prevalence, concentrated disadvantage, residential mobility, and racial and ethnic heterogeneity will condition the influence of LGBTQ establishments on anti-LGBTQ hate crime.⁷

³ See Figure 1, arrow b.

⁴ See Figure 1, arrow a.

⁵ See Figure 1, arrow f.

⁶ See Figure 1, arrow c.

⁷ See Figure 1, arrows d. and e.

More broadly, I utilize opportunity theories to anticipate that LGBTQ establishments will be positively related to anti-LGBTQ hate crimes at the micro-spatial level. Drawing from minority group threat theory and its focus on communities, I hypothesize that neighborhood-level LGBTQ prevalence will be positively related to anti-LGBTQ hate crime. I also expect neighborhood-level structural antecedents of social disorganization to be related to anti-LGBTQ hate crime, consistent with previous literature on social disorganization theory and anti-LGBTQ hate crime. Finally, consistent with multilevel opportunity theories, I anticipate interactions between LGBTQ prevalence and structural antecedents of social disorganization as well as cross-level interactions between neighborhood and micro-place factors.

Chapter 3: Data

Sample

The level 1 unit of analysis, representing the micro-place, is the census block. The level 2 unit of analysis, representing the neighborhood, is the census tract. The sample for this study includes all 6,329 census blocks with land area (as opposed to those that are defined by bodies of water) nested within all 178 census tracts in Washington, DC with nonzero counts of households.⁸ Geographies are determined by the 2010 census boundaries. The study period is the three-year period from 2017 to 2019.

Dependent Variable

The dependent variable in this analysis is a count of hate crimes, defined as criminal acts that demonstrate an offender's prejudice against an individual or group based on their identity or assumed identity, that were motivated against LGBTQ individuals from 2017 to 2019 in Washington, DC. This includes crimes classified by police as those based on sexual orientation or gender identity/expression. The data come from the Metropolitan Police Department's (MPD) publicly available hate crime incident data. For anonymity, the addresses of the crime incidents were reported by the MPD using the 100-block of the address where the incident occurred.⁹

⁸ One tract in Washington, DC has zero households reported and is omitted from this analysis.

⁹ One incident of hate crime was dropped because it could not be reliably geocoded due to it taking place at an intersection.

To approximate and geocode the incident locations, a random address within the 100th-block provided in the data was assigned to each incident such that the incident could be geocoded to an address and a corresponding census block and tract (see Wenger & Lantz, 2021). These addresses were then geocoded to the census block using the US Census Bureau's online batch geocoding tool. Using these geocoded addresses, I generated a count of anti-LGBTQ hate crime incidents between 2017 and 2019 for each census block in the city.

An important limitation to the study of hate crimes is their measurement (Green et al., 2001). Comparisons between official hate crime data and victimization data suggest that hate crimes in general are significantly underreported to police, and that communities with low perceptions of police legitimacy are particularly vulnerable to underreporting (Pezzella et al., 2019). Given the historical tension between LGBTQ communities and police in the US (see Dario et al., 2019 for a review), measures of anti-LGBTQ hate crimes drawn from official reports of crime incidents likely do not capture a significant number of the incidents that occur. Reliance on official data thus creates an imperfect measure of anti-LGBTQ hate crime. However, literature in the field continues to leverage police-reported hate crime data to explore hate crime and place (Mills, 2021; Wenger & Lantz, 2022). Despite limitations, these geolocated data remain valuable for understanding where these incidents occur and remain the best available measure of these incidents.

Independent Variables

Census Block Level (Micro-place)

To measure the prevalence of LGBTQ establishments, I use a count of LGBTQ-centered and LGBTQ-aligned establishments located on each census block between the years 2017 and 2019. The data on these LGBTQ-centered establishments were gathered from publicly available sources, including the “Mayor's Office of LGBTQ Affairs Resource Directory” from the DC Mayor’s Office website, a list of gay bars and clubs provided on the Washington, DC tourism website, and local news articles listing LGBTQ-centered bars, clubs, and restaurants. If establishments were opened or closed outside the study period, they were not included. These LGBTQ establishments include bars, policy and advocacy organizations, professional groups, places of worship, health centers, and social organizations. Addresses of these establishments were listed in the data sources themselves or on the websites of each organization. The addresses were then geocoded to create a count of LGBTQ-centered establishments for each census block.

Census Tract Level (Neighborhood)

To measure LGBTQ prevalence, concentrated disadvantage, racial and ethnic heterogeneity, and residential mobility, I use data from the US Census Bureau. Data for these variables come from the 2015 to 2019 5-year estimates from the American Community Survey conducted by the Census Bureau. These variables are measured at the neighborhood level both because the data are not available from the Census

Bureau at the block level and because theoretically, these variables tap into neighborhood processes that occur at a spatial unit larger than the block.

Following prior criminological work and best practices for measuring LGBTQ prevalence (Mills, 2021; Stacey, 2016), I measure LGBTQ prevalence using the proportion of householders that are in same-sex unmarried or married partnerships per census tract. This measure uses same-sex couple prevalence as a proxy for the LGBTQ population as a whole. It does not capture the prevalence of single non-heterosexual individuals, non-heterosexual individuals in opposite-sex relationships, or transgender and gender nonconforming individuals. As such, this measure is likely an undercount of the true level of LGBTQ prevalence in a neighborhood. This measure is thus not without its limitations, but it remains the best available measure of LGBTQ prevalence at the neighborhood level (Cohn, 2011).

Utilizing measures used by Mills (2021) and Tillyer and colleagues (2021), concentrated disadvantage is measured using an index that captures the proportion of residents whose income is below the poverty line, the proportion of residents over the age of 16 who are either unemployed or not in the labor force, and the proportion of households that are led by single mothers (Cronbach's $\alpha=0.82$). Residential mobility is measured using an index containing the proportion of the population over the age of 1 that did not live in the same house one year prior and the proportion of occupied housing units that are renter occupied (Cronbach's $\alpha=0.64$). Racial diversity is measured using the method employed by the Census Bureau, where racial diversity is calculated as the probability that two randomly selected residents of a

tract would be from different racial groups.¹⁰ As such, the racial diversity index is a 0 to 1 scale, where 1 is the most diverse (entirely heterogeneous) and 0 is the least diverse (entirely homogenous).

Control Variables

Census Block Level

The first key block-level control variable is land area. Land area is measured using the area of each census block in square kilometers reported by the Census Bureau.

A variety of facilities and physical features are considered in the literature to be potentially criminogenic. These include bars and liquor stores, metro stops, and gas stations (Groff & Lockwood, 2014; Schnell et al., 2019). As such, I control for the prevalence of these facilities (bars and liquor stores, metro stops, and gas stations) using a count of each type of facility for each block. The locations of the facilities were obtained using the publicly available data from the D.C. Office of the Chief Technology Officer data files that report geocoded locations of various facilities within the city of Washington, DC. To create a count of bars and liquor stores per block, the Liquor Licenses file, which contains the location of establishments with liquor licenses, was geocoded to the census block level using the spatial software GeoDa. A similar process was used to create the count measures of metro stops and

¹⁰ This was calculated by squaring the proportion of the population that is part of each racial group (non-Hispanic white, non-Hispanic Black, non-Hispanic Asian, non-Hispanic American Indian or Alaska Native, non-Hispanic Native Hawaiian or Pacific Islander, non-Hispanic other race, non-Hispanic mixed race, and Hispanic or Latino), summing the squared values, and subtracting that sum from 1 to create the diversity index.

gas stations, using the Metro Stations data file and the Gas Stations data file the D.C. Office of the Chief Technology Officer.

Streetlights are included as a control variable given that they are a potentially crime-detering block feature (Painter & Farrington, 1997). The prevalence of streetlights is measured using a count of streetlights per block. This count was created the Street Lights data file from the D.C. Office of the Chief Technology Officer. Each streetlight was geocoded to its respective census block using GeoDa to create a count of streetlights per block. Any streetlights installed after January 1, 2017 are excluded from this count.

Census Tract Level

Relevant tract level control variables include the prevalence of young males with low levels of education, tract population, vacancy rate, and whether a tract is located in the downtown area. According to a 2020 Research Brief from the National Consortium for the Study of Terrorism and Responses to Terrorism, hate crime offenders motivated by sexual orientation, gender, or gender identity bias are on average 24 years old (Jensen et al., 2020). Of these bias-motivated offenders, 69% received a high school education or below and 95% are men (Jensen et al., 2020). As such, I control for the prevalence of young, low-education males to account for the distribution of likely offenders for this bias type at the tract level. I control for tract population to account for variation in the number of residents across neighborhoods. I control for the vacancy rate given the established empirical relationship between vacant properties and crime (e.g. Boessen & Chamberlain, 2017; Porter et al., 2019).

The prevalence of young low-education males, tract population, and vacancy are measured using the American Community Survey 5-year estimates from 2015-2019 to account for the percentage of the tract population that are males between the ages of 18 and 34 who have received a high school education or below, the logged total population of each tract, and the percentage of housing units that are vacant.

I also use a dummy variable to control whether a tract is located in the downtown area of the city. I control for this downtown tracts indicator because downtown neighborhoods have attractions and activities that draw crowds, such as sports venues and museums, and may be unique in the way they foster activity and crime opportunities in space because of their status as downtown areas. The Washington, DC government does not formally define the “downtown” area, so the downtown area is defined using a map of “downtown” reported by the Washington Post in 2014 (DeBonis, 2014). If the majority of the land area of a tract falls within the labelled downtown portion of this map, I consider it a downtown tract.

Chapter 4: Analytical Method

The dependent variable is a count variable of a relatively rare events (anti-LGBTQ hate crimes), so a linear model is not appropriate for these data. Instead, I use a Poisson model.¹¹ The data are also nested in nature – blocks within census tracts – and thus I utilize hierarchical linear modeling. I expect the level 2 (tract) characteristics to influence the level 1 units (blocks) such that there is not independence between the level 1 units. I use hierarchical linear modeling to account for this nonindependence. In addition, a multilevel model allows for testing of cross-level interactions, which is necessary for testing my multilevel hypotheses. For these reasons, a multilevel model is appropriate for this analysis.

In addition, the characteristics of neighborhoods have the potential to influence the characteristics and activities of neighborhoods surrounding them, rendering my level 2 variables non-independent as well. To remedy the concerns of spatial dependence in my level 2 units, I follow the solution proposed by Bester and colleagues (2011) and account for spatial dependence by clustering the standard errors at a larger unit of analysis, the ward level.¹²

¹¹ There is considerable scholarly debate surrounding the use of the negative binomial model rather than the Poisson model to account for overdispersion. According to the arguments presented by Berk and MacDonald (2008), however, it is rare for the negative binomial model to truly eliminate concerns of overdispersion. As such, I utilize the simpler Poisson model in this analysis. This is consistent with some prior literature on multi-level predictors of crime at place (see Deryol et al., 2016).

¹² In some cases, census tracts do not fall entirely within the boundaries of a political ward. For these tracts, tracts were assigned to the ward that contains the highest proportion of that tract's land area.

I assessed multicollinearity of the independent variables, and it does not appear to be a threat to the findings because no two independent variables are highly correlated with one another (no Pearson's r values exceed 0.70).

I also use an exposure variable to transform the dependent variable into a hate crime rate per square kilometer of land area. This ensures that the count of crimes per census block is not biased by the physical size of the census block, where a larger census block is more likely to experience a crime event than a smaller block because there is more physical space for a crime to occur. Existing criminological literature alternatively uses population as an exposure variable to transform crime counts into crime counts per number of residents (see Bernasco & Block, 2011). This method is insufficient for my analysis because census blocks with a population of zero would be dropped from the analysis using this method. However, blocks with no residential areas and thus a population of zero (such as blocks zoned entirely for commercial use) are still theoretically relevant and can experience relevant crime incidents. Given my granular spatial unit of analysis, land area is the preferred exposure variable compared to population.

My hypotheses anticipate grouping of anti-LGBTQ hate crime events in space, so I also assessed the spatial clustering in my dependent variable before conducting the analysis. To assess the spatial clustering of anti-LGBTQ hate crime at the block level, I used local Moran's I . This choice of LISA statistics is consistent with efforts to identify crime hot spots used in existing criminological research. For example, Haberman (2017) and Ratcliffe and colleagues (2011) use local Moran's I assessments to identify crime hot spots. Following the method employed by

Haberman (2017), I consider high anti-LGBTQ crime blocks surrounded by other high anti-LGBTQ crime blocks (high-high) and high anti-LGBTQ crime blocks surrounded by low anti-LGBTQ crime blocks (high-low) to be anti-LGBTQ hate crime clusters or “hot spots.” Significance was assessed using simulation ($p < 0.05$, $K = 999$). This method reveals 57 significant high-high blocks and 82 significant high-low blocks.¹³ As such, I conclude that there is spatial clustering in my dependent variable at the block level and that conducting block-level analysis is appropriate for these data despite the rarity of the dependent variable.

Robustness Check

To investigate the possibility that the predictors in my model may not be unique to hate crime and might predict other crime types, I conduct a robustness check. I estimate the same models with aggravated assault as the dependent variable to determine if the predictors in my model predict a crime that is similar to some hate crime in that it is a violent interpersonal crime, but one that is not explicitly motivated by bias against a group. Conceptually, if the aggravated assault results are the same as the anti-LGBTQ hate crime results, it may be the case that my key independent variables are valuable for predicting interpersonal crime generally, and that my results are not specific to anti-LGBTQ hate crime. On the other hand, if the results differ when the dependent variable is changed, my models may be, as theorized, tapping into relationships unique to anti-LGBTQ hate crime. For this robustness check, I assess the influence of the aforementioned covariates on aggravated assault counts

¹³ See Figure 2 for a cluster map from the LISA assessment.

from 2017 to 2019. Aggravated assault is measured using publicly available annual crime incident data from the Metropolitan Police Department geocoded to the block level.

Chapter 5: Results

Descriptive statistics are provided in Table 1. Turning to the dependent variable, the average census block experienced 0.038 anti-LGBTQ hate crimes over the three-year period. Put differently, for every 100 blocks, 3.8 of them experienced an anti-LGBTQ hate crime within the three-year period. Block-level anti-LGBTQ hate crime counts range from 0 to 3 across the three-year period. Turning to the key independent variable at the micro-place, Table 1 shows that the average block contains 0.01 LGBTQ establishments. In other words, for every 100 blocks, one block has an LGBTQ establishment on average. Block-level LGBTQ establishment counts range from 0 to 3. Turning to key neighborhood level factors, on average, the typical tract had 1.1% of householders in a same-sex relationship, ranging from 0% to 4.5% across tracts. In the average tract, 17% of residents were below the poverty line (range 0% to 69%), 35% of residents 16 or older were unemployed or absent from the labor force (range 0% to 97%), and 7% of households were female-headed (range 0% to 36%). In addition, residential mobility indicators in the typical tract reveal that 19% of tract residents were recent movers (range 5% to 100%) and 57% of housing units were renter occupied (range 0% to 100%). Lastly, the average tract has a diversity index score of 0.43, which ranges from 0.0 to 0.73 across tracts. This means that on average, if two tract residents were to be chosen at random, there is a 43% chance that they would be from different racial and ethnic groups.

Table 2 presents the results of two multilevel Poisson regression models with robust standard errors clustered at the ward level.¹⁴ Incidence rate ratios are reported. Model 1 is a baseline model assessing the direct effects of all key predictors at both spatial levels. The results from Model 1 suggest that, consistent with minority group threat theory, the prevalence of same-sex couples is positively related to anti-LGBTQ hate crime (Figure 1, arrow b; H1).¹⁵ Further, residential mobility is positively related to anti-LGBTQ hate crime, but concentrated disadvantage and racial diversity are not significant predictors of anti-LGBTQ hate crime (Figure 1, arrow a; H2). Taken together, these results are partially consistent with hypotheses derived from social disorganization theory. In addition, as expected, the prevalence of LGBTQ establishments is positively related to anti-LGBTQ hate crime incidents (Figure 1, arrow c; H4).

Model 2 assesses the direct effects of the key independent variables but includes an interaction between LGBTQ-centered establishments and residential mobility (H5). The results from Model 2 suggest that residential mobility moderates the relationship between LGBTQ establishments and anti-LGBTQ hate crime. The positive relationship between LGBTQ establishments and anti-LGBTQ hate crime is stronger in tracts with lower residential mobility (Figure 3; Figure 1, arrow d).¹⁶

¹⁴ To further address potential multicollinearity concerns (specifically multicollinearity between concentrated disadvantage and residential mobility, which theoretically may be highly collinear), I estimate these same models with the concentrated disadvantage variable omitted. These analyses reveal substantively similar results to the models with concentrated disadvantage included. Full results are reported in Table 3.

¹⁵ The quadratic term for assessing the nonlinear form of this relationship was not significant. This is inconsistent with both the functional form predicted by the defended neighborhoods thesis and the nonlinear functional forms predicted by minority group threat theory.

¹⁶ Interaction effects between same sex couple prevalence and LGBTQ establishments (Figure 1, arrow e; H5), and between same sex couple prevalence and antecedents of social disorganization (Figure 1, arrow f; H3) were not significant.

The results of the robustness check analysis (Table 4), which are intended to determine whether these models predict related crimes that are not bias-motivated, reveal that when aggravated assault is the dependent variable, LGBTQ establishments and same sex couple prevalence are again significantly predictive of the outcome. However, the magnitude of these effects suggests that the relationship appears weaker in the aggravated assault models. In addition, residential mobility is no longer a significant predictor in these models, whereas concentrated disadvantage is now a significant predictor. Together, there are some similarities and some difference between the models with anti-LGBTQ hate crime and aggravated assault as the dependent variables. These results suggests that there may be something unique about the selected covariates for predicting anti-LGBTQ hate crime, but there are similarities between results that raise concerns that these covariates may not be specific to explaining anti-LGBTQ hate crime. Given these results, I interpret the theoretical model as a description of specifically anti-LGBTQ hate crime with some caution. Future research should continue to explore whether place-based correlates of hate crime are distinct from that of other crimes.

Chapter 6: Discussion and Conclusion

This study seeks to expand upon the literature exploring the spatial predictors of anti-LGBTQ hate crime by advancing a multilevel framework that appreciates neighborhood and micro-place level dynamics to explain a particularly damaging and under-researched crime type with an impact that ripples through the LGBTQ community as a whole.

The results of the multilevel analysis suggest that generally, minority group threat, social disorganization, and opportunity theories are collectively relevant for understanding where anti-LGBTQ hate crimes occur at multiple spatial levels, and each theoretical perspective provides some unique predictive value. The results suggest that where LGBTQ prevalence is higher, more anti-LGBTQ hate crimes occur. In addition, where there is more residential mobility, a theoretical antecedent of social disorganization, there is more anti-LGBTQ hate crime. Furthermore, in micro-places where there are more anti-LGBTQ establishments, there are also more anti-LGBTQ hate crimes, beyond what is predicted by the macro-level explanations. More broadly, the nature of the multilevel model allows for the conclusion that neighborhood characteristics, and specifically LGBTQ prevalence and residential mobility, do contribute explanatory power to the model estimating micro-level anti-LGBTQ hate crime. There is evidence that neighborhood context helps explain this crime type at the micro-level, creating a more complete picture of the geography of anti-LGBTQ hate crime.

Additionally, the results of this study suggest that these theoretical perspectives do, in some ways, matter together for predicting anti-LGBTQ hate crime. Social disorganization theory on its own would predict that low residential mobility would contribute to community social organization such as informal ties and attendant social controls. These social controls would prevent anti-LGBTQ hate crime driven by the opportunities provided by LGBTQ establishments. However, the results provide evidence to the contrary. Specifically, the prevalence of LGBTQ establishments is a stronger predictor of anti-LGBTQ hate crimes in community contexts where residential mobility is low (i.e., stable places). The defended neighborhoods thesis provides a potential explanation of this finding. As discussed, the defended neighborhoods perspective argues that homogenous neighborhoods develop and share a common identity and retaliate against out-groups that enter their space because they threaten the common identity (Suttles, 1972). Neighborhoods characterized by low mobility may be better able to form collective territorial identities because individuals have a longer tenure in the area. If these neighborhoods are predominantly non-LGBTQ (which is a reasonable consideration given the distribution of same sex couples evidenced in the present study), then the addition of an LGBTQ establishment may threaten the socially cohesive, stable, and demographically homogenous dominant group and serve as a catalyst for residents to engage in violence against the LGBTQ community in micro-places where these hate crime opportunities exist. Though the current study does not establish temporal ordering of the presence of LGBTQ establishments compared to the mobility within an area to support or refute this proposition, the defended neighborhoods hypothesis

provides a potential lens for understanding the interaction between residential mobility and the presence of LGBTQ establishments that contrasts with predictions drawn from social disorganization theory.

Contrary to expectation, I find no evidence of an interaction effect such that neighborhood LGBTQ prevalence or the other structural determinants of social disorganization condition the effect of LGBTQ establishments on anti-LGBTQ hate crime (Figure 1, arrows d and e). In addition, I find no evidence that structural determinants of social disorganization condition the effect of LGBTQ prevalence on anti-LGBTQ hate crime (Figure 1, arrow f). Therefore, I do not find evidence that supports many of my hypothesized multilevel relationships. These findings suggest, instead, that only one of my key characteristics of neighborhoods shapes the ways in which LGBTQ establishments are related to anti-LGBTQ hate crime. The current study also finds no evidence that neighborhood factors drawn from minority group threat and social disorganization theories matter together for understanding the geography of anti-LGBTQ hate crime. Though these perspectives all appear to have some relevance for explaining the spatial patterning of anti-LGBTQ hate crime on their own, evidence that they matter together, as hypothesized by multilevel opportunity perspectives, is limited.

The findings of the present study are largely consistent with previous research on the locations of anti-LGBTQ hate crimes. Consistent with Mills (2021), the predictive value of using social disorganization variables for understanding this crime type at the macro level is mixed. Specifically, in this study, residential mobility is a predictor of anti-LGBTQ hate crime, but concentrated disadvantage and racial

diversity are not. Similarly, the present study is consistent with Mills (2021) in that it also finds an effect of the relative size of the LGBTQ population on anti-LGBTQ hate crime in addition to the explanatory value of structural factors drawn from social disorganization theory. This contributes additional mixed findings to the evidence regarding the utility of both minority group threat and social disorganization perspectives for understanding anti-LGBTQ hate crime.

Where this study expands upon the existing literature is in its inclusion of micro-spatial opportunity perspectives. This study finds evidence that the presence of LGBTQ establishments at micro-places, a measure of anti-LGBTQ hate crime opportunity, consistently contributes value toward understanding the geography of anti-LGBTQ hate crime. Opportunity theories appear relevant for understanding the spatial patterning of this crime type above and beyond what can be gleaned using neighborhood level perspectives. There is also some evidence for interaction between these theoretical predictors, suggesting that the neighborhood-level and micro-level theoretical perspectives matter together in some ways and matter at multiple spatial levels for understanding where anti-LGBTQ hate crime incidents occur. However, the evidence supporting these interactive effects is limited, and the results fail to detect many key hypothesized interactions. Taken together, the current study paves a path forward for understanding hate crime and place, where both neighborhood factors and factors at the micro-place are necessary for assessing the geography of hate crime.

Relatedly, the current study also expands upon existing multilevel theoretical explanations of crime more generally to highlight the value of including minority group threat as a neighborhood-level predictor of crime in multilevel assessments.

Findings are consistent with the argument that the relative size of the minority population is important for understanding how neighborhood characteristics are related to hate crime. Applications of existing multilevel theoretical perspectives often draw heavily from social disorganization and opportunity theories, but the current study provides evidence that minority group threat may also be relevant for explaining crime, and anti-LGBTQ hate crime specifically, when using integrated multilevel frameworks.

Though valuable, the present study is not without limitations. The first limitation of this research is that the measurement of anti-LGBTQ hate crime is likely an undercount. Given the social vulnerability of LGBTQ victims and the LGBTQ community's troubled history with police, this crime type is likely subject to underreporting. As such, the current study is only able to draw conclusions about the locations of reported anti-LGBTQ hate crimes rather than all LGBTQ hate crimes. Such underreporting may mean that my findings are conservative – hate crime may be more numerous and more widespread than these data suggest.

Similarly, a second limitation is that the current study relies on a measure of same sex couples as a proxy for the prevalence of LGBTQ individuals in the community as a whole. This measure arguably is an undercount given that it misses LGBTQ individuals that are not officially in a same sex coupled household, such as single LGB individuals, LGB individuals in opposite-sex relationships, and transgender and gender nonconforming individuals. Moreover, it assumes that same-sex coupled LGBTQ individuals and all other LGBTQ individuals are distributed evenly across neighborhoods. This may not be the case given that, for example,

LGBTQ individuals in same sex couples may live in more economically advantaged neighborhoods than single LGBTQ individuals because they are more likely to live in dual income households than single LGBTQ individuals. To better capture the complexity of the presence of the LGBTQ community in a neighborhood, scholarship would do well by bringing in data from other sources than the US Census. This may include using survey-based residence data, like the data utilized by Lee and colleagues (2020), or exploring data that leverages innovative measures of LGBTQ prevalence, such as the prevalence of rainbow flags or the locations of properties advertised for sale in LGBTQ-centered newspapers (Bitterman, 2021; Whittemore & Smart, 2016).

A third limitation of the current study is this analysis cannot establish temporal ordering of key variables given its cross-sectional nature. For example, the current study argues that the positive relationship between LGBTQ establishments and anti-LGBTQ hate crime is driven by the role of LGBTQ establishments as criminal opportunity generators or attractors, such that the presence of establishments in micro-places creates opportunity for anti-LGBTQ hate crime to occur. However, it may be the case that instead, anti-LGBTQ hate crime temporally precedes the presence of LGBTQ establishments, and organizers choose to open LGBTQ establishments in areas where they perceive the most need, including areas experiencing high levels of anti-LGBTQ hate crime. Because of the cross-sectional design of the current study, this possibility cannot be ruled out, though the theoretical perspectives utilized provide arguments tied to the temporal order in the former explanation. Panel data is needed to more effectively approximate casual effects and

test this theoretical argument more comprehensively. Future research should expand upon this work by exploring the temporal ordering of the key variables of interest to further tease out the mechanisms underlying these relationships.

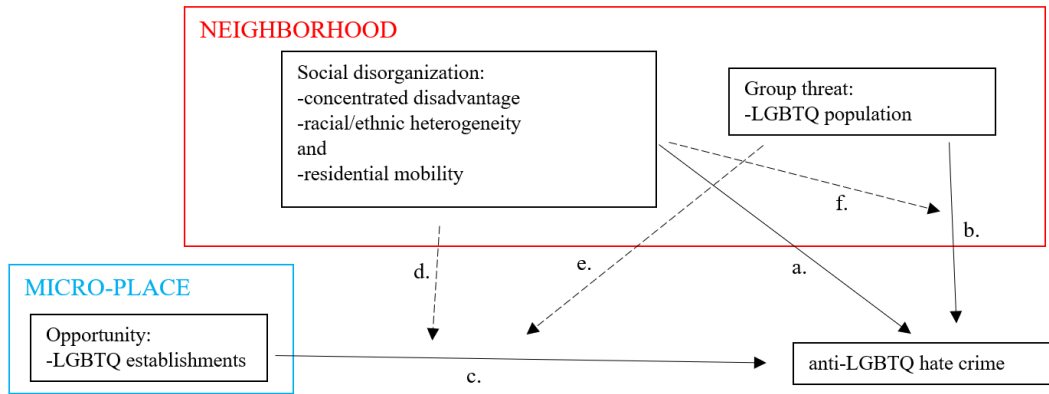
A fourth limitation of the current study is that it is unable to account for the specific activities that may occur at different types of establishments, and how these activities may be related to criminal opportunity. For example, the measure of LGBTQ establishments includes both LGBTQ bars and LGBTQ health centers. It may be the case that the differing purposes of these facilities create differential opportunities for anti-LGBTQ hate crime such that certain types of establishments are stronger predictors of these crime incidents than others because of the activities that occur there (e.g. bars may facilitate more anti-LGBTQ hate crime because LGBTQ bar patrons who have been drinking may be particularly suitable targets). In the current study, there was insufficient variation to investigate this question. Future research should explore how different types of LGBTQ establishments may differentially create opportunities for anti-LGBTQ hate crimes.

Despite limitations, the current study makes important contributions to the theoretical and substantive research on anti-LGBTQ hate crime and place. This study highlights the multilevel nature of anti-LGBTQ hate crimes such that neighborhood and micro-spatial factors work together to increase the risk of these crimes occurring. It expands upon the existing theoretical explanations of hate crime at the neighborhood level, which often rely on minority group threat and social disorganization theories, by spotlighting the importance of accounting for the role of opportunities at the micro-place as well. Understanding the kinds of places where

anti-LGBTQ hate crimes occur is particularly valuable given the fact that these incidents target a vulnerable population and have consequences that ripple throughout the LGBTQ community (Bell & Perry, 2015). Thus, advancing knowledge of the multilevel contexts in which these criminal events occur can push the field to think more comprehensively about the geography of this hate crime and help effectively direct prevention efforts toward the types of places where these crimes are most likely.

Appendices

Figure 1: Theoretical Model



Solid line: direct effect

Dashed line: interaction effect

Figure 2: LISA Cluster Map (999 perm, $p < 0.05$)

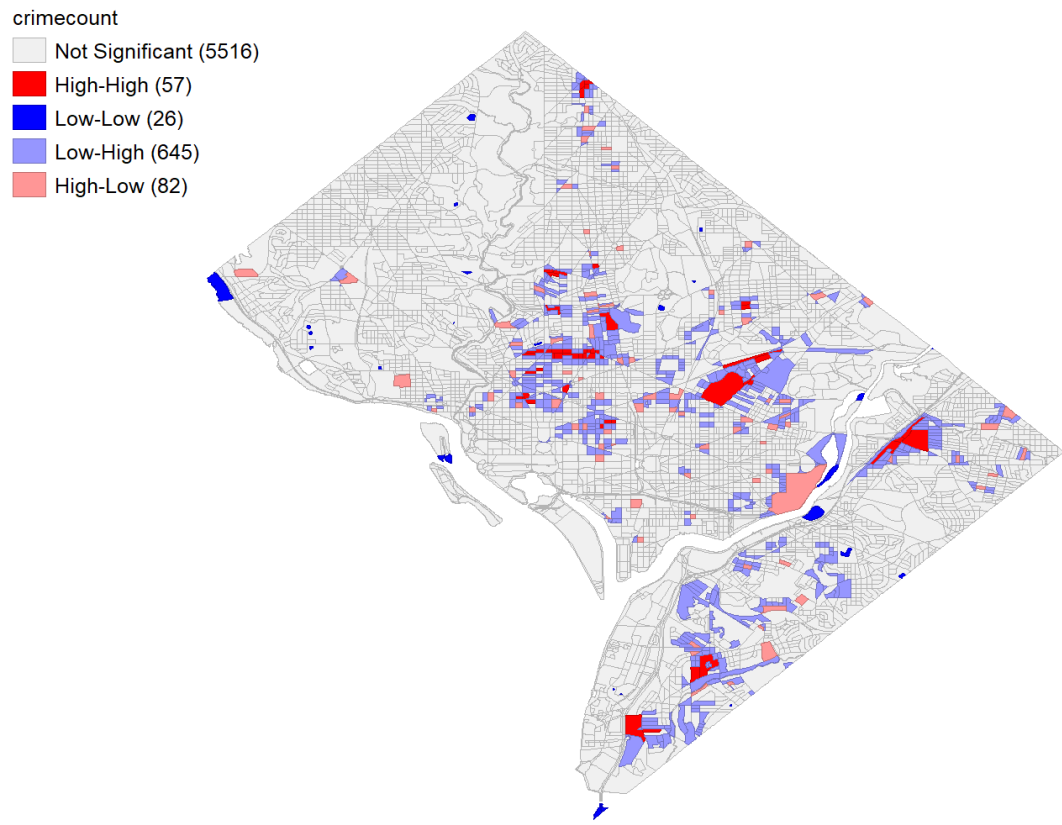


Table 1: Descriptive Statistics

	Mean	SD	Min	Max
<i>Level 1 Variables: N=6329 Census blocks</i>				
Dependent Variable				
Total anti-LGBTQ hate crimes, 2017-2019	0.04	0.22	0	3
Independent Variable				
Total LGBTQ Establishments	0.01	0.11	0	3
Control Variables				
Liquor Licenses	0.29	1.13	0	32
Metro Station Entrances	0.02	0.17	0	3
Gas Stations	0.02	0.14	0	2
Street Lights	10.93	9.24	0	129
Land area	0.02	0.05	2.00e-06	0.92
<i>Level 2 Variables: N=178 † Census tracts</i>				
Independent Variables				
Percentage of householders in a same-sex couple	1.07	0.93	0	4.46
Concentrated disadvantage	-0.00	0.90	-1.56	2.78
Percent below the poverty line	17.01	13.12	0	68.62
Percent over 16 unemployed/not in labor force	35.02	14.13	0	97.18
Percent female-headed households	7.19	8.01	0	36.99
Residential mobility	-0.01	0.78	-1.59	4.20
Percent recent movers	18.98	12.29	4.67	100
Percent renter-occupied residential units	56.98	22.49	0	100
Diversity index score	0.43	0.20	0	0.73
Control Variables				
Population	3869.44	1418.26	58	8925
Percent young low-education males	4.15	4.40	0	41.21
Downtown tracts	0.02	0.13	0	1
Percent vacant housing	9.86	5.27	0	33.30

† One tract was dropped from the descriptive analyses (and future analyses) because it had zero population.

Table 2: Multilevel mixed-effects Poisson regression models, incident rate ratios (standard errors)

	Model 1	Model 2
<i>N=6329 blocks</i>		
<i>Level 2 Variables</i>		
Focal Independent Variables		
Same sex couples †	1.83* (0.20)	1.79* (0.28)
Concentrated disadvantage	1.45 (0.36)	1.67 (0.49)
Residential mobility	1.30* (0.11)	1.43* (0.22)
Racial diversity	1.65 (1.52)	3.13 (3.69)
Control Variables		
Logged population	1.16 (0.15)	1.13 (0.26)
Young low-education males	0.98 (0.04)	0.98 (0.03)
Downtown tract	2.15* (0.58)	1.53 (0.53)
Vacancy	1.03 (0.02)	1.03 (0.03)
<i>Level 1 Variables</i>		
Focal Independent Variable		
LGBTQ establishments	2.67* (0.82)	2.73* (0.44)
Control Variables		
Streetlights	0.99 (0.01)	0.99* (0.00)
Metro stations	1.73* (0.36)	1.82* (0.42)
Bars and liquor stores	1.09* (0.03)	1.11* (0.04)
Gas stations	1.77 (0.79)	1.42 (0.62)
<i>Interactions</i>		
LGBTQ establishments*Residential mobility	-	0.22* (0.03)
Block land area (exposure)	1	1

† Quadratic term for assessing nonlinearity for group threat was not significant

* $p < 0.05$

Table 3: Multilevel mixed-effects Poisson regression models, incident rate ratios (standard errors), concentrated disadvantage omitted

	Model 1	Model 2
<i>N=6329 blocks</i>		
<i>Level 2 Variables</i>		
Focal Independent Variables		
Same sex couples †	1.66* (0.25)	1.66* (0.25)
Concentrated disadvantage	-	-
Residential mobility	1.37* (0.21)	1.41* (0.23)
Racial diversity	1.43 (1.31)	1.41 (1.32)
Control Variables		
Logged population	1.23 (0.24)	1.26 (0.25)
Young low-education males	1.03 (0.04)	1.03 (0.04)
Downtown tract	1.44 (0.51)	1.51 (0.55)
Vacancy	1.05 (0.03)	1.05 (0.04)
<i>Level 1 Variables</i>		
Focal Independent Variable		
LGBTQ establishments	1.80 (0.61)	2.75* (0.46)
Control Variables		
Streetlights	0.99* (0.00)	0.99* (0.00)
Metro stations	1.82* (0.42)	1.81* (0.42)
Bars and liquor stores	1.11* (0.04)	1.11* (0.04)
Gas stations	1.55 (0.61)	1.43 (0.61)
<i>Interactions</i>		
LGBTQ establishments*Residential mobility	-	0.22* (0.03)
Block land area (exposure)	1	1

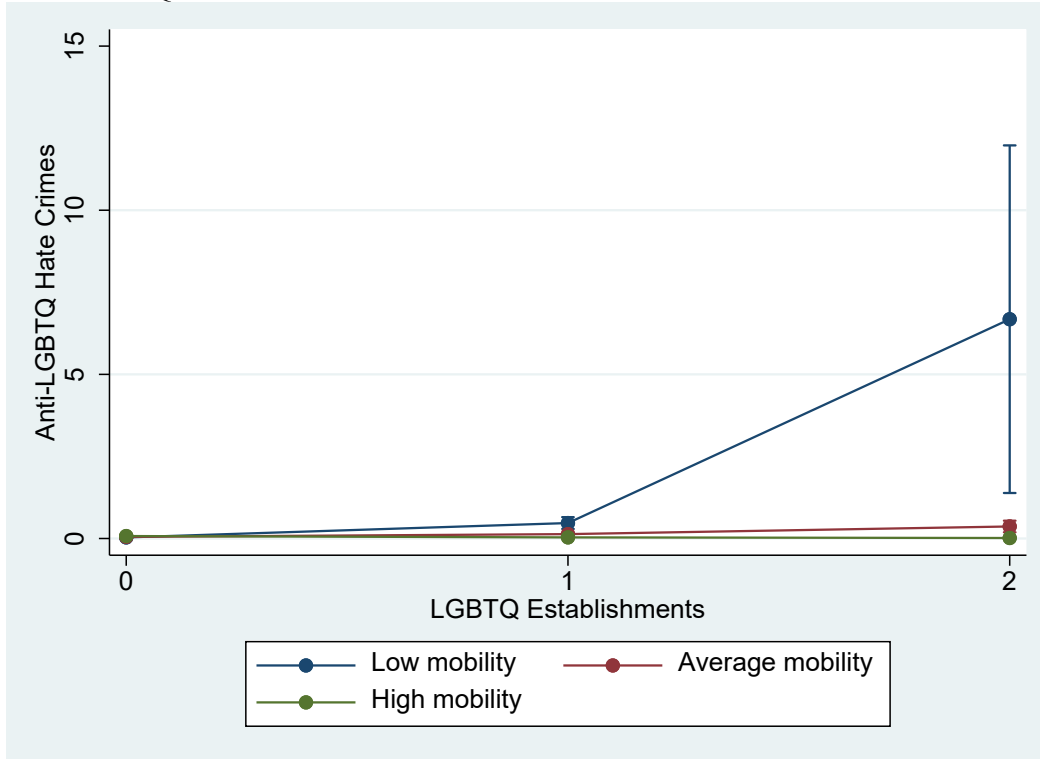
*p<0.05

Table 4: Aggravated assault multilevel mixed-effects Poisson regression models, incident rate ratios (standard errors)

	Model 1	Model 2
<i>N=6329 blocks</i>		
<i>Level 2 Variables</i>		
Focal Independent Variables		
Same sex couples	1.51* (0.23)	1.51* (0.23)
Concentrated disadvantage	2.17* (0.35)	2.17* (0.35)
Residential mobility	1.02 (0.12)	1.03 (0.13)
Racial diversity	0.95 (0.91)	0.95 (0.91)
Control Variables		
Logged population	1.16 (0.30)	1.17 (0.31)
Young low-education males	1.02 (0.05)	1.02 (0.04)
Downtown tract	1.79 (0.64)	1.87 (0.66)
Vacancy	1.02 (0.03)	1.02 (0.03)
<i>Level 1 Variables</i>		
Focal Independent Variable		
LGBTQ establishments	1.65* (0.24)	2.13* (0.30)
Control Variables		
Streetlights	0.99 (0.01)	0.99 (0.01)
Metro stations	1.24 (0.26)	1.24 (0.25)
Bars and liquor stores	1.09* (0.02)	1.09* (0.01)
Gas stations	1.23 (0.27)	1.20 (0.28)
<i>Interactions</i>		
LGBTQ establishments*Residential mobility	-	0.36* (0.11)
Block land area (exposure)	1	1

*p<0.05

Figure 3: Moderating Effect of Residential Mobility: LGBTQ Establishments and Anti-LGBTQ Hate Crime



Low mobility and high mobility are represented by values one standard deviation below and above the mean, respectively.

Bibliography

- Alden, H. L., & Parker, K. F. (2005). Gender role ideology, homophobia and hate crime: Linking attitudes to macro-level anti-gay and lesbian hate crimes. *Deviant Behavior*, 26(4), 321-343.
- Bell, J. G., & Perry, B. (2015). Outside looking in: The community impacts of anti-lesbian, gay, and bisexual hate crime. *Journal of Homosexuality*, 62(1), 98-120.
- Berk, R., & MacDonald, J. M. (2008). Overdispersion and Poisson regression. *Journal of Quantitative Criminology*, 24, 269-284.
- Bernasco, W., & Block, R. (2011). Robberies in Chicago: A block-level analysis of the influence of crime generators, crime attractors, and offender anchor points. *Journal of Research in Crime and Delinquency*, 48(1), 33-57.
- Bester, C. A., Conley, T. G., & Hansen, C. B. (2011). Inference with dependent data using cluster covariance estimators. *Journal of Econometrics*, 165(2), 137-151.
- Blalock, H. M. (1967). *Toward a theory of minority-group relations*. New York, NY: John Wiley.
- Boessen, A., & Chamberlain, A. W. (2017). Neighborhood crime, the housing crisis, and geographic space: Disentangling the consequences of foreclosure and vacancy. *Journal of Urban Affairs*, 39(8), 1122-1137.
- Brantingham, P. L., & Brantingham, P. J. (1993). Nodes, paths and edges: Considerations on the complexity of crime and the physical environment. *Journal of Environmental Psychology*, 13(1), 3-28.
- Brantingham, P., & Brantingham, P. (2013). Crime pattern theory. In *Environmental criminology and crime analysis* (pp. 100-116). Willan.
- Burks, A. C., Cramer, R. J., Henderson, C. E., Stroud, C. H., Crosby, J. W., & Graham, J. (2018). Frequency, nature, and correlates of hate crime victimization experiences in an urban sample of lesbian, gay, and bisexual community members. *Journal of Interpersonal Violence*, 33(3), 402-420.
- Cohen, L. E., & Felson, M. (1979). Social change and crime rate trends: A routine activity approach. *American Sociological Review*, 44(4), 588-608.
- Cohn, D. V. (2011, August 25). *How accurate are counts of same-sex couples?* Pew Research Center. Retrieved April 30, 2022, from <https://www.pewresearch.org/social-trends/2011/08/25/how-accurate-are-counts-of-same-sex-couples/>
- Dario, L. M., Fradella, H. F., Verhagen, M., & Parry, M. M. (2019). Assessing LGBT People's Perceptions of Police Legitimacy. *Journal of Homosexuality*, 67(7), 885-915.
- DeBonis, M. (2014, April 25). *Twenty Years of downtown D.C. development in one GIF*. The Washington Post. Retrieved April 26, 2022, from <https://www.washingtonpost.com/blogs/mike-debonis/wp/2014/04/25/twenty-years-of-downtown-d-c-development-in-one-gif/>

- Deryol, R., Wilcox, P., Logan, M., & Wooldredge, J. (2016). Crime places in context: An illustration of the multilevel nature of hot spot development. *Journal of Quantitative Criminology*, 32, 305-325.
- Fitzsimons, T. (2019, November 12). *Nearly 1 in 5 hate crimes motivated by anti-LGBTQ bias, FBI finds*. NBCNews.com. Retrieved October 17, 2021, from <https://www.nbcnews.com/feature/nbc-out/nearly-1-5-hate-crimes-motivated-anti-lgbtq-bias-fbi-n1080891>.
- Gladfelter, A. S., Lantz, B., & Ruback, R. B. (2017). The complexity of hate crime and bias activity: Variation across contexts and types of bias. *Justice Quarterly*, 34(1), 55-83.
- Green, D. P., Strolovitch, D. Z., Wong, J. S., & Bailey, R. W. (2001). Measuring gay populations and antigay hate crime. *Social Science Quarterly*, 82(2), 281-296.
- Groff, E. R., & Lockwood, B. (2014). Criminogenic facilities and crime across street segments in Philadelphia: Uncovering evidence about the spatial extent of facility influence. *Journal of Research in Crime and Delinquency*, 51(3), 277-314.
- Haberman, C. P. (2017). Overlapping hot spots? Examination of the spatial heterogeneity of hot spots of different crime types. *Criminology & Public Policy*, 16(2), 633-660.
- Herek, G. M., Gillis, J. R., Cogan, J. C., & Glunt, E. K. (1997). Hate crime victimization among lesbian, gay, and bisexual adults: Prevalence, psychological correlates, and methodological issues. *Journal of Interpersonal Violence*, 12(2), 195-215.
- Jensen, M., Yates, E., & Kane, S. (2020). *Motivations and Characteristics of Hate Crime Offenders*. National Consortium for the Study of Terrorism and Responses to Terrorism. https://start.umd.edu/pubs/START_BIAS_MotivationsCharacteristicsOfHateCrimeOffenders_Oct2020.pdf
- Jones, R. W., & Pridemore, W. A. (2019). Toward an integrated multilevel theory of crime at place: Routine activities, social disorganization, and the law of crime concentration. *Journal of Quantitative Criminology*, 35(3), 543-572.
- Kornhauser R. R. (1978). *Social sources of delinquency: An appraisal of analytic models*. University of Chicago Press.
- Lee, J. G., Boynton, M. H., Shook-Sa, B. E., & Wimark, T. (2020). Is where same-sex couples live a valid measure for where single lesbian, gay, and bisexual people live in population health research? Results from a National Probability Phone Survey, 2017, United States. *Annals of LGBTQ Public and Population Health*, 1(2), 96-114.
- Lowenkamp, C. T., Cullen, F. T., & Pratt, T. C. (2003). Replicating Sampson and Groves's test of social disorganization theory: Revisiting a criminological classic. *Journal of Research in Crime and Delinquency*, 40(4), 351-373.
- Lyons, C. J. (2007). Community (dis) organization and racially motivated crime. *American Journal of Sociology*, 113(3), 815-863.
- Lyons, C. J. (2008). Defending turf: Racial demographics and hate crime against blacks and whites. *Social Forces*, 87(1), 357-385.

- McNeeley, S., & Overstreet, S. (2018). Lifestyle-routine activities, neighborhood context, and ethnic hate crime victimization. *Violence and Victims, 33*(5), 932-948.
- Mills, C. E. (2021). Gay visibility and disorganized and strained communities: A community-level analysis of anti-gay hate crime in New York City. *Journal of interpersonal violence, 36*(17-18), 8070-8091.
- Painter, K. A., & Farrington, D. P. (1997). The crime reducing effect of improved street lighting. In R. V. Clarke (Ed.), *Situational crime prevention: Successful case studies* (2nd ed., pp. 209–226). Guilderland, NY: Harrow and Heston.
- Pezzella, F. S., Fetzner, M. D., & Keller, T. (2019). The dark figure of hate crime underreporting. *American Behavioral Scientist, 0002764218823844*.
- Piatkowska, S. J., & Messner, S. F. (2020). Group Threat, Same-Sex Marriage, and Hate Crime Based on Sexual Orientation. *Justice Quarterly, 39*(4), 802-824.
- Porter, L. C., De Biasi, A., Mitchell, S., Curtis, A., & Jefferis, E. (2019). Understanding the criminogenic properties of vacant housing: A mixed methods approach. *Journal of Research in Crime and Delinquency, 56*(3), 378-411.
- Pratt, T. C., & Cullen, F. T. (2005). Assessing macro-level predictors and theories of crime: A meta-analysis. *Crime and Justice, 32*, 373-450.
- Ratcliffe, J. H., Taniguchi, T., Groff, E. R., & Wood, J. D. (2011). The Philadelphia foot patrol experiment: A randomized controlled trial of police patrol effectiveness in violent crime hotspots. *Criminology, 49*(3), 795-831.
- Rice, K. J., & Smith, W. R. (2002). Socioecological models of automotive theft: Integrating routine activity and social disorganization approaches. *Journal of Research in Crime and Delinquency, 39*(3), 304-336.
- Sampson, R. J. (2012). *Great American City*. University of Chicago Press.
- Sampson, R. J., & Wooldredge, J. D. (1987). Linking the micro-and macro-level dimensions of lifestyle-routine activity and opportunity models of predatory victimization. *Journal of Quantitative Criminology, 3*(4), 371-393.
- Schnell, C., Grossman, L., & Braga, A. A. (2019). The routine activities of violent crime places: A retrospective case-control study of crime opportunities on street segments. *Journal of Criminal Justice, 60*, 140-153.
- Shaw, C., & McKay, H. (1942). *Juvenile delinquency in urban areas*. Chicago: University of Chicago Press.
- Stacey, M. (2018). Adapting minority group threat to examine the social control of sexual orientation bias. *Journal of Interpersonal Violence, 33*(20), 3079-3101.
- Stotzer, R. L. (2010). Seeking solace in West Hollywood: Sexual orientation-based hate crimes in Los Angeles County. *Journal of Homosexuality, 57*(8), 987-1003.
- Suttles, G. D. (1972). *The social construction of communities*. Chicago: University of Chicago Press.
- Tillyer, M. S., Wilcox, P., & Walter, R. J. (2021). Crime generators in context: examining 'place in neighborhood' propositions. *Journal of Quantitative Criminology, 37*(2), 517-546.

- Waldner, L. K., & Berg, J. (2008). Explaining antigay violence using target congruence: An application of revised routine activities theory. *Violence and Victims, 23*(3), 267-287.
- Weisburd, D. (2015). The law of crime concentration and the criminology of place. *Criminology, 53*(2), 133-157.
- Wenger, M. R., & Lantz, B. (2021). Hate crime and place: The spatial and temporal concentration of bias-motivated crime in Washington, DC. *Journal of Interpersonal Violence, 37*(13-14), NP10683–NP10708.
- Whittemore, A. H., & Smart, M. J. (2016). Mapping gay and lesbian neighborhoods using home advertisements: Change and continuity in the Dallas-Fort Worth Metropolitan Statistical Area over three decades. *Environment and Planning A, 48*(1), 192-210.
- Wilcox, P., Land, K.C., & Hunt, S.A. (2003). *Criminal circumstance: A dynamic, multicontextual criminal opportunity theory*. Aldine de Gruyter, New York.
- Wilcox, P., Gialopsos, B. M., & Land, K. C. (2013). Multilevel criminal opportunity. In *The Oxford handbook of criminological theory* (pp. 579-602). Oxford University Press.