8-18-2021 10:00 AM

Factors Associated with Dating Violence Victimization among Canadians: Results from the 2014 General Social Survey

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A thesis submitted in partial fulfillment of the requirements for the Master of Science degree in Epidemiology and Biostatistics

Abstract

Dating violence victimization is prevalent among all age groups yet most literature has focused on adolescents and young adults. The present study examined dating violence victimization among Canadians aged 15 years and older. The prevalence of dating violence victimization and its associated factors, as well as the sex differences in factors associated with dating violence victimization were assessed. Data were obtained from the General Social Survey, Cycle 28, 2014 (N = 12,119). Descriptive, bivariate, and multivariable statistics were used to assess the objectives. Dating violence victimization was reported by 4.1% of the total sample, 2.9% of males, and 5.3% of females. Social neighbourhood disorder was associated with an increased odds of dating violence victimization among the total sample (OR: 1.96, 95% CI: 1.38 - 2.77) and among males (OR: 3.36, 95% CI: 2.04 - 5.52). The findings of the present study may have important implications for prevention and intervention initiatives.

Keywords

Dating violence victimization, socio-economic characteristics, neighbourhood disorder, substance use, childhood victimization, and sex differences

Summary for Lay Audience

Previous research has focused on dating violence victimization that occurs during adolescence and young adulthood. However, dating violence victimization is not solely experienced by young people. Therefore, in the present study, we aimed to look at dating violence victimization among a broader population of Canadians. Specifically, this study used information from the 2014 cycle of the General Social Survey, which had respondents from the ten provinces who were 15 years of age and older.

The study objectives were to examine the prevalence of dating violence victimization in Canada, as well as to identify important factors associated with dating violence victimization. The primary explanatory variables of interest were socio-economic characteristics and neighbourhood disorder indicators as these factors have been understudied in previous research. The other variables of interest included demographic characteristics, substance use, and childhood victimization, which have been explored in previous research. The study also assessed whether the prevalence of dating violence victimization and the factors associated with dating violence victimization were different for men and women.

Overall, it was estimated that 4.1% (95% CI: 3.8% - 4.5%) of Canadians experienced dating violence victimization in the previous 5 years, and the sex-specific results demonstrated that more women (5.3%, 95% CI: 4.7% - 5.9%) than men (2.9%, 95% CI: 2.5% - 3.3%) experienced dating violence victimization. In terms of factors associated with dating violence victimization, in unadjusted models we found that employment status, physical neighbourhood disorder and social neighbourhood disorder were the primary explanatory variables associated with dating violence victimization in the total sample. Sex, age, current marital status, heavy episodic drinking, cannabis use, illicit drug use, childhood physical assault and childhood sexual assault were also all individually associated with dating violence victimization.

In the adjusted models, social neighbourhood disorder remained associated with dating violence victimization controlling for demographic characteristics, substance use, and childhood victimization. However, when we compared factors associated with dating violence victimization for men and women, the association between social neighbourhood disorder and

dating violence victimization was significantly different. Social neighbourhood disorder was associated with dating violence victimization among men but not among women.

Acknowledgments

First and foremost, I would like to thank my supervisor, Dr. Samantha Wells for her guidance and support during the past two years. My thesis committee members, Dr. Neil Klar and Dr. Kathy Speechley must also be acknowledged for providing their expertise to this project. I would also like to extend my appreciation to my colleagues in the Department of Epidemiology and Biostatistics. Finally, I must express my profound gratitude to my parents and little brother for their continued encouragement and support in all things.

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Chapter 1

1 Introduction

Dating violence victimization is an important public health problem, which can result in significant physical and mental health consequences for those who experience it (Callahan et al., 2003; Coker et al., 2002; Goodkind et al., 2003; Taquette & Monteiro, 2019; Watkins et al., 2014).

Assessment of the factors associated with dating violence victimization has been the focus of several studies. These studies have substantiated the independent roles of demographic characteristics, substance use, and childhood victimization in explaining dating violence victimization. However, results from these studies have been limited due to the literature focusing solely on adolescents and young adults, even though all age groups are susceptible to dating violence victimization. More importantly, a knowledge gap remains with respect to some additional factors, particularly socio-economic characteristics, and neighbourhood disorder. Additionally, evidence pertaining to the sex-differences in factors associated with dating violence victimization is also limited.

The underlying aims of the present study were to assess the prevalence of dating violence victimization and the factors associated with dating violence victimization. Data for the present study were obtained from the General Social Survey, Cycle 28, 2014. Responses from 12,119 individuals were analyzed using statistical techniques including logistic regression with backward elimination procedures. The results of this study may have important implications for the development and implementation of prevention and intervention initiatives.

This thesis is presented in five chapters: (1) chapter 1 presents a brief overview of the present study; (2) chapter 2 provides a literature review and study objectives; (3) chapter 3 describes the study methodology; (4) chapter 4 reports results for the study objectives; and (5) chapter 5 discusses the main findings and conclusions.

Chapter 2

2 Literature review and objectives

2.1 Dating violence definition

Violence occurring during dating relationships was first studied by Makepeace (1981). By the end of the decade, an operational definition of dating violence was created. Sugarman and Hotaling (1989, p. 4) described it as "the use or threat of physical force or restraint carried out with the intent of causing pain or injury to another" within a dating relationship. Due to its simplicity and specificity, this definition was widely adopted in the early dating violence literature (Lewis & Fremouw, 2001; O'Keefe, 1997, 1998). However, the definition notably excluded sexual and psychological abuse (Lewis & Fremouw, 2001). Currently, a widely accepted definition of dating violence is physical, sexual, and/or psychological violence "committed by a person who is or has been in a social relationship of a romantic or intimate nature with the victim" (The United States Department of Justice, 2019, para. 2), which can take the form of harassing, stalking, or threatening behaviours (Centers for Disease Control and Prevention, 2020). The present study focuses on dating violence victimization to inform prevention and intervention efforts, and to empower those at risk. Although dating violence perpetration is important, it is not explored in this study. Moreover, studying perpetration tends to be challenging as individuals are not likely to admit to perpetrating dating violence (Shorey et al., 2012).

As mentioned above, dating violence tends to fit broadly into three categories (i.e., physical, sexual, and psychological violence) and these are exhibited in different ways and severities. Expressions of physical dating violence include hitting, biting, slapping, shoving, scratching, kicking, throwing objects, attacking with a weapon, strangling, burning, beating, as well as homicide attempts and homicides (Capaldi & Crosby, 1997; Cornelius & Resseguie, 2007; Foshee, 1996; Foshee et al., 2007; Leen et al., 2013; Rubio-Garay et al., 2017; Shorey et al., 2008). Sexual dating violence can manifest itself as (1) the use of physical force such as rape, attempted rape, and physical coercion to have sexual relations; (2) sexual abuse encompassing situations occurring under the influence of

alcohol or drugs or by diminishing the mental capacity of the victim; and (3) infringement of the victim's freedom including psychological coercion to increase the number of sexual relations, imposition of unwanted or degrading sexual behaviour and sabotage of contraceptive methods (Cornelius & Resseguie, 2007; Foshee, 1996; Foshee et al., 2007; Leen et al., 2013; Rubio-Garay et al., 2017; Shorey et al., 2008). Psychological dating violence can take the form of (1) verbal and/or dynamic manifestations of interpersonal harassment such as insults, shouting, reproaches, criticisms, threats, intimidations and coercions, humiliations, ridiculing, and provoking feelings of shame; (2) imposition of behaviours including social isolation, orders, abusive insistence, invasion of privacy, and sabotage; (3) attacks on property such as destruction or damage of properties, objects or animals valued by the victim, as well as denial or obstruction of access to money or other basic resources; and, (4) emotional manipulation of the victim through assignment of responsibility or blame, denial of the violence exercised, and questioning of the mental health of the victim (Cornelius & Resseguie, 2007; Foshee, 1996; Foshee et al., 2007; Leen et al., 2013; Rubio-Garay et al., 2017; Shorey et al., 2008). Although distinguishing among the numerous forms of violence is useful in their study, it is important to note that the distinct types of violence are interrelated and often co-occur (Pozueco et al., 2013; Rubio-Garay et al., 2017; Stets & Henderson, 1991). The present study focuses on a general assessment of dating violence victimization that includes both physical and sexual violence, while psychological violence is not explored.

2.2 Dating violence victimization prevalence

The first study exploring violent behaviour within the context of dating and courtship relationships was conducted at a university in the United States in 1979 (Makepeace, 1981). The author found that the lifetime prevalence of dating violence victimization was 21.2% among 202 university students (Makepeace, 1981).

Since that time, overwhelmingly, the dating violence literature has continued to focus on adolescents and young people as these are the individuals who tend to be in dating

relationships (Leen et al., 2013; Rubio-Garay et al., 2017). The results of studies based in Canada and the United States examining the prevalence of dating violence victimization among adolescents and young people are presented in Table 1. Epidemiological evidence indicates that the prevalence of dating violence victimization can vary greatly within this population. Overall, the range of physical dating violence victimization (previous 3 months to lifespan) extends from 0.4% to 53.7% among males, from 1.2% to 46.0% among females, and from 9.8% to 30.7% among a general sample of adolescents and young people. Additionally, the range of sexual dating violence victimization (previous 12 months to lifespan) extends from 0.3% to 9.4% among males, from 1.5% to 32.9% among females, and from 7.4% to 13.2% among a general sample of adolescents and young people. Prevalence estimates of dating violence victimization can differ due to a number of issues, including the data collection approach and participants sampled and the measures used, including the type, definition, assessment and reporting period for dating violence victimization (Smith et al., 2002; Teten et al., 2009). Despite the variation in estimates, it is apparent that many men and women are victims of dating violence.

There is an apparent lack of research on the prevalence of dating violence victimization among the general population. Data from police-reported violent crime in Canada demonstrated that 408 per 100,000 persons experienced dating violence victimization among 15- to 89-year-olds in 2011 (Sinha, 2013). However, many incidents of dating violence are not reported by the victim (Grossman & Lundy, 2007; Rothman & Xuan, 2014).

Table 1. Results of studies reporting proportions of dating violence victimization

Study	Country	Period	Findings
(Cyr et al., 2006)	Canada	Lifetime	45.2% of 126 female respondents (aged 13 to 17 years old) reported physical violence in dating relationships.
(Collin-Vézina et al., 2006)	Canada	Previous 12 months	46.0% and 32.9% of 220 female respondents (aged 12 to 18 years old) reported physical and sexual dating violence victimization, respectively.
(Olshen et al., 2007)	United States	Previous 12 months	9.5% of males and 10.6% of females among 8,080 respondents (aged 14 to 17 years old) reported physical dating violence victimization, while 5.4% of males and 9.6% of females among the sample reported sexual dating violence victimization.
(Marquart et al., 2007)	United States	Lifetime	15.8% of 20,274 10^{th} to 12^{th} grade youth reported experiencing physical violence in dating relationships.
(Howard et al., 2007a)	United States	Lifetime	4.8% of males and 10.3% of females among 13,767 9^{th} to 12^{th} grade youth reported sexual dating violence victimization.
(Howard et al., 2007b)	United States	Previous 12 months	10.3% of 7,179 female respondents (aged 14 to 17 years old) reported physical violence in dating relationships.
(Howard et al., 2008)	United States	Previous 12 months	10.0% of 6,528 9^{th} to 12^{th} grade male youth reported physical violence in dating relationships.

Table 1. (Continued)

Study	Country	Period	Findings
(Wolitzky-Taylor et al., 2008)	United States	Lifetime	0.4% of males and 1.2% of females among 3,614 respondents (aged 12 to 17 years old) reported physical dating violence victimization, while 0.3% of males and 1.5% of females among the sample reported sexual dating violence victimization.
(Swahn et al., 2008)	United States	Previous 12 months	32.6% of males and 28.8% of females among 2,888 respondents (aged 12 to 17 years old) reported physical violence in dating relationships. Overall, 30.7% of the sample reported physical violence in dating relationships.
(Eaton et al., 2008)	United States	Previous 12 months	11.0% of males and 8.8% of females among 14,103 respondents (aged 14 to 18 years old) reported physical dating violence victimization, while 4.5% of males and 11.3% of females among the sample reported sexual dating violence victimization. Overall, 9.9% and 7.8% of the sample reported physical and sexual dating violence victimization, respectively.
(Banyard & Cross, 2008)	United States	Lifetime	17.1% of males and 16.8% of females among 2,101 respondents (aged 12 to 17 years old) reported physical dating violence victimization, while 9.4% of males and 16.8% of females among the sample reported sexual dating violence victimization. Overall, 16.9% and 13.2% of the sample reported physical and sexual dating violence victimization, respectively.

Table 1. (Continued)

Study	Country	Period	Findings
(O'Leary et al., 2008)	United States	Lifetime	31.0% of males and 30.0% of females among 2,363 respondents (aged 14 to 20 years old) reported physical violence in dating relationships.
(Tschann et al., 2009)	United States	N/A	33.0% of males and 22.0% of females among 150 respondents (aged 16 to 20 years old) reported being physically victimized by their most recent dating partner. Overall, 27.0% of the sample reported being physically victimized by their most recent dating partner.
(Simon et al., 2010)	United States	Previous 3 months	53.7% of males and 27.4% of females among 5,404 6th grade youth reported experiencing physical violence in their dating relationships.
(Eaton et al., 2010)	United States	Previous 12 months	10.3% of males and 9.3% of females among 16,460 respondents (aged 14 to 18 years old) reported physical dating violence victimization, while 4.5% of males and 10.5% of females among the sample reported sexual dating violence victimization. Overall, 9.8% and 7.4% of the sample reported physical and sexual dating violence victimization, respectively.
(Zweig et al., 2013)	United States	Previous 12 months	35.9% of males and 23.9% of females among 5,647 7th to 12th grade youth reported physical violence in dating relationships, while 8.8% of males and 16.4% of females among the sample reported sexual dating violence.

2.3 Consequences of dating violence victimization

Dating violence victimization is an important public health problem, which results in considerable mental and physical health consequences, making the study of its risk factors important. Victims of dating violence tend to report more mental health problems than non-victims (Goodkind et al., 2003). Specifically, victims are more likely to report anxiety (Callahan et al., 2003) and depression (Golding, 1999), relative to non-victims. Exner-Cortens et al. (2013) found that in a sample of U.S. high school and middle school students, participants who experienced dating violence victimization reported increased depressive symptomatology, suicidal ideation and antisocial behaviours compared with participants reporting no victimization. These findings are in line with the results of a recent systematic review of the causes and consequences of dating violence, which also determined that dating violence victimization is associated with various mental health problems such as depression, anxiety, and low self-esteem (Taquette & Monteiro, 2019).

There are also numerous physical health consequences associated with dating violence victimization. The actual physical injuries directly caused by the violence can include bruises, cuts, scrapes, abrasions, swelling, bleeding, redness, broken bones and loss of consciousness (Capaldi et al., 2009). Additionally, in a U.S. study, Coker et al. (2002) found that somatic mental health symptoms, which are the physical health symptoms that often accompany mental health problems, are commonly connected to dating violence victimization. Somatic mental health symptoms can include changes in weight, upset stomachs, headaches, and nervousness or dizziness (Coker et al., 2002).

Moreover, the stress of living with the perpetual danger of violence can also result in long-term physical health problems (Watkins et al., 2014). Black (2003) concluded that stressors, such as dating violence, can activate the hypothalamic pituitary adrenal axis and sympathetic nervous system to deal with a pertinent threat. Prolonged activation of these systems can result in various adverse consequences such as impaired immune functioning (Segerstrom & Miller, 2004), elevated risks for infectious diseases, autoimmune diseases,

coronary artery diseases and some cancers (Cohen et al., 2007), and decelerated healing of wounds (Glaser & Kiecolt-Glaser, 2005).

2.4 Factors associated with dating violence victimization

The term "equifinality" has been used to describe a phenomenon in which numerous factors contribute to the same outcome – that is, when the same end state is attained from a diverse array of initial conditions and through differing processes (Cicchetti & Rogosch, 1996). Equifinality has been used in the literature to describe dating violence, given that multiple pathways can lead to victimization (Yarkovsky, 2011). A large body of literature has focused on the associations of dating violence victimization with demographic characteristics, substance use, and childhood victimization, hence these factors serve as control variables within the present study. However, relatively less is known regarding the associations between other factors and dating violence victimization including socio-economic characteristics and neighbourhood disorder. Therefore, socio-economic characteristics and neighbourhood disorder indicators constitute the primary explanatory variables of interest within the present study.

2.4.1 Primary explanatory variables

2.4.1.1 Socio-economic characteristics

There is a scarcity in the literature regarding assessments of the association between income and dating violence victimization. However, a U.S. study on high school students found that having a "poor" living standard within the family resulted in higher odds (OR: 11.52, 95% CI: 4.55 - 29.16) of dating violence victimization, relative to being "very comfortable" (Sanderson et al., 2004). Fedina et al. (2016) suggest that impoverished individuals may be more susceptible to dating violence victimization based on the findings that all types of violence (including dating violence) are more prevalent in low-income communities compared to advantaged, high-resourced neighbourhoods.

Pertinent literature on the association between education and dating violence victimization presents mixed findings from a limited number of studies. Studies such as the one conducted by Temple and Freeman (2010) found that parents' education ($\chi^2(3)=2.7$, $p>.05$) was not associated with dating violence victimization among high school students in a U.S study. However, another U.S study of high school students found that parental education was significantly negatively associated with dating violence victimization ($\beta=-.15$, $p<.05$) (Foshee et al., 2008). Foshee et al. (2008) explained that adolescents, whose parents had low levels of education, were more accepting of dating abuse, held more traditional gender stereotypes, and were exposed to more family violence than those whose parents had higher levels of education.

There is a lack of consensus on employment status and dating violence victimization within the literature. Spriggs et al. (2009) found that among high school and middle school students in the U.S., having an unemployed parent (defined as not currently working for pay and seeking paid employment) was not significantly associated with dating violence victimization. Conversely, Lehrer et al. (2010) reported that among Chilean college women, maternal employment was associated with a substantially lower risk of dating violence victimization (OR: 0.28, 95% CI: 0.11 - 0.70) in comparison to the women whose mothers were unemployed. Supportive of this finding, Ex and Janssens (1998) found maternal employment to be linked to daughters' adoption of less traditional sex role attitudes and more egalitarian gender role attitudes; thereby, making them less susceptible to dating violence victimization.

2.4.1.2 Neighbourhood disorder

Neighbourhood disorder refers to neighbourhoods with noticeably elevated levels of social disorder (violent crime and other deviant or illegal behaviour, such as public use and sale of drugs, and prostitution) and physical disorder (abandoned buildings, graffiti, and rodents) (Ross & Mirowsky, 1999). There is a lack of consensus on the relationship between neighbourhood conditions and dating violence victimization within the literature. In the U.S., a study examining dating violence and neighbourhood life found that community violence was associated with a higher odds of dating violence victimization

(OR: 1.29, p<.05) in comparison no community violence (Malik et al., 1997). Moreover, Champion et al. (2008) found a negative correlation between neighbourhood organization and dating violence victimization (r=-.11, p<.01). However, a recent systematic review conducted by Johnson et al. (2015) found that most studies looking at dating violence victimization and neighbourhood disorder did not find a significant association (East et al., 2010; Jain et al., 2010; Li et al., 2010).

A widely accepted explanation for the connection between neighbourhood conditions and dating violence victimization is social disorganization theory, which highlights crime in a community context and suggests that contextual factors influence criminological outcomes such as dating violence (Pinchevsky & Wright, 2012). The theory posits that macro-level characteristics (such as neighbourhood disorder) may impact violence between dating partners, and various mechanisms have been proposed for this association (Pinchevsky & Wright, 2012). For example, it has been suggested that higher levels of disorder in neighbourhoods may reduce and prevent social ties among residents, possibly increasing victims' vulnerability to violence from their dating partners (Stets, 1991). A similar argument is that elevated levels of neighbourhood crime and disorder may enable alienation and promote social isolation among residents, thereby hindering the spread of conventional values against dating violence (Warner, 2003; Wright & Benson, 2010). Additionally, it has also been suggested that high neighbourhood disorder may create or exacerbate stress among dating couples, which may result in more instances of violence erupting within the relationship (Ross & Mirowsky, 2009; Wright & Benson, 2010).

2.4.2 Control variables

2.4.2.1 Demographic characteristics

2.4.2.1.1 Sex

Evidence indicates that sex is an important factor related to dating violence victimization, in that women have more experiences of dating violence victimization compared to men. For example, data from police-reported violent crime in Canada demonstrated that in 2011 the prevalence of dating violence victimization among female victims was much higher at

631 per 100,000 persons compared to male victims at 172 per 100,000 persons, among 15- to 89-year-olds (Sinha, 2013). Additionally, it has been demonstrated that both the short- and long-term health consequences of dating violence victimization are more frequent and severe for women than for men (Barros & Schraiber, 2017; Exner-Cortens et al., 2013).

Sex inequality is a major theme in the dating violence literature as dating violence is most often perpetrated by men toward women (Dobash et al., 1992; Taquette & Monteiro, 2019). In some patriarchal cultures, violence is normalized in dating relationships because of social roles adopted by men and women resulting in a power difference; namely, men are socialized to be domineering while women are taught to be dominated (Barros & Schraiber, 2017). Violence perpetrated by men against women in these domination-based dating relationships may be explained by men's natural aggression and strength, serving as an excuse for the behaviour, thereby making it acceptable for men to perpetuate these behaviours against the women they are in dating relationships with (Taquette & Monteiro, 2019).

2.4.2.1.2 Age

Unlike sex, the association between age and dating violence is not as well researched. Prior studies have mainly focused on dating violence among adolescents and young people given that they are most likely to be in dating relationships (Leen et al., 2013; Rubio-Garay et al., 2017). Since dating violence among young people has been at the forefront of the literature, extensive research has been done on the trajectory of dating violence from adolescence into emerging adulthood, that is from age 12 to 25 years (Arnett, 2015). This phase of development represents a period of heightened vulnerability to dating violence victimization due to poor judgement in selecting dating partners (Johnson et al., 2014). Additionally, during the developmental period, Orpinas et al. (2012) found that a significant proportion (about 14.8% to 37.8%) of U.S. adolescents have reported experiencing dating violence victimization.

Despite most dating violence literature centering around young people, it is important to note that all age groups are susceptible to dating violence victimization (Sinha, 2013). From

2004 to 2008, there was a steady growth in the rates of police reported dating violence for victims across all age groups in Canada (Mahony, 2010). In fact, in 2011, police data demonstrated that Canadians aged 25 to 34 years and 35 to 44 years experienced the highest overall rates of dating violence per 100,000 persons (Sinha, 2013). The high prevalence of dating violence victimization among older age groups may be attributed to individuals choosing to get married at older ages (Willoughby et al., 2012), thereby extending the time they spend in dating relationships, possibly increasing their risk of dating violence victimization.

2.4.2.1.3 Ethnicity

Research on the relationship between ethnicity and dating violence victimization is somewhat mixed. In the United States, a study found that individuals belonging to a racialized group were less likely to experience dating violence (Gover, 2004) and another study did not find an association between being a racialized individual and dating violence victimization (Halpern et al., 2001). However, other research indicates that belonging to a racialized group was associated with a greater risk of experiencing violence. For instance, in a nationally representative sample of U.S. high school students, investigators found that Black students (OR: 2.05, 95% CI: 1.40 - 3.01) and Hispanic students (OR: 1.59, 95% CI: 0.92 - 2.76) had increased odds of dating violence victimization in comparison to White students (Howard & Wang, 2003). Similarly, research conducted in the United States found that Latina students (Decker et al., 2007; Ramos et al., 2010) and Asian students (Chung-Do & Goebert, 2009) were particularly vulnerable to dating violence victimization compared to White students.

Although research has identified higher prevalence rates of dating violence victimization specifically among various racial and ethnic groups, the explanations for these disproportionate rates are complex and understudied (Fedina et al., 2016). The empirical literature suggests that concentrated disadvantage (such as high rates of poverty, single-parent-households, unemployment, and neighbourhood instability) may explain the higher rates of dating violence in racial and ethnic minority communities (Pinchevsky & Wright, 2012). Those living in disadvantaged areas, with higher proportions of racialized residents,

are more vulnerable to dating violence victimization as all forms of violence are more prevalent in these areas compared to advantaged areas with lower proportions of racialized residents (Pinchevsky & Wright, 2012).

Additionally, experiencing ethnic discrimination may be associated with an increased risk of dating violence victimization. Sanderson et al. (2004) found that among Hispanic or Latino high school students in the United States, there was a statistically significant relation between ethnic discrimination and reported dating violence victimization. Individuals who experience ethnic discrimination may be more susceptible to dating violence victimization due to a lack of social or emotional support from those around them (Sanderson et al., 2004).

2.4.2.1.4 Current marital status

No studies were found that examined the relationship between current marital status and dating violence; however, previous research has focused on parental marital status. For example, one U.S. study conducted in the early 1990s found a significant negative correlation ($r=-.11$, $p<.05$) between a participant's parents still being married and experiencing dating violence victimization (Tontodonato & Crew, 1992). However, more recent studies revealed no statistically significant association between parental marital status and dating violence (Erickson et al., 2010; Moagi-Gulubane, 2010).

Tontodonato and Crew (1992) speculated that those whose parents were still married were less likely to experience dating violence victimization compared to those whose parents were not married because those whose parents' marriage had dissolved perhaps experienced higher levels of stress. Stress may explain the process by which parental marital status relate to dating violence victimization because this stress may weaken an individual's ability to resist or deter victimization (Brooks-Russell et al., 2012).

The current study did not examine parental marital status. Given that no studies were found on current marital status and dating violence, we can only speculate that people who are married at the time of the study will be less likely to experience dating violence since they are not in a dating relationship. Additionally, it is possible that individuals who are single

or who experienced a union dissolution are more likely to experience dating violence victimization related to their propensity for involvement in dating relationships (Schimmele & Wu, 2016).

2.4.2.2 Substance use

Within the literature, the relationship between dating violence victimization and alcohol use has been well established. For instance, studies in the U.S. have found youth who consumed alcohol (Brooks-Russell et al., 2012) or engaged in binge drinking (Temple & Freeman, 2010) were more likely to experience dating violence victimization compared to youth who did not drink or binge drink, respectively. Additionally, data from over 25,000 U.S. high school students revealed that those who reported frequent recent alcohol use were at increased odds of experiencing physical (OR: 2.80, $p<.01$) and verbal (OR: 2.63, $p<.01$) dating violence victimization, relative to students who reported little or no alcohol use (Parker et al., 2016). Additionally, in a prospective study of U.S. female college students, investigators found that as the number of alcoholic drinks consumed increased, women were more likely to experience physical and sexual dating violence victimization (Shorey et al., 2016).

Unlike alcohol use, the association between cannabis use and dating violence victimization has been less consistent. For example, one study of more than 2,500 middle and high school students in the U.S. did not find that marijuana was associated with vulnerability to physical dating violence throughout adolescence (Brooks-Russell et al., 2012). However, another U.S. study found youth who used marijuana were more likely to experience dating violence victimization, compared to their counterparts who did not use marijuana (Temple & Freeman, 2010). More recently, a study of 25,000 U.S. high school students found that those who reported frequent recent marijuana use were at increased odds of experiencing physical (OR: 2.03, $p<.01$) or verbal (OR: 2.20, $p<.01$) dating violence victimization, relative to students who reported little or no marijuana use (Parker et al., 2016). Also, a prospective U.S. study of female college students found that marijuana use preceded and increased the odds of sexual dating violence victimization (Shorey et al., 2016).

Fewer studies have examined whether the use of substances other than alcohol and cannabis is associated with dating violence victimization. In a sample of U.S. university students, DuRant et al. (2007) found that illicit drug use (including the use of ecstasy, heroin, hallucinogens, downers, ludes, and/or prescription drugs without a prescription) was associated with higher odds (OR: 2.04, 95% CI: 1.41 - 2.96) of dating violence victimization compared to no illicit drug use. Similarly, Howard et al. (2008) found that among female U.S. high school students, those who used cocaine and/or inhalants had higher odds (OR: 2.30, 95% CI: 1.84 - 2.86) of experiencing dating violence victimization, compared to those who did not use cocaine and/or inhalants.

Although previous research suggests a link between substance use and dating violence victimization, the mechanisms underlying these associations are not yet well understood (Parker et al., 2016). One explanation stems from lifestyle and routine activity theories, which take into account how lifestyle and daily activities expose individuals to a risk of victimization (Mele, 2009). Lifestyle theory posits that one's lifestyle (e.g., substance use behaviour) results in situational and environmental factors that generate opportunities for exposure to dating violence victimization (Fattah, 1993). Routine activity theory posits that the risk of violence is increased when there is a union in time and space of suitable targets, determined offenders, and the lack of capable guardians (Mele, 2009). Parker et al. (2016) suggest that it may be the case that individuals who participate in substance use are more likely to associate with deviant peers, a situational factor that may increase contact between victims and perpetrators of dating violence, thereby increasing the likelihood of the occurrence of dating violence victimization. The physiological effects of substances may also explain the association between substance use and dating violence victimization, as substance use causes impairment and decreases an individual's ability to recognize risk and defend themselves from victimization (Parker & Bradshaw, 2015).

2.4.2.3 Childhood victimization

In general, the relationship between early childhood victimization and dating violence victimization later in life has been well established. A Canadian study on dating violence victimization experienced by adolescents found that exposure to childhood sexual abuse

was correlated to dating violence victimization (β=.14, p<.05) (Cyr et al., 2006). Similarly, a U.S. study by Tomsich et al. (2015) determined that childhood physical maltreatment corresponded to higher odds of dating violence victimization (OR: 1.35, 95% CI: 1.18 - 1.55) in comparison to no childhood physical maltreatment. In a study exploring the relationship between adolescents' experience of family violence and dating violence in Canada, the authors also concluded that adolescents carry negative childhood experiences of family violence into their dating relationships (Laporte et al., 2009).

Various theoretical models can explain why childhood victimization may result in an elevated vulnerability to dating violence victimization. For instance, social learning theory posits that children learn how to engage with other people by observing the interactions among their family members (Bandura, 1977; Bandura, 1978). Therefore, individuals raised in environments involving violence tend to rationalize violence as normal behaviour in their relationships, including their dating relationships. Another explanation for this association comes from the life course theory, which posits that the ability of an individual to make personal choices about the trajectory of their life happens within the boundaries of social circumstances and history (Elder, 1997). Since early abuse can interrupt personal agency development and social support network formation, those who become victimized in childhood may not have the required personal resources to deal with the stresses of their childhood trauma (Tyler et al., 2008). Due to the lack of these personal resources, these individuals continue on trajectories marked by being a victim, such as a victim of dating violence.

2.4.3 Theorectical conceptualization

The theoretical conceptualization of the present study is presented in Figure 1. The factors associated with dating violence victimization are broadly organized in five domains: socio-economic characteristics, neighbourhood disorder, demographic characteristics, substance use, and childhood victimization. As stated before, socio-economic characteristics and neighbourhood disorder indicators are the primary variables of interest because of the lack of research regarding their associations with dating violence victimization. Demographic characteristics, substance use measures and childhood victimization indicators are the control variables as their associations with dating violence victimization has previously been established in the literature.

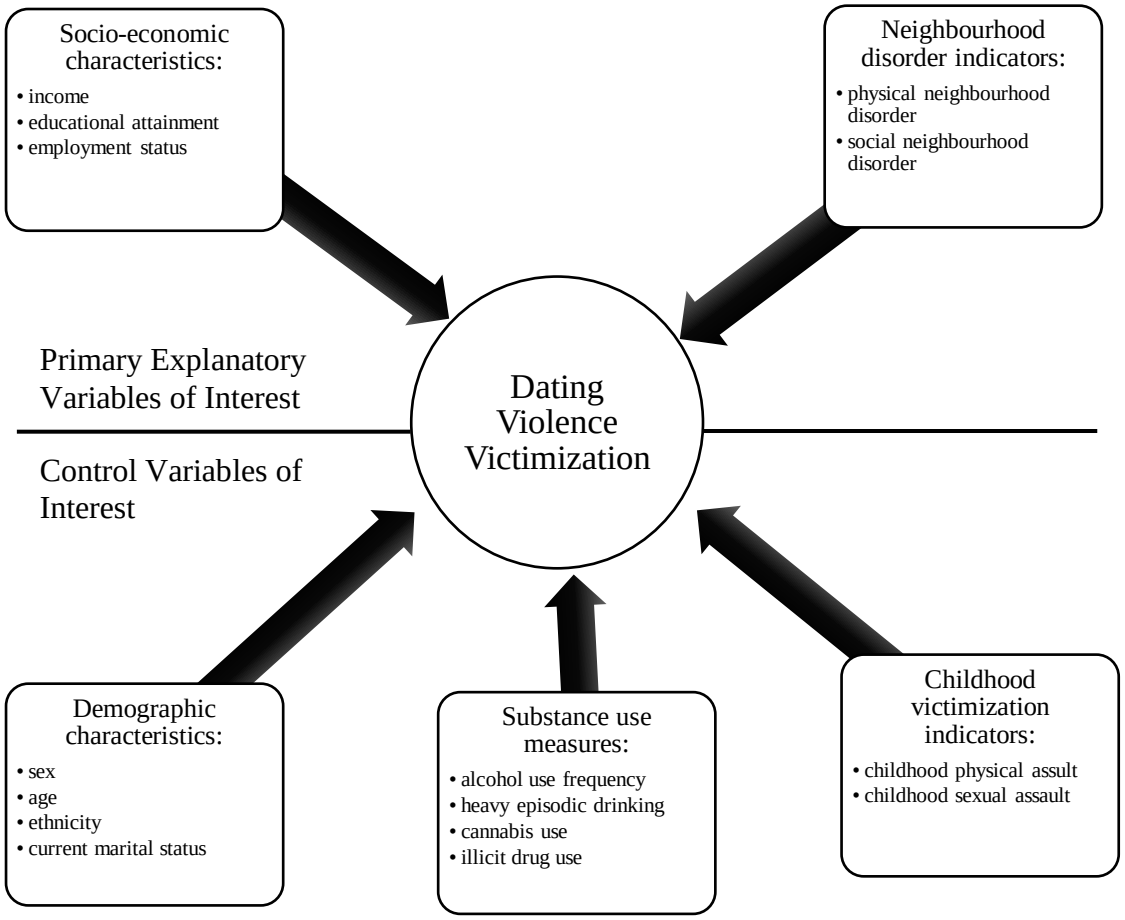

Figure 1. Theoretical conceptualization of dating violence victimization

2.5 Limitations of existing research

Previous research on dating violence victimization has several limitations despite the breadth of studies already in the literature. To begin with, most studies report the prevalence of dating violence victimization for both males and females. However, studies that focus on factors associated with dating violence victimization rarely examine sex differences in these associations (Kaura & Lohman, 2007). This appears to be an important gap in the literature given that the experiences of dating violence victimization may be different for males and females, and thus, the variables that explain dating violence victimization among them may also be sex specific (O'Keefe & Treister, 1998; Wolitzky-Taylor et al., 2008). Therefore, to address this gap in the literature, the present study will determine whether the factors associated with dating violence victimization differ in terms of sex.

Moreover, another shortcoming of the literature concerns age. Despite dating violence victimization occurring at all stages of life, the majority of the research published to date has focused on adolescents and young adults (Mahony, 2010). By extension of the age limitation, there are several factors (i.e., income, education, employment, and current marital status) of dating violence victimization for which there is little to no research as these factors tend to be homogenous among the young age group. To gain an understanding of dating violence victimization in the general population, the present study will include participants that are aged 15 years and older, which would allow for the inclusion of the various understudied factors of dating violence victimization (i.e., income, education, employment, and current marital status).

2.6 Thesis objectives

The overarching aim of the present study is to assess dating violence victimization in a national, cross-sectional sample of Canadians. The specific objectives of the thesis project are as follows,

Objective 1: To estimate the prevalence of dating violence victimization in a national sample of Canadians (aged 15 years and older).

Objective 1.1: To estimate the proportion of Canadians reporting dating violence victimization during the past 5 years.

Objective 1.2: To characterize objective 1.1 further by sex.

Objective 2: To identify factors associated with dating violence victimization in a national sample of Canadians (aged 15 years and older) for the total sample, and for males and females.

Objective 2.1: To quantify unadjusted associations of dating violence victimization with each of socio-economic characteristics, neighbourhood disorder, demographic characteristics, substance use and childhood victimization among Canadians for the total sample and for males and females.

Objective 2.2: To quantify adjusted associations of violence victimization with socio-economic characteristics and neighbourhood disorder while controlling for demographic characteristics, substance use and childhood victimization among Canadians for the total sample and for males and females.

Objective 2.3: To test for effect modification of sex by socio-economic characteristics, neighbourhood disorder, demographic characteristics, substance use and childhood victimization in models explaining dating violence victimization among Canadians.

Chapter 3

3 Methods

3.1 Data source and study design

Data used in the present study were collected in 2014 by Statistics Canada for Cycle 28 of the General Social Survey, which focused on Canadians' safety and security. The survey was established in 1985 and is an ongoing national survey. The General Social Survey is known for its yearly collection of cross-sectional data that allows for the tracking of trends, as well as the testing and development of new concepts to address present and emerging issues (Sauvé, 2016).

The primary objectives of the survey are to (1) collect information on social trends to track changes in the living conditions and well-being of Canadians over time, and (2) provide data on social policy issues of present or emerging interest (Statistics Canada, 2016). To achieve these objectives, the data collected by the survey were organized into two components within the questionnaire: classification and core content (Sauvé, 2016). Classification variables provided the means of describing the population, such as age, sex, education, and income; whereas core content variables obtained information that monitored social trends or changes in society related to living conditions or well-being (Sauvé, 2016). In Cycle 28 of the General Social Survey, the core content focused on victimization.

3.1.1 Target population

The target population of the survey included individuals 15 years of age and older residing in private households within the ten provinces of Canada, excluding those who were full-time residents of institutions.

3.1.2 Sampling strategy

The survey used a sample drawn from Statistics Canada's telephone sample frame. The frame combined landline and cellular telephone numbers from the census and various

administrative sources available to Statistics Canada. The addition of the cellular-only households to the frame was essential since this population constituted a constantly growing portion of the population and coverage had been steadily declining with the previous frame of landline-only households (Sauvé, 2016). The new sampling frame allowed for better coverage of households with a telephone number.

All eligible subjects in the ten provinces were contacted and interviewed by telephone. Therefore, households without an associated telephone number were excluded, which was justifiable as the proportion of households without any phone services was estimated at 1% in 2013 (Statistics Canada, 2016).

The survey had a complex design, with stratification of the ten provinces into 27 strata or geographic areas. Groups of one or more telephone numbers associated with the same address were combined in a record. In the case where a link between a telephone number and an address could not be established, a singular telephone number was classified as a record. All records were assigned to a stratum. The complex design of the survey also included multiple stages of selection. An individual household was selected using a simple random sample without replacement of the records in each stratum. A person within each household was then randomly selected to be interviewed.

3.1.3 Data collection procedures

Computer assisted telephone interviewing (CATI) was used to collect data for Cycle 28 of the General Social Survey. Respondents were interviewed in the official language of their choice (i.e., English, or French). Proxy interviews were not permitted.

All interviewing took place using centralized facilities in Statistics Canada's regional offices, with calls being made from 9:00 a.m. to 9:30 p.m. Mondays to Fridays and from 9:00 a.m. to 9:00 p.m. Saturdays to Sundays. Interviewers were trained by Statistics Canada staff in telephone interviewing techniques using CATI, as well as in survey concepts and procedures. Most interviewers had experience interviewing for previous survey cycles.

Interviewers were instructed to make all reasonable attempts to obtain a completed interview with the randomly selected member of the household. Those who initially refused to participate were re-contacted up to two more times to explain the importance of the survey and to encourage their participation. For cases in which the timing of the interviewer's call was inconvenient, an appointment was arranged to call back at a more convenient time. For cases in which there was no one home, numerous call backs were made.

Data for Cycle 28 of the General Social Survey were collected from January 2nd, 2014, to December 31st, 2014. The total sample was divided into four non-overlapping waves of collection, each lasting three months. At the beginning of a wave, the sample for that wave was sent to the regional offices. Collection was completed over the three-month period and the process for the next wave would start at the beginning of the following month. This process was repeated four times.

3.1.4 Data capture procedures

Using CATI, responses to survey questions were entered directly into computers by the interviewers. The CATI data capture program allowed a valid range of codes for each question, had built-in edits, and automatically followed the flow of the questionnaire. The survey collected a large amount of information for each selected respondent as well as some information about each member of the respondent's household.

3.1.5 Response rate

62,674 Canadians were approached to participate in the study. Among these eligible subjects, 33,127 usable responses were obtained, providing an overall response rate of 52.9%. Some survey respondents were removed from the Public Use Microdata File for confidentiality reasons. The Public Use Microdata File of the General Social Survey, Cycle 28, 2014 contained questionnaire responses and associated information from 33,089 respondents. For each province, minimum sample sizes were determined to ensure certain estimates would have acceptable sampling variability at the stratum level. Once these stratum sample size targets had been met, the remaining sample was allocated to the strata

in a way that balanced the need for precision of both national-level and stratum-level estimates.

3.2 Inclusion Criteria

Participants were included in the sample if they met the following inclusion criteria: (1) the participant was not married or living common-law for the past 5 years or longer, and (2) the participant dated in the past 5 years.

3.3 Measures

A detailed description of the variables (outcome, primary explanatory and control variables) and how they were measured and coded is provided below.

3.3.1 Outcome variable

3.3.1.1 Dating violence victimization

Two questionnaire items for dating violence victimization were used to capture the outcome variable. The first question asked: “In the past 5 years, have you experienced physical violence by someone you were dating?” with yes or no as response options. The second question was: “In the past 5 years, have you experienced sexual violence by someone you were dating?” Respondents also answered either yes or no. These two variables were combined into a single variable within the Public Use Microdata File of the General Social Survey, Cycle 28, 2014 to ensure that no individual could be directly or indirectly identified. It was reported as a dichotomous variable with response options: (1) “experienced physical and/or sexual violence by a dating partner” and (2) “did not experience physical and/or sexual violence by a dating partner.”

3.3.2 Primary explanatory variables

The primary variables of interest were socio-economic characteristics (i.e., educational attainment and employment status) and neighbourhood disorder indicators (i.e., physical neighbourhood disorder and social neighbourhood disorder).

3.3.2.1 Socio-economic characteristics

3.3.2.1.1 Educational attainment

Educational attainment was measured through a single-item question: “What is the highest certificate, diploma or degree that you have completed?” It was reported as a categorical variable with seven response options: (1) less than high school diploma or its equivalent, (2) high school diploma/high school equivalency certificate, (3) trade certificate or diploma, (4) college, CEGEP/other non-university certificate or diploma, (5) university certificate or diploma below the bachelor's level, (6) bachelor's degree (e.g., B.A., B.Sc., LL.B.), and (7) university certificate, diploma/degree above bachelor's. To ensure sufficient cell counts and to align with the way this variable has been categorized in previous research using the General Social Survey (e.g., Turcotte, 2011), the categories were collapsed as follows: (1) high school diploma or less, (2) college or trade school diploma, and (3) university degree. The “high school or less” category included those who selected the response options: less than high school diploma or its equivalent, and high school diploma or high school equivalency certificate. The “college or trade school diploma” level consisted of the response options: trade certificate or diploma, college, CEGEP/other non-university certificate or diploma, and university certificate or diploma below the bachelor's level. Finally, the “university degree” category was composed of individuals who obtained a bachelor's degree, or university certificate, diploma/degree above a bachelor's degree.

3.3.2.1.2 Employment status

Respondents were asked to indicate their employment status through a question on main activity, “During the past 12 months, was your main activity working at a paid job or business, looking for paid work, going to school, caring for children, household work,

retired or something else?" It was reported as a categorical variable: (1) working at a paid job or business, (2) looking for paid work, (3) going to school, (4) caring for children, (5) household work, (6) retired, (7) maternity/paternity or parental leave, (8) long term illness, (9) volunteering or care-giving other than for children, or (10) other. The categories were collapsed to ensure that there was sufficient cell count, as follows: (1) unemployed, looking for paid work, (2) unemployed, not looking for paid work, and (3) employed. The "unemployed, looking for paid work" included those who selected the response option: looking for paid work. The "unemployed, not looking for paid work" level consisted of the response options: going to school, caring for children, household work, retired, long term illness, volunteering or care-giving other than for children, and other. Lastly, the "employed" category was composed of individuals who stated they were working at a paid job or business or were on maternity/paternity or parental leave.

Notably, while income was considered an important socio-economic characteristic, the measure of income in Cycle 28 of the General Social Survey had a high rate of missingness (i.e., >10%) and was therefore not used in the present study.

3.3.2.2 Neighbourhood disorder indicators

In this study, physical and social neighbourhood disorder were explored as two distinct constructs. From a theoretical perspective, these two types of neighbourhood disorder are different in that physical neighbourhood disorder provides unmistakable visual cues to the users of the space, whereas social neighbourhood disorder involves an individual's value judgement (Yang, 2014). Therefore, physical and social neighbourhood disorder may have differential effects on residents' perception about the neighbourhood disorder problem (Hinkle & Yang, 2014). As such, researchers of neighbourhood disorder recommend examining physical and social neighbourhood disorder separately (Yang, 2014).

3.3.2.2.1 Physical neighbourhood disorder

Physical neighbourhood disorder was assessed using the question, "In your neighbourhood, how much of a problem is vandalism, graffiti and other deliberate damage to property or vehicles?" It was reported as an ordinal variable with response options: (1) a big problem,

(2) a moderate problem, (3) a small problem, and (4) not a problem at all. The categories were collapsed to ensure each category had an adequate number of cases, as follows: (1) a big or moderate problem, and (2) a small problem or not a problem at all.

3.3.2.2.2 Social neighbourhood disorder

Social neighbourhood disorder was measured by asking respondents, "In your neighbourhood, how much of a problem are people using or dealing drugs?" Responses to this question included (1) a big problem, (2) a moderate problem, (3) a small problem, and (4) not a problem at all. The categories were collapsed to ensure that there was sufficient cell count in the same manner as the physical neighbourhood disorder variable, as follows: (1) a big or moderate problem, and (2) a small problem or not a problem at all.

3.3.3 Control variables

The control variables were demographic characteristics (i.e., sex, age, ethnicity, and current marital status), substance use measures (i.e., alcohol use frequency, heavy episodic drinking, cannabis use, and illicit drug use), as well as childhood victimization indicators (i.e., physical childhood assault, and sexual childhood assault).

3.3.3.1 Demographic characteristics

3.3.3.1.1 Sex

Sex was measured through a single-item question: "What is your sex?" It was reported as a dichotomous variable with options: (1) female and (2) male.

3.3.3.1.2 Age

Age was assessed in the questionnaire by asking respondents "What is your age?" This variable was reported in years as an ordinal variable in 10-year increments with seven response options: (1) 15 to 24 years, (2) 25 to 34 years, (3) 35 to 44 years, (4) 45 to 54 years, (5) 55 to 64 years, (6) 65 to 74 years, and (7) 75 years and older. To ensure sufficient cell counts and to align with the way this variable has been coded in previous research using the General Social Survey (e.g., Turcotte, 2011), we collapsed the categories as

follows: (1) 15 to 24 years, (2) 25 to 34 years, (3) 35 to 44 years, (4) 45 to 54 years, and (5) 55 years and older.

3.3.3.1.3 Ethnicity

Respondents were asked to indicate their ethnicity through the question, "You may belong to one or more racial or cultural groups on the following list. Are you …?" Respondents were able to select up to four responses from the following categories, which included (1) White, (2) South Asian (e.g., East Indian, Pakistani, Sri Lankan), (3) Chinese, (4) Black, (5) Filipino, (6) Latin American, (7) Arab, (8) Southeast Asian (e.g., Vietnamese, Cambodian, Malaysian, Laotian), (9) West Asian (e.g., Iranian, Afghan), (10) Korean, (11) Japanese, and (12) Other. In the Public Use Microdata File of the General Social Survey, Cycle 28, 2014, ethnicity was re-categorized to ensure that no individual could be directly or indirectly identified. It was reported as a dichotomous variable with options: (1) visible minority and (2) not a visible minority. As per Statistics Canada (2015), the "not a visible minority" category includes single origin White, and multiple origin White/Latin American and White/Arab-West Asian, while the remaining respondents of single origin or multiple origin combinations are categorized as a "visible minority." There is significant debate about the use of the term "visible minority" because "visible" is used to denote the difference in skin tone, and the word "minority" to denote numerical smallness or weakness in power relations (Pendakur, 2005). The term "racialized" is preferred because it acknowledges that the barriers faced are rooted in the historical and contemporary racial prejudice of society (Bauer et al., 2020). Hence, in this study, ethnicity was reported as (1) racialized and (2) non-racialized, in place of "visible minority", and "not a visible minority", respectively.

3.3.3.1.4 Current marital status

Current marital status of respondents was assessed through the question, "What is your marital status? Are you …?" Responses to this categorical variable included: (1) single, never married, (2) widowed, (3) separated, (4) divorced, (5) married, and (6) living common-law. It is important to note that respondents who were married or living common-

law for the past 5 years or longer were excluded from this study as these individuals were ineligible to answer the question regarding dating violence victimization in the past 5 years (i.e., they skipped this question). To ensure sufficient cell counts and to be consistent with previous research (e.g., Simpson, 2018), the categories were collapsed as follows: (1) single, never married, (2) widowed, separated or divorced, and (3) married or living common-law (less than 5 years).

3.3.3.2 Substance use measures

3.3.3.2.1 Alcohol use frequency

Frequency of alcohol use was measured through a single-item question: "In the past month, how often did you drink alcoholic beverages?" It was reported as a categorical variable with seven response options: (1) every day, (2) 4 – 6 times a week, (3) 2 – 3 times a week, (4) once a week, (5) once or twice in the past month, (6) not in the past month, and (7) never drink. To ensure sufficient cell counts and to be in line with the way this variable was reported in a study using the same iteration of the General Social Survey (Reyns et al., 2016), the categories were collapsed as follows: (1) frequently, (2) infrequently, and (3) not at all. Frequent alcohol use was used to describe those who drank 2 – 7 times per week. Infrequent drinkers included those individuals who drank once or twice in the last month or once a week. The final category, not at all, included those respondents who stated they never drink or did not drink in the last month.

3.3.3.2.2 Heavy episodic drinking

Heavy episodic drinking was assessed through the question, "How many times in the past month have you had 5 or more drinks on the same occasion?" Response options ranged from never to 31 times. The response options were collapsed to ensure adequate cell counts and to be consistent with previous research (e.g., Perreault, 2015). The categories were collapsed as follows: (1) at least once, and (2) none. It is important to note that those who responded, "not in the past month" and "never drinks" to the previous question on alcohol use frequency were not asked the follow-up question on heavy episodic drinking. Hence, these responses were recoded as "none" for the heavy episodic drinking variable.

3.3.3.2.3 Cannabis use

Respondents were asked to indicate their cannabis use through the question, “In the past month, did you use marijuana, hashish, hash oil or other cannabis derivatives?” Responses to this dichotomous item included (1) yes and (2) no.

3.3.3.2.4 Illicit drug use

Illicit drug use was assessed by asking respondents “In the past month, did you use any other non-prescribed drugs, for example, magic mushrooms, cocaine, speed, methamphetamine, ecstasy, PCP, mescaline or heroin?” It was also reported as a dichotomous variable with response options: (1) yes and (2) no.

3.3.3.3 Childhood victimization indicators

It has been argued that the failure of studies to examine both childhood physical and sexual assault as distinct variables can lead to an overestimation of the effects of childhood sexual assault where childhood physical assault is also present (Briere, 1992; Briere & Elliott, 2003). Therefore, in this study, childhood physical and sexual assault were assessed as two separate variables.

3.3.3.3.1 Childhood physical assault

Childhood physical assault was assessed using the question, “Before age 15, were you ever physically assaulted by an adult (someone who was aged 18 years or older)?” It was reported as a dichotomous variable: (1) at least once, and (2) never.

3.3.3.3.2 Childhood sexual assault

Childhood sexual assault was similarly measured by asking respondents, “Before age 15, were you ever sexually assaulted by an adult (someone who was aged 18 years or older)?” Responses to this dichotomous item include: (1) at least once, and (2) never.

3.4 Statistical analyses

All statistical analyses in the present study were conducted using SAS OnDemand for Academics (SAS Institute Inc., 2014).

3.4.1 Preliminary analyses

Preliminary analyses were conducted to contribute towards an understanding of the distributions of the variables. Descriptive statistics were calculated for all study variables of interest. These statistics were further assessed by sex to illuminate potential sex differences. Statistical methodologies used to evaluate these sex differences included Pearson's Chi-Square tests as all variables were categorical. Overall, these analyses aided in our understanding of the distribution of the study variables and characterized these distributions further by sex.

3.4.2 Logistic regression

Logistic regression analyses were used in the present study to assess the bivariate relationships and to present the final models from the logistic regression analysis with backward elimination procedures. In accordance with Weiss and Koepsell (2014), logistic regression was performed in the present study, given the binary nature of the outcome.

Logistic regression analyses with backward elimination procedures were used to identify statistically significant factors associated with the outcome and test for the presence of pre-specified interaction effects. Backward elimination allowed for the development of a parsimonious multivariable model consisting of plausible explanatory variables associated with the outcome as all candidate variables were present in the initial model (Smith, 2018; Vittinghoff et al., 2012). The advantages of logistic regression analyses with backward elimination procedures include correcting standard errors, p values, and confidence intervals, and proper documentation of all variables considered (Sun et al., 1996).

3.4.3 Sample Weights

Sample weights were used to calculate descriptive, bivariate, and multivariable statistics. This is the basic weighting factor used for analysis at the person level, i.e., to compute estimates of the frequency of persons having one or more given characteristics (Statistics Canada, 2016).

Each cycle of the General Social Survey is composed of four independent surveys, one per three-month collection period or wave. As such, each survey is weighted independently to ensure the data collected during each wave contributes to the estimates in proportion to the Canadian population at the time of collection. If the sample size of a specific wave was not large enough, the records of two or more waves were grouped together during the weighting process. The initial weight was calculated using the inverse of the probability of selection within a stratum (Statistics Canada, 2016).

Next, the initial weight was adjusted through the removal of out-of-scope records (i.e., the removal of telephone numbers not associated with a household) and two-stage non-response adjustment (i.e., complete non-response and partial non-response). After these adjustments, the weight may come out extreme and could potentially have a large impact on the estimates. Accordingly, the weight was further adjusted downward using a "winsorization" trimming approach (Statistics Canada, 2016).

Finally, the weight was adjusted for the final time using a raking ratio procedure, which ensures that estimates produced using the survey's total sample will match external reference totals. For Cycle 28 of the General Social Survey, two sets of external references were used for population totals: (1) geographic stratum by wave, and (2) age-sex groups by province. Notably, those living in households without telephone service (or telephone service not covered by the frame) were included in the external references despite these individuals not being sampled (Statistics Canada, 2016).

3.5 Analyses per study objectives

Objective 1: To estimate the prevalence of dating violence victimization in a national sample of Canadians (aged 15 years and older).

Objective 1.1: To estimate the proportion of Canadians reporting dating violence victimization during the past 5 years.

This study objective was accomplished by calculating the weighted proportion of respondents who reported dating violence victimization during the past 5 years.

Objective 1.2: To characterize objective 1.1 further by sex.

The weighted proportion estimate of respondents reporting dating violence victimization during the past 5 years was further characterized by sex through cross tabulations with the sex variable.

Objective 2: To identify factors associated with dating violence victimization in a national sample of Canadians (aged 15 years and older) for the total sample, and for males and females.

Objective 2.1: To quantify unadjusted associations of dating violence victimization with each of socio-economic characteristics, neighbourhood disorder, demographic characteristics, substance use and childhood victimization among Canadians for the total sample and for males and females.

The weighted unadjusted odds ratios of dating violence victimization during the past 5 years associated with each of socio-economic characteristics, neighbourhood disorder indicators, demographic characteristics, substance use measures and childhood victimization indicators in respondents were computed through logistic regression analyses for the total sample and separately for males and females. Dating violence victimization was modeled as the dependent variable and the socio-economic characteristics, neighbourhood disorder indicators, demographic variables, substance use measures and childhood victimization indicators served as the independent variables.

Objective 2.2: To quantify adjusted associations of violence victimization with socio-economic characteristics and neighbourhood disorder while controlling for demographic characteristics, substance use and childhood victimization among Canadians for the total sample and for males and females.

The weighted adjusted odds ratios of dating violence victimization during the past 5 years associated with socio-economic characteristics and neighbourhood disorder indicators were quantified through logistic regression with backward elimination procedures for the total sample and separately for males and females. In these multivariable models, demographic characteristics, substance use measures and childhood victimization indicators served as the control variables. Again, dating violence victimization was modeled as the dependent variable and the socio-economic characteristics, neighbourhood disorder indicators, demographic variables, substance use measures and childhood victimization indicators served as the independent variables.

Logistic regression with backward elimination procedures was used to identify statistically significant variables associated with the outcome. The demographic characteristics, substance use measures and childhood victimization indicators were forced in the models given that their associations with the outcome were demonstrated in the literature. However, the backward elimination procedure permitted removal of the socio-economic characteristics and neighbourhood disorder indicators based on an alpha level of 0.05. This method facilitated the quantification of the independent explanatory roles of the socio-economic characteristics and neighbourhood disorder indicators over and above the effects of demographic characteristics, substance use measures and childhood victimization indicators. The final statistically significant models from the logistic regression with backward elimination procedures were then analyzed to provide estimates of the odds for the remaining explanatory variables.

Objective 2.3: To test for effect modification of sex by socio-economic characteristics, neighbourhood disorder, demographic characteristics, substance use and childhood victimization in models explaining dating violence victimization among Canadians.

Weighted effect modification of sex by socio-economic characteristics, neighbourhood disorder indicators, demographic characteristics, substance use measures and childhood victimization indicators were assessed through logistic regression with backward elimination procedures.

Specifically, socio-economic characteristics, neighbourhood disorder indicators, demographic characteristics, substance use measures and childhood victimization indicators were forced into the logistic regression with backward elimination procedures model, while the respective interactions between sex and each of socio-economic characteristics, neighbourhood disorder indicators, demographic characteristics, substance use measures and childhood victimization indicators were permitted to be eliminated from the model based on an alpha level of 0.05. The final statistically significant model from the logistic regression with backward elimination procedure was then analyzed to obtain the corresponding estimates of odds ratios for the interaction terms.

3.6 Data management and final sample size

The original study consisted of 33,127 respondents across the ten provinces. However, as noted previously, respondents who were married or living common-law for the past 5 years or longer were excluded from the present study. As such, the sample size was reduced to 17,349. The sample size was further reduced to 13,763 after exclusion of those who did not date in the past 5 years. A complete case analysis was carried out for the descriptive, bivariate, and multivariable analyses. Only respondents with valid data on the outcome and all study variables of interest were included in the present study, which resulted in a final sample size of 12,119.

Chapter 4

4 Results

The 2014 cycle of the General Social Survey sampled a total of 33,127 Canadians (response rate of 52.9%) from the ten provinces. The present study included 12,119 respondents from the original sample based on our methodological exclusions detailed in Figure 2 below. Only complete and weighted data sets were used in descriptive, bivariate, and multivariable analyses. These complete data sets only included respondents who provided a valid response to the outcome variable and were not missing data on any of the study variables of interest.

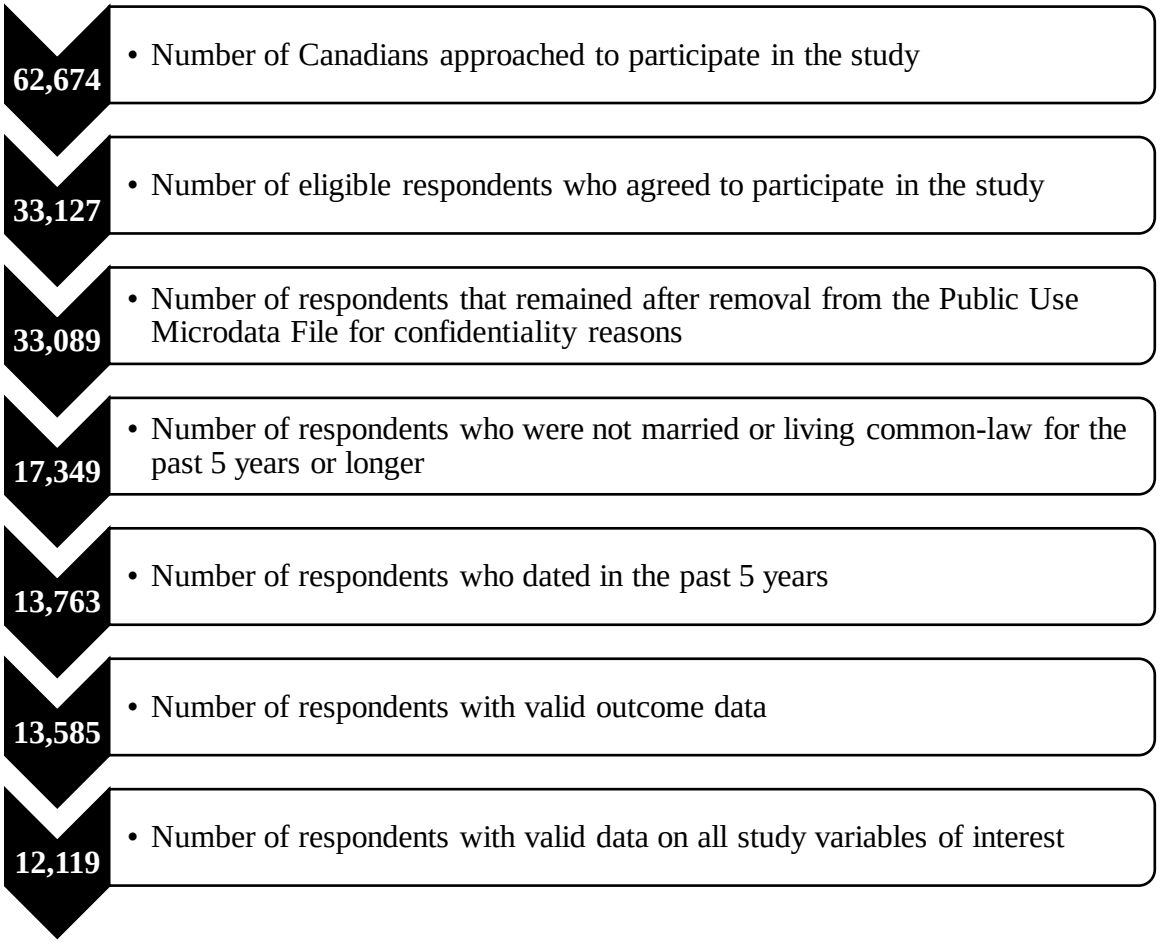

Figure 2. Sample size derivation

4.1 Extent of missingness

The present study assessed missingness on study variables of interest only for those respondents who provided valid outcome data (N = 13,585, N_{male} = 6,229 and N_{female} = 7,356). A detailed analysis of the missingness by study variables of interest is provided in Table 2. Overall, missingness was not a concern in this study as evident by the low rates of missingness for the study variables of interest. The highest rate of missingness was observed for the social neighbourhood disorder variable (5.1% total, 4.2% males and 5.9% females). However, all other remaining study variables of interest had missingness rates below 3.0%. As stated before, income had a high rate of missingness (33.8%) and as such was not used in the present study.

Table 2. Missingness on study variables of interest for Canadians with valid outcome data by total sample, males and females

	Total Sample			Males			Females		
	N Valid	N Missing	% Missing	N Valid	N Missing	% Missing	N Valid	N Missing	% Missing
Socio-economic Characteristics									
Educational Attainment	13,312	273	2.0	6,116	113	1.8	7,196	160	2.2
Employment Status (past 12 months)	13,561	24	0.2	6,216	13	0.2	7,345	11	0.2
Neighbourhood Disorder Indicators									
Physical Neighbourhood Disorder	13,529	56	0.4	6,209	20	0.3	7,320	36	0.5
Social Neighbourhood Disorder	12,892	693	5.1	5,966	263	4.2	6,926	430	5.9
Demographic Characteristics									
Sex	13,585	0	0	6,229	0	0	7,356	0	0
Age	13,585	0	0	6,229	0	0	7,356	0	0
Ethnicity	13,441	144	1.1	6,146	83	1.3	7,295	61	0.8
Current Marital Status	13,567	18	0.1	6,220	9	0.1	7,347	9	0.1
Substance Use Measures									
Alcohol Use Frequency (past month)	13,476	109	0.8	6,167	62	1.0	7,309	47	0.6
Heavy Episodic Drinking (past month)	13,428	157	1.2	6,136	93	1.5	7,292	64	0.9
Cannabis Use (past month)	13,482	103	0.8	6,159	70	1.1	7,323	33	0.5
Illicit Drug Use (past month)	13,493	92	0.7	6,168	61	1.0	7,325	31	0.4
Childhood Victimization Indicators									
Childhood Physical Assault	13,299	286	2.1	6,060	169	2.7	7,239	117	1.6
Childhood Sexual Assault	13,426	159	1.2	6,158	71	1.1	7,268	88	1.2

4.2 Sample characteristics

The results of the analyses assessing weighted sample characteristics by total sample, and males and females separately are presented in Table 3.

Among respondents who were not married or living common-law for the past 5 years or longer and who dated in the past 5 years (N=12,119), most had a high school diploma or less (48.1%), while about 28.8% had a college or trade school diploma, and 23.1% had a university degree. There was a statistically significant difference observed in educational attainment between males and females (χ^2(2)=19.6, p<.05). Specifically, there were more men than women in the lowest educational attainment category i.e., high school diploma or less (49.5% vs. 46.6%), whereas there were more women than men in the highest educational attainment category i.e., university degree (24.7% vs. 21.5%). The largest proportion of respondents were employed (55.3%), while about 42.6% were unemployed, not looking for paid work, and 2.1% were unemployed, looking for paid work in the previous 12 months. There was a statistically significant difference between men and women in employment status (χ^2(2)=139.3, p<.01). Namely, more men than women were employed (60.2% vs. 50.4%), whereas more women than men were unemployed, not looking for paid work (47.9% vs. 37.4%) in the previous 12 months.

Regarding physical neighbourhood disorder, a minority of respondents thought it was a big or moderate problem (8.3%), while the remainder thought it was a small problem or not a problem at all (91.7%). For social neighbourhood disorder, a small proportion of respondents thought it was a big or moderate problem (11.1%), whereas the rest thought it was a small problem or not a problem at all (88.9%). There was no statistically significant difference between males and females in terms of physical neighbourhood disorder (χ^2(1)=0.1, p>.05). However, significantly more women than men reported social neighbourhood disorder as a big or moderate problem (12.6% vs. 9.7%, χ^2(1)=25.9, p<.01).

The weighted sample in the present study was composed of 50.1% males and 49.9% females. More than one third of respondents were 15 to 24 years of age (36.0%), while 26.3% were 25 to 34 years, 11.0% were 35 to 44 years, 10.7% were 45 to 54 years, and 16.0% were 55 years and older. There was a statistically significant difference observed in age between males and females ($\chi^2(4)=145.1$, $p<.01$). Namely, there were more men than women in the 25-to-34-year age group (29.1% vs. 23.5%), whereas there were more women than men in the oldest age category i.e., 55 years and older (19.7% vs 12.3%). A small proportion of respondents identified as racialized (18.7%), and the rest identified as non-racialized (81.3%). The two sex groups were not distinct from each other in terms of ethnicity ($\chi^2(1)=0.1$, $p>.05$). A large proportion of the respondents were single, never married (63.6%), while the remaining were widowed, separated, or divorced (18.7%) or married or living common-law for less than 5 years (17.7%). There was a statistically significant difference in current marital status between males and females ($\chi^2(2)=209.5$, $p<.01$). Specifically, there were more men than women who were single, never married (68.2% vs. 59.0%), while there were more women than men who were widowed, separated, or divorced (23.8% vs. 13.6%).

About one quarter of respondents reported frequent alcohol use (27.3%), while about 42.0% drank infrequently, and 30.7% did not drink in the previous month. There was a statistically significant difference observed in frequency of alcohol use between males and females ($\chi^2(2)=203.7$, $p<.01$). Significantly more men than women were frequent drinkers (32.7% vs. 21.8%), whereas more women than men were infrequent drinkers (43.4% vs. 40.7%) or did not drink in the previous month (34.8% vs. 26.6%). In terms of heavy episodic drinking in the past month, about one-third of respondents consumed 5 or more drinks on a single occasion in the previous month (35.6%), and the remaining 64.4% did not engage in this pattern of drinking or did not drink in the previous month. Significantly more men than women were heavy episodic drinkers (43.7% vs. 27.5%, $\chi^2(1)=350.6$, $p<.01$). A small proportion of respondents used cannabis (12.5%) in the previous month and only 1.4% used illicit drugs in the previous month. Significantly more men than women

used cannabis (17.0% vs. 7.9%, $\chi^2(1)=226.4$, $p<.01$), and illicit drugs (1.8% vs. 1.1%, $\chi^2(1)=12.1$, $p<.05$) in the previous month.

27.1% of respondents experienced childhood physical assault and 7.3% of respondents experienced childhood sexual assault. Significantly more men than women experienced childhood physical assault (29.8% vs. 24.3%, $\chi^2(1)=47.1$, $p<.01$), whereas more women than men experienced childhood sexual assault (11.5% vs. 3.1%, $\chi^2(1)=313.9$, $p<.01$).

The results of the analyses assessing unweighted sample characteristics by total sample, males and females are presented in Appendix 1. The unweighted and weighted results are similar. Weighted tests for multicollinearity are available in Appendix 2. No evidence of multicollinearity was found as indicated by the variance inflation factors (i.e., none exceeding 10) (Dodge, 2008; Everitt & Skrondal, 2010).

Table 3. Characteristics of total sample, males, and females by study variables of interest

	Total (N = 12,119)	Sex Stratified		
		Males (N = 6,069)	Females (N = 6,050)	
	Weighted Frequency N(%)	Weighted Frequency N(%)	Weighted Frequency N(%)	Weighted χ^2 (df)
Socio-economic Characteristics				
Educational Attainment				
High school diploma or less	5825 (48.1)	3007 (49.5)	2818 (46.6)	19.6 (2)*
College or trade school diploma	3492 (28.8)	1758 (29.0)	1734 (28.7)	
University degree	2802 (23.1)	1304 (21.5)	1498 (24.7)	
Employment Status (past 12 months)				
Unemployed, looking for paid work	254 (2.1)	149 (2.4)	105 (1.7)	139.3 (2)**
Unemployed, not looking for paid work	5167 (42.6)	2268 (37.4)	2899 (47.9)	
Employed	6698 (55.3)	3652 (60.2)	3046 (50.4)	
Neighbourhood Disorder Indicators				
Physical Neighbourhood Disorder				
A big or moderate problem	1002 (8.3)	506 (8.3)	496 (8.2)	0.1 (1)
A small problem or not a problem at all	11117 (91.7)	5563 (91.7)	5554 (91.8)	
Social Neighbourhood Disorder				
A big or moderate problem	1345 (11.1)	586 (9.7)	759 (12.6)	25.9 (1)**
A small problem or not a problem at all	10774 (88.9)	5483 (90.3)	5291 (87.4)	

*p<.05, **p<.01

Table 3. (Continued)

	Total (N = 12,119)	Sex Stratified		
		Males (N = 6,069)	Females (N = 6,050)	
	Weighted Frequency N(%)	Weighted Frequency N(%)	Weighted Frequency N(%)	Weighted χ^2 (df)
Demographic Characteristics				
Age				
15 to 24 years	4361 (36.0)	2236 (36.8)	2125 (35.1)	145.1 (4)**
25 to 34 years	3186 (26.3)	1763 (29.1)	1423 (23.5)	
35 to 44 years	1335 (11.0)	694 (11.4)	641 (10.6)	
45 to 54 years	1297 (10.7)	629 (10.4)	668 (11.1)	
55 years and older	1940 (16.0)	747 (12.3)	1193 (19.7)	
Ethnicity				
Racialized	2269 (18.7)	1132 (18.6)	1137 (18.8)	0.1 (1)
Non-racialized	9850 (81.3)	4937 (81.4)	4913 (81.2)	
Current Marital Status				
Single, never married	7710 (63.6)	4140 (68.2)	3570 (59.0)	209.5 (2)**
Widowed, separated, or divorced	2262 (18.7)	825 (13.6)	1437 (23.8)	
Married or living common-law	2147 (17.7)	1104 (18.2)	1043 (17.2)	

*p<.05, **p<.01

Table 3. (Continued)

	Total (N = 12,119)	Sex Stratified		
		Males (N = 6,069)	Females (N = 6,050)	
	Weighted Frequency N(%)	Weighted Frequency N(%)	Weighted Frequency N(%)	Weighted χ^2 (df)
Substance Use Measures				
Alcohol Use Frequency (past month)				
Frequently	3305 (27.3)	1985 (32.7)	1320 (21.8)	203.7 (2)**
Infrequently	5093 (42.0)	2471 (40.7)	2622 (43.4)	
Not at all	3721 (30.7)	1613 (26.6)	2108 (34.8)	
Heavy Episodic Drinking (past month)				
At least once	4317 (35.6)	2655 (43.7)	1662 (27.5)	350.6 (1)**
None	7802 (64.4)	3414 (56.3)	4388 (72.5)	
Cannabis Use (past month)				
Yes	1511 (12.5)	1030 (17.0)	481 (7.9)	226.4 (1)**
No	10608 (87.5)	5039 (83.0)	5569 (92.1)	
Illicit Drug Use (past month)				
Yes	173 (1.4)	110 (1.8)	63 (1.1)	12.1 (1)*
No	11946 (98.6)	5959 (98.2)	5987 (98.9)	

*p<.05, **p<.01

Table 3. (Continued)

	Total (N = 12,119)	Sex Stratified		
		Males (N = 6,069)	Females (N = 6,050)	
	Weighted Frequency N(%)	Weighted Frequency N(%)	Weighted Frequency N(%)	Weighted χ^2 (df)
Childhood Victimization Indicators				
Childhood Physical Assault				
At least once	3279 (27.1)	1810 (29.8)	1469 (24.3)	47.1 (1)**
Never	8840 (72.9)	4259 (70.2)	4581 (75.7)	
Childhood Sexual Assault				
At least once	888 (7.3)	191 (3.1)	697 (11.5)	313.9 (1)**
Never	11231 (92.4)	5878 (96.9)	5353 (88.5)	

*p<.05, **p<.01

4.3 Analyses per study objectives

Objective 1: To estimate the prevalence of dating violence victimization in a national sample of Canadians (aged 15 years and older).

Objective 1.1: To estimate the proportion of Canadians reporting dating violence victimization during the past 5 years.

The first objective of the present study was to compute the weighted proportion of respondents in the sample who reported dating violence victimization during the past 5 years. The results from the analyses illustrated that 4.1% (95% CI: 3.8% to 4.5%) of respondents reported experiences of dating violence victimization during the past 5 years.

Objective 1.2: To characterize objective 1.1 further by sex.

The weighted proportion of respondents that reported dating violence victimization during the past 5 years in the sample was further characterized by sex. The results of the cross tabulations by sex showed that 2.9% (95% CI: 2.5% to 3.3%) of males and 5.3% (95% CI: 4.7% to 5.9%) of females reported dating violence victimization during the past 5 years.

Objective 2: To identify factors associated with dating violence victimization in a national sample of Canadians (aged 15 years and older) for the total sample, and for males and females.

Objective 2.1: To quantify unadjusted associations of dating violence victimization with each of socio-economic characteristics, neighbourhood disorder, demographic characteristics, substance use and childhood victimization among Canadians for the total sample and for males and females.

Logistic regression analyses were used to quantify the weighted unadjusted odds ratios of dating violence victimization during the past 5 years associated with each of socio-economic characteristics, neighbourhood disorder indicators, demographic characteristics, substance use measures and childhood victimization indicators. The results of these

analyses for the total sample, and for males and females separately are presented in Table 4 and Table 5, respectively.

Among the total sample, those who were unemployed and not looking for paid work were less likely than those who were employed to report dating violence victimization (OR: 0.74, 95% CI: 0.55 - 0.99). Those reporting physical neighbourhood disorder (OR: 2.21, 95% CI: 1.53 - 3.19) and social neighbourhood disorder (OR: 2.55, 95% CI: 1.84 - 3.52) as a big or moderate problem were more likely to experience dating violence victimization compared to those who rated the neighbourhood disorder indicators as a small problem or not a problem at all. Women were more likely than men to report dating violence (OR: 1.87, 95% CI: 1.42 - 2.45). Compared with those in the oldest age group (i.e., 55 years and older), those in other age categories had significantly higher odds of reporting dating violence victimization: (1) 15 to 24 years (OR: 7.58, 95% CI: 6.33 - 9.08), (2) 25 to 34 years (OR: 10.89, 95% CI: 9.10 - 13.03), (3) 35 to 44 years (OR: 10.54, 95% CI: 8.78 - 12.66), and (4) 45 to 54 years (OR: 8.33, 95% CI: 6.86 - 10.11). For current marital status, respondents who were single had almost twice the odds of dating violence victimization compared with those who were married or living common-law for less than 5 years (OR: 1.94, 95% CI: 1.32 - 2.84). For the substance use measures, respondents who reported heavy episodic drinking (OR: 1.75, 95% CI: 1.34 - 2.30), cannabis use (OR: 2.96, CI: 2.19 - 4.02) and illicit drug use (OR: 4.40, 95% CI: 3.37 - 5.74) were significantly more likely to report dating violence victimization than those who did not report heavy drinking, cannabis use and illicit drug use, respectively. Regarding the childhood victimization indicators, those who experienced at least one incident of childhood physical assault (OR: 3.41, 95% CI: 2.59 - 4.48) and childhood sexual assault (OR: 3.75, 95% CI: 2.68 - 5.23) were more likely to report dating violence victimization than those without such adverse childhood experiences.

Among males, those who were unemployed and not looking for paid work had lower odds of dating violence victimization, in comparison to those who were employed (OR: 0.56, 95% CI: 0.35 - 0.91). Men reporting physical neighbourhood disorder (OR: 2.34, 95% CI: 1.21 - 4.53) and social neighbourhood disorder (OR: 4.10, 95% CI: 2.47 - 6.79) as a big or

moderate problem were more likely to experience dating violence victimization compared to men who rated the neighbourhood disorder indicators as a small problem or not a problem at all. Compared with men in the oldest age group (i.e., 55 years and older), men in other age categories had significantly higher odds of reporting dating violence victimization: (1) 15 to 24 years (OR: 6.20, 95% CI: 4.66 - 8.25), (2) 25 to 34 years (OR: 6.66, 95% CI: 5.07 - 8.76), (3) 35 to 44 years (OR: 9.22, 95% CI: 6.91 - 12.30), and (4) 45 to 54 years (OR: 12.54, 95% CI: 9.35 - 16.82). For the substance use measures, men reporting heavy episodic drinking (OR: 2.07, 95% CI: 1.38 - 3.11), cannabis use (OR: 2.95, 95% CI: 1.92 - 4.54) and illicit drug use (OR: 6.22, 95% CI: 4.24 - 9.12) were significantly more likely to report dating violence victimization than men not reporting heavy drinking, cannabis use and illicit drug use, respectively. Regarding the childhood victimization indicators, men who experienced at least one incident of childhood physical assault (OR: 4.34, 95% CI: 2.87 - 6.55) and childhood sexual assault (OR: 2.18, 95% CI: 1.12 - 4.24) were more likely to report dating violence victimization than men without such adverse childhood experiences.

Among females, those who were unemployed and looking for paid work were more likely than those who were employed to report dating violence victimization (OR: 2.73, 95% CI: 1.01 - 7.46). Women reporting physical neighbourhood disorder (OR: 2.16, 95% CI: 1.40 - 3.33) and social neighbourhood disorder (OR: 1.80, 95% CI: 1.19 - 2.74) as a big or moderate problem were more likely to experience dating violence victimization compared to women who rated the neighbourhood disorder indicators as a small problem or not a problem at all. Compared with those in the oldest age group (i.e., 55 years and older), women in other age categories had significantly higher odds of reporting dating violence victimization: (1) 15 to 24 years (OR: 9.24, 95% CI: 7.35 - 11.62), (2) 25 to 34 years (OR: 16.23, 95% CI: 12.91 - 20.40), (3) 35 to 44 years (OR: 12.50, 95% CI: 9.91 - 15.77), and (4) 45 to 54 years (OR: 5.90, 95% CI: 4.61 - 7.56). In terms of current marital status, women who were single had more than twice the odds of dating violence victimization compared to women who were married or living common-law for less than 5 years (OR: 2.30, 95% CI: 1.43 - 3.72). For the substance use measures, women who reported heavy episodic drinking (OR: 1.97, 95% CI: 1.37 - 2.82), cannabis use (OR: 4.12, CI: 2.67 - 6.37) and

illicit drug use (OR: 3.57, 95% CI: 2.56 - 4.97) were significantly more likely to report dating violence victimization than women who did not report heavy drinking, cannabis use and illicit drug use, respectively. Regarding the childhood victimization indicators, women experiencing at least one incident of childhood physical assault (OR: 3.26, 95% CI: 2.29 - 4.65) and childhood sexual assault (OR: 3.56, 95% CI: 2.41 - 5.23) were more likely to report dating violence victimization than women without such adverse childhood experiences.

Table 4. Unadjusted associations between dating violence victimization and each of socio-economic characteristics, neighbourhood disorder indicators, demographic characteristics, substance use measures and childhood victimization indicators by total sample

	Weighted Frequency N(%)	Weighted OR (95% CI)
Socio-economic Characteristics		
Educational Attainment		
High school diploma or less	263 (4.5)	1.42 (0.94 - 2.15)
College or trade school diploma	144 (4.1)	1.29 (0.84 - 1.98)
University degree	91 (3.2)	*REF*
Employment Status (past 12 months)		
Unemployed, looking for paid work	20 (7.9)	1.82 (0.84 - 3.93)
Unemployed, not looking for paid work	175 (3.4)	0.74 (0.55 - 0.99)*
Employed	303 (4.5)	*REF*
Neighbourhood Disorder Indicators		
Physical Neighbourhood Disorder		
A big or moderate problem	80 (7.9)	2.21 (1.53 - 3.19)**
A small problem or not a problem at all	418 (3.8)	*REF*
Social Neighbourhood Disorder		
A big or moderate problem	115 (8.6)	2.55 (1.84 - 3.52)**
A small problem or not a problem at all	383 (3.6)	*REF*

*p<.05, **p<.01

"Did not experience physical and/or sexual violence by a dating partner" is treated as the reference category for dating violence victimization (outcome).

Table 4. (Continued)

	Weighted Frequency N(%)	Weighted OR (95% CI)
Demographic Characteristics		
Sex		
Female	321 (5.3)	1.87 (1.42 - 2.45)**
Male	177 (2.9)	*REF*
Age		
15 to 24 years	175 (4.0)	7.58 (6.33 - 9.08)**
25 to 34 years	181 (5.7)	10.89 (9.10 - 13.03)**
35 to 44 years	74 (5.5)	10.54 (8.78 - 12.66)**
45 to 54 years	57 (4.4)	8.33 (6.86 - 10.11)**
55 years and older	11 (0.6)	*REF*
Ethnicity		
Racialized	89 (3.9)	0.94 (0.63 - 1.42)
Non-racialized	409 (4.2)	*REF*
Current Marital Status		
Single, never married	376 (4.9)	1.94 (1.32 - 2.84)**
Widowed, separated, or divorced	66 (2.9)	1.14 (0.74 - 1.74)
Married or living common-law	56 (2.6)	*REF*

*p<.05, **p<.01
"Did not experience physical and/or sexual violence by a dating partner" is treated as the reference category for dating violence victimization (outcome).

Table 4. (Continued)

	Weighted Frequency N(%)	Weighted OR (95% CI)
Substance Use Measures		
Alcohol Use Frequency (past month)		
Frequently	148 (4.5)	1.30 (0.92 - 1.84)
Infrequently	220 (4.3)	1.24 (0.89 - 1.74)
Not at all	130 (3.5)	*REF*
Heavy Episodic Drinking (past month)		
At least once	242 (5.6)	1.75 (1.34 - 2.30)**
None	256 (3.3)	*REF*
Cannabis Use (past month)		
Yes	141 (9.3)	2.96 (2.19 - 4.02)**
No	357 (3.4)	*REF*
Illicit Drug Use (past month)		
Yes	27 (15.3)	4.40 (3.37 - 5.74)**
No	471 (3.9)	*REF*
Childhood Victimization Indicators		
Childhood Physical Assault		
At least once	271 (8.3)	3.41 (2.59 - 4.48)**
Never	227 (2.6)	*REF*
Childhood Sexual Assault		
At least once	106 (11.9)	3.75 (2.68 - 5.23)**
Never	392 (3.5)	*REF*

*p<.05, **p<.01

"Did not experience physical and/or sexual violence by a dating partner" is treated as the reference category for dating violence victimization (outcome).

Table 5. Unadjusted associations between dating violence victimization and each of socio-economic characteristics, neighbourhood disorder indicators, demographic characteristics, substance use measures and childhood victimization indicators by males and females

	Males		Females	
	Weighted Frequency N(%)	**Weighted OR (95% CI)**	**Weighted Frequency N(%)**	**Weighted OR (95% CI)**
Socio-economic Characteristics				
Educational Attainment				
High school diploma or less	100 (3.3)	1.92 (0.99 - 3.47)	163 (5.8)	1.30 (0.77 - 2.20)
College or trade school diploma	54 (3.1)	1.78 (0.97 - 3.28)	90 (5.2)	1.16 (0.67 - 1.99)
University degree	23 (1.6)	*REF*	68 (4.5)	*REF*
Employment Status (past 12 months)				
Unemployed, looking for paid work	5 (3.4)	0.98 (0.38 - 2.54)	15 (14.4)	2.73 (1.01 - 7.46)*
Unemployed, not looking for paid work	45 (2.0)	0.56 (0.35 - 0.91)*	130 (4.5)	0.77 (0.53 - 1.11)
Employed	127 (3.5)	*REF*	176 (5.8)	*REF*
Neighbourhood Disorder Indicators				
Physical Neighbourhood Disorder				
A big or moderate problem	30 (6.0)	2.34 (1.21 - 4.53)*	50 (10.0)	2.16 (1.40 - 3.33)**
A small problem or not a problem at all	147 (2.6)	*REF*	271 (4.9)	*REF*
Social Neighbourhood Disorder				
A big or moderate problem	51 (8.8)	4.10 (2.47 - 6.79)**	64 (8.4)	1.80 (1.19 - 2.74)*
A small problem or not a problem at all	126 (2.3)	*REF*	257 (4.9)	*REF*

*p<.05, **p<.01

"Did not experience physical and/or sexual violence by a dating partner" is treated as the reference category for dating violence victimization (outcome).

Table 5. (Continued)

	Males		Females	
	Weighted Frequency N(%)	**Weighted OR (95% CI)**	**Weighted Frequency N(%)**	**Weighted OR (95% CI)**
Demographic Characteristics				
Age				
15 to 24 years	61 (2.7)	6.20 (4.66 - 8.25)**	114 (5.4)	9.24 (7.35 - 11.62)**
25 to 34 years	51 (2.9)	6.66 (5.07 - 8.76)**	130 (9.1)	16.23 (12.91 - 20.40)**
35 to 44 years	28 (4.0)	9.22 (6.91 - 12.30)**	46 (7.2)	12.50 (9.91 - 15.77)**
45 to 54 years	34 (5.3)	12.54 (9.35 - 16.82)**	23 (3.5)	5.90 (4.61 - 7.56)**
55 years and older	3 (0.5)	*REF*	8 (0.6)	*REF*
Ethnicity				
Racialized	22 (1.9)	0.60 (0.32 - 1.13)	67 (5.9)	1.16 (0.70 - 1.92)
Non-racialized	155 (3.1)	*REF*	254 (5.2)	*REF*
Current Marital Status				
Single, never married	125 (3.0)	1.52 (0.81 - 2.86)	251 (7.0)	2.30 (1.43 - 3.72)**
Widowed, separated, or divorced	29 (3.5)	1.78 (0.87 - 3.62)	37 (2.6)	0.81 (0.48 - 1.37)
Married or living common-law	23 (2.0)	*REF*	33 (3.2)	*REF*

*p<.05, **p<.01

"Did not experience physical and/or sexual violence by a dating partner" is treated as the reference category for dating violence victimization (outcome).

Table 5. (Continued)

	Males		Females	
	Weighted Frequency N(%)	**Weighted OR (95% CI)**	**Weighted Frequency N(%)**	**Weighted OR (95% CI)**
Substance Use Measures				
Alcohol Use Frequency (past month)				
Frequently	72 (3.6)	1.39 (0.86 - 2.27)	76 (5.8)	1.42 (0.88 - 2.27)
Infrequently	62 (2.5)	0.95 (0.55 - 1.62)	158 (6.0)	1.48 (0.97 - 2.27)
Not at all	43 (2.6)	*REF*	87 (4.1)	*REF*
Heavy Episodic Drinking (past month)				
At least once	108 (4.1)	2.07(1.38 - 3.11)**	134 (8.1)	1.97 (1.37 - 2.82)**
None	69 (2.0)	*REF*	187 (4.3)	*REF*
Cannabis Use (past month)				
Yes	65 (6.3)	2.95 (1.92 - 4.54)**	76 (15.9)	4.12 (2.67 - 6.37)**
No	112 (2.2)	*REF*	245 (4.4)	*REF*
Illicit Drug Use (past month)				
Yes	17 (14.7)	6.22 (4.24 - 9.12)**	10 (16.3)	3.57 (2.56 - 4.97)*
No	160 (2.7)	*REF*	311 (5.2)	*REF*

*p<.05, **p<.01

"Did not experience physical and/or sexual violence by a dating partner" is treated as the reference category for dating violence victimization (outcome).

Table 5. (Continued)

	Males		Females	
	Weighted Frequency N(%)	**Weighted OR (95% CI)**	**Weighted Frequency N(%)**	**Weighted OR (95% CI)**
Childhood Victimization Indicators				
Childhood Physical Assault				
At least once	113 (6.2)	4.34 (2.87 - 6.55)**	158 (10.7)	3.26 (2.29 - 4.65)**
Never	64 (1.5)	*REF*	163 (3.6)	*REF*
Childhood Sexual Assault				
At least once	11 (5.9)	2.18 (1.12 - 4.24)*	95 (13.6)	3.56 (2.41 - 5.23)**
Never	166 (2.8)	*REF*	226 (4.2)	*REF*

*p<.05, **p<.01

"Did not experience physical and/or sexual violence by a dating partner" is treated as the reference category for dating violence victimization (outcome).

Objective 2.2: To quantify adjusted associations of violence victimization with socio-economic characteristics and neighbourhood disorder while controlling for demographic characteristics, substance use and childhood victimization among Canadians for the total sample and for males and females.

Logistic regression with backward elimination procedures was used to quantify the weighted adjusted odds ratios of dating violence victimization during the past 5 years associated with each of socio-economic characteristics and neighbourhood disorder indicators while controlling for demographic characteristics, substance use measures and childhood victimization indicators for the total sample, and males and females separately. The results from these analyses are included in Table 6.

Among the total sample, respondents reporting social neighbourhood disorder as a big or moderate problem were more likely to experience dating violence victimization compared to those who rated the neighbourhood disorder indicator as a small problem or not a problem at all (OR: 1.96, 95% CI: 1.38 - 2.77), controlling for all demographic characteristics, substance use measures, and childhood victimization indicators. Women were more likely than men to report dating violence (OR: 2.14, 95% CI: 1.60 - 2.86). Compared with those in the oldest age group (i.e., 55 years and older), those in other age categories had slightly higher odds of reporting dating violence victimization: (1) 15 to 24 years (OR: 1.21, 95% CI: 1.09 - 1.33), (2) 25 to 34 years (OR: 1.45, 95% CI: 1.19 - 1.78), (3) 35 to 44 years (OR: 1.75, 95% CI: 1.30 - 2.37), and (4) 45 to 54 years (OR: 2.11, 95% CI: 1.42 - 3.16). In terms of current marital status, respondents who were single (OR: 1.37, 95% CI: 1.12 - 1.67) and widowed, separated, or divorced (OR: 1.86, 95% CI: 1.25 - 2.78) had higher odds of dating violence victimization compared with those who were married or living common-law for less than 5 years. For the substance use measures, respondents who reported heavy episodic drinking (OR: 1.53, 95% CI: 1.07 - 2.19) and cannabis use (OR: 2.23, CI: 1.52 - 3.29) were significantly more likely to experience dating violence victimization than those who did not report heavy drinking, and cannabis use, respectively. Regarding the childhood victimization indicators, those who experienced at least one incident of childhood physical assault (OR: 2.95, 95% CI: 2.18 - 4.01) and childhood

sexual assault (OR: 2.60, 95% CI: 1.68 - 4.02) were more likely to report dating violence victimization than those without such adverse childhood experiences.

Among males, those who reported social neighbourhood disorder as a big or moderate problem were more likely to experience dating violence victimization compared to those who rated the neighbourhood disorder indicator as a small problem or not a problem at all (OR: 3.36, 95% CI: 2.04 - 5.52), controlling for all demographic characteristics, substance use measures, and childhood victimization indicators. For the substance use measures, men who reported heavy episodic drinking (OR: 1.92, 95% CI: 1.15 - 3.21) and cannabis use (OR: 1.93, CI: 1.16 - 3.22) were significantly more likely to experience dating violence victimization than men who did not report heavy drinking and cannabis use, respectively. Regarding the childhood victimization indicators, men who experienced at least one incident of childhood physical assault were more likely to report dating violence victimization than men without such adverse childhood experiences (OR: 3.94, 95% CI: 2.57 - 6.02).

Among females, compared with those in the oldest age group (i.e., 55 years and older), those in other age categories had slightly higher odds of reporting dating violence victimization: (1) 15 to 24 years (OR: 1.31, 95% CI: 1.16 - 1.48), (2) 25 to 34 years (OR: 1.71, 95% CI: 1.34 - 2.18), (3) 35 to 44 years (OR: 2.24, 95% CI: 1.56 - 3.21), and (4) 45 to 54 years (OR: 2.92, 95% CI: 1.80 - 4.74). In terms of current marital status, women who were single (OR: 1.49, 95% CI: 1.16 - 1.92) and widowed, separated, or divorced (OR: 2.23, 95% CI: 1.34 - 3.70) had higher odds of dating violence victimization compared with women who were married or living common-law for less than 5 years. For the substance use measures, respondents who reported cannabis use (OR: 2.66, CI: 1.58 - 4.46) were significantly more likely to experience dating violence victimization than those who did not report cannabis use. Regarding the childhood victimization indicators, women who experienced at least one incident of childhood physical assault (OR: 2.42, 95% CI: 1.60 - 3.67) and childhood sexual assault (OR: 3.55, 95% CI: 2.13 - 5.92) were more likely to report dating violence victimization than women without such adverse childhood experiences.

Table 6. Adjusted associations between dating violence victimization and each of socio-economic characteristics and neighbourhood disorder indicators, while controlling for demographic characteristics, substance use measures, and childhood victimization indicators by total sample, males, and females

	Total	**Males**	**Females**
	Weighted OR (95% CI)	**Weighted OR (95% CI)**	**Weighted OR (95% CI)**
Socio-economic Characteristics			
Educational Attainment			
High school diploma or less	Eliminated	Eliminated	Eliminated
College or trade school diploma			
University degree			
Employment Status (past 12 months)			
Unemployed, looking for paid work	Eliminated	Eliminated	Eliminated
Unemployed, not looking for paid work			
Employed			
Neighbourhood Disorder Indicators			
Physical Neighbourhood Disorder			
A big or moderate problem	Eliminated	Eliminated	Eliminated
A small problem or not a problem at all			
Social Neighbourhood Disorder			
A big or moderate problem	1.96 (1.38 - 2.77)**	3.36 (2.04 - 5.52)**	Eliminated
A small problem or not a problem at all	*REF*	*REF*	

*p<.05, **p<.01

"Did not experience physical and/or sexual violence by a dating partner" is treated as the reference category for dating violence victimization (outcome).

Table 6. (Continued)

	Total	Males	Females
	Weighted OR (95% CI)	**Weighted OR (95% CI)**	**Weighted OR (95% CI)**
Demographic Characteristics			
Sex			
Female	2.14 (1.60 - 2.86)**	-	-
Male	*REF*	-	-
Age			
15 to 24 years	1.21 (1.09 - 1.33)**	1.03 (0.88 - 1.22)	1.31 (1.16 - 1.48)**
25 to 34 years	1.45 (1.19 - 1.78)**	1.07 (0.77 - 1.49)	1.71 (1.34 - 2.18)**
35 to 44 years	1.75 (1.30 - 2.37)**	1.10 (0.67 - 1.82)	2.24 (1.56 - 3.21)**
45 to 54 years	2.11 (1.42 - 3.16)**	1.14 (0.59 - 2.22)	2.92 (1.80 - 4.74)**
55 years and older	*REF*	*REF*	*REF*
Ethnicity			
Racialized	0.98 (0.63 - 1.52)	0.63 (0.33 - 1.21)	1.14 (0.66 - 1.98)
Non-racialized	*REF*	*REF*	*REF*
Current Marital Status			
Single, never married	1.37 (1.12 - 1.67)**	1.20 (0.89 - 1.63)	1.49 (1.16 - 1.92)**
Widowed, separated, or divorced	1.86 (1.25 - 2.78)**	1.44 (0.78 - 2.64)	2.23 (1.34 - 3.70)**
Married or living common-law	*REF*	*REF*	*REF*

*p<.05, **p<.01

"Did not experience physical and/or sexual violence by a dating partner" is treated as the reference category for dating violence victimization (outcome).

Table 6. (Continued)

	Total	Males	Females
	Weighted OR (95% CI)	**Weighted OR (95% CI)**	**Weighted OR (95% CI)**
Substance Use Measures			
Alcohol Use Frequency (past month)			
Frequently	0.93 (0.75 - 1.16)	0.82 (0.57 - 1.17)	0.96 (0.72 - 1.28)
Infrequently	0.86 (0.56 - 1.34)	0.67 (0.32 - 1.37)	0.92 (0.52 - 1.63)
Not at all	*REF*	*REF*	*REF*
Heavy Episodic Drinking (past month)			
At least once	1.53 (1.07 - 2.19)*	1.92 (1.15 - 3.21)*	1.39 (0.87 - 2.23)
None	*REF*	*REF*	*REF*
Cannabis Use (past month)			
Yes	2.23 (1.52 - 3.29)**	1.93 (1.16 - 3.22)*	2.66 (1.58 - 4.46)**
No	*REF*	*REF*	*REF*
Illicit Drug Use (past month)			
Yes	1.68 (0.71 - 3.94)	2.35 (0.84 - 6.56)	1.02 (0.36 - 2.86)
No	*REF*	*REF*	*REF*

*p<.05, **p<.01
"Did not experience physical and/or sexual violence by a dating partner" is treated as the reference category for dating violence victimization (outcome).

Table 6. (Continued)

	Total	Males	Females
	Weighted OR (95% CI)	**Weighted OR (95% CI)**	**Weighted OR (95% CI)**
Childhood Victimization Indicators			
Childhood Physical Assault			
At least once	2.95 (2.18 - 4.01)**	3.94 (2.57 - 6.02)**	2.42 (1.60 - 3.67)**
Never	*REF*	*REF*	*REF*
Childhood Sexual Assault			
At least once	2.60 (1.68 - 4.02)**	1.02 (0.41 - 2.52)	3.55 (2.13 - 5.92)**
Never	*REF*	*REF*	*REF*

*p<.05, **p<.01
"Did not experience physical and/or sexual violence by a dating partner" is treated as the reference category for dating violence victimization (outcome).

Objective 2.3: To test for effect modification of sex by socio-economic characteristics, neighbourhood disorder, demographic characteristics, substance use and childhood victimization in models explaining dating violence victimization among Canadians.

Logistic regression with backward elimination procedures was executed to identify effect modification of sex by each of socio-economic characteristics, neighbourhood disorder indicators, demographic characteristics, substance use measures and childhood victimization indicators in models explaining dating violence victimization during the past 5 years. The results of these analyses are available in Table 7.

Overall, there was a statistically significant effect modification by sex. Namely, a multiplicative interaction between sex and social neighbourhood disorder in the model explaining dating violence victimization ($p<.05$) was found. Social neighbourhood disorder was more important in explaining dating violence victimization among men than among women (OR: 0.42, 95% CI: 0.21 - 0.82). In other words, women who reported social neighbourhood disorder as a big or moderate problem were 58% less likely to experience dating violence victimization compared to men who reported social neighbourhood disorder as a big or moderate problem.

Table 7. Multiplicative sex interactions between dating violence victimization and each of socio-economic characteristics, neighbourhood disorder indicators, demographic characteristics, substance use measures and childhood victimization indicators

	Weighted OR (95% CI)
Socio-economic Characteristics	
Educational Attainment	
High school diploma or less	1.09 (0.89 - 1.33)
College or trade school diploma	1.18 (0.78 - 1.78)
University degree	*REF*
Employment Status (past 12 months)	
Unemployed, looking for paid work	0.79 (0.57 - 1.09)
Unemployed, not looking for paid work	0.62 (0.33 - 1.18)
Employed	*REF*
Neighbourhood Disorder Indicators	
Physical Neighbourhood Disorder	
A big or moderate problem	1.27 (0.81 - 1.97)
A small problem or not a problem at all	*REF*
Social Neighbourhood Disorder	
A big or moderate problem	1.77 (1.18 - 2.64)**
A small problem or not a problem at all	*REF*

*p<.05, **p<.01

"Did not experience physical and/or sexual violence by a dating partner" is treated as the reference category for dating violence victimization (outcome), and "male" is treated as the reference category for sex (interaction term).

Table 7. (Continued)

	Weighted OR (95% CI)
Demographic Characteristics	
Sex	
Female	2.18 (1.64 - 2.91)**
Male	*REF*
Age	
15 to 24 years	1.21 (1.10 - 1.34)**
25 to 34 years	1.47 (1.20 - 1.80)**
35 to 44 years	1.78 (1.32 - 2.41)**
45 to 54 years	2.16 (1.44 - 3.24)**
55 years and older	*REF*
Ethnicity	
Racialized	1.00 (0.66 - 1.52)
Non-racialized	*REF*
Current Marital Status	
Single, never married	1.39 (1.14 - 1.71)**
Widowed, separated, or divorced	1.94 (1.29 - 2.91)**
Married or living common-law	*REF*
Substance Use Measures	
Alcohol Use Frequency (past month)	
Frequently	0.92 (0.74 - 1.16)
Infrequently	0.85 (0.54 - 1.34)
Not at all	*REF*
Heavy Episodic Drinking (past month)	
At least once	1.50 (1.05 - 2.15)*
None	*REF*
Cannabis Use (past month)	
Yes	2.18 (1.48 - 3.21)**
No	*REF*
Illicit Drug Use (past month)	
Yes	1.66 (0.72 - 3.83)
No	*REF*

*p<.05, **p<.01

"Did not experience physical and/or sexual violence by a dating partner" is treated as the reference category for dating violence victimization (outcome), and "male" is treated as the reference category for sex (interaction term).

Table 7. (Continued)

	Weighted OR (95% CI)
Childhood Victimization Indicators	
Childhood Physical Assault	
At least once	2.90 (2.15 - 3.93)**
Never	*REF*
Childhood Sexual Assault	
At least once	2.58 (1.67 - 3.99)**
Never	*REF*
Sex Interaction Terms	
Educational Attainment × Sex	Eliminated
Employment Status (past 12 months) × Sex	Eliminated
Physical Neighbourhood Disorder × Sex	Eliminated
Social Neighbourhood Disorder × Sex	
A big or moderate problem	0.42 (0.21 - 0.82)*
A small problem or not a problem at all	*REF*
Age × Sex	Eliminated
Ethnicity × Sex	Eliminated
Current Marital Status × Sex	Eliminated
Alcohol Use Frequency (past month) × Sex	Eliminated
Heavy Episodic Drinking (past month) × Sex	Eliminated
Cannabis Use (past month) × Sex	Eliminated
Illicit Drug Use (past month) × Sex	Eliminated
Childhood Physical Assault × Sex	Eliminated
Childhood Sexual Assault × Sex	Eliminated

*p<.05, **p<.01

"Did not experience physical and/or sexual violence by a dating partner" is treated as the reference category for dating violence victimization (outcome), and "male" is treated as the reference category for sex (interaction term).

Chapter 5

5 Discussion

The present study assessed dating violence victimization in a national sample of Canadians using data obtained from the General Social Survey, Cycle 28, 2014. The purpose of the study was to contribute towards addressing the knowledge gap in the literature by assessing the prevalence of dating violence victimization and identifying factors associated with dating violence victimization in a large, age-diverse sample.

There were two primary objectives of this present study. The first aimed to assess the prevalence of dating violence victimization within this national sample of Canadians who were not married or living common-law for the past 5 years or longer and were dating. Specifically, the weighted proportion of participants reporting dating violence victimization during the previous 5 years was estimated, which was further characterized by sex.

The second objective of the present study was to identify factors associated with dating violence victimization during the previous 5 years for the total sample, and males and females separately. Weighted odds of dating violence victimization during the past 5 years were estimated for the total sample, males and females using logistic regression for unadjusted models, and logistic regression with backward elimination procedures for adjusted models. Part of the second objective was to assess effect modification of sex by the factors associated with dating violence victimization. Hence, multiplicative interactions of sex by all study variables of interest were tested using logistic regression with backward elimination procedures.

5.1 Consideration of findings

5.1.1 Prevalence of dating violence victimization

Among respondents who were not married or living common-law for the past 5 years or longer and who dated in the past 5 years, the weighted proportion of Canadians aged 15 years and older who reported dating violence victimization during the past 5 years was estimated to be 4.1% among a sample of 12,119 survey participants. This estimate is lower than estimates from previous studies on dating violence victimization which have focused on young people. For example, in a national sample of 14,103 high school students, 9.9% reported physical dating violence victimization during the previous 12 months and 7.8% reported sexual dating violence victimization during the previous 12 months (Eaton et al., 2008). Similarly, in another national study of 16,460 high school students, 9.8% and 7.4% of the sample reported physical and sexual dating violence victimization, respectively, during the previous 12 months (Eaton et al., 2010).

There was a significant difference found between men and women in the weighted proportion of those reporting dating violence victimization during the past 5 years (2.9% and 5.3%, respectively). This finding is not surprising, as previous research has demonstrated that there are sex differences in the prevalence of dating violence victimization. However, it is important to note that previous studies found that physical dating violence victimization was more prevalent among males while sexual dating violence victimization was more prevalent among females. For instance, in a national sample of 14,103 high school students, 11.0% of males and 8.8% of females reported physical dating violence victimization during the previous 12 months, while 4.5% of males and 11.3% of females among the sample reported sexual dating violence victimization during the previous 12 months (Eaton et al., 2008). Similarly, in another national study of 16,460 high school students, 10.3% of males and 9.3% of females reported physical dating violence victimization during the previous 12 months, while 4.5% of males and 10.5% of females among the sample reported sexual dating violence victimization during the previous 12 months (Eaton et al., 2010). Unfortunately, the present study did not distinguish between physical and sexual dating violence victimization. Therefore, sex

differences in the prevalence of dating violence victimization may exist depending on the type of dating violence victimization experienced.

The weighted proportions of dating violence victimization in the various age categories deserve comment, despite not being a primary focus of the present study. In the total sample, the highest proportions of dating violence victimization during the past 5 years were found among those aged 25 to 34 years (5.7%) and 35 to 44 years (5.5%). Importantly, those who were 15 to 24 years of age did not have the highest proportion of dating violence victimization among the total sample (4.0%). Overall, the results show that the proportions of people reporting dating violence victimization does not decline with age as might be expected. These findings are important considering prior research has almost exclusively focused on dating violence among 12- to 25-year-olds (Arnett, 2015; Leen et al., 2013; Rubio-Garay et al., 2017). As such, future research should look at dating violence victimization in a range of age groups and not just among adolescents and young adults. Additionally, the highest proportions found among men were in the 35 to 44 years (4.0%) and 45 to 54 years (5.3%) age categories; whereas the highest proportions found among women were in the 25 to 34 years (9.1%) and 35 to 44 years (7.2%) categories. Therefore, patterns of age with dating violence victimization may be somewhat different for males and females and more research is required to look at these patterns more closely.

5.1.2 Factors associated with dating violence victimization

The next primary objective of the present study was to assess factors that were associated with dating violence victimization during the past 5 years. In particular, the contributions of socio-economic characteristics and neighbourhood disorder indicators towards explaining this outcome in both bivariate and multivariable models were examined.

5.1.2.1 Socio-economic characteristics

The results illustrated a limited role of socio-economic characteristics in explaining dating violence victimization among Canadians. In the bivariate analyses of the total sample, educational attainment was not found to be associated with dating violence victimization, whereas employment status was found to be significant. Those who were unemployed or

not looking for paid work had about 25% lower odds of being victimized by a dating partner compared to those who were employed. Unfortunately, to our knowledge, no other studies have previously examined the associations of educational attainment and employment status with dating violence victimization in an age-diverse sample. However, associations of parental education and parental employment with dating violence victimization have been previously studied among adolescent and young adult samples. The findings from such research are mixed. For example, Temple and Freeman (2010) reported null findings with respect to an association between parents' education and dating violence victimization among high school students. Spriggs et al. (2009) also found parental employment was not associated with dating violence victimization among high school and middle school students. On the other hand, Foshee et al. (2008) found lower levels of parental education were associated with higher levels of moderate physical dating violence victimization (β=-.15, p<.05). Similarly, Lehrer et al. (2010) found that maternal employment was associated with a substantially lower odds of physical dating violence victimization among college students (OR: 0.28, p<.05).

After adjustment for demographic characteristics, substance use, and childhood victimization in the multivariable model, employment status became non-significant. It is possible that the association between employment status and dating violence victimization was attenuated in the presence of social neighbourhood disorder, given the significant association between employment status and social neighbourhood disorder (χ^2(2)=28.4, p<.01).

Overall, given the inconsistencies in the literature, the role of socio-economic characteristics in explaining dating violence victimization among Canadians cannot be completely ruled out. It has been hypothesized that individuals of low socio-economic status may be more likely to experience dating violence victimization because all forms of violence are more prevalent in the areas where individuals of low socio-economic status reside, in comparison to areas where individuals of high socio-economic status reside (Fedina et al., 2016). Accordingly, further research is needed to examine the association

between socio-economic characteristics and dating violence victimization within the general population.

5.1.2.2 Neighbourhood disorder

The results indicated a significant role of neighbourhood disorder in explaining dating violence victimization. The bivariate analyses involving the total sample illustrated that both physical neighbourhood disorder and social neighbourhood disorder were associated with dating violence victimization. The bivariate association between perceived neighbourhood disorder and dating violence victimization has been previously examined in a systematic review using adolescent and young adult samples, but no significant association was found (Johnson et al., 2015).

In the multivariable model, after adjusting for other correlates including demographic characteristics, substance use, and childhood victimization, social neighbourhood disorder maintained statistical significance, but physical neighbourhood disorder did not. This lack of an association may be due to the statistically significant association between physical neighbourhood disorder and social neighbourhood disorder ($\chi^2(1)=193.4$, $p<.01$). Therefore, the relationship of physical neighbourhood disorder with dating violence victimization may be partly explained by its association with social neighbourhood disorder.

The observed association between social neighbourhood disorder and dating violence victimization may be explained by social disorganization theory (Pinchevsky & Wright, 2012). Simply put, the theory posits that neighbourhoods characterized by high levels of disadvantage are likely to have higher rates of violence, including dating violence, because residents of these disadvantaged neighbourhoods believe that acts of violence will go unpunished (Pinchevsky & Wright, 2012; Warner, 2003; Wright & Benson, 2010). Moreover, it has also been hypothesized that high neighbourhood disorder may amplify stress among dating couples, resulting in more violence erupting within relationships (Ross & Mirowsky, 2009; Wright & Benson, 2010). Based on routine activity theory, greater neighbourhood disorder may also indicate a greater likelihood of exposure to potential

offenders and fewer guardians to protect individuals from experiencing dating violence victimization (Mele, 2009).

5.1.2.3 Demographic characteristics, substance use and childhood victimization

The findings pertaining to demographic characteristics, substance use, and childhood victimization deserve comment even though they were not the primary focus of the present study.

In terms of the demographic characteristics, the results of the bivariate and multivariable analyses revealed that sex was significantly associated with dating violence victimization, with women having higher odds of dating violence victimization than men. This finding is in line with the theme of sex inequality demonstrated in previous literature. Namely, dating violence is more often perpetuated by men toward women (Dobash et al., 1992; Taquette & Monteiro, 2019). The violent behaviour exhibited is often excused by natural aggression, strength and sexual drive, thereby conveying the message that it is acceptable for men to engage in violence within their dating relationships (Barros & Schraiber, 2017; Taquette & Monteiro, 2019).

Age was significantly associated with dating violence victimization in both bivariate and multivariable models, although the patterns of findings differed in the two models. In the bivariate analyses, the age groups with the highest odds of experiencing dating violence victimization were 25 to 34 years (OR: 10.89, 95% CI: 9.10 - 13.03) and 35 to 44 years (OR: 10.54, 95% CI: 8.78 - 12.66). In the multivariable analyses, the age groups with the highest odds were 35 to 44 years (OR: 1.75, 95% CI: 1.30 - 2.37) and 45 to 54 years (OR: 2.11, 95% CI: 1.42 - 3.16). These results were surprising as we expected the odds of dating violence victimization to decrease as age increased in accordance with existing literature on sexual assault (Del Bove et al., 2005; Thomas et al., 2015). Thus, future research on dating violence victimization should not be restricted to young people. Notably, the magnitude of the odds for age and dating violence victimization diminished when other variables were controlled for in the multivariable model. Intercorrelations between age and

each of heavy episodic drinking (χ^2(4)=702.9, p<.01), cannabis use (χ^2(4)=259.8, p<.01) and illicit drug use (χ^2(4)=58.0, p<.01) were found and may explain attenuation in the association between age and sexual victimization. Overall, since dating violence has not been well studied among age-diverse samples, further research is needed to better understand the association between age and dating violence victimization within the general population.

Among the total sample, ethnicity was not significantly associated with dating violence victimization in either the bivariate or multivariable analyses. This finding is not consistent with previous research on studies with populations of adolescents and young adults. These studies have found that individuals who were Latina (Decker et al., 2007; Ramos et al., 2010), Asian (Chung-Do & Goebert, 2009), Black and Hispanic (Howard & Wang, 2003) were particularly vulnerable to dating violence victimization. Differences in the nature of the ethnicity variable may explain the conflicting findings in the present study. It was not possible to distinguish between different ethnic and racial groups as they were collapsed into "racialized" and "non-racialized" categories within the Public Use Microdata File of the General Social Survey, Cycle 28, 2014. Perhaps, if we were able to examine the relationships between belonging to specific ethnic or racial groups and experiencing dating violence victimization, we would have found some significant associations.

Unsurprisingly, current marital status was significantly associated with dating violence victimization in the bivariate and multivariable models. However, the patterns of these associations in these two models differed slightly. In the bivariate model, single people had greater odds of experiencing dating violence victimization compared to those who were married or living common-law. Whereas, in the multivariable model, those who were single and those who were widowed, separated, or divorced all had higher odds of dating violence victimization compared to those who were married or living common-law for less than 5 years. Obviously, those who are single, widowed, separated, and divorced are especially likely to experience dating violence victimization simply because they are more likely to date. Although no studies have previously examined current marital status and dating violence victimization, the literature on intimate partner violence may provide some

insight. Evidence shows that individuals whose relationships end because of victimization by an intimate partner may be at increased risk of experiencing violence at the hands of a new partner (Campbell et al., 2007; Reckdenwald & Parker, 2012; Sabri et al., 2014). Ko and Park (2020) have suggested that individuals may experience repetitive victimization because they are more likely to find themselves in subsequent relationships with potentially abusive intimate partners. Therefore, experiencing dating violence victimization after a relationship dissolution may be reflective of a similar pattern of repeated encounters with potentially abusive dating partners.

For substance use measures among the total sample, heavy episodic drinking and cannabis use were positively associated with dating violence victimization in both bivariate and multivariable analyses. These findings are consistent with the results of previous research examining these correlates in samples of adolescents and young adults. For instance, significant associations have previously been found with dating violence victimization for each of heavy episodic drinking and cannabis use (Parker et al., 2016; Temple & Freeman, 2010). The link between substance use and dating violence victimization can be explained through lifestyle and routine activity theories (Fattah, 1993; Mele, 2009). Engagement in substance use behaviours may create opportunities for dating violence victimization to occur by bringing together vulnerable targets and determined perpetrators in environments without proper authority and supervision (Parker et al., 2016). Interestingly, illicit drug use was significantly associated with dating violence victimization in the bivariate model but became non-significant in the multivariable model. Although previous research has substantiated the relationship between illicit drug use and dating violence victimization (DuRant et al., 2007), in the present study, the association between illicit drug use and dating violence victimization diminished in the presence of other variables including heavy episodic drinking and cannabis use. It is possible that heavy episodic drinking and cannabis use partly accounted for the effects of illicit drug use in the multivariable model, given their significant intercorrelations. For instance, the associations between each of heavy episodic drinking and cannabis use with illicit drug use were $\chi^2(1)=231.6$ ($p<.01$) and $\chi^2(1)=731.2$ ($p<.01$), respectively.

Childhood physical assault and childhood sexual assault were significantly associated with dating violence victimization in both bivariate and multivariable analyses. The pattern of findings in the present study is consistent with the results of previous research that have examined these correlates in populations of adolescents and young adults. For example, Tomsich et al. (2015) found an association between childhood physical maltreatment and dating violence victimization, and Cyr et al. (2006) reported an association between childhood sexual abuse and dating violence victimization. Social learning theory (Bandura, 1977; Bandura, 1978) posits that childhood abuse may result in higher susceptibility to dating violence victimization later on in life because individuals who were abused during their childhood may believe that violence constitutes normal behaviour in dating relationships. As such, these individuals may be less likely to avoid relationships with potentially abusive dating partners.

5.1.3 Sex differences in factors associated with dating violence victimization

Another primary objective of the present study was to assess sex differences in the associations of dating violence victimization across all domains of risk including socio-economic characteristics, neighbourhood disorder, demographic characteristics, substance use, and childhood victimization.

5.1.3.1 Socio-economic characteristics

The patterns of findings among males and females for the socio-economic characteristics were identical to the patterns of findings among the total sample. Educational attainment was not associated with dating violence victimization among males and females in the bivariate and multivariable analyses. However, for both males and females, employment status was significantly associated with dating violence victimization in the bivariate models but was nonsignificant in the multivariable models. As mentioned before, it is likely that the associations between employment status and dating violence victimization were attenuated in the presence of social neighbourhood disorder, given the significant intercorrelations between employment status and social neighbourhood disorder among males ($\chi^2(2)=12.4$, $p<.05$) and females ($\chi^2(2)=29.5$, $p<.01$). The association between

employment and neighbourhood disorder has previously been substantiated by Pinkster (2014), who found high levels of unemployment among residents in neighbourhoods with high disorder.

5.1.3.2 Neighbourhood disorder

Based on the sex-stratified bivariate analyses, physical neighbourhood disorder and social neighbourhood disorder were both associated with dating violence victimization. As with the findings of the total sample, physical neighbourhood disorder became nonsignificant in the multivariable analysis for both males and females. Again, this lack of association could be the result of the statistically significant intercorrelation between physical neighbourhood disorder and social neighbourhood disorder among males ($\chi^2(1)=80.9$, $p<.01$) and females ($\chi^2(1)=114.6$, $p<.01$). As for social neighbourhood disorder, the variable retained its significance among males but not among females in the multivariable analyses. Notably, there was also evidence of effect modification by sex between social neighbourhood disorder and dating violence victimization.

Exposure to neighbourhood crime and disorder has been found to be associated with having attitudes accepting of the use of violence to resolve conflict, including in dating relationships (Champion & Durant, 2001). Perhaps men hold these attitudes more so than women in the context of neighbourhood disorder. Therefore, men residing in areas with high social neighbourhood disorder may be more accepting of violence compared to women, which may increase their likelihood of experiencing dating violence. Moreover, the stronger association of social neighbourhood disorder with dating violence for men than for women suggests that the variable measuring social neighbourhood disorder in the present study may reflect theoretical formulations that are most pertinent to male behaviour, as previously suggested by Malik et al. (1997). In the present study, social neighbourhood disorder was measured by asking respondents about the use or sale of drugs in their neighbourhood. This aspect of social neighbourhood disorder may explain dating violence victimization more so among men than women.

5.1.3.3 Demographic characteristics, substance use and childhood victimization

In terms of the demographic characteristics, age was positively associated with dating violence victimization for both males and females in the bivariate analyses. However, after adjustment for other correlates in multivariable models, age remained significantly associated with dating violence victimization for females but not for males. In the multivariable analyses for women, the odds of dating violence victimization were highest among those in the 35 to 44 and 45 to 54 age groups. The dating violence literature has demonstrated that those who hold traditional gender-role beliefs tend to be more predisposed to dating violence victimization compared to those who hold less traditional or relatively equalitarian gender-role beliefs (Sears et al., 2007; Shen et al., 2012). Therefore, it is possible that women in or approaching the 45 to 54 age group had higher odds of dating violence victimization because they held more traditional gender-beliefs. Importantly, however, no effect modification by sex was found for age in relation to dating violence victimization. Thus, we cannot conclude that the association between age and dating violence is significantly different for males and females. In the bivariate and multivariable models for males and females, ethnicity was not significantly associated with dating violence victimization. As mentioned before, the lack of associations may be attributed to the way the ethnicity variable was collapsed in the present study. The association between current marital status and dating violence victimization was significant for women but not for men in both the bivariate and multivariable analyses, despite the lack of evidence for effect modification by sex. Most notably, women who were widowed, separated, or divorced had higher odds of dating violence victimization compared with women who were married or living common law for less than 5 years. This may be explained by women being less willing than men to proceed to the next step in a relationship (i.e., from dating to marriage or living common-law) after experiencing a union dissolution (Poortman & Hewitt, 2015). As such, choosing to remain in the dating phase of relationships, after experiencing divorce, separation, or widowhood, may put women at risk of experiencing dating violence victimization.

In the sex-stratified bivariate analyses, each of heavy episodic drinking, cannabis use, and illicit drug use was significantly associated with dating violence victimization for males and females. However, in the multivariable models, heavy episodic drinking was associated with higher odds of dating violence victimization solely for males, despite the lack of evidence of effect modification by sex. Some studies have suggested that heavy episodic drinking may be an indicator of antisocial personality and behaviour patterns that may make an individual vulnerable to victimization (Capaldi et al., 2012; Hines & Straus, 2007; Wilsnack et al., 2018). Given that antisocial traits are more common in men than women (Alegria et al., 2013), it is possible that heavy episodic drinking is more important in men's experiences of dating violence victimization in comparison to women's experiences of victimization. Nonetheless, further research is needed to determine whether males and females differ in terms of the associations between heavy episodic drinking and dating violence victimization, given that no evidence of effect modification by sex was found, but sex-specific analyses yielded different effects. Cannabis use was significantly associated with dating violence victimization for males and females in multivariable analyses. In addition to lifestyle and routine activity theories (Fattah, 1993; Mele, 2009) explaining the link between substance use and dating violence victimization discussed before, cannabis use may also cause impairment and increase an individual's vulnerability to victimization (Parker & Bradshaw, 2015). Illicit drug use was nonsignificant for both males and females after adjustment for other correlates in multivariable models including demographics, substance use measures and childhood victimization indicators. In the sex-specific multivariable models, the association between illicit drug use and dating violence victimization may have been attenuated in the presence of other variables including heavy episodic drinking and cannabis use. It is possible that heavy episodic drinking and cannabis use partially accounted for the effects of illicit drug use in the multivariable models for men and women, given their significant intercorrelations. For instance, there were significant associations between heavy episodic drinking and illicit drug use among males ($\chi^2(1)=96.3$, $p<.01$) and females ($\chi^2(1)=129.9$, $p<.01$), as well as between cannabis use and illicit drug use among males ($\chi^2(1)=242.9$, $p<.01$) and females ($\chi^2(1)=618.5$, $p<.01$).

Childhood physical assault was significantly associated with dating violence victimization for males and females in both bivariate and multivariable models. However, childhood sexual assault, while positively associated with dating violence victimization for both males and females in bivariate analyses remained significant only among females in the multivariable analyses. Importantly, however, no evidence of effect modification by sex for childhood physical or sexual assault with dating violence victimization were found. These findings may relate to the type of dating violence that men and women experience. Previous research has demonstrated that women are more likely to experience sexual dating violence, whereas men are more likely to experience physical dating violence (Eaton et al., 2008, 2010). Notably, the trajectory from sexual abuse in childhood to sexual violence in dating relationships has been well established, while there is less evidence to support the trajectory from sexual abuse in childhood to physical violence in dating relationships (Cyr et al., 2006; Hébert et al., 2017; Tietjen & Peterlin, 2011). As such, it is possible that early childhood sexual violence victimization is important in women's future experiences of sexual dating violence victimization, whereas men's childhood experiences of sexual violence victimization are less important in their experiences of physical dating violence victimization later in life. Overall, these findings suggest further research is needed to ascertain whether the associations between childhood sexual assault and dating violence victimization differ for males and females, given the lack of statistically significant effect modifications by sex, but differences in the pattern of findings in the sex-stratified analyses.

5.2 Implications of Findings

The findings indicate that dating violence victimization is not limited to adolescents and young adults; that is, all age groups are susceptible to dating violence victimization. Yet, intervention and prevention initiatives have largely targeted individuals in adolescence to emerging adulthood. In fact, most intervention and prevention programs have been school-based, taking place in middle and high schools as well as universities and colleges (De La Rue et al., 2014; Foshee et al., 2005; Shorey et al., 2012). The goal of these programs has largely been to educate students on the attitudes and behaviours present in healthy dating

relationships (Fellmeth et al., 2013; Peterson et al., 2018). Moving forward, these intervention and prevention efforts could be more broadly targeted towards all age groups.

Identification of those at an increased risk for dating violence victimization could be used to guide appropriate assignment of dating violence victimization prevention and intervention programs. For example, these programs could be targeted to those residing in neighbourhoods with a high level of social neighbourhood disorder as we found that those who rated social neighbourhood disorder as a big or moderate problem had higher odds of experiencing dating violence victimization compared to those who rated it as a small problem or not a problem at all. Moreover, as heavy episodic drinking and cannabis use, as well as childhood physical and sexual assault were found to be associated with dating violence victimization, resources dedicated to aiding those who struggle with alcohol, cannabis, and childhood trauma could be expanded to include education on preventing dating violence victimization.

5.3 Study strengths

There were several strengths of the present study that deserve mention. This study makes an important contribution to the previous literature on this topic by addressing several knowledge gaps. To our understanding, this is the first study to explore the prevalence of dating violence victimization and the factors associated with dating violence victimization using a national sample of Canadians, with respondents aged 15 years and older. Previous literature had predominately explored dating violence victimization occurring from adolescence into emerging adulthood (Arnett, 2015; Leen et al., 2013; Rubio-Garay et al., 2017). Broadening the age of the sample allowed for the exploration of various explanatory variables of dating violence victimization, such as age, current marital status, educational attainment, and employment status. Inclusion of these variables in prior studies was not possible as the samples would end up being homogenous in these factors. The independent contributions of these explanatory variables on dating violence victimization were assessed through bivariate analyses. Moreover, the individual contributions of all explanatory

variables were examined by constructing multivariable models, which is particularly imperative as it allowed for the examination of the factors in relation to each other.

In addition, an obvious strength to this study was the use of the large dataset. The General Social Survey, Cycle 28, 2014 had over 33,000 respondents across the ten provinces. Furthermore, the use of sample weights allowed for appropriate adjustments for response rates and to also ensure that the respondents included in the survey were an accurate representation of the overall Canadian population.

5.4 Study limitations

There were also several limitations of the present study despite the strengths noted above. The cross-sectional nature of the General Social Survey, Cycle 28, 2014 is the primary limitation of the present study. Cross-sectional data do not permit causal inference about the associations identified between the explanatory variables and dating violence victimization. Therefore, conclusions about temporal relationships between potential explanatory variables and experiencing dating violence victimization cannot be made.

Another key limitation of the present study relates to the outcome variable. To begin with, we were only able to explore dating victimization, not perpetration, as we relied on measures available in the General Social Survey data file and none focused on perpetration. Thus, this research does not help us understand why people perpetrate dating violence. Moreover, although two separate questions were asked about physical and sexual dating violence, these were combined in the Public Use Microdata File as physical and/or sexual violence by a dating partner. Some research indicates that factors associated with dating violence victimization are different depending on the type of dating violence examined (Eaton et al., 2010; Zweig et al., 2013). Additionally, the outcome variable in the present study did not assess psychological dating violence, which is considered one of the main types of dating violence, along with physical and sexual dating violence (Pozueco et al., 2013; Rubio-Garay et al., 2017; Stets & Henderson, 1991). The distinction between types

of dating violence may be especially important when attempting to assess sex differences in factors associated with dating violence victimization. As noted above, factors associated with sexual dating violence among women may be different from factors associated with physical dating violence among men. Thus, the explanatory roles of various factors associated with dating violence victimization may also have been undetectable due to the inability to distinguished between the various types of dating violence in the present study.

The measurement of various explanatory variables was also a limitation. For instance, the present study sampled respondents aged 15 years and older. However, previous studies have sampled individuals as young as 12 years of age (Banyard & Cross, 2008; Collin-Vézina et al., 2006; Swahn et al., 2008; Wolitzky-Taylor et al., 2008). Therefore, the present study is missing younger adolescents in the sample. In terms of ethnicity, the different groups were collapsed into "racialized" and "non-racialized" categories within the Public Use Microdata File of the General Social Survey. As such, we were unable to look at specific ethnic and racial groups individually to assess their risk of dating violence victimization. This is a limitation as previous studies have demonstrated that belonging to specific ethnic and racial groups was associated with dating violence victimization (Chung-Do & Goebert, 2009; Decker et al., 2007; Howard & Wang, 2003; Ramos et al., 2010). Additionally, heavy episodic drinking was considered having "5 or more drinks on the same occasion" for both men and women in the General Social Survey, Cycle 28, 2014 (Statistics Canada, 2016). However, as established in the literature, heavy episodic drinking is better measured when it takes into account women's lower body weight and higher metabolism, with a cut off of 5 or more drinks used for men but a cut off of 4 or more drinks for women (National Institute on Alcohol Abuse and Alcoholism, 2004). Therefore, the present study was not able to accurately assess heavy episodic drinking among women, who have a lower threshold compared to their male counterparts. Moreover, in the present study, social neighbourhood disorder was measured by asking respondents to rate how much of a problem people using or dealing drugs was in their neighbourhood. Yet, social neighbourhood disorder can take many forms including the presence of gangs and street prostitution in addition to the sale of drugs (Marco et al., 2015). Although the measurement of social neighbourhood disorder in the present study was limited, a previous study has

noted that the use and sale of drugs is an important aspect of social neighbourhood disorder (Parsons et al., 2010). Additionally, it is important to acknowledge potential mediating and moderating mechanisms that may explain dating victimization that were not tested in this study, such as a mediating role of illicit drug use in the relationship between social neighbourhood disorder and dating violence victimization (Chang et al., 2015; Johnson et al., 2015). Unfortunately, testing for mediation and moderation was beyond the scope of the present study but should be explored in future research.

An additional limitation is the omission of important explanatory factors, including the exclusion of the income variable. Income was a socio-economic characteristic that was initially planned as a primary explanatory variable, however, due to high missingness (33.8%), the variable was not included in the present study. Additionally, we could not examine the effect of other potentially important explanatory factors. The Public Use Microdata File of the General Social Survey, Cycle 28, 2014 did not contain sexual orientation or gender identity variables, which may be associated with dating violence victimization as shown in previous research (Dank et al., 2014; Espelage et al., 2018; Garthe et al., 2021; Reuter & Whitton, 2018; Sabina et al., 2016). Therefore, the present study was not able to investigate whether sexual orientation and gender identity were associated with dating violence victimization.

Systematic exclusion of portions of the population may have limited the generalizability results of this study. Individuals residing in institutions were excluded from the survey population. Similarly, households without an associated telephone number (either landline or cellular) were excluded from the survey population. The present study will be considered biased to the degree that these households differ from the target population. As these exclusions are small, since less than 1% of households did not have any phone services in 2013 (Statistics Canada, 2016), it is anticipated that the bias introduced would be similarly small. The General Social Survey, Cycle 28, 2014 contained a large sample with which to facilitate a reasonable comparison of those who experienced dating violence victimization and those who did not. Conversely, the response rate of 52.9%, although high for a national

population-based survey, may be indicative of non-response bias and non-generalizability of the results.

5.5 Recommendations for future research

There is a need for further research on dating violence victimization within the general Canadian population. Future research may benefit by giving due consideration to several recommendations outlined below. First, comprehensive assessments pertaining to dating violence victimization and perpetration should be included in future studies, such that information is collected on the type of dating violence experienced (i.e., physical, sexual, or psychological). These comprehensive assessments would not only facilitate examination of differences in factors associated with the various types of dating violence victimization but would also elucidate potential sex differences. Secondly, a future consideration would be to use more comprehensive assessments of explanatory variables which were limited in their measurement in the present study, such as age, ethnicity, heavy episodic drinking and social neighbourhood disorder. On the same note, the mediating and moderating roles of explanatory factors in explaining dating violence victimization should be explored further. Moreover, additional factors associated with dating violence victimization which could not be explored in the present study should be investigated in bivariate and multivariable models, including sexual orientation, gender identity and income. Lastly, longitudinal methodologies should be incorporated in future studies to assess temporality and make causal inferences about the relationships between the various explanatory variables and dating violence victimization.

5.6 Conclusion

The present study explored the prevalence of dating violence victimization and the factors associated with dating violence victimization in a national sample of Canadians using the General Social Survey, Cycle 28, 2014. Overall, it was estimated that a sizeable percentage

of Canadians experienced dating violence victimization in the past 5 years, and the sex-specific results demonstrated that more women than men experienced dating violence victimization. Although temporality was not established due to the study design of the survey, the adjusted effect estimates suggested that social neighbourhood disorder was significantly associated with dating violence victimization among the total sample. In the sex-specific adjusted analyses, social neighbourhood disorder was important for explaining dating violence victimization among men but not among women. Additionally, cannabis use and childhood physical assault were significantly associated with dating violence victimization for both men and women in the adjusted models. Among men, heavy episodic drinking was associated with dating violence victimization in the adjusted models. Whereas, among women, age, current marital status, and childhood sexual assault were associated with dating violence victimization in the adjusted models. This study provided insight into the prevalence of dating violence victimization and on the role of various factors in explaining dating violence victimization among Canadians, and among Canadian men and women separately.

Broadening the age of the sample was crucial because dating violence victimization can occur beyond adolescence and young adulthood. This study contributes to a very important area of research by providing evidence for the need of future intervention and prevention programs combating dating violence victimization to be aimed towards more age groups than simply adolescents and young adults. It is recommended that future research employ longitudinal databases that include more comprehensive measures of dating violence victimization and perpetration to gain insight on the direction of the relationships among the numerous variables of interest and dating violence victimization.

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Appendices

Appendix 1. Unweighted characteristics of total sample, males, and females by study variables of interest

	Total (N = 12,119)	Sex Stratified		
		Males (N = 5,568)	Females (N = 6,551)	
	Unweighted Frequency N(%)	Unweighted Frequency N(%)	Unweighted Frequency N(%)	Unweighted χ^2 (df)
Socio-economic Characteristics				
Educational Attainment				
High school diploma or less	5,857 (48.3)	2,834 (50.9)	3,023 (46.1)	28.5(2)**
College or trade school diploma	3,538 (29.2)	1,567 (28.1)	1,971 (30.1)	
University degree	2,724 (22.5)	1,167 (21.0)	1,557 (23.8)	
Employment Status (past 12 months)				
Unemployed, looking for paid work	212 (1.8)	130 (2.3)	82 (1.3)	142.2(2)**
Unemployed, not looking for paid work	5,445 (44.9)	2,188 (39.3)	3,257 (49.7)	
Employed	6,462 (53.3)	3,250 (58.4)	3,212 (49.0)	
Neighbourhood Disorder Indicators				
Physical Neighbourhood Disorder				
A big or moderate problem	1,018 (8.4)	470 (8.4)	548 (8.4)	0.1(1)
A small problem or not a problem at all	11,101 (91.6)	5,098 (91.6)	6,003 (91.6)	
Social Neighbourhood Disorder				
A big or moderate problem	1,503 (12.4)	621 (11.2)	882 (13.5)	14.8(1)**
A small problem or not a problem at all	10,616 (87.6)	4,947 (88.8)	5,669 (86.5)	

*p<.05, **p<.01

Appendix 1. (Continued)

	Total (N = 12,119)	Sex Stratified		
		Males (N = 5,568)	Females (N = 6,551)	
	Unweighted Frequency N(%)	Unweighted Frequency N(%)	Unweighted Frequency N(%)	Unweighted χ^2 (df)
Demographic Characteristics				
Age				
15 to 24 years	3,218 (26.6)	1,643 (29.5)	1,575 (24.1)	158.5(4)**
25 to 34 years	2,120 (17.5)	1,084 (19.5)	1,036 (15.8)	
35 to 44 years	1,508 (12.4)	704 (12.6)	804 (12.3)	
45 to 54 years	1,644 (13.6)	771 (13.9)	873 (13.3)	
55 years and older	3,629 (29.9)	1,366 (24.5)	2,263 (34.5)	
Ethnicity				
Racialized	1,973 (16.3)	987 (17.7)	986 (15.1)	15.8(1)**
Non-racialized	10,146 (83.7)	4,581 (82.3)	5,565 (84.9)	
Current Marital Status				
Single, never married	6,702 (55.3)	3,438 (61.7)	3,264 (49.8)	268.4(2)**
Widowed, separated, or divorced	3,797 (31.3)	1,329 (23.9)	2,468 (37.7)	
Married or living common-law	1,620 (13.4)	801 (14.4)	819 (12.5)	

*p<.05, **p<.01

Appendix 1. (Continued)

	Total (N = 12,119)	Sex Stratified		
		Males (N = 5,568)	Females (N = 6,551)	
	Unweighted Frequency N(%)	Unweighted Frequency N(%)	Unweighted Frequency N(%)	Unweighted χ^2 (df)
Substance Use Measures				
Alcohol Use Frequency (past month)				
Frequently	3,118 (25.7)	1,739 (31.2)	1,379 (21.0)	187.7(2)**
Infrequently	4,896 (40.4)	2,199 (39.5)	2,697 (41.2)	
Not at all	4,105 (33.9)	1,630 (29.3)	2,475 (37.8)	
Heavy Episodic Drinking (past month)				
At least once	3,621 (29.9)	2,182 (39.2)	1,439 (22.0)	426.1(1)**
None	8,498 (70.1)	3,386 (60.8)	5,112 (78.0)	
Cannabis Use (past month)				
Yes	1,156 (9.5)	765 (13.7)	391 (6.0)	210.6(1)**
No	10,963 (90.5)	4,803 (86.3)	6,160 (94.0)	
Illicit Drug Use (past month)				
Yes	118 (1.0)	78 (1.4)	40 (0.6)	19.5(1)**
No	12,001 (99.0)	5,490 (98.6)	6,511 (99.4)	

*p<.05, **p<.01

Appendix 1. (Continued)

	Total (N = 12,119)	Sex Stratified		
		Males (N = 5,568)	Females (N = 6,551)	
	Unweighted Frequency N(%)	Unweighted Frequency N(%)	Unweighted Frequency N(%)	Unweighted χ^2 (df)
Childhood Victimization Indicators				
Childhood Physical Assault				
At least once	3,586 (29.6)	1,888 (33.9)	1,698 (25.9)	92.2(1)**
Never	8,533 (70.4)	3,680 (66.1)	4,853 (74.1)	
Childhood Sexual Assault				
At least once	1,154 (9.5)	231 (4.1)	923 (14.1)	345.2(1)**
Never	10,965 (90.5)	5,337 (95.9)	5,628 (85.9)	

*p<.05, **p<.01

Appendix 2. Results for multicollinearity indicator tests

Multicollinearity was approximated in the present study through a measure of weighted variance inflation factors. According to statistical diagnostic principles, there is evidence for multicollinearity in linear regression if the variance inflation factors are equal or greater than 10. The table below presents estimated variance inflation factors for all study variables of interest by total sample, males, and females.

Variable	Total Weighted Variance Inflation Factor	Males Weighted Variance Inflation Factor	Females Weighted Variance Inflation Factor
Socio-economic Characteristics			
Educational Attainment	1.2	1.2	1.2
Employment Status (past 12 months)	1.2	1.2	1.2
Neighbourhood Disorder Indicators			
Physical Neighbourhood Disorder	1.2	1.2	1.2
Social Neighbourhood Disorder	1.2	1.2	1.2
Demographic Characteristics			
Sex	1.1	-	-
Age	1.3	1.3	1.3
Ethnicity	1.1	1.1	1.1
Current Marital Status	1.2	1.2	1.2
Substance Use Measures			
Alcohol Use Frequency (past month)	1.6	1.6	1.5
Heavy Episodic Drinking (past month)	1.6	1.7	1.5
Cannabis Use (past month)	1.2	1.1	1.2
Illicit Drug Use (past month)	1.1	1.1	1.1
Childhood Victimization Indicators			
Childhood Physical Assault	1.1	1.1	1.1
Childhood Sexual Assault	1.1	1.1	1.1

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