

# **Neighbourhood Effects on Fear of Crime in Canada**

**by**

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## Ethics Statement



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## **Abstract**

Fear of crime is a social problem with potentially serious consequences, including altering or restricting one's behaviour. Changes to one's routine for this purpose are known as constrained behaviours. Although gender stands out as a particularly strong indicator of fear, an abundance of literature – primarily based in the United States – explores its causes. Demographic factors, a history of victimization, social ties, perceived disorder, and neighbourhood structural factors all play a role. The focus of this research is to determine the extent to which these theoretical approaches explain perceived risk and constrained behaviours in Canada. This study uses data from the General Social Survey and the Census and employs a multilevel analytic approach. The results suggest that factors which affect an individual's perception of risk differ from those that affect constrained behaviours. The results also indicate that neighbourhood context is an important factor in understanding the dynamics of fear of crime.

**Keywords:** fear of crime; constrained behaviour; vulnerability model; social cohesion; neighbourhood disorder; social disorganization

*Mom & Dad*

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# Table of Contents

Approval.....	ii
Ethics Statement.....	iii
Abstract.....	iv
Dedication.....	v
Acknowledgements.....	vi
Table of Contents.....	vii
List of Tables.....	viii
<b>Chapter 1. Introduction.....</b>	<b>1</b>
<b>Chapter 2. Literature Review.....</b>	<b>4</b>
2.1. The Vulnerability Model.....	8
2.1.1. Sex.....	9
2.1.2. Age.....	13
2.1.3. Race.....	15
2.1.4. Socioeconomic Status.....	17
2.1.5. Prior Victimization.....	18
2.2. The Neighbourhood Disorder Model.....	20
2.3. The Social Disorganization Model.....	23
2.4. The Social Cohesion Model.....	25
2.5. An Integrated Approach.....	27
<b>Chapter 3. Methods.....</b>	<b>31</b>
3.1. Data and Sample.....	31
3.2. Measures.....	32
3.3. Analytic Strategy.....	36
<b>Chapter 4. Results.....</b>	<b>38</b>
4.1. Fear of Crime.....	41
4.2. Constrained Behaviours.....	45
<b>Chapter 5. Discussion.....</b>	<b>49</b>
<b>Chapter 6. Conclusion.....</b>	<b>56</b>
<b>References.....</b>	<b>59</b>
Appendix A. Descriptive Statistics for Composite Measure Items.....	67
Appendix B. Creation of Composite Measures.....	73

## List of Tables

Table 1 Descriptive Statistics for Individual-Level Variables.....	39
Table 2 Descriptive Statistics for Neighbourhood-Level Variables .....	40
Table 3 Descriptive Statistics for Outcome Variables .....	40
Table 4 Multilevel Mixed-Effects Multinomial Logistic Regression .....	42
Table 5 Multilevel Mixed-Effects Poisson Regression (Protective Behaviours) .....	46
Table 6 Multilevel Mixed-Effects Poisson Regression (Avoidance Behaviours) .....	47

# Chapter 1.

## Introduction

Fear is a strange soil. It grows obedience like corn, which grow in straight lines to make weeding easier. But sometimes it grows the potatoes of defiance, which flourish underground.

Terry Pratchett, *Small Gods*

Fear of crime, at first glance, seems to be reasonably straightforward. If it is closely tied to the crime rate, then addressing the problem of crime should address the problem of fear. Since the crime rate in Canada has been on a steady decline for decades now (Boyce, Cotter, & Perreault, 2014, p. 5), Canadians' feelings of safety should be increasing correspondingly. But this is not the case. The simple correspondence between recorded crime and fear of crime is insufficient for two primary reasons. The first is that the public does not necessarily have an accurate understanding of crime, such as its scope or the measures that exist to prevent or punish criminal offences. Second, fear of crime is not based exclusively on one's knowledge, accurate or otherwise, of crime. There exists a great deal of public misconception about crime and the criminal justice system (Roberts & Stalans, 1997, p. 30). These misconceptions typically involve overestimating the extent and severity of crime while underestimating the justice system response.

As will be detailed in the upcoming chapters, fear of crime is tied to, but still unique from, crime as a concern. The crime rate does, to a certain extent, affect fear (Roman & Chalfin, 2008, pp. 310-311). However, fear of crime is a social problem with its own causes and consequences, which are numerous (Ferraro, 1995, p. 3). It harms

one's health, either directly through stress or indirectly through limiting activity and social ties (Jackson & Stafford, 2009, p. 842). It reduces one's quality of life overall (Clemente & Kleiman, 1977, p. 520; Jackson & Gray, 2010, p. 8). It leads individuals to feel negatively about their communities and perceive that their neighbourhoods are more disordered (Gray, Jackson, & Farrall, 2011, p. 86). Individuals may feel less socially integrated into their neighbourhoods and less connected to their neighbours (Ferraro, 1995, p. 3). Individuals may become more distrustful of strangers overall (Clemente & Kleiman, 1977, p. 520). Fear can lead individuals to alter their lifestyles in order to reduce their risk of victimization, thus decreasing their participation in public life (Garofalo, 1981, p. 850). These lifestyle changes can be fairly drastic, with significant limiting effects on one's life. This is more likely to be true for women than for men, especially elderly women (Madriz, 1997, p. 119). Feelings of fear can also lead to a lack of confidence in law enforcement, the courts, and corrections, as well as to increased punitiveness (Hale, 1996, as cited in Alper & Chappell, 2012, p. 346). Naturally, politicians latch onto their citizens' fears, turning fear into the foundation of a more severe law and order policy. "Tough on crime" public policies are justified in part because of public fear and distrust (Varma & Marinos, 2013, p. 556).

Given the far-reaching consequences of fear of crime, at both the personal and political level, it is necessary to evaluate fear with respect to its facilitators and inhibitors. The existing research is predominantly based in the United States; the Canadian perspective is, to a significant degree, overshadowed by its southern neighbour. This thesis seeks to reduce this disparity by exploring fear of victimization and the subsequent constraints on behaviour that fear inspires. To account for the large variety of explanatory factors that are employed in previous literature, multilevel, multi-theoretical approaches are used.

The literature review (Chapter 2) outlines the four main theoretical perspectives analyzed in this study: the vulnerabilities model, social cohesion, social and physical neighbourhood disorder, and social disorganization. Vulnerabilities largely center on demographic variables, whereas cohesion and disorder relate to an individual's perception of his or her community or neighbours. Social disorganization operates at the aggregate level and concerns mainly socioeconomic factors, along with the stability and

ethnic makeup of neighbourhoods. The chapter also discusses the concept of fear as a construct and its plethora of measurement errors and inconsistencies, along with an examination of fear-based constricted behaviours, such as avoidance or protective strategies.

Chapter 3 contains a description of the data sources, predictor and outcome measures, and the analytic strategy. Chapter 4 displays the results, including a description of the current sample followed by several multivariate multilevel models. The effects of the theoretical measures on fear are followed by the effects of fear and other measures on the protective and avoidance behaviours, respectively. Of the demographic predictors, sex and victimization consistently increase fear and the use of both precautionary measures whereas higher levels of education and income decrease all three. Neighbourhood factors, whether at the individual or census tract level, vary in behaviour depending on the outcome measure. The exception to this is perceived neighbourhood disorder, as it corresponds with greater fear and increased use of avoidance and protective strategies. The implications of these results, with reference to existing work on the topics, are explored in greater depth in Chapter 5. Particularly noteworthy are the differences among perceived risk, avoidance tactics, and protective tactics as well as the differential impact of neighbourhood characteristics. Finally, the concluding chapter provides a discussion of the limitations of the study, along with directions for future research.

## Chapter 2.

### Literature Review

Although fear of crime is a complex social problem unto itself that is partially separate from the problem of crime (Alper & Chappell, 2012, p. 346), there are important areas of overlap that should be considered. For instance, many of the factors that increase or decrease crime also impact fear. Fear of crime, like crime itself, can be assessed at multiple levels of analysis. Despite some similarities, there exist pertinent differences, both in degree and in kind, between factors that affect crime and fear. Both individual (e.g., demographic indicators, individual perceptions of one's neighbourhood) and aggregate (e.g., neighbourhood structural elements) factors can play a role in facilitating or inhibiting fear. The main theoretical perspectives that are used to explore fear of crime are the vulnerability model, social disorganization, neighbourhood disorder, and social cohesion.

First and foremost, it is necessary to narrow down what is meant by 'fear of crime.' DuBow, McCabe, and Kaplan (1979) state that it encompasses "a wide variety of subjective and emotional assessments and behavioral reports" (p. 1). The two primary assessments that dominate much of the literature are cognitive fear and emotional fear. Emotional fear – which is often simply referred to as fear – is a measure of worry about crime. This refers to a purely emotional reaction. On the other hand, cognitive fear refers to an assessment of one's likelihood of being a target. This is not an emotional reaction but rather an individual's perceived risk of victimization. Cognitive fear is accordingly called perceived risk. Although the literature separates the two, there may be some overlap. For instance, an individual could feel worried partially *because* they believe they are highly likely to be victimized in a specific area. Conversely, an individual could determine that he or she is at risk partially *because* they feel scared.

Both emotional fear and perceived risk can be general or crime-specific. Participants may be asked how worried they feel about burglary, assault, rape, or another offence. They may be asked how likely they are to be victims of the same. Frequently, respondents are asked about their emotional worry or perceived risk as it relates to themselves; it is less common for respondents to be asked about their fear for their loved ones. However, most fear of crime studies traditionally assess fear using questions such as “how safe do you feel walking around your neighbourhood at night?” (Roberts, 2011, p. i), which targets a respondent’s own general fear of crime. Despite the fact that this question specifically includes the word “feel,” it measures not emotional worry but rather is an assessment of one’s risk of victimization in that particular situation (Ferraro & LaGrange, 2007, p. 77).

The research on fear of crime generally suffers from a great deal of conceptual confusion; the utility of the traditional measures has been called “negligible” (Ferraro & LaGrange, 2007, p. 71). The term ‘neighbourhood’, for instance, is often unspecified, leaving respondents free to interpret it as they wish. Similarly, the likelihood of personal interpretation could increase with the vague question of safety in one’s neighbourhood at night (Garofalo, 1979, p. 82). Some argue that this question causes respondents to consider personal victimization over property victimization (Smith & Hill, 1991, p. 220). Others claim that because the safety in one’s neighbourhood question actually measures perceived risk of victimization, it is an inappropriate proxy for fear of crime (Ferraro & LaGrange, 2007, p. 76; Reid & Konrad, 2004, p. 405). According to Ferraro and LaGrange (2007), fear of crime is an emotional reaction to crime, not a rational assessment, and its operationalization should pertain to that exclusively (p. 72). A question specifically targeting a respondents’ feelings of worry, using that terminology, would more accurately represent fear. A better assessment of fear rather than risk is asking how afraid rather than how safe a respondent feels in their neighbourhood (Ferraro & LaGrange, 2007, p. 77). To go a step further, because attempting to measure an emotional reaction to crime could be an exercise in futility, it is preferable to assess perceived risk of specific types of victimization instead (Alper & Chappell, 2012, p. 348; Ferraro & LaGrange, 2007, p. 74); as such cognitive assessments of risk do not leave room for respondents to interpret the question in whichever way they choose.

It is possible, however, that the “walking alone at night” question is unfairly criticized. Although some claim that it wrongly measures perceived risk of victimization rather than an actual emotional reaction, studies that compare the two do find some differences. Keane (1992) discovers that, although gender, age, and locale impact both perceived risk overall and perceived likelihood of victimization of certain specific offences; income, dwelling, and renting only significantly increase perceived risk (p. 220). Franklin, Franklin, and Fearn’s (2008) comparison of emotional worry and perceived risk measures of fear shows that indicators behave differently with the two measures of fear (p. 218). Finally, Lee (1982) assesses various measures of risk and of fear and finds only moderate relationships between the two. The most common measure of fear has a mild correlation of only 0.28 with a measure of perceived risk (Lee, 1982 as cited in Ferraro & LaGrange, 2007, p. 79). These findings suggest that, though these dimensions share some similarities, they remain distinct concepts. Although the walking alone at night measure of crime does give respondents some leeway for interpretation, there is no reason to believe that there is an epidemic of research participants who interpret the question in ways that do not involve criminal offences. There is room for both approaches in fear of crime studies.

Moreover, fear need not be studied solely as an outcome, but as a cause. Fear of crime is itself a social problem due to its negative impact on quality of life and behaviour. Behaviours undertaken to protect oneself from crime or reduce risk of criminal victimization are known as precautionary strategies or constrained behaviours. These are strategies undertaken by individuals who alter their routine activities as a result of their fear or perceived risk of victimization (Ferraro, 1995, p. 55). Although some measure constrained behaviour as one concept, they can be divided into avoidance behaviours (e.g., avoiding certain areas or being out at certain times of day) and defensive (e.g., taking precautions such as installing an alarm system or other home security measures, taking a self-defence class, carrying a whistle or pepper spray, or carrying a weapon). Defensive behaviours can be further broken down into weapons-carrying behaviours and protective behaviours (i.e., all defensive behaviours but weapons). Fairly little research exists on the relationship between fear and behaviour, but what has been done does suggest support for such a connection. Warr (2000) states that the most common behavioural reaction to fear is avoidance of dangerous areas (p.

481). Rader, May, and Goodrum (2007) find that although fear of victimization increases both avoidance behaviours and defensive behaviours, perceived risk of victimization has a significant effect on neither (p. 498). Furthermore, it appears that avoidance and defensive behaviours are separate, unrelated constructs (Rader et al., 2007, p. 498). May, Rader, and Goodrum (2010) confirm the finding that only fear of crime, and not perceived risk of victimization, increases avoidance and defensive behaviours (p. 175). Rader and Haynes (2014) expand on this topic by considering fear for one's self and fear for loved ones. They go further to examine the connection between fear and perceived risk while accounting for the three types of constrained behaviours: avoidance, protective, and weapons (carrying a firearm or knife for protection). All three types of constrained behaviours are linked with concern for significant others or family, whereas concern for one's self is only linked with avoidance behaviours (Rader & Haynes, 2014, p. 208).

Liska, Sanchirico, and Reed (1988) measure the impact of fear on constrained behaviour, where respondents are asked how often they go out in the evening for entertainment and whether their activities have been changed or limited as a result of crime. Their constrained behaviour construct appears to be fairly similar to the concept of avoidance behaviours, in that both concern respondents altering or restricting their conduct. They notice that a feedback loop exists between fear of crime and constrained behaviour for all age groups except the elderly. Individuals over the age of 70 may constrain their behaviour as a result of physical limitations instead of fear (Liska et al., 1988, p. 835). Other studies on fear and behaviour indicate that fear of crime decreases voluntary, but not compulsory, routine activities (Rengifo & Bolton, 2012, p. 113) and decreases walking recreationally and walking for the purpose of transport, although the effect of fear on recreational walking can be mediated by positive neighbourhood factors (Foster, Giles-Corti, & Knuiman, 2014, p. 709).

Some argue that a certain level of worry, and the precautionary or protective measures associated with that worry, is beneficial. Jackson and Gray (2010) posit that individuals can experience two kinds of fear: functional or dysfunctional fear. According to the authors, participants in the functional fear group do worry about crime and take precautions to make themselves feel safer, but report their quality of life is affected by

neither (Jackson & Gray, 2010, p. 8). Those in the dysfunctional fear group report that their worries about crime and safety precautions do negatively affect their quality of life (Jackson & Gray, 2010, p. 8). Individuals in the dysfunctional fear group are more likely to be victimized and experience negative health concerns than the functional fear group (Gray, Jackson, & Farrall, 2011, p. 86; Jackson & Gray, 2010, p. 15).

## **2.1. The Vulnerability Model**

The premise of this perspective is that vulnerability, which can be either physical or social, acts as a facilitator of fear. Individuals who are unable or perceive themselves to be unable to protect themselves and, thus, may view themselves as being at greater risk of criminal victimization, are more fearful (Weinrath, 2000, p.108). Physical vulnerability comes from being unable to protect one's self from an attack (Rader, Cossman, & Porter, 2012, p. 134). For example, women tend to be physically weaker than men; this is also applicable to the elderly versus younger adults. Those on the physically weaker end of the spectrum are consequently more afraid of being a victim of crime (Franklin & Franklin, 2009, p. 86). Social vulnerability, on the other hand, is related to a variety of factors that result in an increased risk of victimization, primarily low socio-economic status and race (Skogan & Maxfield, 1981, p. 73). These factors also result in a decreased ability to protect one's self by taking actions such as moving to a lower-crime neighbourhood. A history of victimization is also considered to increase vulnerability (Weinrath, 2000, p. 108). Thus far, there is inconclusive evidence regarding whether the effects of social and physical vulnerabilities are additive (see Ortega & Miles, 1987) or interactive (see Rader et al., 2012).

Vulnerabilities sometimes, but not always, increase risk of victimization; individuals may simply perceive their risk to be higher. Although women and the elderly are less likely to be victims of crime, they consistently report disproportionately higher levels of fear (Clemente & Kleiman, 1977, p. 520; Franklin et al., 2008, p. 207). This divide is known as the fear of crime paradox and is regarded by some as irrational. Such an interpretation may be inappropriate, however. The connection between actual risk and fear is not fully understood (Stafford & Galle, 1984, p. 182) but it is clear that fear of crime is not a direct response to actual crime rates nor is it the result of a logical analysis

of one's risk of victimization (Woldoff, 2006, p. 239). A twenty-year comparison of crime rates and offence-specific fears in Winnipeg, Manitoba found no associations that persisted over that period of time (Weinrath, Clarke, & Forde, 2007, p. 632). It is possible that fear comes from the decreased likelihood of being able to resist an attack or the increased risk of serious injury or trauma following an attack (Skogan & Maxfield, 1981, p. 69; Sutton, Robinson, & Farrall, 2011; p. 430). Young (1988) finds some support for the hypothesis that attacks on older individuals (in this particular study, "older" refers to those over the age of forty-five) are more likely to be violent and to result in injury (p. 170). However, this idea garners mixed support (Smith & Hill, 1991, p. 219). It is evident that fear is far more widespread than is actual crime and that the relationships between fear and vulnerabilities are complex. In this section, relationships between fear and specific vulnerabilities, including sex, age, race, socioeconomic status, and previous victimization, will be explored in greater detail.

### **2.1.1. Sex**

Unequivocally, the strongest predictor of fear of crime is sex. Women are consistently shown to be significantly more fearful than men: according to Ferraro (1995), the effect of sex is twice as strong as other predictors (p. 85). Women show greater formless fear and report feeling at greater risk of all types of concrete fear (Keane, 1992, p. 219). This finding remains consistent throughout the years regardless of which other demographic or theoretical factors are being controlled for, how fear of crime is operationalized, or in which region or setting the studies take place (Clemente & Kleiman, 1977; Cops & Pleysier, 2011; DuBow et al., 1979; Hilinksi, Pentecost Neeson, & Andrews, 2011; Kristjansson, 2007; Lee & Hilinksi-Rosick, 2012; May et al., 2010; Reid & Konrad, 2004; Skogan & Maxfield, 1981; Snedker, 2012). This fear causes women to engage in more defensive and avoidant behaviours, sometimes to a degree that negatively affects their quality of life (May et al., 2010, p. 173). However, although there is a reasonably clear consensus regarding women's higher levels of fear, there is no such consensus when it comes to providing an explanation for this phenomenon. Possible reasons for this include a greater likelihood of relative physical weakness, differences in gender socialization, and the idea that women's fear is overshadowed by sexual assault, known as the sexual assault hypothesis. Others argue that women's fear

is not as disproportionate as it may initially seem. This could be due to the fact that a large number of unreported offences are often crimes that overwhelmingly affect women. On the other hand, perhaps men, as a result of socialization and desire to achieve a masculine ideal, minimize their fear when they self-report. It is plausible that many of these explanations are only partially true, or are true for some women and not others.

As a group, women are typically not as physically strong as men. Consequently, women's disadvantages in the areas of size and strength lead to a diminished capacity to fight back against an attacker (who is often a man) and, not surprisingly, to greater levels of fear. Some may fear that their physical disadvantages may make them attractive targets for offenders (Snedker, 2012, p. 99). This physical difference between sexes may be affected to some degree by socialization. Women, even when encouraged to be physically fit, are not encouraged to build muscle the same way men are. This only widens the gap between men and women. Women are socialized not only that they may not defend themselves, but that they require men to defend and protect them (Cobbina, Miller, & Brunson, 2008, p. 696; Rader et al., 2012, p. 135). They are taught that aggressive behaviour is inappropriate. According to Snedker (2012), "[m]en and women are typically socialized in different ways that may influence fear of crime. Some argue that sex-role socialization encouraging passivity and dependence in women heightens women's fear and increases their sense of vulnerability" (p. 78). Yet, women who enroll in a self-defence course report a decrease in their levels of fear (Skogan & Maxfield, 1981, p. 70). Self-defence courses explicitly teach that if one is attacked, fighting back and self-protection are viable options; this is a clear rejection of women's socially enforced passivity. De Welde's (2003) ethnographic study of a white women's self-defence course titled "Wise-up" also shows how the course encourages women to think critically and liberate themselves from the restrictive social control of fear (p. 88).

Some argue, however, that women's fear of crime is related to sexual assault. Women are significantly more likely than men to be victims of sexual assault; this fear is allegedly generalized to all crimes (May et al., 2010, pp. 160-161; Rader et al., 2012, p. 135). According to Ferraro (1995), who was the first to suggest the "shadow of sexual assault" hypothesis, any non-sexual victimization of women includes the possibility of sexual victimization (p. 87). In other words, because women experience sexual violence

at a very high rate and sexual assault may lead from non-sexual offences, women's fear of rape may increase women's fears of all crimes. Furthermore, women are reminded every day of their risk of rape by the frequent unsolicited and unwanted attention they receive as they go about their lives (Snedker, 2012, p. 79). The support for the sexual assault hypothesis is mixed. Although fear of rape does reduce the sex difference in fear of violent victimization, Ugwu and Britto (2015) argue that fear of rape does not go so far as to operate as a "master offence" for women, because fear of non-sexual assault is a strong predictor of fear for both sexes (pp. 79-80). Using fear of non-sexual offences as a dependent variable, Ferraro (1995) finds that gender actually becomes completely insignificant once fear of rape is included in the analysis (p. 91). The effect of fear of rape is so strong that it essentially negates the effect of gender. However, Snedker (2012) examines women's fear of rape specifically, and finds no evidence for the idea of rape as a master variable and that not many women express fear of rape (pp. 94, 98). The author proposes that this may be because women learn that the risk of sexual assault is not as high, thus decreasing their fear; however, the link between objective risk of crime and fear of crime is not that straightforward. Hilinski et al. (2011) examine the sexual assault hypothesis and conclude that although sexual assault plays a role in women's fear, other factors have an effect as well (p. 120). The idea that fear of rape bleeds over into fear of other offences is not supported; the women in the study assert that different motivations exist for sexual and non-sexual offences (Hilinski et al., 2011, pp. 117-118). Women in that study do not reporting viewing all crimes through the lens of sexual assault.

Sexual violence may, however, affect women's fear of crime in another way. Crimes that typically affect women – sexual assault, stalking, intimate partner violence – are often underreported (Hilinski et al., 2011, p. 113). Women's fear appears to be less "unreasonable" or "irrational" when one takes into consideration violence against women that goes unreported (Reid & Konrad, 2004, p. 402). According to Smith (1988), victimization surveys do not always ask about violence or sexual assault by intimate partners (p. 32). In 2004, of the 512,000 Canadians over the age of fifteen who are the victims of sexual assault by someone other than a current or former partner, less than one in ten of those offences are reported to police (Brennan & Taylor-Butts, 2008, p. 8). Furthermore, of those that do come to the attention of law enforcement, sexual offences

are significantly less likely than other violent offences to lead to a charge being laid or a conviction for adult offenders (Brennan & Taylor-Butts, 2008, p. 10). Despite this oversight, fear is not a direct response to actual risk of crime; however, women's fear seems to be less disproportionate in this light.

A limitation of many studies of sex and fear is that the focus is largely on women; many authors restrict themselves simply to providing possible explanations of women's increased fear (Reid & Konrad, 2004, p. 401). Possible explanations for men's lower levels of fear are often left out of the analysis entirely. The idea that men may not be fearful enough is not discussed at all. Clemente and Kleiman (1977) list as a limitation of their study that males may be reluctant to admit that they are afraid (p. 529). Almost thirty years later, Sutton and Farrall (2005) examine this idea in greater detail. They propose that men are socialized to avoid displays of emotion, particularly emotions such as sadness or fear, which are to some extent encouraged in women (Sutton & Farrall, 2005, p. 213). The authors use a socially desirable reporting scale and compare those scores with those relating to fear. Men who tend to give socially desirable responses also tend to self-report lower levels of fear; when the impact of such responding is negated, the difference between sexes is minimal and even presents in the opposite direction (Sutton & Farrall, 2005, p. 219). This result contradicts the fear of crime paradox.

In a follow-up study, Sutton et al. (2011) require their participants to complete a survey in either a socially desirable way ("fake good") or honestly. As predicted, men in the "fake good" group report lower levels of fear whereas women in the same group report higher levels of fear (Sutton et al., 2011, p. 428). Women in the group required to answer honestly report feeling less fearful, perhaps because women who are not afraid are perceived to be reckless and irresponsible. Yet despite the fact that men are at greater risk of victimization, they are not perceived as reckless and irresponsible when they suppress their fear. To further explore the idea of fear being affected by gender socialization, Cops and Pleysier (2010) use a gender identity scale to divide participants into groups (there is a considerable amount of overlap between the results of the scale and participants' sex). The higher (i.e., the more masculine) respondents score, the

lower their levels of fear; controlling for gender identity appears to reduce the fear gap between boys and girls (Cops & Pleysier, 2010, p. 71).

### **2.1.2. Age**

Although the effect of age is consistently not as strong as that of sex, evidence shows that the elderly also feel fear that is disproportionate to their actual level of risk. As it is the elderly that are more likely to be afraid, studies on fear and age tend to focus on the elderly rather than children. Like women, elderly people are seen as being more susceptible to victimization due to physical weakness and declining health, thus leaving them unable to effectively protect themselves from crime. Age further enhances the effects of other marginalized positions; in other words, as one ages, the effects of their sex- and race-related disadvantages are amplified (Ortega & Myles, 1987, p. 149).

The elderly may be, in certain instances such as robbery with injury, as or more likely to be victimized than other groups. Their risk of being targeted, however, is smaller overall (DuBow et al., 1979, p. 14). Yet fear has often been found to increase with age (Clemente & Kleiman, 1977, p. 527; DuBow et al., 1979, p. 17). Skogan and Maxfield (1981) report a steady, but not significant, increase in fear with age; however, the increase is incremental until the last two age categories (50-59, 60 plus), for which the percentage of those who report feeling very unsafe doubles. Even when controlling for neighbourhood integration and disorder, age is second only to sex as a significant predictor (McCrea et al., 2005, p. 22). In Scarborough, Like-Haislip, Novak, Lucas, and Alarid's (2010) study on fear and its relationship to individual and neighbourhood factors in Kansas City, age does not emerge as significant until the authors control for perceptual and neighbourhood elements (p. 824). Once it does emerge, it has a positive relationship with fear, as expected. In another study, the effect of age is inconsistent when neighbourhood disorder and integration are also controlled for and fear is divided into fear of property crime and violent crime. In this instance, age is a significant predictor only in the case of fear of property crime (Alper & Chappell, 2012, p. 358). Perhaps requiring respondents to examine their levels of fear of a particular type of offence leads them to consider actual risk of victimization.

When one examines concrete rather than formless fear, age may either cease to have a significant impact or its impact may be different. Franklin et al. (2008) argue that the traditional fear of crime in one's neighbourhood question is not a particularly useful conceptualization of fear of crime among the elderly, because the elderly are generally unlikely to be outside in their neighbourhoods when it is dark (p. 404). The results of such enquiries may produce exaggerated reports of fear. Indeed, when Reid and Konrad (2004) ask respondents about their fears of being victims of specific offences, mature adults (over fifty) are significantly more fearful of burglary victimization, whereas young adults (under thirty) are significantly more fearful of robbery; the latter relationship becomes insignificant after an interaction term, female and perceived risk, is added to the model (pp. 413, 415). Keane (1992) notes that younger people are more likely to see themselves as victims of specific offences (property damage, theft, assault), while the elderly report more fear in their neighbourhood in the dark (p. 219). Kanan and Pruitt (2003) discover that age is a relevant factor when fear is measured using a "general worry" question; surprisingly, there is a negative relationship, indicating that a decrease in age leads to an increase in worry (p. 543). However, when measuring fear using participants' assessments of neighbourhood safety, a positive relationship between age and feelings of safety is significant before the addition of neighbourhood characteristics (Kanan & Pruitt, 2003, pp. 537-539). These differences can be accounted for by variations in measurements of fear and age. Although both Kanan and Pruitt (2003) and Keane (1992) measure age as a continuous variable, Reid and Konrad (2004) group age into three categories: under thirty, thirty to fifty, and over fifty. Overall, when respondents are asked to consider risk of specific forms of victimization instead of general feelings of safety, the outcome appears to be closer to one's actual likelihood of being the target of a criminal offence. However, a positive relationship between fear and actual risk in relation to age has not been established. Fear may be caused by not only risk of victimization, but the likely severity of that outcome. If it is true that elderly people are likely to be more severely injured as a result of an offence, it seems logical that their fear would be greater.

### **2.1.3. Race**

Unlike sex and age, that are examples of physical vulnerabilities, race is considered to be a social vulnerability that increases an individual's perception of risk and fear of crime. Although it is well known that African American people in the United States (DuBow et al., 1979) and Aboriginal people in Canada (Weinrath, 2000) are at an increased risk of victimization, the relationship between race and fear is not straightforward. The relationship is muddled due to the multitude of ways racial categories are operationalized in different studies. Some compare only whites and blacks (Chiricos, Hogan, & Gertz, 1997; Clemente & Kleiman, 1977; Skogan, 1995), whites and non-whites (Franklin & Franklin, 2009; Reid & Konrad, 2004), Aboriginals and non-Aboriginals (Weinrath, 2000), whites and Latinos (Lane & Meeker, 2011), and blacks and non-blacks (Scarborough et al., 2010). An exception to the rampant dichotomization of the race variable is Rader et al.'s (2012) research. The authors examine feelings of safety among multiple racial groups and find that people who identify as Hispanic or Asian are more likely to report "never" feeling unsafe, followed by whites and those who identify with the "other" racial category, leaving blacks as the least likely racial group to report such security (Rader et al., 2012, p. 138). However, of those who report feeling fearful every day, black and Hispanic respondents are overrepresented (Rader et al., 2012, p. 138). Whites are underrepresented at either extreme whereas Hispanics are overrepresented at both.

In the United States, research comparing whites and blacks largely supports the idea that blacks are more fearful. A national sample suggests that, although the effects of age are not as strong as expected, black participants report feeling more fearful than white participants (Clemente & Kleiman, 1977, p. 527). Similarly, Scarborough et al. (2010) find that blacks are more fearful than non-blacks, but claim that the effects of race are largely mitigated when controlling for factors such as neighbourhood characteristics and socioeconomic status (p. 823). However, in another study where income is controlled for, blacks remain 1.5 times more likely than whites to report feeling "very unsafe" (Skogan & Maxfield, 1981, p. 75). DuBow et al. (1979), in their review of literature pertaining to reactions to crime, find that blacks generally report more fear than

whites (p. 15). A recent study that compares levels of fear among whites and Latinos finds that Latinos are more fearful (Lane & Meeker, 2011, p. 75).

Research into race and fear is somewhat inconsistent; the idea that whites are overall less fearful has been disputed. When examining how demographic factors, including race, affect fearfulness of specific offences (burglary, sexual assault, and robbery) in New Orleans, Louisiana, Red and Konrad (2004) find no statistically significant difference between black and white respondents (p. 412). Similarly, Ortega and Myles' (1987) neighbourhood-level examination shows no significant effect of race on fear except when combined with other factors. Black women are most fearful, followed by white women, white men, and black men, respectively (Ortega & Myles, 1987, p. 142). On the other hand, Franklin and Franklin (2009) determined that whites are more fearful than non-whites; the authors speculate that this is because whites tend to have more material possessions to lose while non-whites, who more frequently live in high crime areas and have allegedly become accustomed to violence (p. 99). However, the percentage of non-whites in the study is extremely small (7%). Gainey, Alper, and Chappell (2011) contrast fear of whites and non-whites, where non-whites make up 33% of the sample, and also conclude that whites expressed more fear (p. 132). Finally, research on race in Canada is scarce despite the fact that the high, disproportionate rate of Aboriginal victimization is well established. Weinrath (2000) compares the fearfulness of Aboriginals versus non-Aboriginals and found that Aboriginals express less fear (p. 117). The author asserts that this may be because Aboriginal people in Canada face a great deal of adversity, such as restricted access to necessary social resources and the legacy of residential schools, which overshadows fear of crime (Weinrath, 2000, p. 117).

The intersection of race and fear, however, is broader than simply the race of the respondent and his or her corresponding feelings of safety. The racial make-up of the respondent's community plays a role as well. Skogan's (1995) meta-analysis on residential proximity of whites and blacks and fear of crime concludes that people who reside in communities that are racially integrated are more afraid (p. 63); however, large cities are often racially segregated. Whites who live in areas with larger black populations are more fearful than whites who live in predominantly white areas (Skogan, 1995, p. 67). In fact, this is fairly consistent regardless of race. Individuals who live in an

area where their “racial identity [does] not fit their context” (Skogan, 1995, p. 68) report being more afraid. In other words, living in an area with a large population of a different racial group, increases fear. When this same phenomenon is tested at the neighbourhood level, however, racial composition increases fear only for whites who see themselves as a racial minority in their communities (Chiricos et al., 1997, p. 122).

#### **2.1.4. Socioeconomic Status**

As mentioned previously, some studies claim that the effects of race on fear can be explained to some degree by socioeconomic factors. Socioeconomic status is usually operationalized using one or more of education, employment, and income or overall wealth. Higher socioeconomic status has a negative association with risk of personal victimization but a positive one with risk of property victimization (DuBow et al., 1979, p. 15; Smith & Hill, 1991, p. 233). When these factors are considered at the individual level, higher income groups are disproportionately underrepresented in the feeling unsafe category (Rader et al., 2012, p. 138). Fear, in this case, refers to an overall sense of safety – in other words, formless fear – rather than fear of violent or property crime or a more concrete risk of specific victimization. Levels of fear have been found to vary according to offence type. Individuals with higher incomes express less fear of street-level or personal offences, whereas their fear of property crime is higher (Clemente & Kleiman, 1977, p. 523; DuBow et al., 1979, p. 15). This pattern is also present when education rather than income is considered (Keane, 1992, p. 219). Given the close relationship between income and education, this is not unexpected; however, education is a more erratic predictor than income. Smith and Hill (1991) find education has a clear, negative relationship to fear (p. 233). Rader et al. (2012) observe that those who have attended college are underrepresented in the most afraid category, but those without a high school diploma are overrepresented at both extremes (p. 138). This may be because whatever effect education has on fear is not a result of the degree itself (or lack thereof) but what that degree can help one attain: the resources to protect oneself from harm by living in an ostensibly safer neighbourhood and having access to more security measures. In fact, some find that the more resources an individual has, the less he or she may rely on external conditions for their safety. One study supports the notion that individual wealth lessens the effect of informal social control and collective efficacy

(McCrea et al, 2005, p. 22; Swatt, Verano, Uchida, & Solomon, 2013, p. 9). Others, however, note a significant, positive association between higher incomes and collective efficacy (Ferguson & Mindel, 2007, p. 343). It is thus inconclusive as to whether wealth diminishes fear through greater social cohesion and social control or whether the effect is directly attributable to increased opportunities to defend one's self and home.

The mediating effect of income does have a racial element, however. Blacks are more likely than whites in the United States to live in poor, high-crime areas (Franklin & Franklin, 2009, p. 99). Moreover, the evidence indicates that it is harder for blacks with a higher income to leave such areas (DuBow et al., 1979, p. 15; Skogan & Maxfield, 1981, p. 73). As a result, the protective role income plays on fear of crime is diminished for blacks; the fear gap between the poor and the middle class is lower for blacks than it is for whites. Even when black individuals successfully move into lower crime neighbourhoods, heterogeneous neighbourhoods typically remain racially segregated and social cohesion and informal social control may not be as easily established (Skogan, 1995, p. 69). Thus, it may be premature to attribute all racial effects to socioeconomic or neighbourhood factors.

### **2.1.5. Prior Victimization**

Although demographic elements are crucial to understanding fear, the vulnerability model also takes into consideration whether or not an individual has previously been the victim of a criminal offence. Typically, respondents are asked about experiences in the last year, but questions about lifetime victimization are not uncommon. Additionally, the role of indirect victimization cannot be ignored. Individuals who were victimized at least once in the last year are almost three times as likely to feel unsafe (Tseloni & Zarafonitou, 2008, p. 403). The effect is present, but somewhat smaller, in individuals who know someone who had been victimized but have experienced no victimization themselves (Tseloni & Zarafonitou, 2008, p. 403). Overall, crime victims report feeling more afraid than non-victims, regardless of sex, age, or race (Reid & Konrad, 2004, p. 405). After controlling for neighbourhood disorder, perceived risk, and social capital in addition to demographic factors, Gainey et al. (2011) determined that previous victimization is associated with higher levels of fear (p. 132).

Skogan and Maxfield (1981), in their examination of the relationship between victimization in the past year and fear, state that victims are overrepresented in the most fearful category and underrepresented in the least fearful category (Skogan & Maxfield, 1981, p. 60).

Victimization is still a rare experience, that somewhat diminishes its usefulness as an indicator of fear. Moreover, it can be somewhat unreliable as a predictor; it may behave differently when divided according to the nature of the offence or the type of fear. A measure that dichotomizes individuals as either victims or non-victims obscures the nuances and ordeals unique to particular offences. When DeLone (2008) considers how different victimization experiences affect a general measure of fear, only assault is shown to be significant as long as social disorganization items are excluded (p. 120). Theft, burglary, and robbery victimization are not significant in any model. This may be due to the fact that only a small percentage of the sample has any history of victimization at all. Likewise, when college and university students are asked about their fear of particular crimes, the nature of the prior victimization stands out. Students who have previously been targeted for property victimization are, more fearful of theft (Lee & Hilinksi-Rosick, 2012, p. 664). Fear of other types of victimization is not significantly associated with a history of any other criminal offence. Formless fear, though, is affected by the type of victimization experience; although a blanket measure of victimization does increase fear, separate measures shed more light. Either property crime victimization alone or violent crime in addition to property crime victimization lead to higher levels of fear (Smith & Hill, 1991, p. 234). Personal victimization alone may not negatively impact fear to the same extent. Nalla, Johnson, and Hayes-Smith (2011) examine specific forms of victimization and find that a history of both direct and indirect victimization increases fear (p. 150). If victimization is divided according to crime type, violent offences (rape, robbery, and assault) and fraud are significantly associated with fear whereas property offences are not (Nalla et al., 2011, p. 155).

In select cases, the existence of a victimization history either does not increase general fear of crime or actually decreases fear. In Hilinski et al.'s (2011) qualitative study, some respondents follow the expected pattern and report greater levels of fear if previously victimized. Others, however, behave in the exact opposite way: victimization

decreases fear because their history has taught them to be “always prepared” (Hilinski et al, 2011, p. 118). In other words, women can become accustomed, the way Weinrath (2000) argues Aboriginal people in Canada purportedly have, as a consequence of adversity (p. 117). This could develop via familiarity with one’s dangerous neighbourhood and the establishment of routines and coping mechanisms (Skogan & Maxfield, 1981, p. 112).

## **2.2. The Neighbourhood Disorder Model**

The characteristics of the neighbourhood in which an individual resides affect feelings of safety. Residents will be more fearful if they live in a neighbourhood that is in poor condition; in other words, a neighbourhood with high levels of incivility or disorder. Those terms appear to be effectively interchangeable, used to measure what appear to be nearly identical constructs (Kubrin, 2008, p. 205). Disorder can be either physical or social. Physical disorder typically refers to neighbourhood deterioration and can be measured by vandalism of private property, areas in need of better lighting, abandoned cars or homes, run down or poorly maintained properties, and trash; whereas social disorder is often measured by loitering, unruly youth, public intoxication, prostitution, drug use or transactions, untrained dogs, people being harassed on their street for their religion or skin colour, and gangs (Brunton-Smith & Sturgis, 2011, pp. 344-345; Franklin et al., 2008, p. 88; Gau, Corsaro, & Brunson, 2014, p. 582; Hinkle, 2013, p. 418). Some of the items listed above are themselves criminal offences. Gau and Pratt (2008) inspect seventeen different items typically used to conceptualize disorder, approximately half of which are crimes. A confirmatory factor analysis reveals that, although both the one- and two-factor models are a good fit, the two-factor model showed a very high correlation between the crime and disorder factors and should not be separated into different variables (Gau & Pratt, 2008, p. 178). This suggests that the public does not differentiate between disorder and crime in their neighbourhoods; while this poses a significant concern for research on the relationship between disorder and crime, it is not of great concern to the study of fear of crime. The two most notable inconsistencies in measurement relevant to fear of crime are the number of measures and whether it is respondents or researchers that define neighbourhood disorder. Some researchers use

separate physical and social disorder measures while others combine the two to create one measure. In most instances, residents are asked about the level of disorder in their neighbourhoods; this is known as perceived physical or social disorder. Less frequently, researchers travel to neighbourhoods to determine disorder themselves (e.g., Brunton-Smith & Sturgis, 2011; Carvalho & Lewis, 2003).

The relationship between neighbourhood disorder and fear is positive, in that greater levels of disorder lead to higher levels of fear (Abdullah, Marzbali, Woolley, Bahauddin, & Maliki, 2014, p. 16; Brunton-Smith, 2011, p. 806; Brunton-Smith & Sturgis, 2011, pp. 359-360). In fact, the impact of disorder on fear can be as strong as the impact of more serious criminal offences. Zhao, Lawton, and Longmire (2015) examine the effects of violent, property, and disorder crime – where the disorder crime measure largely falls into the category of social disorder – and discover that each had a significant impact on fear, even accounting for the inclusion of other crime types and control variables (pp. 35-6). Kanan and Pruitt (2003) find disorder to be a particularly strong predictor, impacting multiple measures of fear; perceptions of disorder categorically increased both perceived victimization risk and fear of crime (pp. 543-544). Robinson, Lawton, Taylor, and Perkins (2003) measure incivilities at both the street block and individual levels over a one-year period. Although block-level differences in satisfaction and safety did not emerge, individuals who view their block as being more disordered than their neighbours are more likely to feel more vulnerable, more worried, and less satisfied (Robinson et al., 2003, p. 268). Disorder impacts not only fear, but neighbourhood satisfaction and residents' activities. Those living in areas with more disorder report a decrease in their voluntary, though not compulsory, activities (Rengifo & Bolton, 2012, p. 113). Similarly, in a recent study on the effect of fear and neighbourhood perceptions on recreational and transport walking, a greater number of social incivilities significantly decreases the amount of recreational walking that residents engaged in (Foster et al., 2014, p. 706).

Neighbourhood disorder and fear do not necessarily have a simple or direct relationship, however. Despite the fact that it is not uncommon to combine social and physical disorder into one construct (e.g., Lane & Meeker, 2011; Markowitz, Bellair, Liska, & Liu, 2001; Robinson et al., 2003; Steenbeck & Hipp, 2011), some evidence

suggests that the effects of each may differ somewhat. Kohm's (2009) study of disorder and fear in a high-crime neighbourhood in Winnipeg, Manitoba indicated that only social disorder increased residents' fear of crime (p. 15). On the other hand, an American study by Chappell, Monk-Turner, and Payne (2011) discover that it was physical disorder only that had a negative effect on residents (p. 534). Although Chappell et al. (2011) focus on quality of life instead of than fear of crime, it is well known that there is a strong relationship between fear and quality of life (Alper & Chappell, 2012, p. 346; Clemente & Kleiman, 1977, p. 520). With the exception of the physical health and connection to family items, Kohm (2009) and Chappell et al. (2011) use similar indicators in their analyses. Furthermore, though physical disorder is present, Winnipeg residents often consider physical incivilities a problem only when they relate to some form of social disorder (e.g. used needles) (Kohm, 2009, p. 16). When Hinkle (2015) compares the effects of social and physical disorder on different measures of fear (emotional fear, perceived safety, and perceived risk), social disorder increases fear regardless of the measure used, whereas physical disorder has no significant impact on the emotional fear construct (p. 164).

The effect of disorder on fear may be a somewhat indirect one. For instance, Lane and Meeker's (2011) study on disorder and fear of gang crime among whites and Latinos in Orange County, California, discover that disorder did affect fear, though through the indirect route of worry about community decline and perceived risk of victimization (p. 75). Gau et al. (2014) also find mediating factors in the fear-disorder relationship: social cohesion and social control (p. 585). In other words, disorder does not simply increase fear alone, it negatively impacts social feelings and behaviour. Hinkle (2013), on the other hand, examines the relationships between social disorder, physical disorder, and perceived risk on collective efficacy. He states that perceived risk has a lessened impact on collective efficacy when the disorder variables are used to impact both risk and collective efficacy (p. 422). The causal relationships between disorder, fear, and various types of social behaviour or individuals' feelings about neighbours are evidently not straightforward.

## 2.3. The Social Disorganization Model

Social disorganization remains one of the most influential sociological perspectives on crime. Established by Chicago School researchers Shaw and McKay in 1942, this model posits that certain neighbourhood structural factors lead to an increase in rates of crime and delinquency, through the reduction of neighbourhood social control. Disorganization inhibits the ability of residents to realize common values, create relationships, and self-regulate. The lack of regulation – in other words, informal social consequences to criminal behaviour – allows crime and delinquency to increase (Bursik, 1988, p. 520). The three essential neighbourhood structural factors originally put forth by Shaw and McKay are: (1) population turnover, (2) neighbourhood socioeconomic status, and (3) racial heterogeneity.

Social disorganization research uses the aforementioned three factors as building blocks, but the conceptualization of social disorganization has expanded over the years. Social disorganization relates to both overall crime rates and rates of specific offences. Sampson (1985), in an early study on structural factors and rates of victimization, finds that the strongest, positive structural effects on theft victimization are percentage of female-headed households and structural density (p. 31). The strongest effect on violent victimization is residential mobility (Sampson, 1985, p. 31). Racial composition – measured as percent black – is significantly related to theft victimization but not violent victimization. In a similar study, Sampson and Groves (1989) use eight different measures of social disorganization: friendship networks, social control/supervision, organizational participation, family disruption, urbanization, socioeconomic status, residential stability, and an index of ethnic heterogeneity (pp. 783-785). They determine that higher rates of crime and delinquency are associated with low socioeconomic status, high mobility, high ethnic heterogeneity, high family disruption, and urbanization, and are mediated by measures of social control (Sampson & Groves, 1989, p. 799). Concerning the relationship between disorganization and homicide, concentrated disadvantage is a significant predictor of homicide rates in particular (Morenoff, Sampson, & Raudenbush, 2001, p. 551). Concentrated disadvantage, in this case, is measured as one construct made up of percent of residents living below the poverty line, percent of residents on public assistance, percent unemployed, percent of

female-headed households, and percent black. Burglary rates have a positive relationship with low socioeconomic status, ethnic heterogeneity, family disruption, and residential mobility (Markowitz et al., 2001, p. 311). Similarly, robbery and assault rates are related to neighbourhood structural factors (socioeconomic status, residential mobility, racial heterogeneity, and family disruption), and are somewhat mediated by the effects of local social ties (Sun, Triplett, & Gainey, 2004, p. 11). Hipp (2007) finds that some indicators of social disorganization effect crime differently depending on the conceptualization of neighbourhood; although ethnic heterogeneity impacts crime at both the street block and census tract level, socioeconomic status appear to have no significant relationship with crime at the census tract level (p. 675).

Although a large portion of social disorganization research considers its impact on crime, the ecological notion that environmental factors can influence human behaviour can apply to fear of crime as well (Woldoff, 2006, p. 230). Several studies show a connection between fear of crime and neighbourhood structural factors, where areas with higher levels of social disorganization also display higher levels of fear. This relationship persists despite the extensive variation in the measurement of social disorganization: ethnic composition (percent non-white), socioeconomic status, and family disruption (Porter, Rader, & Cossman, 2011, p. 242); a composition of percent unemployed, percent black, percent living in poverty, and percent of single-parent households (Scarborough et al., 2010, p. 823); socioeconomic status and residential mobility (Nalla et al., 2011, pp. 151, 155); socioeconomic disadvantage, urbanicity, population mobility, ethnic diversity, and age and housing profiles (Brunton-Smith & Sturgis, 2011, pp. 359-360); concentrated disadvantage, that is composed of percent of households on public assistance, percent unemployed, percent of families living below the poverty line, percent of female single parents, index of ethnic heterogeneity, percent fifteen to twenty-four year olds, and residential instability (Gau et al., 2014, p. 584). Overall, the relationship between fear of crime and social disorganization has been demonstrated to be fairly robust.

## 2.4. The Social Cohesion Model

While the previously discussed theoretical constructs focus on facilitators of fear, there are various measures of social connectedness or trust within one's neighbourhood that instead reduce fear: social integration, social cohesion, collective efficacy, and social ties or support. Social integration is the idea that individuals who feel as though they belong to their communities are, consequently, more likely to feel safer in those communities. Franklin and Franklin (2009) define it as a "sense of belonging to local surroundings and attachment to the community" (p. 89). Researchers measure it with the ability to identify strangers in the neighbourhood and feeling a part of the neighbourhood (e.g., Hunter & Baumer, 1982); participation in neighbourhood organizations, perceived similarity among residents, friends or relatives living in the neighbourhood (e.g., Franklin et al., 2008); or doing favours for neighbours, investment in the continued stability of the neighbourhood, and the neighbourhood being perceived as a 'real home' (e.g., Kanan & Pruitt, 2003).

Social cohesion, on the other hand, is typically measured by the level of commitment to one's neighbourhood, shared cultural norms or values, neighbourhood trust, participation in neighbourhood organizations, a sense of belonging to one's communities, and responding to problems in the neighbourhood collectively (e.g., Abdullah et al., 2014; Gau, 2014; van der Meer & Tolsma, 2014). Although neighbourhood trust is often one facet of social cohesion, some researchers use a measure of trust alone (e.g., Alper & Chappell, 2012). Collective efficacy hinges on the notion that there must exist "social cohesion based on trustworthiness of neighbors and their capacity to act as agents of social control" (Gibson, Zhao, Lovrich, & Gaffney, 2002, p. 539). In fact, collective efficacy is typically operationalized by combining measures of social cohesion and measures of direct social control, such as direct or indirect intervention in neighbourhood problems (e.g., Foster et al., 2014; Gau, 2014; Hinkle, 2015). Finally, social support and social ties measure either the number of neighbourhood social relationships (e.g., Warner, 2007) or respondents' satisfaction with the support they receive from their social relationships (e.g., Sacco, 1993; Sacco & Nahaie, 2007). Despite the distinctions between these constructs, all of them are largely

expected to serve, directly or indirectly, the same inhibitory function in a fear of crime model.

The presence or quality of social relationships alone provides an inconsistent effect on fear. In one of the few Canadian studies on the topic, Sacco (1993) tests the manner in which fear of crime was impacted by social support. Social support is defined as the degree of satisfaction of support received from family and friends, though it is not specified whether or not a respondent's friends and family reside in the same neighbourhood. Fear is operationalized using the traditional "walking alone in one's neighbourhood at night" measure and several measures of worry relating to specific crimes. Regardless of the presence or absence of control variables, the only significant relationship that emerges is a positive one between support from friends and worry about crime (Sacco, 1993, p. 191). That is, participants with higher levels of social support also report higher levels of fear. However, Sacco and Nahaie (2007) show that positive social relationships, particularly with teachers or peers rather than parents, increase feelings of safety among youth in schools (p. 17). These studies suggest that perhaps social support that comes from outside of one's community is not a particularly effective inhibitor of fear.

Social cohesion predominantly behaves in accordance with the inhibitory assumption. Higher reported levels of social cohesion are associated with lower reported levels of fear (Abdullah et al., 2014, p. 16; Scarborough et al., 2010, p. 823) and additionally serve to mediate the relationship between neighbourhood disorder and fear (Gau et al., 2014, p. 585). In contrast, however, Markowitz et al. (2001) find that relationship to be reversed: higher levels of fear lead to lower levels of social cohesion (pp. 312-313). Although it is rare to use neighbourhood trust alone, a negative relationship between trust and fear does exist (Alper & Chappell, 2012, p. 349).

Similarly, social integration largely reduces fear, even when other, significant predictors of fear are included (Franklin et al., 2008, p. 209; Karakus, McGarrell, & Basibuyuk, 2010, p. 178). A comparison of Iceland and Scotland reveals that the people of Iceland, an unusually homogenous country in which social integration is considered a cultural keystone, are less afraid than their Scottish counterparts (Kristjánsson, 2007, p.

80). Nalla et al. (2011) find that social integration – measured as number of neighbourhood visits – has a significant positive effect on perceived risk in the urban, but not rural, areas of Mumbai, India (p. 154). However, in certain instances, social integration has been found to show no significant reduction in fear of crime in men (Franklin & Franklin, 2009, p. 97) or at all (Kanan & Pruitt, 2003, p. 545). On the other hand, Gibson et al. (2002) argue that social integration – measured as the number of neighbours known by name, the frequency of speaking with one's neighbours, and whether one's neighbourhood feels like a 'real home' – reduces fear of crime indirectly by increasing perceptions of collective efficacy (p. 559).

Consistent with Gibson et al. (2002), several other studies that include a measure of the effect of collective efficacy on fear of crime – whether emotional or cognitive measures of fear – find that fear is reduced by increased collective efficacy (Ferguson & Mindel, 2007, p. 340; Hinkle, 2015, p. 164). The impact of collective efficacy on fear of crime may also act as a mediator between several demographic indicators and fear. However, collective efficacy is typically made up of a combination of social cohesion or trust and social control, and Gau (2003) argues that the two concepts are too distinct to be combined. Social cohesion appears to impact individuals' perceptions of their neighbour's willingness to exert either direct (e.g., finding a solution to a neighbourhood problem) or indirect social control (e.g., involving the police). It does not, however, appear to increase individual willingness to intervene (Gau, 2003, p. 222). Warner (2007) also examines the notions of direct and indirect social control and finds that direct social control is affected by respondents' neighbourhood social ties (p. 122).

## **2.5. An Integrated Approach**

Since it has become increasingly evident that there exists a certain degree of overlap among different theoretical perspectives, most researchers take it upon themselves to include all or most major perspectives in their work. Overall, there exists at least some support for each model, although they vary somewhat according to the nature of each study. Alper and Chappell (2012) examine fear of property crime and fear of violent crime and find that gender is not a significant indicator in any model (pp. 356, 358). Fear of violent crime is best predicted by neighbourhood trust; however, that is

least useful in explaining fear of property crime, where disorder is the best predictor (Alper & Chappell, 2012, p. 359). The explained variance for both models is low: 16.6% and 26.4% for fear of violent crime and fear of property crime, respectively (Alper & Chappell, 2012, p. 358). Gainey et al. (2011) find that previous victimization, gender, and disorder are significant indicators of fear (p.129). When neighbourhood trust is added to the model, it is significant and negative, while victimization and disorder remain significant and gender becomes insignificant (Gainey et al., 2011, p. 131). Both models also include a measure of perceived risk, where participants are asked about their feelings of safety walking alone at night (p. 127). Although descriptive statistics for neighbourhood trust and perceived risk are not divided by gender, women are more likely to score higher on both; this may account for the unusual behaviour of the gender variable in these studies.

Other studies find a consistently strong effect of sex, but effects of other demographic variables shift with the inclusion of neighborhood disorder and integration or cohesion. Scarborough et al. (2010) find support for all three models (p. 824). Age, however, is only significant when neighbourhood factors are controlled for. Race significantly increases fear at the individual level, but once neighbourhood-level indicators are added to the model, race has the opposite impact on fear (Scarborough et al., 2010, p. 823). This racial phenomenon is also evidenced by Swatt et al. (2013), showing that blacks are significantly less fearful in one neighbourhood and significantly more fearful in another (p. 8). However, other factors usually play a larger role in terms of fear. DeLone's (2008) research on fear finds that social disorganization has the greatest effect, followed by sex and social integration (p. 120).

When fear of crime is differentiated according to other conditions, such as gender, urban versus rural location, or cognitive versus affective measures of fear, the theoretical models behave differently. The importance of location is emphasized by Nalla et al. (2011). Variables relating to social ties to one's community have a mediating effect for urban residents but no effect on rural residents in India (Nalla et al., 2011, p. 151). Socioeconomic status behaves similarly, where middle class urban residents are most fearful; regional mobility, though, appears to not be a relevant factor at all (Nalla et al., 2011, p. 151). Franklin and Franklin (2009) compare fear in men and women and find

certain factors have distinct effects. For example, social integration has a negative effect on fear, but is only significant for women (Franklin & Franklin, 2009, p. 97). On the other hand, Whites are found to be more fearful, but race is significant only for men (Franklin & Franklin, 2009, p. 95). No gender difference is present for social disorganization, although it is plausible that disorganization would have a stronger effect on women without the strong mediating impact of social integration (Franklin & Franklin, 2009, p. 96). When cognitive fear is contrasted with affective fear, social integration and social disorganization effect cognitive fear fairly equally, however, social integration trails far behind social disorganization as a predictor of affective fear (Franklin et al., 2008, p. 218). Moreover, although gender does not differ by different fear of crime measures, race shows a negative relationship with perceived risk and a positive one with general worry (Franklin et al., 2008, p. 218).

Some authors go further than simply comparing the different theoretical perspectives; instead, they compare the influence of each of these perspectives on fear and in relation to each other. These non-recursive models “contain feedback loops or reciprocal causal effects” (Woldoff, 2006, p. 235). For example, a non-recursive model of social disorganization and fear might show that neighbourhood disadvantage decreases informal social control, that increases fear, that increases population turnover and decreases social control, that increases fear (Woldoff, 2006, pp. 235-236). Markowitz et al. (2001) test both recursive and non-recursive models, and find that social cohesion reduces neighbourhood disadvantage, that in turn increases fear, that in turn reduces social cohesion (p. 313). However, non-recursive models more commonly focus on social disorganization, collective efficacy, and crime – particularly violent crime – rather than fear. For instance, Sampson and Raudenbush (1999) test whether the effects of neighbourhood disadvantage, collective efficacy, and rates of homicide and robbery are reciprocal, building on a previous study that shows disadvantage and collective efficacy impact each other as well as the violent crime rate (Sampson, Raudenbush, & Earls, 1997, pp. 921-922). The two are caught up in similar feedback loops with both robbery and homicide rates (Sampson & Raudenbush, 1999, p. 635).

Integrated approaches persistently show fear of crime to have significant and complex relationships with a variety of factors. These multi-theoretical approaches to

fear of crime are becoming more common, but the bulk of these applications are confined to the United States; as is, in fact, a large proportion of fear of crime research overall. Canadian analyses of the topic are in somewhat short supply. Although studies based in Europe, Asia, and Australia do not differ greatly from the findings of American studies, there is plenty of room for further exploration for fear of crime in Canada.

## **Chapter 3.**

### **Methods**

#### **3.1. Data and Sample**

To combine several theoretical approaches, multiple sources of data are required. The General Social Survey (GSS) is a nationally-representative phone based survey, conducted every year since 1985 in Canada. The target population is all individuals aged fifteen or older residing in the ten provinces. This excludes all persons residing in an institution or in one of the three territories. Several themes are cycled through every five years: one of the recurrent themes is victimization. The 2009 victimization survey is used in the present study. In order to access variables that are considered especially sensitive, such as geographic data on a smaller scale than a respondent's province, the author is granted access to Statistics Canada's Research Data Centre.<sup>1</sup>

The GSS is supplemented with census tract level data from the 2006 Canadian Census. Census tracts are used instead of dissemination areas or census subdivisions because they are small enough that they more closely match the colloquial understanding of a neighbourhood, but are large enough that most tracts within the GSS will have multiple respondents. Combining the two data sources necessitates a third source of data, because the GSS uses a different coding scheme for census tracts than the Census. In the coding scheme used by the Census, census tracts are tracts found in census metropolitan areas and those in tracted census agglomeration areas. It appears that the GSS assigns census tract codes to a number of the remaining census

<sup>1</sup> To gain access to the Research Data Centre, the author became a "deemed employee" of Statistics Canada for the duration of this project.

agglomeration areas, which accounts for the difference in coding schemes. Not all participants in the GSS belong to a census tract and it is preferable to lose as few participants as possible. Because of this, the census tracts specified by the GSS are used instead of the smaller number of tracts specified by the Census. According to Statistics Canada, dissemination areas respect the boundaries of the larger census tracts; therefore, dissemination area-level data are aggregated to the census tract level and matched with the GSS using the program GeoSuite 2006. Cases with respondents who do not reside in census tracts are dropped, as are cases with respondents that reside in census tracts with fewer than three participants per tract. Although a greater number of respondents per tract is preferred, increasing the minimum number of respondents would result in more cases being dropped.

### **3.2. Measures**

Three outcome measures are tested: fear of crime, use of protective behaviours, and use of avoidance behaviours. Of the small number of fear-related questions asked, all conceptualize fear using items relating to perceived risk; the questions ask to what extent respondents experience a general feeling of safety in certain situations. To remain consistent with previous literature on the topic, the question “How safe do you feel from crime walking alone in your area after dark?” is used. Available answers are “very safe,” “somewhat safe,” “somewhat unsafe,” and “very unsafe.” This is an ordinal measure ranging from 1 to 4, with higher scores indicating a greater degree of fear. A fifth response, “does not walk alone,” is included, but the reason for not walking alone is not made clear. Respondents who fit into that category could potentially be extremely fearful individuals who never walk alone for safety reasons or individuals who do feel safe and secure but may, as just one possibility, live in a remote area where walking is not a feasible means of transportation. This response is therefore recoded as missing. This is a measure of perceived risk of victimization, although not any specific form of victimization, rather than a measure of emotional worry. Specifically, by including the word ‘crime’, the question attends to some of the confusion inherent in the more traditional feeling safe in one’s neighbourhood question (see Ferraro & LaGrange, 2007).

Following in the footsteps of May et al. (2007), Rader et al. (2010), and Rader and Haynes (2014), the present study incorporates avoidance and protective behaviours. Although the GSS does ask respondents whether they have ever purchased a gun for protection, such a small fraction answered 'yes' that it is not possible to incorporate this third type of constrained behaviour. The avoidance behaviours measure is made up of four questions: 1) Have you ever changed your routine or avoided people/places? 2) Do you routinely plan your route with safety in mind? 3) Do you routinely stay home at night because you are afraid? 4) Do you routinely drive/cab/use transit for safety rather than walk? Possible responses are coded as either 0 for 'no' or 1 for 'yes', and the variables are added together to create a Poisson-distributed count variable with a Cronbach's alpha of .563.

The protective behaviours measure is made up of seven questions: 1) Have you ever installed locks/security bars? 2) Have you ever installed burglar alarms/motion detectors? 3) Do you routinely lock windows/doors at home? 4) Have you ever taken a self-defence course? 5) Have you ever obtained a dog [for safety]? 6) Do you routinely check the backseat for intruders? 7) Do you routinely carry something to defend yourself or alert others? As with the previous construct, possible responses are coded as either 0 for 'no' or 1 for 'yes', and the variables are added together to create a Poisson-distributed count variable (Cronbach's alpha = .482). Although the Cronbach's alpha for both of the additive constrained behaviours scales are moderate, research suggests that the two are distinct constructs (Rader et al., 2007, p. 498); as such, although a single construct would provide slightly greater reliability, combining two separate behavioural strategies is theoretically unsuitable.

In order to assess the physical and social aspects of the vulnerability model, five demographic factors are included in the analyses. Sex is a dummy variable coded as 0 for male and 1 for female. Age is continuous. Two dummy variables are used to account

for a respondent's race, Aboriginal identity and visible minority status,<sup>2</sup> and are coded as 0 for 'not Aboriginal/visible minority' or 1 'is Aboriginal/visible minority'. Education is a dummy variable coded 0 for 'no complete post-secondary degree, certificate, or diploma' or 1 for 'complete post-secondary degree, certificate, or diploma'. Income is a continuous variable; the variable is transformed using the natural log. Finally, to account for the impact of victimization, a dummy variable measuring total victimization in the last twelve months is used. This refers to any property or violent offence, including intimate partner violence.

Social cohesion is a measure of an individual's sense of belonging to their community and level of trust in their neighbours, based on five questions. Respondents are asked: 1) Would you say that you know most, many, a few or none of the people in your neighbourhood? 2) Would you say this neighbourhood is a place where neighbours help each other? (available answers are 'no' and 'yes') 3) How would you describe your sense of belonging to your community? (available responses are on a four-point Likert scale ranging from 'very weak' to 'very strong') 4) Using a scale of 1 to 5 where 1 means 'Cannot be trusted at all' and 5 means 'Can be trusted a lot,' how much do you trust people in your neighbourhood? 5) If you lost a wallet or purse that contained two hundred dollars, how likely is it that it will be returned, with the money in it, if it was found by someone who lives close by? (the three available answers are 'not at all likely,' 'somewhat likely,' and 'very likely'). Because the number of available answers range from two to five, the standardized z-scores are combined to form one construct using principal components analysis.<sup>3</sup> A higher value on this scale is indicative of a higher degree of social cohesion.

Neighbourhood disorder is a single measure of the level of perceived social and physical disorder in one's neighbourhood. Although the two are sometimes separated,

<sup>2</sup> Statistics Canada defines visible minority status as "persons who are non-Caucasian in race or non-white in colour and who do not report being Aboriginal" (Statistics Canada, n.d., "Classification of visible minority"). This category is comprised of twelve ethnic or racial groups: South Asian, Chinese, Black, Filipino, Latin American, Arab, Southeast Asian, West Asian, Korean, Japanese, visible minority, not included elsewhere, and multiple visible minority.

<sup>3</sup> Results are shown for all composite variables created using principal components analysis and additive scales in Appendix B.

other scholars have used a combined measure (see Lane & Meeker, 2011; Markowitz et al., 2011; Robinson et al., 2003; Steenbeck & Hipp, 2011). Respondents are queried on how much of a problem the following pose in their neighbourhoods: 1) People hanging around on the streets 2) People sleeping on the streets or other public places 3) Garbage or litter lying around 4) People being attacked or harassed because of their skin colour, ethnic origin, or religion 5) People using or dealing drugs 6) People being drunk in public places 7) Prostitution 8) Vandalism, graffiti, and other deliberate damage to property or vehicles. For each question, answers are on a four-point Likert scale ranging from 'not a problem at all' to 'a very big problem'. A principal components analysis supports the use of one measure rather than two. Kaiser's criterion recommends retaining all factors with an eigenvalue greater than one and is considered to be accurate with a large sample size and when all items have communalities greater than or equal to 0.6 (Field, 2009, pp. 640-641). The seven items have an eigenvalue of 4.049 and communalities equal to .67 or higher. A larger score indicates a greater level of perceived disorder. As with many other measures of neighbourhood disorder, the variable includes items that are themselves offences; this proves to be a problem when using disorder as a predictor variable for the crime rate (see Kubrin, 2008). However, as the present study focuses on fear of crime and constrained behaviours, it avoids the tautological issue of using crime to account for crime.

Whereas the constructs noted above are individual-level factors, testing the social disorganization model requires group-level data. Variables taken from the 2006 census are used to create the three building blocks of the model: residential mobility, ethnic heterogeneity, and socioeconomic status. Due to the high degree of inter-correlation, five variables are combined using principal components analysis to create a measure of neighbourhood disadvantage: median household income (after tax), percentage of low income private households (after tax), percentage of rented housing, percentage of those in the labour force who are unemployed, percentage of female-headed households. A higher score on this scale indicates more neighbourhood disadvantage. A related factor, percentage of adults with a completed university diploma, degree, or certificate, does not fit into the neighbourhood disadvantage measure and is included in the analyses as a separate variable. Residential mobility measures the percentage of individuals in the census tract that have moved in the last year. Finally,

percentage of recent immigrants, where recent is defined as within the last five years, is used as a stand-in for ethnic heterogeneity. Due to the highly multicultural nature of some of Canada's largest cities that make up the largest proportion of census tracts in this study, some authors have argued that immigration is a more appropriate measure of ethnic heterogeneity (see Andresen, 2006; Browning & Erickson, 2012).

Although the General Social Survey ensures that items required for weighting are not left unanswered (e.g., age or sex), non-response is permitted for all other questions. Some variables do have a small number of missing values – almost all of which are within the range of 0.2% to 10%, with the exception of income that is missing 23% of values – that must be dealt with. Little's MCAR test is significant at the 0.000 level; therefore, the values are missing at random, with a clear arbitrary rather than monotone pattern. To account for missing values – all of which are at the individual-level – missing values analysis is completed in SPSS 22. Missing values analysis replaces the missing data with actual values. These values are estimated based on either a subject's other responses or another subject's similar responses. In this instance, the calculation is completed using the expectation maximization estimation option that applies maximum likelihood algorithms. Expectation maximization is the most common method of imputation and is preferred over other available single imputation methods (Garson, 2012, p. 23). This method underestimates standard errors and treats imputed values as equal to observed values; consequently, multiple imputation methods are favoured over expectation maximization, as the multiple imputation method does not make the error of equating imputed and observed values. However, part of the analytic strategy for this thesis includes the use of generalized structural equation modeling in Stata; this technique is incompatible with the multiple imputation method of simulating missing values. Due to the restrictions of the available data, another analytic technique cannot be applied, so estimation maximization is chosen over multiple imputation.

### **3.3. Analytic Strategy**

The three outcome variables are either ordered (fear of crime) or count variables (constrained behaviors). Ideally, fear of crime could be analyzed using multilevel mixed-effects ordered logistic regression; however, because the proportional odds assumption

is violated, a different method is necessary. Fear of crime is therefore analyzed using multilevel mixed-effects multinomial logistic regression. In Stata, this can be done by using generalized structural equation modeling that allows multilevel modelling and a variety of family and link functions. In this instance, the options specified are multinomial and logit for family and link, respectively. Multilevel mixed effects poisson regression, with QR decomposition of the variance-components matrix, is used to analyze the two types of constrained behaviours. Initially, descriptive statistics and bivariate analyses are run to provide frequencies and baseline effects of each factor. Next, four multilevel mixed-effects multinomial logistic regression models are run with fear of crime as the outcome and five separate multilevel mixed effects poisson regression models are run for both protective behaviours and avoidance behaviours as outcomes, respectively.

## Chapter 4.

### Results

A total of 11,520 respondents are included in these analyses, residing in a total of 2,062 census tracts across Canada. The average number of respondents per census tract is 5.59 ( $\sigma = 7.296$ ); just under ninety-five percent of census tracts have between three and ten respondents. Demographic and neighbourhood perception descriptive statistics are shown in Table 1. Participants are fairly evenly split across gender lines, with just slightly more females in the sample than males. The mean age of the sample is forty-five. The majority of the sample is white, with just under fifteen percent identifying as visible minority and two percent identifying as Aboriginal. This is roughly representative of the racial make-up of Canada as a whole (Statistics Canada, n.d., “Aboriginal identity population”; Statistics Canada, n.d., “Visible minority population”). Just over half of the respondents have completed some sort of post-secondary education, whether it be a university degree or a certificate or diploma in a skilled trade. The remainder have either no or an incomplete post-secondary education. The mean income in this sample is a little over \$44,000, although many respondents made considerably more or less than that, as evidenced by the standard deviation value being so close to the mean value. Approximately one quarter of the sample have experienced a crime within the last twelve months, whether property crime or violent crime. Violent crime includes physical or sexual assault from an intimate partner. With regard to individual-level perceptions of one’s neighbourhood,<sup>4</sup> most participants were largely positive. Overall, respondents express a fairly strong degree of belonging and sense of trust with a considerably low level of physical and social disorder; moreover, participants tend to feel largely positive about the neighbourhoods in which they reside.

<sup>4</sup> Descriptive statistics for all of the items which make up composite factors, including both individual-level and census tract-level variables, are shown in Appendix A.

**Table 1 Descriptive Statistics for Individual-Level Variables<sup>5</sup>**

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<i>Demographics</i>		
Sex	(0) Male	49.4%
	(1) Female	50.6%
Age	Mean	44.52
	Standard Deviation	18.22
Visible Minority	(0) No	85.8%
	(1) Yes	14.2%
Aboriginal	(0) No	97.9%
	(1) Yes	2.1%
Education	(0) No or Incomplete Post-Secondary	44.8%
	(1) Complete Post-Secondary	55.2%
Income	Mean	44,006.86
	Standard Deviation	42,050.16
Victimization (12 months)	(0) No	71.0%
	(1) Yes	29.0%
<i>Measures of Neighbourhood Perceptions</i>		
Social Cohesion	Mean	-.1649
	Standard Deviation	.9669
Neighbourhood Disorder	Mean	.0493
	Standard Deviation	1.016

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Neighbourhood-level factors are shown in Table 2, and describe the extent of characteristics relating to social disorganization within census tracts. There is an overall moderate level of residential mobility, with a mean of fifteen percent. An average of twenty-five percent of residents completed some form of post-secondary schooling, with a fairly large standard deviation of thirteen. The mean proportion of immigrants in census tracts is just over three percent. The neighbourhood disadvantage construct finds that the average census tract exhibits only a modest level of socioeconomic disadvantage.

<sup>5</sup> Due to the sensitive nature of the victimization survey, Statistics Canada does not allow the release of unweighted descriptive statistics from its Research Data Centres. For the sake of clarity, only percentages are provided for categorical variables. Although the descriptives provided are weighted, analyses are done using unweighted variables.

Descriptive statistics (see Table 3) suggest that fear of crime is not a particularly significant concern for most of the population. Overall, respondents report feeling safe in their neighbourhoods, with almost three-quarters stating that they feel either very or somewhat safe. Only a very small proportion describes feeling very unsafe. Similarly, respondents do not engage in many constrained behaviours. Out of the seven total available protective behaviours, respondents report using an average of 2.32, and of the four listed avoidance behaviours, respondents report using an average of 1.26.

**Table 2 Descriptive Statistics for Neighbourhood-Level Variables<sup>6</sup>**

Residential Mobility	Mean	15.31
	Standard Deviation	6.80
Education (%)	Mean	25.77
	Standard Deviation	13.18
Immigration (%)	Mean	3.63
	Standard Deviation	4.58
Neighbourhood Disadvantage	Mean	.00
	Standard Deviation	1.00

**Table 3 Descriptive Statistics for Outcome Variables<sup>7</sup>**

Fear of Crime	(1) Very Safe	36.0%
	(2) Reasonably Safe	48.5%
	(3) Somewhat Unsafe	11.8%
	(4) Very Unsafe	3.8%
Protective Behaviours	Mean	2.32
	Standard Deviation	1.36
Avoidance Behaviours	Mean	1.26
	Standard Deviation	1.17

<sup>6</sup> These factors are taken from the 2006 Census and are not weighted using the person weight variable from the General Social Survey.

<sup>7</sup> This table reports weighted frequencies and means, as Statistics Canada does not allow the release of unweighted data from its Research Data Centres due to the sensitive nature of the victimization survey. For the sake of clarity, only percentages are provided for categorical variables. Although the descriptives provided are weighted, analyses are done using unweighted variables.

## 4.1. Fear of Crime

Four multilevel mixed-effects multinomial logistic regression models are run with fear of crime as the outcome variable (see Table 4). Model 1 uses the five demographic factors and victimization to assess the vulnerability perspective alone. Model 2 has only two variables, social cohesion and neighbourhood disorder, both of which relate to an individual's perception of his or her neighbourhood and his or her place in it. Neighbourhood-level factors (disadvantage, education, immigration, and mobility) are examined in Model 3. The final model combines all of the previous perspectives to examine their effects on fear while taking into account other theoretical considerations. The four fear of crime responses range from 1, meaning 'very safe,' to 4, meaning 'very unsafe.' The reference category is 'very safe,' so all of the relative risk ratios should be interpreted in comparison. A result above 1.00 signifies that the variable increases fear and one below 1.00 signifies that the variable reduces feelings of fear. Results that exceed the 0.05 threshold of significance are bolded.

The indicators in Table 4 are, with few exceptions, statistically significant in the expected directions. Moreover, the fear-level differences increase or decrease as anticipated. For example, the sex difference between 'very safe' and 'reasonably safe' (RRR = 3.315) is smaller than that between 'very safe' and 'somewhat unsafe' (RRR = 7.422). The greatest sex difference is between 'very safe' and 'very unsafe' (RRR = 11.611). In other words, compared to men, women are three times, seven times, and almost twelve times more likely to report feeling 'reasonably safe,' 'somewhat unsafe,' and 'very unsafe,' respectively, compared with feeling 'very safe.' This trend in the relative risk ratios, where the differences are greater at higher levels of perceived likelihood of victimization, is true of all significant predictors across all four models.

**Table 4 Multilevel Mixed-Effects Multinomial Logistic Regression**

	Fear*	Model 1		Model 2		Model 3		Model 4	
		RRR	p.	RRR	p.	RRR	p.	RRR	p.
<i>Demographics</i>									
Female	RS	<b>3.315</b>	<b>.000</b>	–	–	–	–	<b>3.455</b>	<b>.000</b>
	SU	<b>7.422</b>	<b>.000</b>	–	–	–	–	<b>8.818</b>	<b>.000</b>
	VU	<b>11.611</b>	<b>.000</b>	–	–	–	–	<b>15.296</b>	<b>.000</b>
Age	RS	<b>1.013</b>	<b>.000</b>	–	–	–	–	<b>1.021</b>	<b>.000</b>
	SU	<b>1.020</b>	<b>.000</b>	–	–	–	–	<b>1.039</b>	<b>.000</b>
	VU	<b>1.032</b>	<b>.000</b>	–	–	–	–	<b>1.058</b>	<b>.000</b>
Visible Minority	RS	1.039	.639	–	–	–	–	.9256	.363
	SU	1.073	.549	–	–	–	–	.8904	.366
	VU	.9278	.695	–	–	–	–	.7199	.118
Aboriginal	RS	.9946	.973	–	–	–	–	.9561	.782
	SU	<b>1.527</b>	<b>.034</b>	–	–	–	–	1.284	.237
	VU	1.662	.063	–	–	–	–	1.248	.450
Education	RS	<b>.7240</b>	<b>.000</b>	–	–	–	–	<b>.7357</b>	<b>.000</b>
	SU	<b>.6732</b>	<b>.000</b>	–	–	–	–	<b>.7267</b>	<b>.000</b>
	VU	<b>.5048</b>	<b>.000</b>	–	–	–	–	<b>.5846</b>	<b>.000</b>
Income	RS	<b>.9502</b>	<b>.000</b>	–	–	–	–	<b>.9480</b>	<b>.000</b>
	SU	<b>.9074</b>	<b>.000</b>	–	–	–	–	<b>.8943</b>	<b>.000</b>
	VU	<b>.8957</b>	<b>.000</b>	–	–	–	–	<b>.8782</b>	<b>.000</b>
Victimization	RS	<b>1.284</b>	<b>.000</b>	–	–	–	–	1.099	.088
	SU	<b>2.299</b>	<b>.000</b>	–	–	–	–	<b>1.683</b>	<b>.000</b>
	VU	<b>2.976</b>	<b>.000</b>	–	–	–	–	<b>1.964</b>	<b>.000</b>
<i>Neighbourhood Perceptions</i>									
Social Cohesion	RS	–	–	<b>.7624</b>	<b>.000</b>	–	–	<b>.6722</b>	<b>.000</b>
	SU	–	–	<b>.5824</b>	<b>.000</b>	–	–	<b>.4808</b>	<b>.000</b>
	VU	–	–	<b>.5348</b>	<b>.000</b>	–	–	<b>.4126</b>	<b>.000</b>
Disorder	RS	–	–	<b>1.290</b>	<b>.000</b>	–	–	<b>1.413</b>	<b>.000</b>
	SU	–	–	<b>1.709</b>	<b>.000</b>	–	–	<b>1.928</b>	<b>.000</b>
	VU	–	–	<b>1.942</b>	<b>.000</b>	–	–	<b>2.283</b>	<b>.000</b>

**Table 4 Multilevel Mixed-Effects Multinomial Logistic Regression (Cont.)**

	Fear*	Model 1		Model 2		Model 3		Model 4	
		RRR	p.	RRR	p.	RRR	p.	RRR	p.
<i>Neighbourhood-Level Factors</i>									
Disadvantage	RS	–		–		<b>1.179</b>	<b>.000</b>	1.031	.353
	SU	–		–		<b>1.439</b>	<b>.000</b>	<b>1.104</b>	<b>.025</b>
	VU	–		–		<b>1.678</b>	<b>.000</b>	<b>1.184</b>	<b>.006</b>
Immigration (%)	RS	–		–		<b>1.030</b>	<b>.000</b>	<b>1.028</b>	<b>.001</b>
	SU	–		–		<b>1.044</b>	<b>.000</b>	<b>1.036</b>	<b>.001</b>
	VU	–		–		<b>1.058</b>	<b>.000</b>	<b>1.054</b>	<b>.000</b>
Mobility (%)	RS	–		–		1.005	.245	1.001	.741
	SU	–		–		<b>1.022</b>	<b>.000</b>	1.009	.135
	VU	–		–		<b>1.024</b>	<b>.004</b>	1.005	.599
Education (%)	RS	–		–		<b>.9942</b>	<b>.008</b>	<b>.9927</b>	<b>.002</b>
	SU	–		–		<b>.9832</b>	<b>.000</b>	<b>.9802</b>	<b>.000</b>
	VU	–		–		<b>.9682</b>	<b>.000</b>	<b>.9660</b>	<b>.000</b>
Log-likelihood		-11902.202		-12295.675		-12594.776		-11194.689	

\* Reference category: very safe (1).

RS: reasonably safe; SU: somewhat unsafe; VU: very unsafe.

In Model 1, sex is the strongest predictor of all included. Age also increases the likelihood that respondents will report feeling afraid by as much as three percent for every year, when comparing ‘very unsafe’ to ‘very safe.’ Race is mostly insignificant overall, with the exception that those identifying as Aboriginal being one and a half times more likely to report feeling ‘somewhat unsafe’ rather than ‘very safe.’ Those identifying as Aboriginal as also just under twice as likely to report feeling ‘very unsafe’ instead of ‘very safe,’ although this result is just above the significance threshold, with a p-value of 0.063. Both education and income act as fear inhibitors, where post-secondary education and higher income result in participants being more likely to feel ‘very safe’ than any of the other categories. Victimization, on the other hand, increases the chance that a respondent will feel less safe. Participants with a history of victimization are about three times more likely to report feeling ‘very unsafe.’

Both predictors in Model 2 have a significant effect on fear: an increase in social cohesion reduces fear whereas an increase in neighbourhood disorder corresponds with an increase in fear. The effects of both are greatest for the 'very unsafe' category, followed by 'somewhat unsafe' and then 'reasonably safe.' Almost all of the social disorganization indicators in Model 3 increase fear, with the exceptions of education and mobility. A higher percentage of post-secondary degrees in a census tract is related to a greater likelihood of respondents reporting feeling 'very safe.' Mobility shows no significant difference between 'very safe' and 'reasonably safe,' however, it otherwise significantly increases perceived risk. Neighbourhood disadvantage is by far the strongest of all social disorganization measures. An increase in neighbourhood disorganization leaves a respondent over sixty-seven percent more likely to report feeling 'very unsafe' rather than 'very safe.' The effect sizes of the other neighbourhood level indicators are considerably smaller; for instance, an increase in the percentage of immigrants increases the likelihood of feeling 'very unsafe' over 'very safe' by almost six percent.

When all factors are included in Model 4, the best fitting model of the four, the significance of the predictors rarely changes and, as expected, the directions of the predictors do not change at all. Aboriginal identity is now completely insignificant at all levels and visible minority remains insignificant. There are no longer any statistically significant differences between 'reasonably safe' and 'very safe' for the variables victimization and neighbourhood-level disadvantage, although they both are significant for the other fear categories. Those with a history of victimization are over one and half times more likely to report feeling 'somewhat unsafe' and twice as likely to report feeling 'very unsafe.' The effect of neighbourhood disadvantage on safety drops from sixty-seven percent to eighteen percent more likely to report feeling 'very unsafe.' Residential mobility becomes completely insignificant in Model 4. The effects of the other indicators stay essentially the same. Sex, however, becomes even stronger: whereas in model 1 women were almost twelve times more likely than men to report feeling 'very unsafe' instead of 'very safe,' the relative risk ratio in model 4 jumps as high as fifteen.

## 4.2. Constrained Behaviours

For each of the constrained behaviours – avoidance and protective – five multilevel mixed-effects poisson regression models are run. In order to be able to compare the two, the five models are identical for both outcomes. Model 1 examines the effects of fear of crime alone on behaviour. Models 2 through 4 match the four models run on fear as an outcome, above: demographics and victimization, neighbourhood perceptions, neighbourhood-level social disorganization factors. Model 5 includes all variables, including fear of crime. Results show incidence-rate ratios, where a number above 1.00 indicates that the factor increases the number of avoidance or protective behaviours used, whereas a number below 1.00 decreases the number of constrained behaviours used. As before, results that do exceed the 0.05 threshold of significance are bolded.

Table 5 shows the effects of fear of crime, demographic indicators, individual-level neighbourhood perceptions, and social disorganization factors on the number of protective behaviours undertaken by participants. Model 1, measuring the effect of fear of crime alone, shows that fear increases the number of protective behaviours used by as much as fifty-one percent in those who report feeling ‘very unsafe’ rather than ‘very safe.’ All of the demographic factors, other than Aboriginal identity and income, are significant (see Model 2). The strongest effects are sex and a history of victimization; these indicators increase the use of protective behaviours by twenty-four and twenty-five percent, respectively. Age and education also have a positive relationship with protective behaviours. Respondents who are visible minorities, however, report using twelve percent fewer protective measures. In Model 3, only neighbourhood disorder is significant: a rise in use of protective behaviours is tied to a rise in disorder, at six percent per level of disorder. Similarly, only one factor is significant in Model 4. An increase in neighbourhood disadvantage leads to five percent fewer protective measures.

When all variables are used in the final model (Model 5), fear of crime remains one of the strongest predictors of this type of constrained behaviour. Those who say they feel ‘very unsafe’ report taking forty-three percent more protective actions. The

effect of sex is still significant, but decreases to fifteen percent. Age and victimization decrease similarly. Visible minority and education both have a slightly stronger impact in this model and income becomes significant, with an increase in protective measures of less than one percent per rise in income. The influence of disorder remains essentially the same, but social cohesion is now significant: an increase in social cohesion leads to a two percent increase in the use of protective behaviours. The neighbourhood-level factors immigration, mobility, and education are still insignificant while neighbourhood disadvantage still significantly decreases the number of protective measures taken.

**Table 5 Multilevel Mixed-Effects Poisson Regression (Protective Behaviours)**

	Model 1		Model 2		Model 3		Model 4		Model 5	
	IRR	p.								
Fear*: R. Safe	<b>1.213</b>	<b>.000</b>	–	–	–	–	–	–	<b>1.183</b>	<b>.000</b>
S. Unsafe	<b>1.477</b>	<b>.000</b>	–	–	–	–	–	–	<b>1.397</b>	<b>.000</b>
V. Unsafe	<b>1.518</b>	<b>.000</b>	–	–	–	–	–	–	<b>1.426</b>	<b>.000</b>
<i>Demographics</i>										
Female	–	–	<b>1.242</b>	<b>.000</b>	–	–	–	–	<b>1.153</b>	<b>.000</b>
Age	–	–	<b>1.002</b>	<b>.000</b>	–	–	–	–	<b>1.001</b>	<b>.002</b>
Visible Minority	–	–	<b>.8881</b>	<b>.000</b>	–	–	–	–	<b>.8864</b>	<b>.000</b>
Aboriginal	–	–	1.022	.573	–	–	–	–	1.008	.836
Education	–	–	<b>1.102</b>	<b>.000</b>	–	–	–	–	<b>1.113</b>	<b>.000</b>
Income	–	–	1.004	.117	–	–	–	–	<b>1.008</b>	<b>.003</b>
Victimization	–	–	<b>1.247</b>	<b>.000</b>	–	–	–	–	<b>1.207</b>	<b>.000</b>
<i>Neighbourhood Perceptions</i>										
Social Cohesion	–	–	–	–	1.007	.292	–	–	<b>1.020</b>	<b>.005</b>
Disorder	–	–	–	–	<b>1.059</b>	<b>.000</b>	–	–	<b>1.040</b>	<b>.000</b>
<i>Neighbourhood-Level Factors</i>										
Disadvantage	–	–	–	–	–	–	<b>.9531</b>	<b>.000</b>	<b>.9249</b>	<b>.000</b>
Immigration (%)	–	–	–	–	–	–	1.001	.677	1.003	.095
Mobility (%)	–	–	–	–	–	–	1.001	.261	.9993	.492
Education (%)	–	–	–	–	–	–	.9996	.437	.9992	.168
Log-likelihood	-19380.458		-19308.236		-19592.772		-19616.055		-19087.173	

\* Reference category: very safe.

**Table 6 Multilevel Mixed-Effects Poisson Regression (Avoidance Behaviours)**

	Model 1		Model 2		Model 3		Model 4		Model 5	
	IRR	p.								
Fear*: R. Safe	<b>1.742</b>	<b>.000</b>	–		–		–		<b>1.557</b>	<b>.000</b>
S. Unsafe	<b>3.096</b>	<b>.000</b>	–		–		–		<b>2.490</b>	<b>.000</b>
V. Unsafe	<b>3.491</b>	<b>.000</b>	–		–		–		<b>2.702</b>	<b>.000</b>
<i>Demographics</i>										
Female	–		<b>1.777</b>	<b>.000</b>	–		–		<b>1.438</b>	<b>.000</b>
Age	–		1.000	.808	–		–		.9990	.065
Visible Minority	–		<b>1.115</b>	<b>.000</b>	–		–		<b>1.098</b>	<b>.001</b>
Aboriginal	–		<b>1.121</b>	<b>.022</b>	–		–		1.048	.340
Education	–		.9673	.056	–		–		1.005	.761
Income	–		<b>.9787</b>	<b>.000</b>	–		–		<b>.9866</b>	<b>.000</b>
Victimization	–		<b>1.345</b>	<b>.000</b>	–		–		<b>1.199</b>	<b>.000</b>
<i>Neighbourhood Perceptions</i>										
Social Cohesion	–		–		<b>.9254</b>	<b>.000</b>	–		.9979	.821
Disorder	–		–		<b>1.149</b>	<b>.000</b>	–		<b>1.071</b>	<b>.000</b>
<i>Neighbourhood-Level Factors</i>										
Disadvantage	–		–		–		1.012	.307	<b>.9425</b>	<b>.000</b>
Immigration (%)	–		–		–		<b>1.011</b>	<b>.000</b>	1.004	.117
Mobility (%)	–		–		–		<b>1.009</b>	<b>.000</b>	<b>1.005</b>	<b>.001</b>
Education (%)	–		–		–		<b>.9975</b>	<b>.004</b>	1.000	.953
Log-likelihood	-15869.652		-16346.581		-16798.992		-17029.726		-15516.866	

\* Reference category: very safe.

Table 6 shows the effects of the same factors on the number of avoidance behaviours undertaken by participants. Generally speaking, the incidence-rate ratios are stronger for avoidance behaviours than they are for protective behaviours. For instance, in model 1, participants who identify themselves as feeling ‘very afraid’ are three and a half times more likely to engage in avoidance tactics. In Model 2, age and education appear to have no impact. Sex, race, and victimization history all significantly increase the use of avoidance behaviours by 177 percent, twelve percent, and 135 percent, respectively. Income lowers their use: the higher the income, the fewer avoidance

measures taken. Both factors in Model 3 are significant. An increase in neighbourhood disorder leads to a fifteen percent increase in avoidance behaviours. Social cohesion, on the other hand, has a negative relationship: the greater the cohesion, the fewer avoidance measures taken. The results of Model 4 are the inverse of the equivalent model in the previous table; all items but neighbourhood disadvantage are statistically significant. Both mobility and immigration increase the use of avoidance behaviours by approximately one percent while education has a slight diminishing impact.

Model 5 tests fear of crime, demographic factors, neighbourhood perceptions, and neighbourhood-level social disorganization factors together. There are minor differences in the effects of individual-level predictors from the previous models. Neither Aboriginal status nor social cohesion are significant anymore. Additionally, the impact of each remaining variable is slightly lessened when other indicators are accounted for, although the significance and direction do not change. The effects of neighbourhood-level predictors change fairly dramatically from Model 4. Immigration and education become insignificant. However, when individual-level factors are taken into consideration, neighbourhood disadvantage becomes the strongest of all second-level predictors. Each upward change in disadvantage corresponds with a six percent decrease in the use of avoidance behaviours.

Overall, as with the fear of crime models, the best fitting models are those that include all variables; this applies for both avoidance and protective actions as outcomes. The results of the analyses on constrained behaviours suggest that the relevant predictors of fear of crime do overlap with, but are not identical to, the relevant predictors of both constrained behaviours. Neither are significant indicators identical between avoidance and protective behaviours nor are the directions of the effects consistently the same. These results support the notion that emotional fear, protective behaviours, and avoidance behaviours are related, but discrete, constructs.

## Chapter 5.

### Discussion

The multi-theoretical fear of crime models of the preceding chapter emphasize, above all, the complexity of fear as a concept. Its expression relies on a combination of factors: personal characteristics and history, individual perceptions of the problems in one's community, the connection to one's neighbours, and the socioeconomic and demographic characteristics of one's neighbourhood. Despite the various perspectives required to untangle the nature of fear, the indicators of perceived risk remain more consistent than those of constrained behaviours. The significance and direction of predictors differ in their impacts on avoidance and protective measures taken and in their effects on fear. Although feelings of safety do play a role in altering or limiting respondents' activities, other factors continue to be important, even when level of fear is accounted for. Unquestionably, explaining human feelings and behaviour are both difficult endeavours, rife as they are with uncertainty and speculation. Still, it is possible to draw some conclusions from the available data.

Consistent with the vast majority of empirical research on the subject, sex has a significant and strong effect on all outcome measures. Women are much more fearful than men are; they are up to fifteen times more likely to state that they feel 'very unsafe' when all other factors are accounted for. This is consistent with the majority of research into gender and fear over the years (e.g., Clemente & Kleiman, 1977; Lee & Hilinski-Rosick, 2012; Rader et al., 2012; Reid & Konrad, 2004; Snedker, 2012). Although gender socialization, socially desirable reporting, and the particular wording of the feelings of safety measure may affect the magnitude of the sex variable, research suggests that women report feeling more afraid regardless (e.g., Kanan & Pruitt, 2003; Keane, 1992; Sutton et al., 2012). As previously mentioned, women's (and elderly people's) increased feelings of fear despite their lower risk of victimization is known as

the fear of crime paradox as some consider this irrational. Some argue that women's increased fear is not actually irrational because it can partially be a result of criminal offences that go unreported to an alarming degree, such as sexual assault or intimate partner violence (Hilinski et al., 2011, p. 113; Smith, 1988, p. 30). However, this is of limited explanatory value to the results of the present study, as the previous victimization question included here is based on self-reported victimization and includes intimate partner abuse. Those who have experienced some form of criminal victimization report both greater levels of fear and use of more constrained behaviours. These findings are generally in line with some previous research (see Alper & Chappell, 2012; Ferguson & Mindel, 2007; Tseloni & Zarafonitou, 2008), but contradict others (see DeLone, 2008; Hilinski et al., 2011; Nalla et al., 2011). There are a number of possible explanations for the behaviour of the victimization indicator. It includes only victimization within the last year, which is still likely to be fresh in the victim's mind and is therefore more likely to alter their perceptions and behaviour. The indicator also encompasses different types of victimization; respondents are specifically asked about intimate partner violence in addition to property and violent victimization. Or perhaps, due to Canada's fairly low crime rate, personal experience with crime has a bigger impact.

Despite the extremely large gap between the sexes in perceptions of the likelihood of victimization, differences in actual behaviours related to fear are significant but comparatively small. In the full models, women use just under forty-five percent more avoidance measures than men and only fifteen percent more protective measures. This contradicts some previous work on constrained behaviours, such as the studies by Liska et al. (1988), Rader et al. (2007), and Reid, Roberts, and Hilliard (1998), who find gender differences in fear, but not behaviour. Reid et al. (1998), however, examine protective measures only. May et al. (2010) do show a gender difference in constrained behaviours, where women engage in both more defensive and avoidant measures. Avoidance behaviours in particular, such as staying at home, changing routes, or using cabs or public transportation rather than walking, have the effect of limiting one's participation in public life (Warr, 2000, p. 481). Madriz (1997) shows that fear of crime, and the related avoidance tactic it encourages in women, is a method of social control. This fear reduces women's participation in society and engagement with public space (pp. 68-69). Cobbina et al.'s (2008) interviews of black youth in St. Louis demonstrate a

similar gender disparity: the changes young women make to their routine activities are more dramatic than those of young men. Young men choose to protect themselves by, staying in groups or occasionally carrying weapons, but do not withdraw from public life the same way young women do (Cobbina et al., 2008, p. 700). Although differences in behaviour are much smaller than in perceived risk and fear of crime is a stronger indicator of use of avoidance tactics than gender, it is still notable that women are limited more than men.

Age, like sex, is a fairly consistent predictor across the spectrum of fear of crime research (e.g., McCrea et al., 2005; Ortega & Myles, 1987; Reid & Konrad, 2004). In the fear of crime models, age always has a significant and positive relationship to fear, meaning that fear increases with age. This does not translate into a simple increase in both types of constrained behaviours. Although an increase in age is significantly tied to use of more protective measures, it has no significant effect on avoidance measures. Beaulieu, Dubé, Bergeron, and Cousineau (2007) state that, among men aged sixty or older, age categories do not affect the use of constrained behaviours (measured as avoidance and defensive behaviours combined) but a history of victimization and living alone increase their use (p. 342). Liska et al. (1988) show that a feedback loop exists between fear and avoidance-type constrained behaviours, but that loop does not apply to the elderly (p. 835). The elderly, they argue, may be limiting their behaviour as a result of physical limitations instead of fear. Ferraro (1995) also makes this argument about the connection between old age and constrained behaviours (p. 65). The same phenomenon may be responsible for the results of this research.

The race indicators behave, to a certain degree, the opposite of age. One of the few Canadian studies on fear that includes race finds that Aboriginal people are less fearful than non-Aboriginals (Weinrath, 2000, p. 117). Although Aboriginal people in this study do report more fear, this difference is only significant in the demographics-only model; otherwise, both race indicators are insignificant when it comes to fear. Visible minority status does affect constrained behaviours, though, as visible minorities report engaging in more avoidance and fewer protective behaviours. Aboriginal identity increases use of avoidance behaviours, but this is not true in the full model. This appears to be a possible consequence of the connection between being a racial minority

and lower socioeconomic status, an explanation that has been put forth by others (Reid & Konrad, 2004, p. 404); however, individual and census tract level socioeconomic status are accounted for and do not erase the effects of visible minority status on behaviour. Individual income and education behave as expected, curbing feelings of fear and use of avoidance measures while increasing the number of protective measures taken.

Neighbourhood characteristics are a central component of this study, both individual perceptions of one's community and census tract level indicators. Although a plethora of research delves into the relationship between community and fear, there is very little research on the connection between community and behaviour. Of the two neighbourhood perception measures in this study, social cohesion is particularly notable. Neighbourhood disorder has a straightforward significant and positive relationship with all three outcome variables, consistent with other literature (e.g., Abdullah et al., 2014; Brunton-Smith, 2011; Brunton-Smith & Sturgis, 2011; Kanan & Pruitt, 2003; Robinson et al., 2003). On the other hand, the impact of social cohesion proves to be slightly less homogenous. The greater a sense of connection to one's community and trust in one's neighbours a respondent feels, the more likely they are to fall into the 'very safe' category. The fear-inhibiting function of social cohesion – and the related notion of social integration – is previously documented (e.g., Abdullah et al., 2014; Franklin et al., 2008; Gau et al., 2014; Karakus et al., 2010; Scarborough et al., 2010).

What stands out is the association between cohesion and behaviour. In Model 3 of Table 6, cohesion reduces the number of avoidance measures used, but cohesion has no impact on avoidance measures in the full model (Model 5 of Table 6). Further analyses indicate that its effect is actually mediated by fear of crime. The strong impact of cohesion on fear does not neatly translate into a change in an individual's behaviour. Conversely, with regard to protective tactics, cohesion transitions from insignificance to significance. In other words, when all else is held constant, the more connected an individual is to his or her community, the more likely they are to take measures to protect themselves. This is consistent with the work of Ferguson and Mindel (2007), who find that collective efficacy has a positive relationship with the use of protective measures. Another study on fear of crime which considers the impact of neighbourhood factors on

behaviour is Foster et al.'s (2014) research into walking recreationally or for the purposes of transport. This study shows that collective efficacy eliminates the significant relationship between fear and recreational walking (p. 709). That is, high degrees of collective efficacy seem to decrease the use of some avoidance measures. Although the participants in Foster et al.'s (2014) study have access to vehicles and could avoid walking as a form of transport, collective efficacy is not shown to be a mediating factor in this instance. In a different but related study, Thomas (2007) examines fear of victimization in the wake of Hurricane Katrina. He does not look at behaviour as an outcome, but rather finds that collective efficacy has an indirect positive impact on fear, through increasing the spread of rumours (Thomas, 2007, p. 697). In other words, an individual who is socially integrated into his or her community and trusting of his or her neighbours is more likely to engage in discussions about crime with neighbours. Consequently, the more an individual hears about crime, the more he or she may grow to fear it. Fear of victimization and use of protective measures are separate concepts, but it is not implausible that the increase in protective behaviours from social cohesion is due to a similar process. On the other hand, cohesion may increase those behaviours as a result of a collective neighbourhood strategy to reduce the attractiveness of the neighbourhood's homes or residents as targets. As all the studies mentioned are dissimilar enough from the present one, it is rather premature to draw a concrete conclusion about one's social environment and their behaviour.

Other studies consider the effects of neighbourhood characteristics, adding a social disorganization framework to the research on fear of crime. Although the particular items used in measures of social disorganization may vary, they have similar roots. The principle finding, however, is that one's neighbourhood is an important consideration. When it comes to feelings of safety, two of the four neighbourhood characteristics (disadvantage and immigration) facilitate respondents' fearfulness whereas education has an inhibitory effect. Residential mobility significantly increases the likelihood of respondents feeling unsafe in the neighbourhood-level factors only model, but it is irrelevant in the full model. In general, a more disorganized community is one in which its residents typically feel more unsafe. Although exceptions exist – Roman and Chalfin (2008), for example, find fairly weak support for neighbourhood socioeconomic indicators and none at all for residential mobility or racial heterogeneity (p. 309) – this

finding is largely in line with previous work (e.g., Brunton-Smith & Sturgis, 2011; Gau et al., 2014; Porter et al., 2011).

The idea that neighbourhood matters does not eclipse the value of individual-level characteristics by any means; rather, neighbourhood factors and demographic variables can both affect feelings of safety and depend on each other. This is evident in other work as well. For instance, the inhibitory effect of marital status on fear is diminished by the inclusion of familial disruption variables (Porter et al., 2011, p. 240). Similarly, other researchers suggest that the ethnic composition of a neighbourhood affects the impact of individual race on fear. In particular, once ethnic heterogeneity is accounted for, racial minorities become significantly less afraid than their white counterparts (Brunton-Smith & Sturgis, 2011, p. 362; Porter et al., 2011, p. 242). This finding is not evident in the results of this study, although in the final model in Table 4, the percentage of immigrants indicator is significant and both racial indicators are not significant indicators of fear. This may be a reflection of the comparatively low proportion of non-white respondents in the GSS, however.

The role neighbourhood plays when it comes to constrained behaviours varies quite considerably from its role in fear of victimization. If avoidance and protective behaviours are similar constructs to fear itself, then it is expected that the predictors should be similar in their direction and significance. This is not the case with many of the individual level indicators, nor is it the case at the census tract level. Neighbourhood disadvantage significantly decreases the use of protective measures, whereas all other indicators are insignificant. As for avoidance behaviours, Model 5 in Table 6 shows that residential mobility significantly increases their use, but neighbourhood disadvantage has a significant effect in the opposite direction. The effect of mobility makes sense intuitively: higher residential turnover, meaning more strangers in the neighbourhood, leads to protecting oneself by decreasing time in public space. Yet, an individual who resides in a more economically deprived census tract is less likely to protect him- or herself by limiting or altering their use of public space or by taking steps to protect his or her household or person. This may not be as counterintuitive as it initially appears: the use of precautionary measures is necessarily based on one's ability, particularly one's economic ability (Reid et al., 1998, p. 321). Residents of disadvantaged neighbourhoods

are less likely to be able to afford a variety of home safety measures or self-defence classes. Although avoidance is the most common precautionary tactic (Warr, 2000), it is not always feasible. Residents may lack reasonable alternate routes to work or other locations. They may simply not have the option of staying inside and hiding from public space. This inability to engage in coping strategies is discussed by the women interviewed by Madriz (1997), some of whom declared that although they would choose to use avoidance and protective measures, it is simply not possible (p. 118).

The largest apparent difference between fear of victimization and the use of precautionary behaviours, then, is opportunity. There is no obstacle in the way of feeling afraid or making a prediction about one's own risk of victimization, but the requirements of life preclude one, to some degree, from acting on that fear. The use of constrained behaviours, however, is most strongly impacted by one's level of fear. In the analyses of avoidance and protective measures, fear of crime emerges as the predominant indicator of both. There is a fair amount of conflicting research over the relationship between fear and behaviour: while some scholars find that emotional and cognitive fear are both connected with the use of precautionary strategies (e.g., Ferraro, 1995; Reid et al., 1998), others find that perceived risk has no impact on constrained behaviours but emotional fear does (e.g., May et al., 2010; Rader et al., 2007). Liska et al. (1988) conceptualize fear of crime using a perceived risk measure and describe a reciprocal effect between fear and avoidance strategies (p. 835). In contrast, Rengifo and Bolton (2012) focus on compulsory and voluntary routine activities as opposed to constrained behaviours. They find a negative relationship between both types of routine activities and emotional fear of crime but a positive one between perceived risk of victimization and voluntary routine activities (Rengifo & Bolton, 2012, p. 113). That is, the greater one perceives one's risk of being victimized, the greater the number of leisure activities they engage in. This is a possible example of habituation. Although it may be reasonable to assume that a connection does exist between fear and behaviours, the exact nature of those relationships appears to be somewhat uncertain. It is becoming clear, however, that avoidance and protective behaviours are evidently separate constructs, an outcome that echoes that of Rader et al. (2007). Therefore, examining the two separately appears to be necessary.

## Chapter 6.

### Conclusion

The effects of individual-level demographic characteristics on fear are vital; this thesis and previous studies confirm their impact. They cannot, however, be divorced from their context. Community matters, in terms of both the objective measures of the neighbourhood itself as well as how it is perceived by its residents. *How* community matters depends on the question being asked. Although certain factors persistently show consistent effects, differences emerge depending on whether the question is “how likely am I to be a victim of crime?” versus “what can I do to protect myself from crime?” Both kinds of precautionary strategies are, without a doubt, an outcome of fear, but they are also an outcome of opportunity.

A notable implication of this research lies in the protective value of a sense of community. As Gray et al. (2011) and Jackson and Gray (2010) show, not all worry about crime is necessarily dysfunctional and the use of certain protective measures may actually be beneficial. This means that one useful fear-reduction strategy could be fostering a sense of community; after all, social cohesion is shown to reduce fear and to slightly increase to use of protective but not avoidance measures. In other words, social cohesion increases the use of precautionary strategies that do not limit one’s participation in public life, in line with Jackson and Gray’s (2010) concept of functional worry. Fostering a sense of community could take a top down approach, that is, community meetings and formalized block watch programs. In practice, however, anybody can begin the process of community engagement.

There are a number of limitations related to this study that need to be acknowledged, including the use of secondary data, the measurement of fear of crime, and the cross-sectional nature of the analyses. The GSS provides a large, nationally

representative sample of Canadians, but as with all secondary data analyses, problems arise when the individuals collecting the data and those analyzing it differ. The GSS is designed to be broad in scope and, thus, is insufficiently detailed in the specific areas of interest. For instance, respondents are asked about their feelings of safety in their neighbourhoods and homes, questions that relate to perceived risk rather than emotional fear of crime. An emotional worry measure is not included in the survey and is therefore not an option for this study. Thus, the question “How safe do you feel from crime walking alone in your area after dark?” is chosen largely for the sake of consistency with other research, despite its limitations (see Clemente & Kleiman, 1977; Ferraro & LaGrange, 2007; Garofalo, 1979; Garofalo, 1981). Unlike a majority of similar questions, however, this one incorporates the phrase “from crime,” abandoning some of the ambiguity of the traditional safety question. Finally, as this is a cross-sectional analysis, it is possible to determine relationships between variables, but it is not possible to determine cause without knowing which factor comes first. For example, perceptions of neighbourhood disorder and perceived risk have a significant, positive relationship. However, is it that disorder causes an individual to feel more fearful? Or it is that a fearful individual is more likely to be bothered by or notice disorder?

Canadian studies on fear of crime and especially constrained behaviours are in relatively short supply, as the field is substantially dominated by a focus on the United States. There are a variety of directions in which the present study could be expanded. Considering the aforementioned limitations of the cross-sectional approach, the most important factor to be considered in future research is time. A longitudinal study could provide a more thorough picture of how changing neighbourhood characteristics in particular alter an individual’s perception of likelihood of victimization as well as what precautionary strategies they are driven to as a result of fear. Although it is primarily neighbourhood factors that would be of interest, some demographic characteristics change as well: age, education, income, and victimization status, for instance. Some studies explore reciprocal effects of fear and behaviour (e.g., Liska et al., 1988) or the reciprocal effects of fear, social cohesion, and neighbourhood disadvantage (e.g., Markowitz et al., 2001). However, other studies that use non-recursive models often focus on crime and its connection to neighbourhood socioeconomic status and collective

efficacy (e.g., Sampson & Raudenbush, 1999). Further research would be a welcome contribution to the body of knowledge surrounding fear of crime.

Finally, research into protective behaviours specifically could differentiate between carrying weapons for protection and other precautionary measures, as some American researchers have done (e.g., Cobbina et al., 2008; Rader & Haynes, 2014; Reid et al., 1998). Although American gun culture does not translate into the Canadian context, it would be interesting to discover the extent to which guns, knives, or other instruments are used for safety. This is not possible to do in the current study. The GSS does ask respondents whether they have ever purchased a gun for safety, but an overwhelming majority have not. The question “Do you routinely carry something to defend yourself or alert others?” is included as a protective behaviour – however, respondents who answer in the affirmative may do so because they regularly carry a weapon such as a knife. Because the question includes something that alerts others, it is an ineffective proxy for weapon carrying. Specificity in this matter could prove insightful.

Despite the limitations above, due to the relative scarcity of Canadian studies on fear of crime, particularly multi-theoretical, multilevel models with a representative sample of Canadians, this cross-sectional analysis demonstrates the ways in which largely American perspectives on fear apply to a Canadian population. Furthermore, this thesis provides valuable information about the individual and census tract level indicators which inform the strategies Canadians choose to protect themselves.

## References

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## Appendix A.

### Descriptive Statistics for Composite Measure Items

**Table A1 Avoidance Behaviours**

	Values	%
Have you ever changed your routine or avoided people/places?	(0) No	62.9%
	(1) Yes	36.8%
Do you routinely plan your route with safety in mind?	(0) No	54.6%
	(1) Yes	45.2%
Do you routinely stay home at night because you are afraid?	(0) No	89.6%
	(1) Yes	10.3%
Do you routinely drive/cab/use transit for safety rather than walk?	(0) No	65.9%
	(1) Yes	33.6%

**Table A2 Protective Behaviours**

	Values	%
Have you ever installed locks/security bars?	(0) No	69.4%
	(1) Yes	30.4%
Have you ever installed burglar alarms/motion detectors?	(0) No	63.3%
	(1) Yes	36.3%
Have you ever taken a self-defence course?	(0) No	87.1%
	(1) Yes	12.8%
Have you ever obtained a dog [for safety]?	(0) No	91.3%
	(1) Yes	8.5%
Do you routinely check the backseat for intruders?	(0) No	58.3%
	(1) Yes	40.9%
Do you routinely carry something to defend yourself or alert others?	(0) No	84.8%
	(1) Yes	15.0%
Do you routinely lock windows/doors at home?	(0) No	12.5%
	(1) Yes	87.4%

**Table A3 Social Cohesion**

	Values	%
Would you say that you know most, many, a few or none of the people in your neighbourhood?	(1) None	5.0%
	(2) A few	52.1%
	(3) Many	16.6%
	(4) Most	26.1%
Would you say this neighbourhood is a place where neighbours help each other?	(0) No	14.5%
	(1) Yes	82.6%
How would you describe your sense of belonging to your local community? Would you say it is:	(1) Very weak	5.1%
	(2) Somewhat weak	19.6%
	(3) Somewhat strong	52.3%
	(4) Very strong	21.3%
Using a scale of 1 to 5 where 1 means 'Cannot be trusted at all' and 5 means 'Can be trusted a lot,' how much do you trust ... people in your neighbourhood?	(1) Cannot be trusted at all	2.9%
	(2) ...	6.2%
	(3) ...	27.1%
	(4) ...	34.0%
	(5) Can be trusted a lot	28.2%
If you lost a wallet or purse that contained two hundred dollars, how likely is it to be returned with the money in it, if it was found ...by someone who lives close by?	(1) Not at all likely	14.6%
	(2) Somewhat likely	43.8%
	(3) Very likely	39.2%

**Table A4 Perceived Physical and Social Disorder**

	Values	%
How much of a problem are... people hanging around on the streets?	(1) Not a problem at all	74.5%
	(2) Not a very big problem	18.6%
	(3) A fairly big problem	4.4%
	(4) A very big problem	1.7%
How much of a problem are... people sleeping on the streets or in other public places?	(1) Not a problem at all	90.5%
	(2) Not a very big problem	5.9%
	(3) A fairly big problem	1.8%
	(4) A very big problem	.9%
How much of a problem is... garbage or litter lying around?	(1) Not a problem at all	71.1%
	(2) Not a very big problem	20.0%
	(3) A fairly big problem	5.8%
	(4) A very big problem	2.6%
How much of a problem are... people being attacked or harassed because of their skin colour, ethnic origin or religion?	(1) Not a problem at all	65.1%
	(2) Not a very big problem	24.6%
	(3) A fairly big problem	6.7%
	(4) A very big problem	2.7%
How much of a problem are... people using or dealing drugs?	(1) Not a problem at all	86.3%
	(2) Not a very big problem	9.0%
	(3) A fairly big problem	1.3%
	(4) A very big problem	1.1%
How much of a problem are... people being drunk or rowdy in public places?	(1) Not a problem at all	68.7%
	(2) Not a very big problem	15.1%
	(3) A fairly big problem	7.3%
	(4) A very big problem	4.1%

**Table A4 Perceived Physical and Social Disorder (Cont.)**

	Values	%
How much of a problem is... prostitution?	(1) Not a problem at all	73.7%
	(2) Not a very big problem	17.6%
	(3) A fairly big problem	4.7%
	(4) A very big problem	2.3%
How much of a problem is... vandalism, graffiti and other deliberate damage to property or vehicles?	(1) Not a problem at all	89.3%
	(2) Not a very big problem	5.5%
	(3) A fairly big problem	1.6%
	(4) A very big problem	1.3%

**Table A5 Neighbourhood Disadvantage**

	Mean	Standard Deviation
Female Headed Households (%)	13.19	5.76
Renters (%)	30.57	22.50
Unemployment Rate (%)	3.89	1.54
Low Income After Tax* (%)	1.88	1.58
Median Income After Tax*	54,017.89	16,235.24

\* Private households

## Appendix B.

### Creation of Composite Measures

**Table B1 Additive Scales**

	$\alpha$	$\alpha$ if item deleted
<i>Avoidance Behaviours</i>	.563	
Have you ever changed your routine or avoided people/places?		.530
Do you routinely stay home at night because you are afraid?		.524
Do you routinely plan your route with safety in mind?		.451
Do you routinely drive/cab/use transit for safety rather than walk?		.445
<i>Protective Behaviours</i>	.482	
Do you routinely carry something to defend yourself or alert others?		.470
Do you routinely lock windows/doors at home?		.466
Have you ever taken a self-defence course?		.461
Have you ever obtained a dog [for safety]?		.447
Do you routinely check the backseat for intruders?		.431
Have you ever installed burglar alarms/motion detectors?		.425
Have you ever installed locks/security bars?		.392

**Table B2 Principal Components Analysis**

	Eigenvalue	% Variance Explained	Factor Loadings
<i>Social Cohesion<sup>a</sup></i>	2.367	47.333%	
Using a scale of 1 to 5 where 1 means 'Cannot be trusted at all' and 5 means 'Can be trusted a lot,' how much do you trust ... people in your neighbourhood?			.738
How would you describe your sense of belonging to your local community?			.716
If you lost a wallet or purse that contained two hundred dollars, how likely is it to be returned with the money in it, if it was found ...by someone who lives close by?			.690
Would you say this neighbourhood is a place where neighbours help each other?			.652
Would you say that you know most, many, a few or none of the people in your neighbourhood?			.639
<i>Disorder<sup>b</sup></i>	4.049	50.611%	
How much of a problem is... prostitution?			.798
How much of a problem are... people being drunk or rowdy in public places?			.748
How much of a problem are... people being attacked or harassed because of their skin colour, ethnic origin or religion?			.734
How much of a problem are... people using or dealing drugs?			.695
How much of a problem is... vandalism, graffiti and other deliberate damage to property or vehicles?			.686
How much of a problem are... people hanging around on the streets?			.678
How much of a problem is... garbage or litter lying around?			.671
How much of a problem are... people sleeping on the streets or in other public places?			.670

**Table B2 Principal Components Analysis (Cont.)**

	Eigenvalue	% Variance Explained	Factor Loadings
<i>Neighbourhood Disadvantage (Level 2)<sup>c</sup></i>	3.483	69.66%	
Median Income (Logged)			-.905
Low Income (%)			.898
Renters (%)			.872
Female Headed Households (%)			.824
Unemployment Rate (%)			.648

<sup>a</sup> KMO = .767, Bartlett's Test of Sphericity:  $X^2 = 15740.648$ ,  $df = 10$ ,  $p = .000$

<sup>b</sup> KMO = .900, Bartlett's Test of Sphericity:  $X^2 = 49861.412$ ,  $df = 28$ ,  $p = .000$

<sup>c</sup> KMO = .858, Bartlett's Test of Sphericity:  $X^2 = 6421.825$ ,  $df = 10$ ,  $p = .000$