Exploring the Long-Term Impact of a Foot Patrol Policing Initiative in North Vancouver, British Columbia, Canada

by

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Thesis Submitted in Partial Fulfillment of the Requirements for the Degree of Master of Arts

in the
School of Criminology
Faculty of Arts and Social Sciences

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SIMON FRASER UNIVERSITY

Spring 2016

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Abstract

Foot patrol, one of the oldest methods of policing, is utilized by law enforcement agencies in North America and internationally. Existing research has recognized the positive impact of foot patrol policing on satisfaction among police and citizens, fear of crime, and citizen perceptions and attitudes. However, the effect of foot patrol on crime and disorder, particularly its long-term impact, remains less certain. As such, the current study examines a foot patrol policing initiative established in Lower Lonsdale, North Vancouver, British Columbia using police incident data from 01 January 2007 to 31 December 2012 to determine whether foot patrol policing has been successful in reducing crime over time. Findings indicated that while the foot patrols had an overall impact in reducing certain classifications of crime, there was variation in its effect from year to year. Study limitations, as well as directions for future research, will also be discussed.

Keywords: foot patrol; neighbourhoods; policing; crime trends; crime prevention; police visibility
To the Melenkas – Mom, Dad, Ashley, JR and JD – the most incredible, supportive, and loving family anyone could ask for. I am so lucky.
Acknowledgements

First and foremost, I would like to acknowledge and express my sincere gratitude to my senior supervisor Dr. Martin Andresen for his knowledge, guidance, and ongoing support in completing my thesis. Martin, I truly appreciate and cannot thank you enough for the countless times you provided invaluable feedback on my thesis and for always making yourself available whenever I needed assistance. I could not ask for a more wonderful senior supervisor than you.

I would also like to thank my supervisory committee members, Dr. Bryan Kinney and Dr. Cynthia Lum, for providing their insight, expertise, and feedback on my thesis. As well, I would like to extend a thank you to S/Sgt Paul Duffy and the North Vancouver RCMP for their support in order to make this thesis possible.

I would like to acknowledge two of my most influential mentors during my undergraduate days at MacEwan University – Dr. Michael Gulayets and Dr. Shelley Boulianne. Thank you for inspiring, encouraging, and supporting me to apply to and pursue graduate studies.

A special thank you to my lifelong best friend, Amanda Lopatka, for a decade of sharing laughs, tears, support, and encouragement throughout my time in post-secondary. I will be forever grateful for our late night chats, pep talks, kind words, those long-distance “30-minute” conversations that turned into hours long, and for the innumerable times you edited my writing. Thank you for always believing in me even when I doubted myself.

Most importantly, I would like to thank my mom and dad – Jo-Ann and Mike – my biggest supporters, greatest fans, and the most incredible and amazing parents anyone could ask for. Mom and dad, I am forever thankful for your continuous words of encouragement and financial support. You both have instilled in me the values of dedication and a strong work ethic, and that hard work really does pay off. Together, you both have given me the ability to pursue my academic dreams and without both of you, this thesis would not have been possible. For this, I am forever grateful.
To my sister, Ashley, thank you for giving me tough love when I needed it and for being like a second mom to me. To my brothers, Jarrett and Jaden, thank you for the many laughs along my journey.

And lastly, to “The Avengers” – Rahul Sharma, Jessica Bouchard, and Heather Brand – my cohort comrades throughout the MA program. Thank you for making each semester enjoyable, even through the highs and lows. Grad school would not have been the same without the three of you!
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Chapter 1.

INTRODUCTION

1.1. Impact of Crime and Crime Prevention Efforts

Crime is one of the most concerning social, economic, and political issues in society today. Despite the fact that the overall rate of police-reported crime has declined most notably since the 1990s (Easton, Furness, & Brantingham, 2014, p. 8; Farrell, Tilley, & Tseloni, 2014, p. 421; Statistics Canada, n.d.¹), each year, thousands of individuals continue to be either directly or indirectly affected by crime (Lab, 2010, p. 2). The effects of crime can be devastating. In particular, crime may have physical, psychological, and financial consequences for an individual, as well as have an impact on one’s sense of security, safety, and overall quality of life. The costs of crime for society as a whole is also significant. It is estimated that over 85 billion dollars is spent in Canada on criminal victimization, as well as on the criminal justice process on apprehending and punishing offenders, with the loss suffered to victims accounting for approximately half that amount (Easton, Furness, & Brantingham, 2014, p. 1).

In an effort to combat crime and disorder, and maintain public safety, law enforcement agencies utilize and implement a wide variety of crime prevention strategies and/or methods. These methods range from increased surveillance, such as neighbourhood watch and closed circuit television (CCTV), to public education on how to protect oneself and/or their property, and environmental design of public spaces (Lab, 2012, p. 28). While crime prevention strategies have greatly evolved over the past

¹ According to Statistics Canada, there has been a decline in the overall trend of police-reported incidents since the 1970s, with the most notable decline in the 1990s onward. The three classifications of crime taken into consideration included: property offences, violent offences, and other offences (Statistics Canada, n.d.).
several centuries, the active, visible engagement of police officers patrolling in the community has long been a fundamental aspect of law enforcement and is one of the earliest approaches to crime prevention that remains in place today (Smith & Scott, 2013, p. 61).

1.2. Methods of Police Patrol

Police patrol is a central aspect of policing. It accounts for the largest amount of police work carried out by a law enforcement agency (Greene, 2007, p. 898) and, thus, is considered to be the “backbone of policing” (“Patrol”, 2008, p. 188; Kelling, Pate, Dieckman, & Brown, 1974, p. 1). Police patrol is argued not only to deter crime, but also to instill feelings of public safety among citizens and neighbourhoods. There are two main methods of patrol: motorized patrol and foot patrol.

1.2.1. Motor Patrol and Foot Patrol

Motor patrol is the main method of police patrol among law enforcement agencies. While some police agencies utilize other methods of patrol as well, the majority of agencies rely only on motorized patrol (Adams, 1971, p. 22-24; Green, 2007, p. 898). This is due to its increased efficiency in police patrol for covering a large geographical area, as a motorized patrol car can patrol an area ten times the size of what a foot patrol officer can cover on foot (Day, 1955, p. 699; Green, 2007, p. 898). Police patrol via the patrol car also allows officers to be more efficient while carrying out the primary duties of a patrol officer, which include: responding to calls-for-service, and looking for “traffic violations, suspicious behaviour, disorder and unsafe conditions” (Greene, 2007, p. 898). While motorized patrol is deemed as being most efficient, this method of police patrol is largely reactive in nature, as its main focus is responding to calls-for-service. As such, police have very limited informal interaction with the community outside carrying out their immediate patrol duties.

On the other hand, foot patrol is considered to be the original method of police patrol (Adams, 1971, p. 22). It involves officers patrolling via foot in a particular geographical area, often referred to as “the Beat” ("Beat", 2008, p. 13). This idea of
policing has its roots and can be traced back to British politician Sir Robert Peel and the passing of the Metropolitan Police Act in the early 1800s, which resulted in the creation of the first police agency in contemporary times. Here, it was believed by Sir Robert Peel that the visual presence of officers patrolling by foot would effectively prevent crime and/or disorder (Smith & Scott, 2013, p. 61). Since the time of its inception, foot patrol policing has been used in areas where there is a high volume of foot traffic, such as in business and shopping districts, high crime areas, or residential neighbourhoods, for example (Adams, 1971, p. 23). Unlike motorized patrol, this method of policing is a more proactive, preventative, and problem-solving approach to policing. It involves the police and the community working together as a means of identifying and solving crime and disorder, and it promotes the enhancement of police-community relations (Kelling, 1988, p. 4-5). Because police officers are patrolling by foot, they in turn have greater informal interaction among the community (Esbensen & Taylor, 1094, p. 184).

1.2.2. Historical Shift in Policing Methods and its Impact

Policing methods have evolved greatly over the past several decades. Historically, policing was conducted by way of foot patrol, where officers walked a beat for a certain amount of time each day as a means of maintaining order and making arrests (Dunham and Alpert, 1989, p. 21). Here, police engaged in proactive policing strategies and were closely linked with the community they served. However, the emergence of technological changes in the 1930s resulted in a shift from foot patrol to motorized patrol, as well as a change in policing strategies, which became more reactive in nature. While this change in police patrol appears to be beneficial and efficient, as it allowed for a greater geographical area to be patrolled as well as a faster response to calls-for-service, it did result in some negative consequences (Dunham & Alpert, 1989, p. 26). Specifically, the shift to motorized patrol removed officers from the street and away from citizens. Police became isolated from the community and in turn, police-community relations weakened (Esbensen, 1987, p. 45).

Despite this, the method of policing by way of motor patrol remained the dominant style for much of the 20th century. At this time, there was a commonly held idea that motor patrol was thought to produce a deterrent effect, where it was argued
that the high visibility of police members resulted in a “general risk of apprehension and blocked criminal opportunities via their presence” (Riccio, 1974, p. 208). As such, it was believed that preventative patrol via the patrol car was the answer to combat the increasing crime rates in cities. Thus, there was a push to “get more officers on the street” by both citizens and public figures (Kelling et al., 1974, p. 2). The effectiveness of police patrol was not put into dispute until the Kansas Preventative Patrol Experiment was conducted in the 1970s, which examined the impact of routine preventative patrol (Kelling et al., 1974, p. 7).

In this study conducted by Kelling, Pate, Dieckman, and Brown (1974), police patrol was varied in 15 police beats within Kansas City. Each of these 15 beats was classified into one of the following three types of beats: “reactive” beats (where officers only entered to respond to calls), “proactive” beats (where patrol was intensified two to three times that of normal patrol), and “control” beats (where normal routine patrol occurred) (Kelling et al., 1974, p. 3). Findings from the study concluded that varying the level of routine preventative patrol among different police beats had no effect on “crime, service delivery and citizen feelings of security” (Kelling et al., 1974, p. 3). These disappointing findings from the Kansas Preventative Patrol Experiment were further coupled with other issues arising at this time concerning motorized patrol policing, such as: citizens’ dissatisfaction with police services and the continued use of police strategies that kept officers away from the community, as well as patrol officers’ own frustration with their role in policing (Kelling, 1988, p. 4).

With this new evidence of ineffectiveness coupled with the negative perceptions felt toward motor patrol, this resulted in the impetus for change in policing methods. As such, new policing strategies were sought for policing communities. As a result and since the 1970s, there has been an emphasis to seek alternative policing strategies to ensure public safety and police effectiveness, and a demand for the return to foot patrol policing methods (Bond & Gow, 1996, p. 154; Greene, 1987, p. 3). However, the question remained: Was foot patrol the answer to the problem?
1.3. Foot Patrol

Foot patrol, as mentioned, is the oldest form of police work. Despite this, it is a policing method or strategy that is still utilized today in North America and internationally as well (Public Safety Strategies Group, 2007, p. 8). Foot patrol can be implemented on its own as a policing initiative, or it can be part of a larger policing strategy. It is also implemented in different settings and for different lengths of time. Likewise, foot patrol can also be carried out by sworn-members of law enforcement, civilian members, and/or volunteer members. For example, some cities have foot patrol programs that are carried out by trained community volunteers as part of larger community policing initiatives in neighbourhoods within a city. Other municipal police departments have a dedicated team of foot patrol constables who are responsible for patrolling and enforcement in a particular boundary or geographical area.

Unlike motor patrol, where the primary function is to respond to calls-for-service, foot patrol officers carry out many activities, apart from maintaining an active, visible presence in the community (Koller, 1990, p. 16). In addition to responding to calls-for-service in the beat area, foot patrol officers also carry out traditional and non-traditional policing activities, such as attending community meetings, meeting and establishing contacts with businesses in the area, identifying and solving community problems, and conducting and filing street information reports (SIRs) in order to find out who is in the area they patrol (Bond & Gow, 1996, p. 154; Koller, 1990, p. 9; Public Safety Strategies Group, 2007, p. 12). The visible presence and engagement of police officers by foot in the community also enables the officers to have face-to-face contact with the community. This in turn not only allows community members to more readily pass on valuable information to the police, but also have more direct contact with officers which allows community members and residents to be more willing to work together with police to identify problem areas and offenders (Koller, 1990, p. 16). There are many benefits or goals to the policing method of foot patrol, as a result of the activities carried out by officers on foot. The key benefits of foot patrol, as purported by advocates of this policing strategy or method, is a reduction in crime and/or disorder, a positive change in the perception of fear of crime, an increase in police-community relations, as well as an increase in citizen satisfaction with police (Kelling, 1988, p. 5).
1.4. Chapter Outlines

The focus of this thesis is to explore the long-term effectiveness of a foot patrol policing initiative in Lower Lonsdale – a neighbourhood within North Vancouver, British Columbia, Canada. As such, the following thesis will be divided into seven chapters. Chapter one gives an overview of the methods of patrol, as well as a discussion of the historical shift in patrol methods with an emphasis on the policing method of foot patrol. Chapter two provides a discussion of the theoretical framework to support the rationale of foot patrol policing. Specific emphasis will be placed on Broken Windows Theory, Rational Choice Theory, and Routine Activities Theory. Chapter three takes an in-depth look at the empirical research and evaluation studies previously conducted on police foot patrol initiatives both locally and internationally and in various contexts, such as commercial and residential settings, and crime hotspots. Chapter four describes the research methodology and statistical technique used to carry out this study and analyze the data. Chapter five reports on the results and the analysis of the study. Chapter six summarizes and interprets the findings of the study, and provides a discussion of such findings in relation to previous research in the area of foot patrol. Study limitations, as well as directions for future research will also be discussed. Lastly, chapter seven provides a summary of the current study, along with a discussion of the study implications for the police service, the community, and for society. Concluding remarks on the importance of research in this area will also be highlighted.
Chapter 2.

THEORETICAL SUPPORT

There are many goals of foot patrol, as previously mentioned. However, the main goal governing any foot patrol initiative is to reduce crime and/or disorder. There are three main theories of crime that help us to understand crime in a spatial context and more importantly, provide support for the rationale of foot patrol policing. These theories fall under the ecological theories of crime and the environmental theories of crime and include: Broken Windows Theory, Rational Choice Theory, and Routine Activities Theory. Together, these theories help to explain why the policing method of foot patrol would effect crime and/or disorder. While each theory offers a different perspective or explanation, they each focus on the physical environment, which provide opportunities for crime that can in turn influence criminal activity and disorder if not manipulated. The following section will provide a discussion of each theory along with its empirical evidence, and its theoretical application to the function of foot patrol. It is important to take into consideration both individual and ecological explanations of crime in order to better understand and study foot patrol policing.

2.1. Broken Windows Theory

2.1.1. Theoretical Assumptions

The concept of “broken windows” was first introduced by James Q. Wilson and George L. Kelling in a 1982 article published in the Atlantic Monthly magazine titled Broken Windows: The Police and Neighbourhood Safety (Kelling, 1988, p. 2; Wagers, Sousa, & Kelling, 2008, p. 247; Wilson & Kelling, 1982, p. 29). Here, Wilson and Kelling (1982) asserted that a developmental sequence exists between untended disorder, citizen fear, and serious crime, and thus, further emphasized the importance of “order-
maintenance activity” (p. 29-30; Kelling, 1982, p. 29-30; Kelling & Coles, 1996, p. 19). The development of Broken Windows Theory came at a time when research and evaluation studies raised questions on the efficiency of the policing strategies of random police patrol and the rapid response to calls-for-service (Wagers et al., 2008, p. 248). During this time, it was argued that police have become alienated from the community they patrol and moreover, have become preoccupied with suppressing crime and apprehending criminals. As a result, police have spent little time or effort on “order maintenance activity” (Greene, 1987, p. 5). It is believed that if order maintenance and public disturbance behaviours go unchecked, this may lead to what Wilson and Kelling (1982) refer to as the “broken windows” phenomenon (Kelling, 1988, p. 2).

Under Broken Windows Theory, Wilson and Kelling (1982) describe how the police maintain order in a community. In particular, they argue that police officers assigned to an area get to know the people and problems of that given area, as well as identify who the “regulars” are and who the “strangers” are (Kelling, 1982, p. 30; Wagers et al., 2008, p. 255). The rules of the neighbourhood are negotiated and established with the “regulars” and the police enforce these agreed upon community standards and rules (Kelling, 1982, p. 30; Wagers et al., 2008, p. 255). Different neighbourhoods have different rules (Kelling, 1982, p. 30; Wagers et al., 2008, p. 253); acceptable behaviours based on the established rules of one public space (e.g., a business district) may not be acceptable in a different public space (e.g., a residential building complex) (Wagers et al., 2008, p. 256).

Wilson and Kelling (1982) argue that it is the accumulation of disorder, rather than just one or two disorderly problems, that can have negative implications for a neighbourhood (Wagers et al., 2008, p. 258). Using the analogy of a broken window to describe the connection between disorder and crime, Wilson and Kelling (1982) posit that:

“if a window in a building is broken and is left unrepaired, all the rest of the windows will soon be broken...[O]ne unrepaired broken window is a signal that no one cares, and so breaking more windows costs nothing” (p. 30).

According to Kelling (1988), neighbourhood disorder, such as panhandling, prostitution, and public intoxication, if not addressed creates fear in citizens (p. 2).
Furthermore, neighbourhood disorder, if left ‘unrepaired’, signals that “nobody cares about the community” (Kelling, 1988, p. 2) and will result in a “breakdown of community controls” (Wilson & Kelling, 1982, p. 31) and citizens withdrawing from public space (Kelling, 1988, p. 2; Wagers et al., 2008, p. 252). Untended disorder, increased fear, and citizen withdrawal results in a reduction of informal social control by neighbourhood residents and consequently, leaves a neighbourhood unable to protect itself (Wilson & Kelling, 1982, p. 31). As disorder in these areas begins to aggregate, it sends a message to potential offenders that the space is not controlled by the police and/or its citizens. In turn, it makes the space an opportunistic area for criminal offending and will lead to more serious crime and disorder in that area (Wagers et al., 2008, p. 252; Wilson & Kelling, 1982, p. 31). However, by addressing neighbourhood disorder and disorderly behaviours through enforcement and specific policing methods (i.e. foot patrol), it is assumed that the community’s social order can be re-established. As a result, the conditions that make a community vulnerable to criminal activity will be averted (Greene, 1987, p. 5).

2.1.2. Empirical Support

Since the development of Broken Windows Theory, empirical research has been conducted to test and validate the key premises of the theory. Much of this research has focused on examining the sequential link between disorder, fear, and more serious crime, as postulated by Broken Windows Hypothesis. However, to date, empirical findings have found mixed support. One of the earliest attempts to test and validate Broken Windows Hypothesis was conducted by Skogan (1990), which findings empirically supported the causal relationship between disorder and serious crime (Kelling & Coles, 1996, p. 24). In this study, Skogan (1990) used survey data from 40 residential urban neighbourhoods, as well as from direct observations of recorded instances of disorder (e.g., street prostitution, drug dealing, graffiti) from a sample of these neighbourhoods in order examine the relationship between disorder, fear, and crime (p. 19-20; Kelling & Coles, 1996, p. 24-25). Skogan (1990) concluded that regardless of resident characteristics (e.g., age, income level, home ownership status), residents were found to agree on what comprised of disorder and the extent of how much disorder was present in their neighbourhoods (p. 55-56). Consistent with Broken
Windows Hypothesis, findings revealed a direct link between disorder and crime. Skogan (1990) found that disorder was more strongly related to crime compared to other variables, such as poverty, instability, and race in areas that demonstrated high levels of crime (p. 75; Kelling & Coles, 1996, p. 25). A strong link remained between disorder and crime, even when controlling for poverty, neighbourhood stability, and race (Skogan, 1990, p. 73).

Subsequent empirical research, however, questioned the sequential relationship between disorder, fear, and serious crime. Harcourt (2001) re-analyzed Skogan (1990), and concluded that the data used by Skogan (1990) analysis does not support Wilson and Kelling’s (1982) Broken Windows Hypothesis. In this study, Harcourt (2001) conducted regression analysis and included all of the types of crime available in the data: purse-snatching, physical assault, burglary, robbery, and sexual assault (p. 76). Initial findings revealed that disorder is statistically significantly related to physical assault, burglary, and robbery (Harcourt, 2001, p. 76). Interestingly enough, when the variables of poverty, neighbourhood stability, and race were held constant, Harcourt (2001) found that robbery victimization was the only crime variable that remained statistically significantly related to disorder (p. 70).

Similarly, in a study conducted by Sampson and Raudenbush (1999), researchers also examined whether disorder is an imperative link that leads to predatory or “serious” crime (p. 614). Using multiple data sources, including systematic observation of a sample of neighbourhood clusters, police records, and census and vital statistic data, Sampson and Raudenbush (1999) concluded that findings were not consistent with the theoretical assumptions of Broken Windows Theory. In fact, after controlling for all structural characteristics, results revealed a spurious association between disorder and predatory crime (Sampson & Raudenbush, 1999, p. 627). Upon

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3 Harcourt (2001) found that no statistically significant relationship exists between disorder and robbery victimization when both the variables of poverty, neighbourhood stability, and race are controlled for, and when the data on the Newark neighbourhoods is excluded from the analysis (p. 72-73).
analyzing the independent measure outcomes of predatory crime, specifically robbery, homicide, and burglary, the only crime that did not display a spurious relationship was between disorder and robbery (Sampson & Raudenbush, 1999, p. 630).

Hinkle and Weisburd (2008) tested the relationship between disorder and fear – a key link argued by Broken Windows Theory – in the context of a police crackdown focused on targeting physical and social disorder in target areas (p. 506). In Hinkle and Weisburd (2008) study, survey data was used from a larger police crackdown study in New Jersey (see Weisburd et al., 2004, and Weisburd et al., 2006). Results revealed that both perceptions of social disorder and observations of physical disorder were significantly related to fear of crime (Hinkle & Weisburd, 2008, p. 508). Together, these findings provide evidential support of a link between disorder and fear of crime. Yet, Gau, Corsaro, and Brunson (2014) found differentiating results regarding the disorder-fear link. In examining the disorder-fear relationship, findings confirmed Gau et al. (2014) hypothesis that there is an indirect, rather than direct, association between disorder and fear (p. 581). Based on hierarchical linear modeling, results revealed that the mediating variables of social control and social cohesion influenced the relationship between disorder and fear, with social control being more strongly relationship to disorder and fear (Gau et al., 2014, p. 584-585). Thus, it appears that other variables influence the relationship between disorder and fear, and the relationship is not direct as suggested by Broken Windows Hypothesis.

Despite the mixed empirical support for Broken Windows Theory, the theoretical ideas under this theory still remains an important part for understanding foot patrol policing and its relation to crime and/or disorder in an urban environment. As well, such mixed findings do not negate the important role that disorder, fear, and serious crime play in a neighbourhood context.

2.1.3. Application to Foot Patrol policing

Broken Windows Theory is an important theoretical perspective to apply to the current analysis of the foot patrol policing initiative in North Vancouver, British Columbia, Canada. This theory plays a key role in the policing method of foot patrol and on the
impact of crime because foot patrol officers, through their policing duties, are able to change the physical environment (Gill, Weisburd, & Vitter, 2013, p. 106). By implementing foot patrol policing in a certain geographical area, it brings officers back into the community. It enables officers not only to spend time carrying out ‘order maintenance activity’ and address neighbourhood disorder, but it also allows the officers to get to know the people, problem areas, and community standards. Thus, foot patrol officers are able to maintain order, as well as enforce and uphold the informal social controls set out by the community. By doing this, foot patrol officers have the ability to change certain neighbourhood characteristics in their physical environment that have the propensity to contribute to the commission of serious offences. Through their policing duties, foot patrol officers take control of the streets and keep the Lower Lonsdale neighbourhood in check (Pratt, Gau, & Franklin, 2011, p.107). They are able to control crime by acting proactively and intervening with disorder in the area they patrol. In turn, the activities of foot patrol officers send a message to would-be offenders that the area is controlled and that disorder will not be tolerated (Pratt et al., 2011, p. 108).

2.2. Routine Activities Theory

2.2.1. Theoretical Assumptions

Routine Activities Theory was developed by Lawrence Cohen and Marcus Felson (1979), and has its theoretical roots in the work of Amos Hawley’s (1950) Human Ecology Theory (Clarke & Felson, 1993, p. 3; Felson, 2008, p. 70). Routine Activities Theory was established in an attempt to explain the crime rate trends post World War II in America. In particular, it was devised during a time when it was noted that despite the social and economic improvements taking place in society – improvements to conditions originally believed to effect violent crime rates, such as a decline in unemployment rates and an increase in family income – crime rates were surprisingly increasing, rather than decreasing (Cohen & Felson, 1979, p. 588). Particularly, during the period between 1960 and 1975, the Uniform Crime Report (UCR) revealed that property crimes, specifically burglary, increased by 200%, as well as other similar offences, such as aggravated
assault, robbery, and homicide, all of which dramatically increased by 164%, 263%, and 188%, respectively (Cohen & Felson, 1979, p. 588).

In order to make sense of this phenomenon, Cohen and Felson (1979) took both a macro and micro level approach, and examined the social structures and the patterns of behaviour or “routine activities” of individuals to understand criminal offending and its relation to the change in crime rate trends. Cohen and Felson (1979) attributed the change in crime trends as a result of the changes in the routine activities of individuals as they go about their everyday life (p. 593). These routine activities included repetitive patterns of behaviour that individuals engage in either inside or outside the home, such as attending work, school, partaking in leisure activities, and fulfilling one’s basic needs (Cohen & Felson, 1979, p. 593).

Under Routine Activities Theory, Cohen and Felson (1979) emphasized how it is the opportunity available and/or present in the physical environment, rather than individual offender characteristics and inclinations, which play a pivotal role in the understanding of criminal offending (Cohen & Felson, 1979, p. 589). In developing Routine Activities Theory, Cohen and Felson (1979) focused on what they referred to as “direct-contact predatory violations” (p. 590; Clark & Felson, 1993, p. 1), which are described as offences where one person comes into physical contact and harms another person or property (Felson, 2008, p. 73). Cohen and Felson (1979) further theorized that it is an individual’s routine activities as they go about their day that affects the opportunities for “direct-contact predatory violations” to occur (Cohen & Felson, 1979, p. 589).

According to Cohen and Felson (1979), for a crime to occur three key elements are required: (1) a motivated offender, (2) a suitable target, and (3) the absence of a capable guardian (p. 589; Clarke & Felson, 1993, p. 2). A motivated offender is any individual who has the inclination and willingness to commit an offence (Cohen & Felson, 1979, p. 590). A suitable target is a person or an object that an offender is attracted to, whether it is because it provides the offender with a reward or it can be easily transported, for example (Felson & Clarke, 1998, p. 4). There are four characteristics that make a target more attractive and subject to criminal attack, which can be summed
up by the acronym “VIVA”: value, inert, visibility, and access (Felson & Clarke, 1998, p. 5). A target that has more value to it will be more appealing, as is a target that weighs less. Similarly, a target that is visible or exposed will be at greater risk, as is a target that is placed in close proximity to an access point, such as a door (Felson & Clarke, 1998, p. 5). A capable guardian is anyone or thing whose “presence and proximity” to a target provides protection over it (Felson, 2008, p. 71; Felson & Clarke, 1998, p. 4). Capable guardians can be formal or informal, and can include ordinary citizens, such as family, friends, and bystanders, and well as the police, security guards, and even alarms or surveillance cameras (Clarke & Felson, 1993, p. 3; Felson & Clarke, 1998, p. 4).

From a micro-level perspective, Cohen and Felson (1979) argued that in order for the successful commission of a crime to occur, the three key elements must converge both in time and space (p. 589; Felson, 2008, p. 70; Felson & Clarke, 1998, p. 4). As such, the absence of any one of these key elements is sufficient enough to prevent a violation from occurring (Cohen & Felson, 1979, p. 589). By simply changing one’s everyday routine activities, this could increase the likelihood of the three key elements to converge in time and space and thus, increase the opportunity for crime to occur (Cohen & Felson, 1979, p. 589). But, how does the coverage of a motivated offender, a suitable target, and a lack of a capable guardian in time and space affect the broader crime trends?

From a macro-level perspective, Cohen and Felson (1979) contended that there has been a change in individuals’ routine activities since post World War II (p. 598). Since the 1960s, there has been an increase in the number of individuals attending post-secondary as well as an increase in the number of women entering the labour force. As such, a greater number of individuals who have previously spent time at home and who have acted as capable guardians are now spending time engaging in routine activities away from the home. Thus, with the shift in routine activities and the increase in the number of individuals spending less time at home, this left targets with a lack of a capable guardian (Cohen & Felson, 1979, p. 598). As a result, it provided an increased

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4 A motivated offender, a suitable target, and a lack of a capable guardian.
opportunity for the intersection of the three key elements necessary for a violation or crime to occur.

2.2.2. Empirical Support

Empirical research has sought to test and validate Routine Activities Theory through the use of macro-level data, such as aggregate crime rates, micro-level data, such as survey data, or a combination of both (Groff, 2007, p. 77). Key empirical studies have supported the main premises outlined under Routine Activities Theory that everyday routine activities, as opposed to individual factors, play a role in the occurrence for a crime to take place. Cohen and Felson (1979) conducted the original testing of Routine Activities Theory, whose findings demonstrated strong empirical support for their theory. In their study, Cohen and Felson (1979) hypothesized that aggregate crime rate trends vary over time as a result of the disbursement of routine activities away from home and family (Cohen & Felson, 1979, p. 600). Cohen and Felson (1979) examined official index crime rates of five classifications of crime: homicide, forcible rape, aggravated assault, burglary, and robbery (p. 600-601). Findings revealed statistically significant relationships between official crime rate trends and the household activity variable (Cohen & Felson, 1979, p. 604). Together, this finding supports the routine activities approach and Cohen and Felson’s (1979) core theoretical idea that an increase in routine activities away from the home and family do in fact provide an increased opportunity for crime to occur.

Since Cohen and Felson’s (1979) original study, subsequent research has been conducted in order to test Routine Activities Theory and its application in explaining the prevalence of certain types of crimes (see Groff, 2007; Kennedy & Forde, 1990; Lynch, 1987; Navarro & Jasinski, 2011; Mustaine & Tewksbury, 1999). For example, Navarro and Jasinski (2012) applied the key criteria of Routine Activities Theory, specifically availability, suitability, and guardianship, in order to predict cyberbullying experiences.

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5 Availability was measured by how frequent teenagers went online (Navarro & Jasinski, 2012, p. 85-86).

6 Suitability was measured by the specific activities that teens engaged in while online (i.e. conducting research) (Navarro & Jasinski, 2012, p. 86).
among teenagers. Using secondary telephone interview data with parent and teen respondents (N=935), Navarro and Jasinski (2012) found that Routine Activities Theory was statistically significant in predicting cyberbullying experiences (p 89). In regards to availability, findings revealed that an increase in Internet usage increased the risk of cyberbullying. Moreover, and in regard to suitability of targets, findings revealed that teenagers engaging in certain online activities, such as using instant messaging, buying things online, visiting an online chat room, researching current events and/or college information were at an increased risk of victimization. Lastly, parents using filters was the only guardianship criteria that was a significant predictor for explaining cyberbullying (Navarro & Jasinski, 2012, p. 89-90).

Similarly, Groff (2012) applied Routine Activities Theory to street robbery in order to test the theory. In this study, Groff (2012) argued that as the average time individuals spend away from home increases, so does the aggregate rate of street robbery (p. 85). It was also argued that as the average time individuals spend away from home increases, there would be a change in the spatial pattern of street robbery (Groff, 2012, p. 85). In order to test these hypotheses, Groff (2012) operationalized the core ideas of Routine Activities Theory and developed a simulation model of street robbery (p. 75). Five experimental conditions were created, with each condition varying in the percentage of time society on average spends on routine activities away from home (i.e. 30%, 40%, 50%, 60%, and 70%). Using a one-way ANOVA test, findings revealed that there was a significant difference in the rate of robbery across the experimental conditions; however, as a result of the statistical test, it was unknown which experimental groups were different from each other (Groff, 2012, p. 92). Results also demonstrated that there was a high degree of concentration in the spatial distribution of robberies across the experimental conditions, with an increase in the concentration densities as individuals spend more time away from home (Groff, 2012, p. 94).

Kennedy and Forde (1990) used data from the 1982 Canadian Urban Victimization Study to explore the relationship between routine activities and criminal

\footnote{Guardianship was measured by each teenager’s perception of what they believed the techniques their parents used to safeguard against cyberbullying (e.g., checking browser history) (Navarro & Jasinski, 2012, p. 86).}
victimization (p. 137). Findings demonstrated that victimization coincided with individuals who conduct activities away from their home, such as going to sporting events, going to work or school, or going to the bar, for example (Kennedy & Forde, 1990, p. 141-142). Moreover, young and unmarried males were also found to be most vulnerable of victimization and more likely to be a target (Kennedy & Forde, 1990, p. 143). Together, Kennedy and Forde's (1990) findings support key ideas of Routine Activities Theory demonstrating that individual who engage in routine activities or lifestyles that take them away from home are more likely to be victimized.

Similar to previous empirical studies testing Routine Activities Theory, Mustaine and Tewksbury (1999) also found that certain lifestyle behaviours or routine activities that individuals engage in away from home increases victimization. In their study, Mustaine and Tewksbury (1999) administered surveys to female university students (N=861) in order to test the ability of Routine Activity Theory to predict women's stalking victimization. Findings revealed that the following lifestyle behaviours were predictors of women's stalking victimization risk: frequenting the shopping mall, getting drunk in public, buying drugs, living on campus, and being employed (Mustaine & Tewksbury, 1999, p. 53-55). Together, these activities not only took women away from home and into the public domain, but also put women in situations or activities that expose them to potential offenders and lack of capable guardians in their environment.

2.2.3. Application to Foot Patrol policing

Routine Activities Theory is an important theoretical perspective that can be applied to the understanding of foot patrol policing and its impact on neighbourhood crime. In the context of the Lower Lonsdale foot patrol initiative, the mere presence of foot patrol officers act as capable guardians in the geographical area. Even though suitable targets and motivated offenders may be present, the presence and close proximity of foot patrol officers increase guardianship within the area they are patrolling. Thus, the existence of as a capable guardian inhibits the convergence of the necessary elements required for a crime to occur in time and space. Simply put, an increase in police presence results in a reduced opportunity for motivated offenders to commit
crimes because there is an increased likelihood that the capable guardian will see the offender. In turn, the opportunity for a crime to occur is reduced and/or prevented.

2.3. Rational Choice Theory

2.3.1. Theoretical Assumptions

Rational Choice Theory was developed by Derek Cornish and Ronald Clarke in an attempt to explain an offender’s decision-making approach to committing an offence (Lersch, 2007, p. 79). This perspective emerged around the 1960s and 70s—a time period where it was believed that criminal behaviour was the result of “criminal predispositions and psychopathologies” in individuals, which caused them to offend (Cornish & Clark, 2008, p. 22). This explanation for criminal offending, however, was brought into dispute when ongoing evaluation research into specific programming designed to prevent individual offending failed to provide convincing evidence of their effectiveness (Cornish & Clark, 2008, p. 22). Similarly and during this time, Cornish and Clarke were conducting research into the effects of institutional treatment on juvenile offenders. Through their research, Cornish and Clarke noted that when comparing the same type of juvenile offenders with various types of misconduct, some institutional treatment centers had more problems than others. Together, this research lead Cornish and Clarke to question whether it was certain aspects of the environment that provided increased opportunities for offending and deviancy, as opposed to individual predispositions (Lersch, 2007, p. 79).

Under Rational Choice Theory, Cornish and Clarke (2008) argued that criminal behaviour is purposive and intentional (p. 24-25). They asserted that criminals are rational beings, who make conscious decisions on whether or not to commit a criminal offence (Lersch, 2007, p. 79). In order to make their decision on whether to offender or not, criminals go through a decision-making process. Here, they process information from their environment and weigh the costs and benefits of their actions prior to committing an offence (Lersch, 2007, p. 79-80). Similarly, individuals choose to commit crimes based on their perceptions of reward and risk, with the overall intention of benefiting themselves (Cornish & Clarke, 2008, p. 25). They choose targets that provide
the “greatest probability for pleasure with the lowest probability for pain” (Lersch, 2007, p. 79-80), with the overall intention of benefiting the offender, such as through immediate gratification and material goods, for example (Cornish & Clarke, 2008, p. 25). However and because individuals make decisions to offend in under less-than-perfect circumstances, it is argued that individuals display “limited or bounded rationality” in their decision-making (Cornish & Clarke, 2008, p. 25).

Cornish and Clarke (2008) further contended that criminal-decision making is crime-specific (p. 24; Cornish & Clarke, 1986, p. 2). As crimes differ from each other, it is argued that offenders choose to carry out certain crimes based on several features or factors required, such as the skills necessary, availability/accessibility to targets, and/or knowledge required to carry out the offence (Cornish & Clarke, 2008, p. 26; Cornish & Clarke, 1987, p. 935). This is what Cornish & Clarke (1987) refer to as the concept of “choice-structuring properties”, and it helps to explain why crimes are attractive to certain individuals and at certain times (p. 935). In other words, properties affect or “structure” an offender’s decision to offend (Cornish & Clarke, 1987, p. 935).

Moreover and similarly related to the ideas postulated under Rational Choice Theory is the concept of deterrence. This idea can be traced back to the Enlightenment Era and the philosophical thinking of Cesare Becarra and Jeremy Bentham (Nagin, 2013, p. 84; Nagin, Solow, & Lum, 2015, p. 75). Here, it was argued that “the threat of punishment may deter criminal acts” (Nagin, 2013, p. 84). As such, it was believed that the punishment must involve “certainty, severity, and immediacy (celerity)” in order to prevent criminal offending (Nagin, 2013, p. 85). Together, this involved the certainty of an offender getting caught and apprehended, the severity of the legal punishment imposed and lastly, the immediacy or swiftness of getting caught after commission of the offence (Nagin, 2013, p. 85).

2.3.2. Empirical Support

Rational Choice Theory has been applied in various situations within different fields of study, such as economics, criminology, and psychology. Empirical testing has sought to test and validate the key principles of Rational Choice Theory through two
primary research methods: “self-reported surveys” and through “scenarios administered within laboratory settings” (O’Grady, Asbridge, & Abernathy, 2000, p. 6). From the criminology perspective, Rational Choice Theory has been applied to various crimes in order explain, test, and validate the key theoretical assumptions of the theory. However, limited empirical research exists. Nonetheless, key empirical studies have supported the main assumptions outlined in Rational Choice Theory, which demonstrate that individuals take into account the opportunities, costs, and benefits when deciding whether or not to commit an offence.

For instance, Dugan, LaFree, and Piquero (2005) applied the theoretical assumptions of Rational Choice Theory in order to explain terrorist and non-terrorist aerial hijackings (p. 1032). In their study, researchers examined 1,101 aerial hijackings that occurred across the globe from 1939 to 2003 (Dugan et al., 2005, p. 1040). Data was obtained from a combination of sources: the Federal Aviation Administration, the RAND Corporation, and a global terrorism database (Dugan et al., 2005, p.1032, 1040). Dugan et al. (2005) then developed and tested a series of hypothesis related to success, benefits, and costs – key premises of Rational Choice perspective – in order to explain aerial hijacking (p. 1037).

In general, findings supported the assumptions of Rational Choice Theory in relation to aerial hijacking. Specifically, findings revealed that if successful hijackings were recent and close together, there was a significant increase in new hijacking for all non-U.S. as well as non-terrorist hijackings (Dugan et al., 2005, p. 1051). Moreover, it was found that the success of all non-terrorist hijackings declined substantially after a counter-hijacking policy was implemented which made hijacking a crime in Cuba (Dugan et al., 2005, p. 1052-1053). Other strategies, specifically implementation of metal detectors and increased enforcement at checkpoints, which in turn increases the cost of hijacking, resulted in a significant decline in the success of aerial hijacking for U.S. flights and those flights that were diverted to Cuba (Dugan et al., 2005, p. 1053-1054). Interestingly enough, however, tighter screening and customer screening was found to have no effect on the success of hijacking (Dugan et al., 2005, p. 1054). These findings supported the notion that when the certainty of apprehension or punishment increases, the likelihood of hijacking attempts decreases (Dugan et al., 2005, p. 1056).
Other researchers, such as O’Grady, Asbridge, and Abernathy (2000), explored illegal tobacco sales to youth in Ontario using the rational choice model, as researchers were interested in understanding why some merchants comply with the law and others do not (p. 3). Data was collected from merchant compliance checks (N=439) where youths attempted to buy tobacco products (O’Grady et al., 2000, p. 3). Focusing on variables related to enforcement, background characteristics (e.g. operation type, rural/urban location type), and event characteristics (e.g. legal compliance, time of sale), findings concluded support for Rational Choice Theory (O’Grady et al., 2000, p. 8-10). In particular, O’Grady et al. (2000) found that legal compliance was the strongest predictor of illegal tobacco sales to youth (p. 13). The likelihood of illegal tobacco sales was very low (2.5%) when tobacco merchants complied with other tobacco laws, such as signage of legal age to purchase cigarettes, asking for personal identification, as well as for their age. The probability of illegal tobacco sales increased to 61% when any one of these conditions were not met (O’Grady et al., 2000, p. 13).

Other specific events – time of day, gender, and age – had significant effects on the likelihood of offending. Specifically, results found that youth were more successful with purchasing tobacco products later in the day. There was a 6% likelihood of a successful tobacco purchase in the morning, compared to the afternoon (18% likelihood for success). However, after 6:00 pm, it was found that the successfullness of youth attempting to purchase tobacco increased to 21% (O’Grady et al., 2000, p. 11). In regards to gender, the likelihood of successful tobacco purchase by youths increased when it involved both a male and female youth going into the store together (22%) to purchase tobacco, compared to a pair of males (6%) or females (14%) (O’Grady et al., 2000, p. 13-14). Lastly, age was found to be a significant predictor of illegal tobacco sales to youth. Here, it was found that as the age of youths increases, so does their attempts in the successfulness of tobacco purchases (O’Grady et al., 2000, p.13).

Corbett and Simon (1992) applied Rational Choice framework and the key concepts of costs, benefits, and opportunities in order to explore traffic offending. In this study, researchers used data from a larger study funded by the Transport and Road Research Laboratory (TRRL) on unlawful driving behaviours, which involved a mix of questionnaire and interview data (Corbett & Simon, 1992, p. 538-539). Corbett and
Simon (1992) explored participants’ frequency of engaging in a range of traffic offences and the reasons as to why individuals engaged or refrained in traffic offences, particularly looking at three specific actions: speeding, drunk-driving, and running a red light (p. 539). Based on collected and analyzed data, participants were divided into two groups: high-offending and low-offending individuals (Corbett & Simon, 1992, p. 539).

In general, key findings from the study supported the main postulations of Rational Choice Theory in that individuals were found to weigh the opportunities, costs and benefits of their actions when making a decision whether to offend or not, particular in regards to traffic offences (Corbett & Simon, 1992, p. 547). Results from the study demonstrate that there is a variety of reasons as to why drivers break the law and commit traffic offences, which include: confidence in one’s driving skills, being in a hurry to having a low perceived risk of getting caught and unconcerned of the penalty (Corbett & Simon, 1992, p. 540-541). Despite this, those categorized as high-offenders were found to perceive more benefits, more opportunities, and few risks when it came to breaking the law and committing traffic offences compared to low-offenders (Corbett & Simon, 1992, p. 542). Similarly, Corbett and Simon (1992) found that drivers who broke traffic laws related to speeding often and by large amounts were more likely to commit other traffic offences as well, compared to those drivers who reported that they rarely speed (p. 543). These findings were also evident for those who reported drunk-driving and running red lights more often as opposed to only on a rare occasion (Corbett & Simon, 1992, p. 543).

Lastly, Paternoster and Simpson (1996) explored corporate crime offending from a Rational Choice model. In this study, researchers argue that decisions to offend are made by the individual (p. 553). It is further argued that such decisions are influenced by the context or environment that an individual is employed in, as well as the perceived risks or benefit for the individual, their company, and the presence/absence of any incentives or restrictions in one’s workplace (Paternoster & Simpson, 1996, p. 553). Using a survey involving four corporate crime scenarios\(^8\), data was collected from a

\(^8\) The specific corporate crime scenarios in this study were: price fixing, bribery, manipulation of sale statistics, and violation of Environmental Protection Agency (EPA) emission standards (Paternoster & Simpson, 1996, p. 558).
group of participants who were enrolled in an MBA program, and corporate executives enrolled in a business school program. Together, participants were either potentially at-risk or currently at risk for engaging in corporate crime offending (Paternoster & Simpson, 1996, p. 557).

Overall, findings from the study confirmed that decisions to commit illegal corporate offences are significantly affected by the “perceived incentives and disincentives of the act, the organizational context, and the moral climate of the firm” (Paternoster & Simpson, 1996, p. 568). In particular, findings demonstrated that individuals were more likely to commit an offence if had financial benefit for the firm (i.e. increase revenue or save the firm a large sum of money), if the act would enhance the reputation of the company, or if it was a common practice within the firm (Paternoster & Simpson, 1996, p. 568). Similarly, intentions to commit corporate offences were higher for those who perceived individual benefits for themselves, such as a career advancement or if they found pleasure or enjoyment from committing the offence (Paternoster & Simpson, 1996, p. 571). Findings also demonstrated that the risks and costs of informal sanctions and loss of self-respect deterred individuals from committing corporate offences. As well, those who believe that committing corporate crime went against their personal moral code were found to have significantly lower intentions to commit corporate criminal offences (Paternoster & Simpson, 1996, p. 571).

2.3.3. Application to Foot Patrol Policing

Rational Choice Theory is an important theoretical perspective that can be applied to the understanding of foot patrol policing and its impact in a particular environment. The mere visible presence of foot patrol officers in an area alters choice-structuring properties and as a result, impacts an offender’s decision to commit crime. As well, the increased visibility of officers results in the costs of committing an offence to outweigh the benefits and immediate gratification that could be achieved if the offence was committed. More importantly, offenders will also choose not to commit an offence here because the visibility of foot patrol officers increases his or her risk of apprehension and detection. Simply put, the crime becomes too risky and the costs of getting caught outweigh the perceived benefits that could be obtained by committing an offence.
Chapter 3.

EMPIRICAL RESEARCH ON POLICE FOOT PATROL

Foot patrol, as previously mentioned, is the oldest method of policing. It is a policing strategy that is still utilized by law enforcement agencies in North America and internationally because it provides benefits for a community that motorized patrol cannot offer. Since its inception, foot patrol has been documented as a policing strategy used in a variety of settings, particularly in commercial and residential areas, as well as in crime hotspot locations. Despite its well-documented use, existing empirical research on foot patrol and its impact is limited in nature (Pate, Ferrara, & Kelling, 1981, p. 12). In fact, there have been only two large-scale evaluation studies on foot patrol initiatives that date back to the mid-1970s and 1980s (see Kelling, Pate, Ferrara, Utne, & Brown, 1981 and Trojanowicz, 1982).

Despite the lack of empirical research, the following section explores studies that have examined various aspects of foot patrol, such as its impact in relation to crime and disorder, police-community relations, citizen and/or police satisfaction, and on the deterrence and displacement of crime. Moreover, the following section will provide a discussion of the earliest research on foot patrol followed by a discussion of the more contemporary and current research being conducted in this area. It is important to examine the impact of foot patrol in order to determine its relevancy and the effect it has in a changing society or socio-demographic area. Findings from such research can result in a police agency either tailoring the current foot patrol practices based on what is found to work and to better suit the needs of the police and the community, or result in the implementation of a new policing method altogether.
3.1. Early Research on Foot Patrol

There has been much debate among scholars and law enforcement agencies alike as to which policing method is most effective for combating crime and maintaining public safety. Majority of the early research on foot patrol has primarily focused on the quantifiable impact that foot patrol policing can have on a community or setting in terms of reducing crime and disorder, measured through the number of calls-for-service, police-incident data of crimes committed, and/or surveys. Moreover, early research in the area of foot patrol focused on two primary research settings in the United States – Newark, New Jersey and Flint, Michigan.

3.1.1. The Newark Foot Patrol Experiment

The first known true experiment on foot patrol was the Newark Foot Patrol Experiment conducted in Newark, New Jersey (Kelling et al., 1981). In this major evaluation study, Kelling, Pate, Ferrara, Utne, and Brown (1981) explored whether the foot patrol policing initiative had an impact on crime and disorder, police community relations, as well as citizens feelings of safety, fear of victimization, and officer satisfaction. Researchers examined 12 locations that comprised of residential and non-residential areas. In order to determine which locations were the experimental areas, researchers first identified eight locations that had existing foot patrol coverage. Each beat location was matched demographically. Of these eight locations, four locations were randomly selected to eliminate foot patrol in pre-existing beats and four locations were randomly selected to maintain foot patrol in beats, which were already in place prior to the experiment. As well, four similar locations introduced foot patrol in beats where this type of policing had not previously been used before (Kelling et al., 1981, p. 4). Data was collected through monthly police statistics, and before/after surveys with residents and merchants in order to measure reported crime, arrests and victimization, as well as fear and satisfaction during the experimental period (February 1987 to January 1979).

Findings from the Newark Foot Patrol Experiment revealed that foot patrol had no effect on the levels of crime; yet, it was found that foot patrols had an influence on
citizens’ perceptions of crime (Kelling et al., 1981, p. 5-6). Specifically, citizens perceived certain public disorder crimes to be less of a problem, especially for residents in the four areas that added foot patrols (Kelling et al., 1981, p. 5). Overall, the experiment concluded that as a result of foot patrols, citizens became more satisfied with police services, less fearful of crime, and took fewer protective measures to avoid crime (Kelling et al., 1981, p. 5-6).

3.1.2. The Flint Neighbourhood Foot Patrol Experiment

A Michigan State University team conducted a major evaluation on the Flint Neighbourhood Foot Patrol program, which began in January 1979 (Trojanowicz, 1982). Here, researchers examined 14 experimental foot patrol locations in Flint, Michigan over a three-year period (1979, 1980, and 1981), with 1978 serving as the base comparison year prior to the program implementation. The aim of the evaluation was to determine how well the program was meeting its ten goals (Trojanowicz, 1982, p. 25). The evaluation was carried out by four primary methods: (1) personal interviews with various stakeholders, including community residents, business leaders, social agencies, and foot and motor patrol officers (N=280), (2) gathering and analyzing monthly police statistics, (3) monitoring and random examination of daily/weekly/monthly reports of each foot patrol officer’s activity, and (4) media content analysis of editorials, articles, and letters to the editor published in local newspapers (Trojanowicz, 1982, p. 12).

Unlike the Newark Foot Patrol Experiment, which was found to have no impact on crime and disorder, the Flint Foot Patrol Experiment witnessed a substantial reduction in crime during the first two years of the program. Particularly, not only was there a 43.4% reduction in the number of calls-for-service, but there was also an 8.7% reduction in the crime rate during the time the program was in operation (Trojanowicz, 1982, p. 29). Moreover, crime was found to be down in all categories, except robbery and burglary (Trojanowicz, 1982. p. 96-97). There were also less serious complaints (e.g., abandoned cars, barking dogs), as these issues were handled directly by foot

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9 Categories of crime included the following: burglary, auto theft, assault, vandalism, robbery, criminal sexual assault, larceny from a home, larceny from a person, and larceny from a vehicle.
patrol officers as opposed to being called in for police dispatch (Trojanowicz, 1982, p. 30). Furthermore, the Flint Foot Patrol Experiment also demonstrated a positive impact on citizens and communities. Here, findings revealed that not only did majority of citizens report feeling safer in their neighbourhood (70%), but they also reported feeling satisfied with the Neighbourhood Foot Patrol program (64%) (Trojanowicz, 1982, p.86, 107). However, researchers found that in the last year of the program (1982), the experimental foot patrol areas were expanded up to almost 20 times their original beat size in some areas, which resulted in a considerable increase in crime rates in its final year from 1980 and 1981. Despite this, the crime rates still remained lower than the overall crime rates prior to implementation of the Neighbourhood Foot Patrol program (Trojanowicz, 1982, p.55-56)

Further empirical research was conducted on the Flint Foot Patrol Experiment to explore the issues of police satisfaction (Trojanowicz & Banas, 1985a), community perceptions (Trojanowicz & Banas, 1985b), and police performance (Payne & Trojanowicz, 1985) in a foot patrol setting. In a study conducted by Trojanowicz and Banas (1985a), researchers used the 1984 interview data from the Neighbourhood Foot Patrol Program to examine job satisfaction among foot and motorized patrol officers in Flint, Michigan. Overall, Trojanowicz and Banas (1985a) concluded that foot patrol officers experience less dissatisfaction than motor patrol officers (p. 6). Specifically, it was found to a statistically significant degree that foot officers (compared to motor patrol officers) felt that they were: doing an important job, doing the job the police department views as being important, and working as part of the police team. Both foot patrol and motor patrol officers felt, to a significant degree, that even though foot patrol officers had more difficulty communicating with police headquarters and policing unit, motor patrol officers had more difficult maintaining high morale and achieving job satisfaction (Trojanowicz & Banas, 1985a, p. 5).

Trojanowicz and Banas (1985b) undertook a study to explore the similarities and differences between black and white perceptions of policing within foot patrol areas in Flint, Michigan. Here, researchers postulated that there would be more consistency among black and white citizens in their perceptions of foot patrol than they traditionally are with preventative patrol as the dominant form of policing (Trojanowicz & Banas,
Using interview data collected from the Flint Foot Patrol Experiment in 1979, 1981, 1982, and 1983, Trojanowicz and Banas (1985b) concluded that in general, foot patrol policing reduces the disparity in perceptions of police performance among black and white citizens (p. 3, 11). Results indicated that majority of all citizens reported they were satisfied with foot patrols operating in their area, with the highest satisfaction reported in 1981 (Trojanowicz & Banas, 1985b, p. 5). Moreover, over the course of the foot patrol program, little disparity existed among black and white citizens on both their level of satisfaction of foot patrol officers in their neighbourhood and on their perceptions of the crime rate in their area (Trojanowicz & Banas, 1985b, p. 5-6).

Payne and Trojanowicz (1985) sought to explore the performance of foot patrol and motor patrol officers working in the City of Flint, Michigan. Data in the study was obtained from a random stratified sample of foot patrol and motor patrol officers during October 1983 and May 1984, a time frame chosen to avoid peak or slow periods of foot patrol activity (Payne & Trojanowicz, 1985, p. 4-5). Researchers used daily activity sheets completed by officers to compare the two different forms of police patrol. These activity sheets outlined policing activities common to both motor and foot patrol, as well as activities exclusive to each type of patrol and the time officers spent on each activity (Payne & Trojanowicz, 1985, p. 5-8). Results of the study demonstrated that foot patrol officers (compared to motor patrol) are involved with the public on a more proactive basis (Payne & Trojanowicz, 1985, p. 13). In addition to initiating almost twice as many investigations as motor patrol, foot patrol officers also provided 7.5 times more service to the public compared to motor patrol officers (Payne and Trojanowicz, 1985, p. 8). Payne and Trojanowicz (1985) also suggested that foot patrol officers encounter the public far more frequently in a “non-adversarial” manner (e.g., public service or amicable exchange with citizens) than in an “adversarial” manner (e.g., taking enforcement action) (Payne & Trojanowicz, 1985, p. 10). In their findings, the researchers identified a difference between motor patrol and foot patrol in the amount of time spent doing activities they both perform, what Payne and Trojanowicz (1985) term as ‘comparable activities’ (p. 12). Specifically, it was found that motor patrol spends 41.5% of their workday on complaint work whereas foot patrol spends only 3.48% (Payne & Trojanowicz, 1985, p. 12). Nonetheless, both foot patrol and motor patrol officers were
found to spend similar amount of each workday on patrol, approximately 50% and 49% respectively (Payne & Trojanowicz, 1985, p. 13).

3.2. Contemporary Research on Foot Patrol

Since the two large-scale evaluations on foot patrol policing and subsequent studies utilizing the research setting and/or data (Kelling et al., 1981; Trojanowicz, 1982), a number of small-scale studies have been conducted in several North American cities and even fewer abroad. These studies have primarily focused on the impact foot patrol policing on crime and/or disorder in commercial and/or residential settings. Only recently and within the past few years, however, has the current research on foot patrol policing focused on two foot patrol policing initiatives: The Philadelphia Foot Patrol Experiment and the Lower Lonsdale foot patrol initiative.

3.2.1. Small-Scale Foot Patrol Studies

Several authors have explored the impact of foot patrol policing on crime and disorder; yet, the findings remain inconsistent and mixed. Despite this, majority of the studies conducted have demonstrated that foot patrol has other beneficial effects. For example, in a study conducted by Esbensen and Taylor (1984), researchers sought to examine whether proactive foot patrols reduce crime and disorder in a downtown commercial area in a North Carolina city. Using official records, data was examined over a four-year period from June 1980 to 1983 (Esbensen & Taylor, 1984, p. 188). All crime types were collapsed into three categories of crime: violent crime\(^{10}\), property crimes\(^{11}\), and part II offences\(^{12}\). Official records from the foot patrol area were compared to an area without foot patrol (a comparison area), which was comprised mainly of a middle class neighbourhood and a business district (Esbensen & Taylor, 1984, p. 188-189).

\(^{10}\) Violent crimes included homicide, rape, robbery, arson, and aggravated assault (Esbensen & Taylor, 1984, p. 189).

\(^{11}\) Property crimes included burglary, larceny, and motor vehicle thefts (Esbensen & Taylor, 1984, p. 189).

\(^{12}\) Part II offences included all other offences (Esbensen & Taylor, 1984, p. 189).
Overall, the results revealed that there was no statistically significant reduction in crime rates as a result of foot patrols (Esbensen & Taylor, 1984, p. 193).

Esbensen (1987) conducted further research to explore the impact of foot patrol through a two-year evaluation of an experimental foot patrol program. Esbensen (1987) contended that foot patrols reduce crime rates and improve police community relations. In order to validate this hypothesis, the researcher compared a downtown business district with foot patrol to a similar area without foot patrol (Esbensen, 1987, p. 50). Data was collected from official police data and from interviews with business merchants administered four months after implementation of the foot patrols and again 20 months after the first interview (Esbensen, 1987, p. 51). Findings from the study revealed that there was no overall reduction in crime rates after implementation of foot patrols. However, foot patrol did have an impact on public disorder crimes, which included vandalism, disorderly conduct, prostitution, drunkenness, and vagrancy. Moreover, while index offences fluctuated slightly year-to-year in the areas, public disorder offences decreased steadily in the foot patrol areas, most notably from 48% in 1982 to 29% in 1985 (Esbensen, 1987, p. 53-54). It was also found that foot patrols had no effect on the citizen’s overall satisfaction with the police and police community relations (Esbensen, 1987, p. 61).

Hornick, Burrows, Phillips, and Leighton (1991) conducted an evaluation of the Edmonton Neighbourhood Foot Patrol Program, where foot patrol was implemented in 21 neighbourhood beat areas. The aim of the study was to evaluate the program based on its three main objectives: reducing repeat calls-for-service, improving public satisfaction with the police, and increasing the job satisfaction of participating constables (Hornick et al., 1991, p. 69). Research was conducted through multiple quasi-experimental designs, and data were collected from foot and motor patrols, a survey administered to foot patrol constables (N=20) and a sample of motor patrol constables (N=60), and telephone interviews with community contacts (Hornick et al., 1991, p. 52-53).

Results drawn from the study revealed that not only was there a 6.6% reduction in the number of calls-for service in the foot patrol areas from pre-test (21,001) to post-
test (19,612), but there was also a significant decrease in the number of repeat calls-for-service among the 21 neighbourhood beat areas, with the average number of calls-for-service ranging from 1.87 to 9.36 (pre-test) and 1.76 to 7.89 (post-test) (Hornick et al., 1991, p. 58). In regards to user satisfaction, the study demonstrated that there were higher levels of satisfaction among citizens with foot patrol than motor patrol in regards to following matters: “effectiveness in working with the neighbourhood to solve local problems, dealings with problems of concern to the neighbourhood, preventing crime, keeping order on the streets, and treating people politely and fairly” (Hornick et al., 1991, p. 66). In regards to job satisfaction among officers, findings concluded that foot patrol officers were significantly more satisfied than motor patrol officers in regards to: “compensation, organization policy and procedures, growth and satisfaction, internal work motivation, and physical working conditions” (Hornick et al., 1991, p. 67-68).

Similarly, Bond and Gow (1996) undertook an evaluation study of a beat policing program in a residential setting in Australia (p. 155). There were four key evaluation questions that guided this study: “(1) Did the beat project increase service users’ satisfaction with the quality of the police response? (2) Did the beat project reduce fear of crime in the beat areas? (3) Did the beat project reduce the number of calls generated by chronic problem addresses in the beat areas? (4) Did the beat project reduce the level of crime in the beat areas?” (Bond & Gow, 1996, p. 156-157). In order to examine the key evaluation questions, data was collected from multiple sources (Bond & Gow, 1996, p. 158). Here, community surveys were administer to residents in April 1993 prior to the foot patrol initiative then again one year later in June 1994 (N=800), a service user’s survey was administered via telephone (N=191), and interviews with key stakeholders including police management and beat officers were conducted. Calls-for-service data from May 1993 to January 1995 were analyzed along with documents related to foot patrol policing (e.g., patrol logs, weekly activity schedules of beat officers) (Bond & Gow, 1996, p. 159-160).

Results from the evaluation revealed that there was no difference among citizens who lived in beat or comparison areas in regards to their feelings of safety at night (Bond & Gow, 1996, p. 163); however, the evaluation did conclude that foot patrol had a favourable impact on citizens’ satisfaction with police services. Specifically, not only
were beat officers rated more highly than general duty officers on responsiveness to a problem, but beat-area residents were also found to be more satisfied with the services received from the police compared to non-beat area residents who received assistance from general members (Bond & Gow, 1996, p. 160-161).

Results of the evaluation also witnessed an effect on the top ten chronic repeat addresses. After the first six months of the initiative, there was a slight increase in calls-for-service for the top ten addresses in the beat area, then a reduction in calls by approximately 13%, compared to the comparison area where there was no evidence of a reduction (Bond & Gow, 1996, p. 164). Initial analysis based on victimization surveys with residents suggests that foot patrol had no statistically significant change in the levels of property crime in the two foot patrol areas. However, further analysis of calls-for-service data provided more concrete evidence of the effect of foot patrols on property-related offences (Bond & Gow, 1996, p. 166). Here, results found that the number of calls-for-service for property offences dropped in the beat areas by 4% (from 16 to 14 percent), yet increased by 4% in the rest of the city (from 16 to 20 percent) (Bond & Gow, 1996, p. 166-167). Initial analysis suggests that there was no significant displacement occurred for property offences (Bond & Gow, 1996, p.169-170).

Bowers and Hirsch (1987) studied the impact of foot patrol on crime and disorder, as part of a larger policing initiative where foot patrols were introduced citywide as part of a policing relocation strategy in Boston (p. 42). In this initiative, the dominant form of police patrol was foot beats followed by one-officer patrol cars and two-officer patrol cars (Bowers & Hirsch, 1987, p. 17). Using calls-for-service and police incident data, researchers explored the impact of foot patrols on certain categories of crime: violent crimes, property offences, and community disturbances (Bowers & Hirsch, 1987, p. 23).

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13 This finding was based on survey data, and not police data (i.e. calls-for-service data or crime incident counts from police records). Self-reported survey data on reporting property or personal victimization of crimes concluded that beat patrol had no statistically significant effect in the level of crime in both the beat and comparison areas (Bond & Gow, 1996, p. 166-167).

14 Foot beats comprised 34% of all patrol units, one-officer patrol cars made up 24% of all patrol units, and two-officer cars made up 12% of all patrol units (Bowers & Hirsch, 1987, p. 17).

1987, p. 21, 23). Overall, findings revealed there was no evidence to support that foot patrols had order maintenance or crime control effects (Bowers & Hirsch, 1987, p. 32, 42). Unlike previous studies, Bowers and Hirsch (1987) did not examine the effect of foot patrols on fear of crime, citizen satisfaction with the police, or police officer satisfaction with their work (Bowers & Hirsch, 1987, p. 42-43).

Piza and O’Hara (2014) sought to evaluate a saturated foot patrol initiative known as Operation Impact, which was implemented in a high-violence area in Newark, New Jersey (p. 693). The aim of the evaluation was to determine the impact of the foot patrol initiative on violent crime. Violent crime was operationalized to include the following crime incidents: murder, robbery, aggravated assault, and non-fatal shootings (Piza & O’Hara, 2014, p. 699-700). Using a quasi-experimental design, violent crime was collected and analyzed from four areas: the target area which was located in Newark’s Fourth Precedent, the catchment area which extended one block in both directions around the target area, and two separate control areas (Piza & O’Hara, 2014, p. 700-701). The first control area consisted of a non-equivalent control group, which made up the Fourth Precedent minus the target and catchment area. The second control area consistent of a near-equivalent comparison area, known as Zone B. Zone B was selected as the second control group because it had a similar geographic composition and a violent crime problem comparable to the target area (Piza & O’Hara, 2014, p. 701). Violent crime incidents were analyzed one year pre-intervention (from 04 June 2007 to 02 June 2008), and one year during the implementation period (from 04 June 2008 to 04 June 2009) (Piza & O’Hara, 2014, p. 700). The change in crime incidents from the target area was subsequently compared with the control areas (Piza & O’Hara, 2014, p. 699-701).

Results of the initiative witnessed an overall reduction in violence in the target area by 42% relative to the surrounding precedent. Moreover, non-fatal shootings, aggravated assaults, and murder incidents were each reduced by 60%. However, the reduction in murder was not statistically significant and robbery incidents for pre and

during intervention were identical and thus, did not demonstrate an improvement (Piza & O'Hara, 2014, p. 705). Promising results were also found when Piza and O'Hara (2014) compared the target area to Zone B, the second comparison area (p. 707). The target area achieved a 30% overall reduction in violence and a 61% decrease in aggravated assaults compared to Zone B, both of which were statistically significant. Similar to findings from the first comparison area (the Precedent area), there was no difference in robbery crime incidents pre-intervention and during intervention, and murder crime incidents were not statistically significant, which suggests that saturated foot patrols have minimal influence on these types of crimes (Piza & O’Hara, 2014, p. 706). More importantly, Piza and O’Hara (2014) found no significant or substantial evidence of spatial or temporal displacement with the exception of robbery, which was responsible for spatial displacement (p. 707). In particular, during the intervention period of the foot patrol initiative, robbery increased from 12 to 19 in the catchment area, demonstrating an increase of 58% (Piza & O’Hara, 2014, p. 707).

Other researchers, such as Bennett and Lupton (1992), undertook a study to explore “the allocation and use of community constables among [British] police forces in England and Wales” (p. 167). In order to investigate this matter, a national sample of patrol officers were selected between 1989 and 1990 using three sampling stages, which involved the combination of purposive sampling of one division in each police force and then random sampling from each group (Bennett & Lupton, 1992, p. 169). Data was collected from participants (N=1,608) through the use of self-administered questionnaires that asked a series of questions related to the following: allocation of community constable duties, recruitment patterns, time withdrawn from community constable duties and attitudes towards community constable work (Bennett & Lupton, 1992, p. 169-170, 172, 176, 178). Findings from the study concluded that only a small proportion of all patrol officers from provincial forces and Metropolitan Police District were allocated to urban or rural permanent beat duties, 19% and 13% respectively (Bennett & Lupton, 1992, p. 171). Of these officers, it was found that there were statistically significant fewer community constables that were female, majority of officers

18 Bennett and Lupton (1992) use the terms community constable and permanent beat officer interchangeably (p. 169).
were aged over 30 years old, and that two-thirds of all permanent beat officers had been withdrawn from their duties about 20% of their working day (Bennett & Lupton, 1992, p. 172-173, 176). Findings on the attitudes towards community constable work suggested that while there was no significant difference in police satisfaction between both types of constables, Beat Officers were more likely to think that community police work was important. Interestingly enough, it was found that as the age of community constables’ increased so did their job satisfaction (Bennett & Lupton, 1992, p. 178).

Wakefield (2007) took her research in a different direction and examined the public perceptions of foot patrol initiatives. The objective of this study was to determine whether foot patrols meet public expectations by analyzing responses from social surveys on police outcomes, interventions and approaches that the public associate foot patrol with, as well as 13 previously published studies on foot patrol initiatives (Wakefield, 2007, p. 348). Based on the survey results, the authors identified three key criteria or main public expectations of foot patrol. They included: (1) “reassurance”, where foot patrol should result in crime prevention and reassurance/reduction of fear of crime, (2) “enhancement”, where certain activities aside from just police presence on the street, such as taking calls-for-service, should be incorporated into the foot patrol task, and (3) “responsiveness”, where foot patrol initiatives should be responsive to the diverse needs and social groups of the area (Wakefield, 2007, p. 348-350).

Overall, findings of the study indicated that foot patrol met public expectations to some extent; although, some foot patrol initiatives were better at meeting the three key expectations than others. In particular, results demonstrated that all 13 of the foot patrol initiatives met the public’s expectation of providing “reassurance” (Wakefield, 2007, p. 350). However, while all of the initiatives demonstrated that they met the public expectations on “enhancement”, some initiatives demonstrated more methods of enhancement (e.g., environmental monitoring and reporting of problems, door-to-door visits, delivery of crime prevention advice) than others (Wakefield, 2007, p. 351-352). Surprisingly, only about two-thirds (or approximately eight) of the studies provided some aspect of “responsiveness” (Wakefield, 2007, p. 352-353).
3.2.2. The Philadelphia Foot Patrol Experiment

Through a research collaboration between Temple University and the Philadelphia Police Department, several studies have been conducted on the Philadelphia Foot Patrol Experiment – a foot patrol initiative implemented in Philadelphia, Pennsylvania. This joint collaboration has allowed researchers to explore the impact of foot patrol not only on crime and disorder, but also its long-term impact on displacement and field research on the experiences of officers in the foot patrol function, all of which are described below in detail.

Ratcliffe, Taniguchi, Groff, and Wood (2011) conducted a randomized controlled experiment in order to examine the effect of foot patrol policing in reducing violence in crime hotspots (p. 801). In this study, hotspots were first identified through a process by weighing violent crime counts, where a greater weight was given to more recent violent crimes\textsuperscript{19} (Ratcliffe et al., 2011, p. 802). Researchers subsequently identified 120 hotspot locations, where 60 locations were randomly assigned as the target areas and thus received foot patrol and 60 locations were randomly assigned as control areas (Ratcliffe et al., 2011, p. 803). The outcome measure was reported violent crime, which was operationalized as criminal homicide, all robberies (except cargo theft) and a majority of aggravated assaults\textsuperscript{20}. Using official police records of violent crime, researchers compared the crime frequency before and during the intervention period in both the target (experimental) and control areas (Ratcliffe et al., 2011, p. 808).

Results of the initiative witnessed a 23% reduction of violent crime in the target areas compared to the control areas (Ratcliffe et al., 2011, p. 809). Data also revealed that displacement of violent crime did occur, where it was found that 37 offences occurred in the displacement area, which was immediately outside the target areas (Ratcliffe et al., 2011, p. 816). Taking this into account, findings demonstrated that the net effect that the foot patrol initiative had on target violent hotspot areas was a

\textsuperscript{19} Ratcliffe et al. (2011) assigned violent crime events from 2008 a weight of 1.00, 2007 crimes were assigned a weight of 0.50, and 2006 crimes were assigned a weight of 0.25 (p. 802).

\textsuperscript{20} Ratcliffe et al. (2011) excluding including violent incidents that were unlikely for a foot patrol officer to help prevent (e.g., rape) and specific categories of assault that occurred against a school employee or police officer (p. 809).
reduction of 53 offences, outperforming the control area by 23%. Interestingly enough, these benefits were achieved only in the target areas that had a threshold level of pre-intervention violence of approximately six violent crimes in the three months pre-intervention (Ratcliffe et al., 2011, p. 818). As well, of the target areas that met the threshold level of violence, only those that fell into the top 40% on pre-treatment violent crime counts had significantly lower levels of violence during the intervention period (Ratcliffe et al., 2011, p. 812).

Building on the work of Ratcliffe, Taniguchi, Groff, and Wood (2011) and their findings, Groff, Johnson, Ratcliffe, and Wood (2013) conducted a study to examine whether the activities patrol officers (foot and motor) conducted during the Philadelphia Foot Patrol Experiment produced the crime reduction of 23% of violent offences (p. 119). Here, researchers posed two questions: (1) “Did the activities of foot patrol substantially differ from motor patrol officers?” (2) “Did the amount of motor patrol received vary between pre-intervention and intervention in the treatment and control areas?” (Groff et al., 2013, p. 123). In order to determine if motor patrol played an important role in foot patrol policing, data was collected from crime incident data and included violence, burglary, theft, vehicle, disorder, firearm, and drug offences. All crime incidents that fell between the times foot patrol was operational were geocoded and used in the analysis (Groff et al., 2013, p. 123).

Researchers conducted two separate analysis. The first analysis explored the amount and type of policing activity carried out by each type of patrol (foot or motor) during the foot patrol intervention (Groff et al., 2013, p. 123). Findings demonstrated that foot patrol officers conducted three times as many pedestrian stops as vehicle stops, 6,631 and 1,852 respectively (Groff et al., 2013, p. 125). Similarly, the most frequent activities conducted by car patrol during the intervention were also pedestrian stops (N=6,662) followed by vehicle stops (N=4,731) (Groff et al., 2013, p. 128). Both foot and motor patrol officers addressed the same types of crimes most frequently, which were disorder and drug offences (Groff et al., 2013, p. 125, 127). Evidence from the data also suggests that foot patrol officers sometimes patrol outside the foot patrol boundaries; however, this activity only accounted for 8% of total foot patrol activity (Groff et al., 2013, p. 130).
The second analysis examined whether the presence of foot patrol officers in the treatment area had an effect on the activities conducted by motor patrol officers in the same area (Groff et al., 2013, p. 121). Results of the study indicated that when foot patrol was deployed, motor patrol activity declined by only 3%. Results also demonstrated that between pre-intervention and intervention periods proactive activities by motor patrol were slightly down by 2% (Groff et al., 2013, p. 125). However, it was found that there was a change in crime type for motor patrol officers, where data indicated that they (motor patrol officers) responded to 32% fewer violence crime offence incidents from pre-intervention to intervention phase (Groff et al., 2013, p. 127-128). There was also a change in the frequency of other crimes that motor patrol officers responded to. Specifically, the frequency of vehicle crimes responded to by motor patrol increased by 25% and theft increased by 3%. Overall, these findings suggest that foot patrol has an effect on the activities of motor patrol (Groff et al., 2013, p. 128).

In regard to the change in motor patrol activities in the control area from pre-intervention to intervention period, it was found that motor patrol activities in the control areas declined by 10.4%. Overall, findings revealed that more pedestrian stops and vehicle stops were made by motor patrol officers in the treatment area compared to the control area. As well, data reflected differences in the type of crime addressed in the treatment versus comparison group by motor patrol. Specifically, motor patrol officers were found to address more drug offences, vehicle stops, and firearm offences in treatment than control area (Groff et al., 2013, p. 128). Overall, findings of the study concluded that there are no significant differences pre-intervention and intervention in motor patrol activities between the treatment and control area (Groff et al., 2013, p. 134). These findings are important in the research on foot patrol because the findings provide further support that the reduction of crime observed in the treatment areas were the result of foot patrol officer activities, and not the result of motor patrol activity.

Following up on the initial evaluation study on the effectiveness of foot patrol policing in crime hotspots (Ratcliffe, Taniguchi, Groff, & Wood, 2011), Sorg, Haberman, Ratcliffe, and Taylor (2013) explored the longitudinal deterrence and post-treatment displacement effects in the Philadelphia Foot Patrol experiment (p. 67). Using Sherman’s (1990) concepts of initial and residual deterrence decay as a framework for
their study, Sorg et al. (2013) investigated whether the deterrent effects of foot patrol in crime hot spots varied over time and whether these effects were sustained once the foot patrols were withdrawn (Sorg et al., 2013, p. 76). Using multilevel growth curve models, four separate models were run to estimate treatment effects, initial deterrence decay, post-treatment effects and to estimate residual deterrence decay (Sorg et al., 2013, p. 77). Sorg et al. (2013) used the same violent crime incidents as were used in the initial evaluation of the Philadelphia Foot Patrol Experiment (see Ratcliffe et al., 2011), and the dependent variable was the violent crime counts aggregated bi-weekly time periods for each treatment and control crime hotspot (Sorg et al., 2013, p. 77-78).

Findings from the study revealed that there was statistically significant less crime in the treatment areas relative to the control areas. Specifically, there was a 16% reduction in violent crime in phase one, where foot patrols were staffed for 22 weeks, and there was a 20% reduction for phase two, where foot patrols were staffed for only 12 weeks in the treatment areas. Results further demonstrated that the deterrent effects were slowing down during the experimental period for phase one foot patrols (Sorg et al., 2011, p. 86). As revealed by the findings, staffing the phase one hot spots with foot patrols for 22 weeks were less effective and demonstrated initial deterrence decay compared to phase two beats, which did not demonstrate initial deterrence decay (Sorg et al., 2011, p. 86-87). Most notably, the statistically significant differences in violent crime between the treatment and control areas could no longer be detected three months after the experiment concluded. Violent crime also remained relatively stable in the target beats compared to the control beats and buffer zone, where crime declined by 5% and 15% respectively, in the three month period after the experiment concluded. As indicated by the researchers, these findings suggested that spatial crime displacement was a short-term outcome (Sorg et al., 2011, p. 87).

Using the Philadelphia Foot Patrol experiment as the study site, other researchers took more of a qualitative approach and investigated different aspects related to the experiences and realities of officers in the foot patrol function (Sorg et al., 2014; Wood, Taylor, Groff, & Ratcliffe, 2015; Wood, Sorg, Groff, Ratcliffe, & Taylor, 2014). In a study conducted by Wood, Taylor, Groff, and Ratcliffe (2015), researchers explored the experiences of foot patrol officers and their approaches in managing not
only crime and disorder, but also public-health related issues (e.g., alcoholism and mental health issues) (p. 213). In particular, this study explored police guardianship from the perspective of foot patrol policing in relation to health risk behaviours and environments, and foot patrol officers’ influence on the social and physical environment (Wood et al., 2015, p. 212). In order to examine this issue, data was collected from focus group interviews with foot patrol officers (N=129) who policed violent hotspots in Philadelphia as part of the Philadelphia Foot Patrol Experiment. Key findings revealed that foot patrol officers extend their traditional guardianship function, as they seek to influence the behaviours of potential offenders and would-be victims, as well as change the social and physical environment they patrol (Wood et al., 2015, p. 213). In regards to the social environment, foot patrol officers attempted to establish a normative standard of behaviour and in doing so, data demonstrated that foot patrol officers utilized different police tactics when dealing with individuals engaged in risky health-related activities. For example, officers described using tactics of persuasion and negotiation for offences where there was no clear victim (e.g. public drinking), whereas pedestrian stops were used for behaviours that had a greater impact on a community (e.g. drug dealing) (Wood et al., 2015, p. 214). In regards to the physical environment, the researchers concluded that foot patrol officers managed places in their beat by influencing the flow of individuals in and out of problem places (Wood et al., 2015, p. 217-218).

Wood, Sorg, Groff, Ratcliffe, and Taylor (2014) conducted a study, which sought to explore the experiences with and perceptions of officers within the foot patrol function (Wood et al., 2014, p. 362). Taking a qualitative approach, researchers collected data through field observations of foot patrol activities in the treatment locations (N=60) of the Philadelphia Foot Patrol Experiment. Here, each of the foot beats were observed four times for approximately one hour each time. The observations were both structured and ethnographic, and field notes were produced from the observations (Wood et al., 2014, p. 365).

Results of the analysis indicated that the foot patrol function allowed officers to gain extensive knowledge about the people and places in the beat they patrol, which they felt was not possible if they were in a car (Wood et al., 2014, p. 366). As a result of this knowledge obtained, foot patrol officers felt that it allows them to in turn detect subtle
changes in criminal behaviour as a result of their presence in an area (Wood et al., 2014, p. 367). Findings also revealed that foot patrol officers use both legal and non-legal tactics to “exert spatial control in order maintenance” (Wood et al., 2014, p. 368). Foot patrol officers described that their decisions to use which tactics were based on several factors, such as the officers’ knowledge of the individual and the policing style of the officer involved, for example (Wood et al., 2014, p. 368). Despite this, however, officers described that as foot patrol officers they felt constrained to the beat the patrolled, which lead to cynicism (Wood et al., 2014, p. 370). As a result of these feelings of cynicism, some officers described that foot patrol was short of real police work, while others felt constrained by not having access to a patrol car, as well as a lack of permanency of their efforts in crime reduction and order maintenance (Wood et al., 2014, p. 370-371).

More recently in the literature, Sorg, Wood, Groff, and Ratcliffe (2014) explored the extent to which foot patrol officers adhere to the boundaries of beats during the Philadelphia Foot Patrol Experiment (p. 379). The aim of the study was to determine whether foot patrol officers patrol outside the beat boundary and if so, why (Sorg et al., 2014, p. 379). In their research, Sorg et al. (2014) used GIS data collected during post-experiment focus groups with a sample of foot patrol officer (N=124) involved in the Philadelphia Foot Patrol Experiment (p. 377, 881; see Ratcliffe et al., 2011). Each foot patrol officer in the sample was also given a map of their respective beat and asked to indicate the approximate boundary that they patrolled (Sorg et al., 2014, p. 382). Findings from the study concluded that all officers patrolled outside their experimental beats, and the areas that officers were actively patrolling in overlapped with the control beats by 21%. As such, many of the catchment and control areas received some level of dosage of foot patrol (Sorg et al., 2014, p. 384). Moreover, reasons for officers patrolling outside the experimental beats ranged from personal reasons (e.g. officers reported become bored in their beat) to crime-fighting reasons (e.g. officer’s patrolling outside their beat in order to respond to perceived displacement) (Sorg et al., 2014, p. 385-386). These problems of boundary adherence, as highlighted through the study, undoubtily leads to complications when determining a foot patrol program’s true effectiveness.
3.2.3. The Lower Lonsdale Foot Patrol Initiative

Most pertinent to the current study is the previous empirical research conducted on a foot patrol initiative operating in the Lower Lonsdale neighbourhood – an area with the highest volume of crime relative to the rest of the city in North Vancouver, British Columbia (Andresen & Lau, 2014; Andresen & Malleson, 2014). In particular, in a study conducted by Andresen and Lau (2014) researchers sought to examine the impact of increased foot patrol operating in an area characterized as having a high volume of crime relative to the other neighbourhoods within North Vancouver (p. 479). Police foot patrols were implemented in the Lower Lonsdale area during the summer months of June to September 2010 (Andresen & Lau, 2014, p. 479). In order to determine whether there was a change in crime trends as a result of increased foot patrol, Andresen and Lau (2014) analyzed police incident data from January 2007 to September 2010. Specifically, researchers examined five classifications of crime: assault, robbery, mischief, commercial break and enter, and theft (Andresen & Lau, 2014, p. 480).

According to the results of the analysis, the study found promising results on the impact of foot patrol on crime and disorder in a community. Overall, findings demonstrated that there was a decrease in the number of police incidents relative to the previous three years (Andresen & Lau, 2014, p. 485). Not only was there a 16%-17% reduction in calls-for-service in 2010, but more importantly, the initiative also witnessed a statistically significant reduction in commercial burglary and mischief (Andresen & Lau, 2013, p. 476, 485-486). Based on the study’s findings, there was no evidence of displacement of crime as a result of foot patrol (Andresen & Lau, 2014, p. 486).

Andresen and Malleson (2014) conducted further research on the Lower Lonsdale foot patrol initiative and examined the issue of crime displacement (p. 187). In order to determine whether displacement did in fact occur, researchers used the spatial point pattern test which allowed them to identify any changes in the spatial patterns of crime in the patrol atoms (N=73) (Andresen & Malleson, 2014, p. 191). Overall, results for the study revealed that there are year-to-year changes in the spatial patterns of crime in the foot patrol area. However, as suggested by the researchers, this foot patrol area is a low-crime area, so any changes in criminal activity will lead to a significant change in the spatial patterns of crime (Andresen & Malleson, 2014, p. 193). Findings also
indicated that the majority of the foot patrol atoms in the primary patrol area experienced statistically significant decreases in the spatial patterns of crime. Changes in the spatial patterns of crime for the crime category of mischief was most evident, where these spatial patterns of crime shifted from the primary (foot) patrol area to the edges of the foot patrol area and in the catchment area (Andresen & Malleson, 2014, p. 196). Interestingly enough, mischief was the crime category that also had the most significant reduction in crime as a result of the foot patrol initiative (Andresen & Malleson, 2014, p. 197).

3.3. Summary

Taken altogether, research conducted to date in the area of foot patrol has not only been limited in nature, but findings are inconsistent and mixed. Based on existing research, it appears that foot patrol has a positive impact on satisfaction among police and citizens, fear of crime, perceptions of one’s own safety, and citizen attitudes. However, the effect of foot patrol on crime and disorder remains less certain. Additionally, a large proportion of research in this area focuses on the effect of foot patrol on crime and social disorder; yet, less emphasis has been placed on the impact of foot patrol on community relations, expectations and perceptions. Nonetheless, research into the investigation of the impact of foot patrol has demonstrated that it does work in high crime, residential, and commercial areas. However, despite all previous research on foot patrol including the most recent work conducted on the Lower Lonsdale foot patrol initiative, the question still remains as to whether foot patrol policing can achieve long-term crime reduction results and if so, the extent of its impact. This suggests the need for additional research. As such, the current study will explore this less emphasized area of investigation.
Chapter 4.

RESEARCH METHODS

Building on previous work, particularly that of Andresen and Lau (2014) and Andresen and Malleson (2014), the overall aim of this current study is to provide a more complete perspective of the impact of foot patrol policing in a geographical area. Specifically, the goal of this study is to gain a better understanding of the long-term sustained effect of foot patrol policing in current times and in particular, its effect in a community within the city of North Vancouver, British Columbia. As such, the following section will provide a discussion of the research questions and hypothesis guiding this study, as well as a description of the study area, data source, key variables, and the statistical analysis technique used in this study.

4.1. Research Questions and Hypotheses

The main objective of this current study is to examine and assess the long-term impact of the foot patrol initiative implemented in the Lower Lonsdale community in North Vancouver, British Columbia. In particular, this study is interested in examining whether the foot patrols operating in the Lower Lonsdale community are able to reduce crime and disorder over an extended period of time, opposed to the four-month evaluation undertaken by previous research. Accordingly, the research questions that I will explore and will guide this study include:

(1) What is the overall effect of the Lower Lonsdale foot patrol policing initiative?
(2) Does the effect of the foot patrols differ from year to year in Lower Lonsdale?
Together, these research questions will be used in order to examine and answer my broader research question of whether the Lower Lonsdale foot patrol initiative decreases crime over time.

4.2. The Study Area: Lower Lonsdale, North Vancouver

The City of North Vancouver is a growing municipality with a population of 48,196 (according to the 2011 Census as cited in Statistics Canada, 2012) and is located in the Metro Vancouver area. It is geographically situated north of metropolitan Vancouver and is separated by the Burrard Inlet. The City of North Vancouver is one of three municipalities, which also includes West Vancouver and the District Municipality of North Vancouver, that make up what is referred to as the “North Shore”. The population in North Vancouver has increased since 2006 by 6.7% (Statistics Canada, 2012). Majority of the city’s population is characterized as being “working age” (15 to 64 years) with almost one-third of the population reside in an apartment dwelling unit (Statistics Canada, 2012). The City of North Vancouver makes up approximately 12 square kilometers, and is comprised of nine neighbourhoods (City of North Vancouver, n.d., p. 2, 7).

The specific neighbourhood of interest for this study – Lower Lonsdale – is a waterfront neighbourhood (City of North Vancouver, n.d., p. 7). It is the most populated area within the City of North Vancouver with approximately 12,000 residents. Over 90% of the residences in Lower Lonsdale are classified as apartment dwellings of some sort and the average family income is $64,287 (as cited in Andresen & Lau, 2014, p. 4). Lower Lonsdale has a high population density, as the area is comprised of both residential and commercial developments, which attracts residents and non-residents to the area. It is a hub for restaurants and shopping, the Lonsdale Quay Market, an array of hosted cultural and community events, and it is also the main transportation hub for neighbouring communities and tourists alike. Lonsdale Quay, located in the heart of Lower Lonsdale, is home to two primary modes of transportation – the SeaBus and Lonsdale Quay bus terminal – which facilitate movement of people to and from the City of North Vancouver and neighbouring communities on the North Shore, from metropolitan Vancouver.
Given the diverse attractions that the area has to offer, the Lower Lonsdale area was identified by the North Vancouver RCMP as having a higher number of calls-for-service and crime rate compared to all other neighbourhoods within the City and District of North Vancouver. Common concerns among residents, business owners, and visitors in the Lower Lonsdale neighbourhood included various nuisance and disorder issues, such as theft, mischief, panhandling, and assault, to name a few. Together, these issues further created the perceptions among the public that the area is unsafe, despite crime statistics depicting North Vancouver being a low crime municipality in general (Kennedy, 2015).

As such and in order to address and mediate this issue of the influx of crime as well as the public perceptions of feeling unsafe, the North Vancouver RCMP established a foot patrol initiative, which began in 2010. The Lower Lonsdale foot patrol initiative is still presently operational, taking place each year since 2010. The objective of the foot patrols was to provide an increased presence in the Lower Lonsdale area during the summer months; however, the period of time the foot patrols were in place in the Lower Lonsdale area varied per year, ranging from four to six months in length. Specifically, in 2010, the foot patrol initiative took place from the months of June to September, in 2011 the foot patrol initiative took place from May to September, and in 2012 the foot patrol initiative took place from May to October.

While the entire area of Lower Lonsdale is almost four square kilometers, the primary (foot) patrol area within Lower Lonsdale is 0.90 square kilometers in size, or approximately 30 city blocks, and is mainly the commercial strip. The study area in North Vancouver is shown below in Figure 1.
Figure 4.1. Lower Lonsdale, North Vancouver

The four perimeter streets for primary patrol area in the Lower Lonsdale area was as follows (Kennedy, 2015):

1) North border: Keith Road
2) South border: to water
3) Eastern perimeter: St. Georges Avenue south to East Esplanade, east to include the 200 and 300 block
4) Western perimeter: Chesterfield Avenue west to West 5th Street to Forbes Avenue
The non-primary patrol is the area immediately around the above-noted perimeter of the primary (foot) patrol area\textsuperscript{21}. The structure of the foot patrols involved at least one patrol member patrolling the primary (foot) patrol area in Lower Lonsdale during the week\textsuperscript{22}. The nature of the foot patrols was 10-hour shifts\textsuperscript{23}. Specifically, from Monday to Friday, one sworn member typically patrolled alone during varying hours. On Wednesday through to Saturday, there were two additional sworn members patrolling from 1400 hours to 0000 hours, and on Sunday, two sworn members patrolled together from 1200 hours to 2200 hours. The primary objective for establishing police patrols in the Lower Lonsdale area was in an effort to build and foster police-community relations and to decrease and/or prevent crime in the area.

4.3. Data Source

In order to assess the long-term impact of the Lower Lonsdale foot patrol initiative, this research involves the use of quantitative, secondary data. Specifically, the data source used to examine this topic is police data obtained from PRIME-BC (Police Records Information Management Environment of British Columbia)\textsuperscript{24}. There are five classifications of crime that are included for examination in this study: assault, robbery, mischief, commercial break and enter (commercial B&E), and theft. These classifications of crime were identified as crimes of interest by police and the public and, thus, included in this study. The data contains the classification, as well as the month and year of each

\textsuperscript{21} It is important to note that while the foot patrol officers focus all their patrol efforts in primary (foot) patrol area and have a large presence in that area, they on occasion patrol near the non-primary patrol area.

\textsuperscript{22} The non-primary patrol area is not to be synonymous with a control area. Rather, this area was simply used in order to investigate whether or not any potential displacement and/or diffusion of benefits may have occurred as a result in the reduction of crime in the primary (foot) patrol area.

\textsuperscript{23} It is worthwhile to note that even though foot patrols were operational during this time, traditional motor patrol efforts were not controlled for nor were they reduced or eliminated during the Lower Lonsdale foot patrol initiative.

\textsuperscript{24} The dosage of the foot patrol officers patrolling in the study area remained consistent from year to year.

\textsuperscript{25} PRIME-BC is the common police database shared by all municipal police departments and RCMP detachments in the province of British Columbia (Police Records Information Management Environment (PRIME BC), 2014, n.p.)
police incident, and whether the offence occurred in the designated primary (foot) patrol or non-primary patrol area. The coverage of this data is from 01 January 2007 to 31 December 2012 inclusive.

The foot patrols first began in 2010 and operate during the summer months albeit for varying lengths each year. Specifically, the foot patrols were in effect in 2010 from 09 June to 02 October, in 2011 from 27 April to 30 September, and in 2012 from 27 April to 04 November. As such, the coverage of data used in this study provides three full years of data (2007 to 2009) prior to the implementation of foot patrol initiative, which serves as a baseline for the levels of calls-for-service in the area. Accordingly, the years of analyzing the foot patrol when it was operational in the Lower Lonsdale area include: 2010, 2011, and 2012.

4.4. Variables

The foot patrol policing initiative in Lower Lonsdale, North Vancouver was examined to determine the impact it had on the level of reported crime. In order to assess and determine the impact, five classifications of crime were used as the dependent variables to empirically test for changes in the crime counts during a select period of time. These crimes included: robbery, assault, mischief, commercial B&E, and theft. There was one independent variables in this analysis: the presence/absence of foot patrol, which was dichotomized as either zero for non-primary patrol area, or one for primary (foot) patrol area. A number of other variables were included in the analysis in order to identify any changes in the crime trend as well as to control for changes in the crime incidents over time (see Table 1 for more detail). Moreover and because the area of interest for this study was to determine the overall as well as yearly effect of foot patrol on crime, the variables in the study were represented in the two equations below:

(1) Overall Effect:

\[
\text{Crime} = \text{Classification of Crime} \times \text{Patrol Type} + \text{Month} + \text{Month Squared} + \text{Trend} + \text{Sum_Dum} + \text{Sum_Trend} + \text{Dum_New}
\]

(2) Yearly Effect:
Crime = Classification of Crime_Patrol Type + Month + Month Squared +
Trend + Sum_Dum + Sum_Trend + Dum_2010 + Dum_2011 +
Dum_2012 

Specifically, there was a trend variable, which accounted for the crime trend in
the Lower Lonsdale area. This variable took the sequential values of 1, 2, 3..., where
each monthly observation represents a value beginning with one. The month variable
took the sequential value of 1, 2, 3..., where one equals January, two equals February,
and so forth. The month-squared variable is simply the values of the month variable
squared. Together, the month and month-squared variables were included in the
analysis to account for the quadratic seasonal effects in the crime data and therefore,
are seasonality variables (Andresen & Lau, 2014). In order to determine if there is an
increase in crime over the summer months, a summer trend variable was created. The
summer trend variable takes the sequential values of 1, 2, 3... beginning at the month
when the foot patrol policing intervention begins where it would otherwise be zero.

Table 4.1. Study Variables

<table>
<thead>
<tr>
<th>Variable Name</th>
<th>Description of Variable and Values</th>
<th>Reason</th>
</tr>
</thead>
<tbody>
<tr>
<td>Month</td>
<td>• sequential value of 1, 2, 3..., where 1 equals January, 2 equals February, and so forth</td>
<td>Accounts for seasonality</td>
</tr>
<tr>
<td>Month^2</td>
<td>• the values of the Month variable squared</td>
<td></td>
</tr>
<tr>
<td>Trend</td>
<td>• sequential value of 1, 2, 3...72, where January 2007 equals 1, February 2007 equals 2, and so fourth</td>
<td>Accounts for each month observed during the study</td>
</tr>
<tr>
<td>Dum_New</td>
<td>• a dichotomous dummy variable that takes the value 0 when there is no foot patrol, and 1 when there is foot patrol</td>
<td>Measures the overall effect of foot patrol policing</td>
</tr>
<tr>
<td>Trend_New</td>
<td>• represents the value 0 when no foot patrol is in place, and the sequential values of 1, 2, 3... for each month that foot patrol was in place</td>
<td></td>
</tr>
<tr>
<td>Sum_Trend</td>
<td>• takes the value 0 when no foot patrol is in place, and the sequential values of 1, 2, 3... for each month that foot patrol was in place</td>
<td>Measures whether the effect of foot patrol changes over the summer months</td>
</tr>
<tr>
<td>Sum_Dum</td>
<td>• a dummy variable that takes the value 0 when no foot patrol is in place, and 1 when foot patrol is in place</td>
<td></td>
</tr>
</tbody>
</table>
4.5. **Statistical Analysis: Negative Binominal Regression**

The overall goal of the statistical analysis in this study was two fold: first, to determine the overall trend of foot patrol for each of the five classifications and second, to measure the yearly effect of the foot patrols for a particular classification of crime. In order to conduct the statistical analysis, negative binomial regression – a specific type of count model regression – was applied using the statistical software program R programming\textsuperscript{26} to examine whether the foot patrols have an impact on crime in Lower Lonsdale. In general, count model regression was used as the statistical technique because the data used in this study are count data. Count data are characterized as being discrete data. It is a type of data where the values are observations made that are enumerated, and are considered non-negative integers, taking the values of 0, 1, 2, 3... and so forth (Hilbe, 2014, p. 1-2).

Moreover, negative binomial regression was the specific type of count model regression used in this analysis, as opposed to classic Poisson regression. The key reason for this is because the data used in this given study is overdispersed meaning the variance is not equal to the mean. As a result, this violates one the assumptions of the Poisson model that must be met in order to use this particular statistical technique (Hilbe, 2014, p. 37). Negative binomial regression model, on the other hand, allows for a wider range of variability than the Poisson model, and also adds in an extra parameter for dispersion; thus, it was the ideal statistical technique to be used given the conditions of our data (Hilbe, 2014, p. 10, 129).

\textsuperscript{2} During the preliminary run of the data in the statistical software program SPSS, some errors were discovered inherent in the program when running the specific statistical test necessary for the data set.
Chapter 5.

RESULTS

In order to assess the long-term impact of the foot patrols operating in the Lower Lonsdale community and to determine whether the foot patrols were able to reduce crime incidents over an extended period of time, several statistical analysis were conducted. As such, the first section of this chapter provides a summary of the reported crime incidents in Lower Lonsdale, and the second section reports the inferential statistics produced as a result of the statistical analysis conducted. The goal for the inferential statistical analysis is two fold: first, to determine the overall trend of foot patrol for each of the five classifications independently and second, to measure the yearly effect of foot patrol for a particular classification of crime. In order to achieve these goals, several negative binomial regression models were conducted and are described below in more detail.

5.1. Reported Crime in Lower Lonsdale, North Vancouver

5.1.1. Overall Reported Crime

The overall reported crime count by year in the Lower Lonsdale neighbourhood is represented in Figure 5.1 for the time period of 2007 to 2012. In general, the overall counts of reported crime in Lower Lonsdale during this time is relatively low. Most notably, however, the year 2009 accounted for the highest number of reported offences in both the primary (foot) (N=572) and non-primary (N=160) patrol area. On the other hand, the lowest number of overall reported offences for the primary (foot) and non-primary patrol area were observed in the year 2008 and 2007, respectively.
Table 5.1 represents the crime counts in the Lower Lonsdale neighbourhood broken down by year, type of patrol area, and category of offence. In general, the number of property offences outnumbered the number of violent offences in both the primary (foot) and non-primary patrol areas for each given year. Moreover, there were approximately three times as many property offences as there were violent offence that have been reported in the primary (foot) patrol area compared to the non-primary patrol area.
Table 5.1. Crime Counts by Year, Type of Patrol Area, and Category of Offence

<table>
<thead>
<tr>
<th>Category of Crime</th>
<th>Type of Patrol Area</th>
<th></th>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Primary (Foot)</td>
<td>Non-Primary</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2007</td>
<td>443</td>
<td>67</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2008</td>
<td>429</td>
<td>124</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2009</td>
<td>572</td>
<td>160</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2010</td>
<td>450</td>
<td>129</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2011</td>
<td>433</td>
<td>105</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2012</td>
<td>312</td>
<td>118</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Violent Offences</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2007</td>
<td>89</td>
<td>13</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2008</td>
<td>71</td>
<td>29</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2009</td>
<td>74</td>
<td>39</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2010</td>
<td>91</td>
<td>34</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2011</td>
<td>97</td>
<td>32</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2012</td>
<td>80</td>
<td>45</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Property Offences</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2007</td>
<td>354</td>
<td>54</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2008</td>
<td>358</td>
<td>95</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2009</td>
<td>498</td>
<td>121</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2010</td>
<td>359</td>
<td>95</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2011</td>
<td>336</td>
<td>73</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2012</td>
<td>232</td>
<td>73</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: Violent offences include: robbery and assault; Property offences include: mischief, commercial B&E, and theft

5.1.2. Reported Crime by Year: 2010

Reported crime for the year 2010 in the Lower Lonsdale neighbourhood is further broken down below by classification of crime and patrol area, and is represented in Table 5.2 and Figure 5.2. As indicated, the highest number of report crime incidents in 2010 was for mischief in both the primary (foot) and non-primary patrol areas, whereas the lowest number of reported crime incidents in both areas was for robbery. The primary (foot) patrol area also had the highest number of reported offences for all five classifications of crime with the highest number of offences being reported for mischief (N=213), followed by theft (N=86) and assault (N=75).
Table 5.2  Total crime counts by Patrol Area and Crime Type: 2010 (North Vancouver RCMP)

<table>
<thead>
<tr>
<th>Patrol Area</th>
<th>Classification of Crime</th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Robbery</td>
<td>Assault</td>
<td>Mischief</td>
<td>Commercial B&amp;E</td>
<td>Theft</td>
</tr>
<tr>
<td>Primary (Foot) Patrol</td>
<td>16</td>
<td>75</td>
<td>213</td>
<td>60</td>
<td>86</td>
</tr>
<tr>
<td>Non-Primary Patrol</td>
<td>3</td>
<td>31</td>
<td>65</td>
<td>18</td>
<td>12</td>
</tr>
</tbody>
</table>

Figure 5.2.  Crime Counts by Patrol Area: 2010 (North Vancouver RCMP)

Figure 5.3 shows the classifications of crime broken down by month over the year of 2010. As shown below, there was a decline in the number of reported offences for mischief, theft, and commercial B&E in the primary (foot) patrol area and during the time the foot patrol initiative was occurring. Interestingly and in regards to violent

27 In 2010, the Lower Lonsdale foot patrol initiative was in operation for the months of June to September inclusive.
offences, there was a steep decline in the number of reported offences for assaults during this time, yet for robbery, the number of reported offences fluctuated.

![Crime Counts by Month: 2010 (North Vancouver RCMP)](image)

**Figure 5.3  Crime Counts by Month: 2010 (North Vancouver RCMP)**

### 5.1.3. Reported Crime by Year: 2011

Reported crime for the year 2011 in the Lower Lonsdale neighbourhood is broken down below by classification of crime, and is represented in Table 5.3 and Figure 5.4. Overall, in 2011 the primary (foot) patrol area had a higher number of reported crime incidents in all classifications of crime compared to the non-primary patrol area. As shown in Table 5.3, the highest number of reported offences in both the primary (foot) and non-primary patrol area was for mischief, and the lowest number of reported offences in both patrol areas was for robbery.

**Table 5.3  Total crime count by Patrol Area and Crime Type: 2011 (North Vancouver RCMP)**

<table>
<thead>
<tr>
<th>Patrol Area</th>
<th>Classification of Crime</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Robbery</td>
</tr>
<tr>
<td>Primary (Foot) Patrol</td>
<td>16</td>
</tr>
<tr>
<td>Non-Primary Foot Patrol</td>
<td>1</td>
</tr>
</tbody>
</table>
Likewise and as shown in Figure 5.4, there were a similar number of reported crime incidents in 2011 for the crime classifications of assault (N=81), commercial B&E (N=73), and theft (N=82) specifically in the primary (foot) patrol area. However, there was a larger variation in the amount of reported offences in the non-primary patrol area for certain offences (see assault, commercial B&E, and theft).

![Reported Crime Incidents: 2011](image)

**Figure 5.4 Crime Counts by Patrol Area: 2011 (North Vancouver RCMP)**

Figure 5.5 represents the classifications of crime broken down by month over the year of 2011. Most notably, as shown below, mischief, theft and assault sharply peak during the month of June 2011 and then sharply decline from the months of June to August 2011. Interestingly, however, the crime incidents for each classification of crime in the non-primary patrol area slightly fluctuate throughout the months from January to December 2011, except for robbery offences.
5.1.4. Reported Crime by Year: 2012

Reported crime for the year 2012 in Lower Lonsdale neighbourhood is broken down below by classification of crime, and is represented in Table 5.4 and Figure 5.6. Similar to both 2010 and 2011, the highest number of crime counts in the both the primary (foot) and non-primary patrol areas in 2012 was for mischief and the lowest number of crime counts was for the offence of robbery. As well, the primary (foot) patrol area had a higher number of reported crime incidents based on each classification of crime compared to the non-primary patrol area.

**Table 5.4 Total crime counts by Patrol Area and Crime Type: 2012 (North Vancouver RCMP)**

<table>
<thead>
<tr>
<th>Patrol Area</th>
<th>Classification of Crime</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Robbery</td>
</tr>
<tr>
<td>Primary (Foot) Patrol</td>
<td>16</td>
</tr>
<tr>
<td>Non-Primary Patrol</td>
<td>5</td>
</tr>
</tbody>
</table>
Figure 5.6  Crime Counts by Patrol Area: 2012 (North Vancouver RCMP)

Figure 5.7 represents the classifications of crime broken down by month over the year of 2012. As shown below, the most notable peaks in reported crime incidents were noted in the months of August and September 2012 in the primary (foot) patrol area for the offences of mischief, theft, and commercial B&E. Interestingly enough, however, similar trends were observed for all classifications of crime among the primary (foot) and non-primary patrol areas abet the primary (foot) patrol area had a larger number of reported crimes for each classification of crime compared to the non-primary patrol area.
5.2. Regression Results: Overall Effect of Foot Patrol on Crime Incidents

Negative binominal regression models were run for the primary (foot) and non-primary patrol area for each of the five classifications of crime in order to determine whether foot patrol policing had a significant overall effect on the reported crime incidents in the Lower Lonsdale neighbourhood. As such, Table 5.5 reports the regression results for the overall effect of Lower Lonsdale foot patrol policing initiative.

<table>
<thead>
<tr>
<th>Table 5.5</th>
<th>Regression Results: Overall Effect</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Note:</strong> * indicates statistical significance (p ≤ 0.1)</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Primary (Foot) Patrol Area</th>
<th>Non-Primary Patrol Area</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Robbery</td>
<td>Assault</td>
</tr>
<tr>
<td>Regression coefficient</td>
<td>0.439</td>
<td>0.147</td>
</tr>
<tr>
<td>Exp(b)</td>
<td>0.645</td>
<td>1.158</td>
</tr>
<tr>
<td>Significance</td>
<td>0.006*</td>
<td>0.384</td>
</tr>
</tbody>
</table>
Overall, the foot patrol initiative had a statistically significant effect on robbery, mischief, and commercial B&E in the primary (foot) patrol area. A calculation of the incidence rate ratios for classifications of crime that were statistically significant concluded that there was a 35.5% reduction in both robbery and mischief offences. As well, there was a 38.2% decrease in commercial B&E offences compared to previous years (2007 to 2009) when no foot patrol policing initiative was in place.

There is evidence to suggest that the Lower Lonsdale foot patrol policing initiative also had an overall impact in the non-primary patrol area for certain classifications of crime. In particular, results indicated that the presence of the foot patrol initiative had a statistically significant effect on assault, mischief, and theft. Based on a calculation of the incidence rate ratios, the Lower Lonsdale foot patrol initiative resulted in a decrease in the following offences reported to North Vancouver RCMP: 37.2% drop in reported assault offences, 46.7% drop in mischief offences and 48.8% drop in reported offences of theft.

5.3. Regression Results: Yearly Effects of Foot Patrol on Crime Incidents

Negative binomial regression models were run for the primary (foot) and non-primary patrol areas for each classification of crime independently in order to determine whether the Lower Lonsdale foot patrol initiative had a yearly impact on crime. As such, the results for the yearly effect of foot patrol, specifically for the year 2010, 2011, and 2012, are reported below.

5.3.1. Yearly Effect of Foot Patrol: 2010

Table 5.6 reports on the regression results for the yearly impact of the Lower Lonsdale Foot Patrol policing initiative for the year 2010. As indicated below, there was a statistically significant decrease in reported crime in the primary (foot) patrol area for mischief only. A calculation of the incidence rate ratio suggests that in 2010, the presence of foot patrol in the primary (foot) patrol area decreased the rate of reported mischief offences by a factor of 0.689 (31.3%).
Table 5.6  Regression Results: 2010 Yearly Effect

Note: * indicates statistical significance (p ≤ 0.1)

<table>
<thead>
<tr>
<th></th>
<th>Primary (Foot) Patrol Area</th>
<th>Non-Primary Patrol Area</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Robbery</td>
<td>Assault</td>
</tr>
<tr>
<td>Regression coefficient</td>
<td>-0.101</td>
<td>2.305e-01</td>
</tr>
<tr>
<td>Exp(b)</td>
<td>0.904</td>
<td>1.259</td>
</tr>
<tr>
<td>Significance</td>
<td>0.825</td>
<td>0.282</td>
</tr>
</tbody>
</table>

However, findings revealed that the Lower Lonsdale foot patrol policing initiative also resulted in a statistically significant effect only on a specific violent offence, namely assault, in the non-primary patrol area. A calculation of the incidence rate ratio suggests that in 2010, the presence of foot patrol in the primary (foot) patrol area decreased the rate of reported assault offences by a factor of 0.544 (45.6%).

5.3.2. Yearly Effect of Foot Patrol: 2011

Table 5.7 reports on the regression results for the yearly impact of the Lower Lonsdale Foot Patrol policing initiative for the year 2011. As indicated below, the foot patrol initiative had no statistically significant effect on any classification of crime in the primary (foot) patrol area. On the other hand, there was a statistically significant effect for mischief in the non-primary patrol area. A calculation of the incidence rate ratio indicates that such presence of foot patrol decreased the rate of reported mischief offences by a factor of 0.436 (56.4%) in the non-primary patrol area.

Table 5.7  Regression Results: 2011 Yearly Effect

Note: * indicates statistical significance (p ≤ 0.1)

<table>
<thead>
<tr>
<th></th>
<th>Primary (Foot) Patrol Area</th>
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<td>Assault</td>
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<td>Significance</td>
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<td>0.517</td>
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</table>
5.3.3. Yearly Effect of Foot Patrol: 2012

Table 5.8 reports on the regression results for the yearly impact of the Lower Lonsdale Foot Patrol policing initiative for the year 2012. As shown below, the Lower Lonsdale foot patrol initiative had a statistically significant effect only on one classification of crime, specifically commercial B&E; however, this statistically significant effect occurred in both the primary (foot) and non-primary patrol area. A calculation of the incidence rate ratio indicates that in 2012, the Lower Lonsdale foot patrol initiative decreased the rate of reported commercial B&E by a factor of 0.526 (47.4%) in the primary (foot) patrol area and by a factor of 0.313 (67.8%) in the non-primary patrol area.

Table 5.8 Regression Results: 2012 Yearly Effect

Note: * indicates statistical significance (p ≤ 0.1)

<table>
<thead>
<tr>
<th></th>
<th>Primary (Foot) Patrol Area</th>
<th>Non-Primary Patrol Area</th>
</tr>
</thead>
<tbody>
<tr>
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<td>Robbery</td>
<td>Assault</td>
</tr>
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Chapter 6.

DISCUSSION

The current study set out to answer the overall research question of whether the Lower Lonsdale foot patrol initiative has an effect on the level of reported crime over time. In order to answer this question and to gain a more complete perspective of this policing method in a geographical area, both the overall and yearly effects of the foot patrols were examined. As such, the following section provides a summary of these main research findings, as well as a discussion of such findings in relation to previous research and theoretical support of police foot patrol. Study limitations and directions for future research will also be discussed.

6.1. Overall Effect of Foot Patrol

The first research question guiding this study is related to the overall effect of the Lower Lonsdale foot patrols for a three year period on certain classifications of reported crime. Contrary to previous research (Bowers & Hirsch, 1987; Esbensen, 1987; Esbensen & Taylor, 1984; Kelling et al., 1981), the current study found that foot patrol had promising effects in relation to crime. Specifically, findings concluded that the foot patrols overall have a crime reduction effect on the levels of reported crime in Lower Lonsdale compared to the three previous years. However, this impact was only observed for certain classifications of crime in the primary (foot) patrol area: robbery offences, and two property-related offences (mischief and commercial B&E). Together, these findings are important because they support previous research, which suggests that foot patrol works in low crime areas, as well as for property offences (Andresen & Lau, 2014; Bond & Gow, 1996).
6.1.1. Property Offences

Findings from this current study fit and are consistent with previous research, which demonstrated that foot patrol has a positive effect on property-related offences. Earlier evaluation research in Lower Lonsdale found that the foot patrols had an effect on mischief and commercial B&E (Andresen & Lau, 2014). As well, results from this current study area broadly consistent with Bond and Gow (1996), whose findings suggested foot patrol have promising effects on property-related offences, as it was found that the number of calls-for-service dropped in the foot patrol area relative to the comparison area.

Furthermore, it is not surprising that the Lower Lonsdale foot patrols had an overall statistically significant reduction on commercial B&E offences in the primary (foot) patrol area compared to the non-primary patrol area. The primary (foot) patrol area in Lower Lonsdale, specifically immediate area surrounding East Esplanade and West 1st street, is highly concentrated with commercial properties, including various retail and eatery stores, restaurants, and businesses. As one moves away in any direction from the core of Lower Lonsdale, the number of commercial properties substantially decreases, with the non-primary patrol area having even fewer commercial properties. With the Lower Lonsdale foot patrol officers primarily spending their time walking up and down Lonsdale Avenue, an area with a highly concentrated number of potential targets and opportunities for commercial B&E offences to occur, the presence of foot patrol officers act as capable guardians. Thus, reduces the opportunities available for crime to occur.

Interesting to note, the Lower Lonsdale foot patrol initiative had a statistically significant reduction for mischief in both the primary (foot) and non-primary patrol area. Possible explanations for these results may be attributed to the presence of crime attractors in the study area, as well as a result of the activity of foot patrol officers. There are a few parks and green spaces in the study area, such as Waterfront Park, which is located immediately outside of the primary (foot) patrol area, as well as Victoria Park, which falls between the boundaries of the primary (foot) and non-primary patrol area. Parks and green spaces in urban areas serve as crime attractors, as they are public spaces with both limited guardianship as well as limited formal and informal social
control (Groff & McCord, 2011, p. 2-3). Moreover, urban parks tend to be sheltered with foliage and have limited lighting, which make them ideal locations to attract delinquent behaviours, and serve as opportunistic locations (Groff & McCord, 2011, p. 2-3) for property-related offences, such as vandalism and damage to public property. In regard to the current findings, it is possible that because urban spaces are in the immediate and proximate vicinity to the primary (foot) area that the foot patrol officers patrol periodically outside the boundaries of the primary (foot) patrol area.

Moreover, the crime reduction effects for mischief and commercial B&E in the foot patrol area provide support of the key theoretical perspectives used to understand the rationale of foot patrol policing. From a perspective of the Routine Activities Theory, the presence of officers patrolling on foot act as capable guardians. Despite the foot patrol area being rich in opportunities for criminal offending to occur – specifically, the presence of a high number of suitable targets along with motivated offenders in the environment – the mere presence of officers inhibits the convergence of the necessary elements required for a crime to occur. As a result, the opportunities for criminal offending to occur is reduced and/or prevented. Similarly and from a Rational Choice theoretical approach, the visual presence of officers patrolling on foot impacts an offender’s decision to commit such offences. For a potential offender, the active visual presence of officers in the foot patrol area increases the risk of a potential offender ‘getting caught’ and thus apprehended. As a result, breaking into a commercial spaces or damaging property becomes too risky and the costs outweigh the benefits. Together, the presence of officers may deter would-be offenders from committing offences in the foot patrol area, especially considered that the presence of officers may provide certainty and immediacy of an offender getting caught and apprehended in a timely fashion, as well as severity of legal sanctions if apprehended.

Lastly and while the current study did not take into account or have data to analyze where the foot patrols specifically patrolled, based on conversations with the foot patrol officers it is known that they patrolled outside their boundaries and in areas such as parks where mischief offences occurred. This is consistent with previous research on foot patrol initiatives, where findings provided support for foot patrol officers patrolling outside the expected boundaries. Ratcliffe et al. (2011) also observed this
phenomenon; however, they found that patrolling outside one’s designated boundaries only accounted for 8% of total foot patrol activity. Sorg et al. (2014) not only found that all foot patrol officers patrolled outside their designated beat area, but the areas where officers were actively patrolling in overlapped with the comparison or control areas by 21%.

6.1.2. Violent Offences

Contrary to this study, previous and notably recent research has found that foot patrol has an impact on violent crime (Piza & O’Hara, 2014; Ratcliffe et al., 2011). These findings differed and were not the case for Lower Lonsdale. Consistent with the data, violent offences for both the primary (foot) patrol and non-primary patrol areas were significantly lower to begin with (pre-intervention period), as well as in comparison to the number of property offences reported in both patrol areas. Taking this into account and the fact that Lower Lonsdale is considered a low crime and generally safe neighbourhood, it is no surprise that findings were such. A drop in a few violent offenses, specifically robbery or assault, when the crime counts were low to begin with would be difficult to detect a statistically significant effect.

On a similar note, this study found that the Lower Lonsdale foot patrols overall had no statistically significant effect in reducing the reported level of assaults in the primary (foot) patrol area. A plausible explanation for these rather expected findings may be attributed to the fact that assaults are considered to be expressive type of crime (Cohn & Rotton, 2003, p. 352) as they tend to occur in the ‘heat of the moment’ and in spaces such as drinking establishments, private residences, and areas that tend to be outside the visible presence of foot patrol officers.

From a theoretical perspective, the crime reduction effects in the primary (foot) patrol area, specifically for robbery offences, is further supported by key theories used to understand for the rationale of foot patrol policing. As previous mentioned, the study area, Lower Lonsdale, is a densely populated area. The criminal offence of robbery is considered to be a crime of opportunity, typically occurring in the public space and involves a victim. From a Routine Activities approach, even though the primary (foot)
patrol area may have a number of victims who may be suitable targets for a motivated offender, the presence of officers patrolling by foot in the primary (foot) patrol area act as capable guardians and prevent such offences from occurring. Similarly and from a Rational Choice approach, the visual presence of a foot patrol officer impact's an offender's decision to commit an offence. Such visibility of an officer increases the risks for a would-be offender that committing the offence, in this case robbery, is risky and further outweighs the benefits.

6.2. Yearly Effects of Foot Patrol

The second research question guiding this study is related to the yearly effect of the foot patrols on certain classification of crimes. Based on the analysis of this study, findings indicate that the effect of the foot patrols on the reported level of crime in Lower Lonsdale varied year to year and for each classification of crime, which further demonstrates mixed results for the effects of foot patrol year-to-year.

Specifically, foot patrols had a statistically significant reduction for mischief in 2010, and commercial B&E in 2012. However, further review of the regression coefficients for certain classifications of crime in the primary (foot) patrol area indicate a negative value, which suggests the level of reported crime for such classifications of crime is declining, despite a statistically significant reduction not being detected by the regression analysis. This is notable for commercial B&E and theft in 2010, robbery in 2011, and for assault and mischief in 2012.

Surprisingly, results also indicated that there was a statistically significant reduction for certain classifications of crime (i.e. assault in 2010, mischief in 2011) in the non-primary patrol area for a given year where such effects were not found in the primary (foot) patrol area. However, a possible explanation for these findings may be attributed to other factors, rather than solely the result of the policing initiative, that are having an influence or impact on the level of crime in the primary (foot) and non-primary patrol area. These factors may include the arrest and/or release of a prolific offender, other crime reduction or community policing initiatives taking place in Lower Lonsdale, and/or the increased development of the commercial establishments and residential
premises within the neighbourhood and/or events bringing people to the area, which leaves more opportunities and suitable targets.

An interesting finding that came about from the yearly analysis of the evaluation of the Lower Lonsdale foot patrol initiative was specifically related to 2012. Here, the analysis revealed that the primary (foot) and non-primary patrol area experience a drop in commercial B&E by approximately 47% and 68% respectively, compared to the previous years. There are several explanations for this, which can include perhaps a diffusion of benefits of foot patrol from the primary (foot) patrol to non-primary patrol area. However, further investigation into this would be required, since it is outside the scope of this current study.

6.3. Study Limitations

There are some limitations to the current study, which are presented below. It is important to make note of and take these shortcomings into consideration when understanding the research findings. A limitation of the current study is the lack of a true comparison or control area(s). Unlike studies conducted by Piza and O'Hara (2014) and Ratcliffe et al. (2011) for example, the present study conducted did not utilize an experimental design and thus, did not have a true comparison or control area. Even though an experimental or quasi-experimental design is considered to be the ‘gold standard’ in research, the current study did a pre/post-test analysis controlling for certain variables as well as time, which is still considered to be a robust design.

Another limitation of this study was the lack of available data. The data analyzed in this study was of reported incidents of certain offences and, thus, the data did not capture what is known as the dark figure of crime. It is well known in the literature that using official police records as a measure of the crime rate does not completely reflect the true level of crime, as not all crimes committed are reported to or recorded by the police for various reasons. Thus, this study could only examine the effects of foot patrol on the known level of crime in Lower Lonsdale.
Moreover, the current study did not control for certain variables, which presented as a limitation to this study. Specifically, the study did not control for the presence or change to the level of motor patrol operating in the primary (foot) patrol area. As well, the study did not control or account for other crime reduction projects or initiatives that may have been taking place during the time of the foot patrol policing initiative was occurring. These variables may have acted as confounding variables. Together, this raises the questions as to what, if any, influence did the presence of motor patrol or other interventions have on the relationship between foot patrols and the reduction of crime for certain classifications of crime, such as on theft or commercial B&E.

Lastly, a limitation to this study was the small sample size. Specifically, the study area had pre-existing low levels of crime prior to the implementation of the foot patrol initiative for both the primary (foot) and non-primary patrol area, as pointed to in Chapter Five. For this reason, it may have been difficult to detect a statistical significance relationship/effect between the Lower Lonsdale foot patrols and certain classifications of crime because in this study small differences are difficult to be identified as statistically significant. Similarly, non-significant results, as a result of low crime counts, may have resulted in a Type II error, where findings suggested that the foot patrol initiative had no effect on certain classifications of crime when in fact the foot patrols did have an effect.

6.4. Directions for Future Research

Despite these limitations presented, this study draws attention to future research avenues and further areas of investigation in the area of foot patrol policing. For instance, the current study provides a good starting point in order to address the long-term sustained impact of foot patrol policing. However, future evaluation of the Lower Lonsdale foot patrol initiative could work in partnership with the local police agency and stakeholders in order to modify the study area and make it more of an experimental design. This would involve incorporating a control area or even multiple foot patrol areas in addition to control areas, which is similar to the recent work of Ratcliffe and his
colleagues\textsuperscript{28}, but on a smaller scale for example. In turn, this may allow for the ability to control for certain key variables that might influence the reported levels of crime during the foot patrol initiative.

Moreover, findings of the current study demonstrated that foot patrol policing has positive effects on reported levels of crime. As the goal of foot patrol policing is multi-faceted, further research should investigate what other beneficial effects the Lower Lonsdale foot patrol policing initiative has on citizens, stakeholders, and the community in general. For instance, such further research could explore the perceptions and expectations of the Lower Lonsdale foot patrols from a community and resident standpoint.

Another area of future research would be to examine what effects or role auxiliary members have on the policing initiative. The current study involved regular member officers patrolling in the primary (foot) patrol area. However, future research could examine similar visibility, specifically auxiliary members or volunteer members walking around the Lower Lonsdale area on foot has an impact. As many police agencies seek to maximize benefits and increase public safety, and at the same time incur minimal cost incorporating regular and volunteer members in the Lower Lonsdale foot patrol initiative may be a viable, cost-effective alternative should results provide a positive outcome.

A last suggestion for future research would be to examine the displacement effects of the Lower Lonsdale foot patrols. While current findings demonstrated that foot patrol does have an impact on certain classifications of crime, the issue of whether the policing initiative resulted in displacement was outside the scope of this study and thus not examined. As such, it would be beneficial to conduct further statistical analysis on the study area to determine whether spatial displacement of crime occurred from the primary (foot) patrol area to the non-primary patrol area. Together, these recommendations suggested for future research can address some of the limitations to

\textsuperscript{28}Ratcliffe et al. (2011)
the current study posed above and/or build upon and further develop the research and knowledge in the area of foot patrol policing.
Chapter 7.

CONCLUSION

7.1. Study Summary

The purpose of this research is to gain a better understanding of and determine the long-term impact of a specific method of patrol – foot patrol policing – in a neighbourhood within North Vancouver, British Columbia, Canada. There were two main research questions guiding this study which sought to determine whether the Lower Lonsdale foot patrol initiative had an overall effect, and whether such effect on each classification of crime differed from year to year. In order to answer these two key research questions, secondary data from PRIME-BC was used. Specifically, police incidents were analyzed from 01 January 2007 to 31 December 2012 to determine whether foot patrol had been successful in reducing certain classifications of crime over time.

Research findings concluded that the initiative operating in Lower Lonsdale had an overall effect on certain classifications of crime. Specifically, foot patrols had a statistically significant reduction for mischief, robbery, and commercial B&E in the primary (foot) patrol area. However, when examining the yearly effects, the Lower Lonsdale foot patrol initiative was found to have a varying impact from year to year, where only a statistically significant reduction was found in 2010 for mischief and in 2012 for commercial B&E in the primary (foot) patrol area. Despite these research findings, the results suggest and further support the idea that the policing method of foot patrol does have some promising results as a crime reduction initiative; however, more research is still required.
7.2. Implications of the Research

Based on the study findings, the research conducted to explore the long-term impact of foot patrol policing is of importance and can have implications on various levels. In particular, it can have implications for a community or neighbourhood, the police agency, and for society at large. At the community or neighbourhood level, research on foot patrol can in turn have a direct impact on how a particular city or neighbourhood is policed. The findings from this current study provides insight into which classifications of crime foot patrol has an impact on and more importantly, which offences sustained a crime reduction effect over a prolonged period of time. Based on foot patrol research in general and in particular findings from this study, a police agency is able to make improvements to better police a neighbourhood located within a city, and to ultimately better serve the community.

Similarly and at a police agency level, research on foot patrol can have implications on both the current and future state of a policing initiative, as well as on a police department’s resource allocation in terms of funding and manpower. As law enforcement agencies strive to maintain a balance between minimizing costs and maximizing crime reduction and public safety, it is of crucial value and nevertheless important to evaluate and examine the effectiveness of a crime reduction initiative. Subsequent findings of the Lower Lonsdale foot patrol initiative may involve the police agency, specifically North Vancouver RCMP, making changes or modifications to the foot patrol initiative while still maintaining officer visibility and presence. Such changes or modifications to the current foot patrol initiative may include adjustments to the deployment of resources within the Lower Lonsdale area, modifying the foot patrol area boundaries, increasing the deployment of the number of foot patrol officers, changing or extending the length and time frame of the initiative, or even developing additional primary (foot) patrol areas.

Broadly speaking, at the societal level, research in this area may lead to a change in the future methods of policing communities. While majority of previous research has focused on whether or not the implementation of a foot patrol initiative has an impact on crime and/or calls-for service, this present study sought to determine if the
results of crime reduction are sustained over a longer duration of time. The overall impact foot patrol had for mischief, robbery, and commercial B&E offences, as ascertained in this current study’s findings, provides some evidence that foot patrol does have benefits when policing a community. Together, this raises the idea that perhaps a law enforcement agency should not think about doing away with this policing method, but rather there should be a better integration of the old policing philosophy, specifically foot patrol, alongside current policing practices. It is important to note that while foot patrol may not be the most optimal, cost-effective strategy for policing all communities, evidence herein demonstrates that foot patrol policing does have a positive impact even in relatively low crime neighbourhoods (Andresen & Lau, 2014; Bond & Gow, 1996), such as the Lower Lonsdale neighbourhood in North Vancouver.

7.3. Concluding Remarks

While there are some limitations to this current study, it does however serve as a good starting point to assess the long-term impact of the foot patrol initiative in North Vancouver and provides a contribution of the overall literature on foot patrol policing. Only by doing this and by examining the long-term impact of any foot patrol policing initiative will the appropriate improvements be made in order to make them even more efficient and effective than they already are. It is especially important to look at and examine foot patrol initiatives in order to determine their relevancy in a changing society or socio-demographic area. Thorough exploration into the impact of foot patrol is critical in determining the best possible methods of policing for and with a community.

As previously highlighted, research into this area can result in a policing agency either tailoring the current practice of foot patrol to better suit and reflect the needs to the police and the community, or result in the implementation of a new policing methods, programs, and policies. As well, exploration into the topic of foot patrol policing may have implications for the community in terms of citizen involvement in crime detection, prevention, and fear of crime. As police agencies and the public will continually seek to improve law enforcement to promote safety of the community, research into the topic of foot patrol policing will continue to remain an important area of investigation.
References


Appendix A.

Regression Results for Study Variables: Correlation Coefficients

<table>
<thead>
<tr>
<th></th>
<th>Robbery</th>
<th>Assault</th>
<th>Mischief</th>
<th>Commercial B&amp;E</th>
<th>Theft</th>
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</thead>
<tbody>
<tr>
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<td>2.897</td>
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</table>

Table A1. Regression Results: Overall Effect, Primary (Foot) Patrol Area

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<tr>
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<th>Assault</th>
<th>Mischief</th>
<th>Commercial B&amp;E</th>
<th>Theft</th>
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<td>-0.353</td>
<td>-6.685e-01</td>
</tr>
</tbody>
</table>

Table A2. Regression Results: Overall Effect, Non-Primary Patrol Area

<table>
<thead>
<tr>
<th></th>
<th>Robbery</th>
<th>Assault</th>
<th>Mischief</th>
<th>Commercial B&amp;E</th>
<th>Theft</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>0.533</td>
<td>1.665e+00</td>
<td>2.911</td>
<td>1.735</td>
<td>2.332</td>
</tr>
<tr>
<td>Month</td>
<td>-0.036</td>
<td>3.615e-03</td>
<td>-0.001</td>
<td>-0.028</td>
<td>0.019</td>
</tr>
<tr>
<td>Trend</td>
<td>-0.001</td>
<td>-9.376e-05</td>
<td>-0.002</td>
<td>0.004</td>
<td>-0.011</td>
</tr>
<tr>
<td>Sum_Dum</td>
<td>-0.354</td>
<td>2.696e-01</td>
<td>0.110</td>
<td>-0.257</td>
<td>0.346</td>
</tr>
<tr>
<td>Sum_Trend</td>
<td>0.180</td>
<td>-1.175e-01</td>
<td>-0.035</td>
<td>0.143</td>
<td>-0.119</td>
</tr>
<tr>
<td>Dum_2010</td>
<td>-0.101</td>
<td>2.305e-01</td>
<td>-0.373</td>
<td>-0.424</td>
<td>-0.122</td>
</tr>
<tr>
<td>Dum_2011</td>
<td>-0.730</td>
<td>1.412e-01</td>
<td>0.251</td>
<td>0.279</td>
<td>0.332</td>
</tr>
<tr>
<td>Dum_2012</td>
<td>0.325</td>
<td>-1.429e-02</td>
<td>-0.217</td>
<td>-0.642</td>
<td>0.271</td>
</tr>
</tbody>
</table>

Table A3. Regression Results: Yearly Effects, Primary (Foot) Patrol Area
<table>
<thead>
<tr>
<th></th>
<th>Robbery</th>
<th>Assault</th>
<th>Mischief</th>
<th>Commercial B&amp;E</th>
<th>Theft</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>-1.870e+00</td>
<td>0.129</td>
<td>1.524</td>
<td>-1.091</td>
<td>0.137</td>
</tr>
<tr>
<td>Month</td>
<td>2.271e-02</td>
<td>-0.008</td>
<td>0.006</td>
<td>0.001</td>
<td>0.037</td>
</tr>
<tr>
<td>Trend</td>
<td>7.085e-03</td>
<td>0.018</td>
<td>0.002</td>
<td>0.027</td>
<td>-0.002</td>
</tr>
<tr>
<td>Sum_Dum</td>
<td>1.929e+00</td>
<td>0.383</td>
<td>0.747</td>
<td>-1.993</td>
<td>0.287</td>
</tr>
<tr>
<td>Sum_Trend</td>
<td>-5.633e-01</td>
<td>0.065</td>
<td>-0.293</td>
<td>0.267</td>
<td>-0.024</td>
</tr>
<tr>
<td>Dum_2010</td>
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<td>-0.027</td>
<td>1.288</td>
<td>-0.311</td>
</tr>
<tr>
<td>Dum_2011</td>
<td>-3.531e+01</td>
<td>-0.126</td>
<td>-0.829</td>
<td>-0.237</td>
<td>-0.220</td>
</tr>
<tr>
<td>Dum_2012</td>
<td>1.593e-01</td>
<td>0.160</td>
<td>-0.410</td>
<td>-1.162</td>
<td>-0.226</td>
</tr>
</tbody>
</table>

Table A4. Regression Results: Yearly Effects, Non-Primary Patrol Area