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The relationship between different dating violence profiles, mental health problems and mental well-being among Canadian youth

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Abstract

The current study examined the relationships among teen dating violence, mental health problems and mental well-being in 338 adolescents aged 14-21 (54% female). Secondary data were retrieved from an evaluation of a small groups healthy relationship program. Participants were grouped into four different dating violence profiles based on self-reported perpetration and victimization: not involved, perpetrators, victims and combined. Generalized Linear Models were used to examine the similarities and differences across types on depression, anxiety, mental well-being and binge drinking. Results suggested that the victims and combined profiles experienced greater mental health problems and decreased mental well-being compared to other profiles. Victims who reported binge drinking had decreased symptoms of depression, in comparison to victims who did not binge drink. Findings underscore the need to look holistically at challenges facing youth when developing health promotion or prevention programs; that is, finding ways to promote healthy relationships and positive mental health, while preventing relationship violence and substance abuse.

Keywords

Teen dating violence, mental well-being, mental health problems, binge drinking, victims, perpetrators, anxiety, depression, adolescence.

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Introduction

Adolescence is the developmental stage when youth begin experimenting with substances and romantic relationships, while working to establish their own sense of identity (Exner-Cortens, 2014). Unfortunately, due to a higher likelihood of partaking in risky behaviours and lack of experience, youth have increased vulnerability to victimization when managing challenges in romantic relationships (Belshaw, Siddique, Tanner, & Osho, 2012).

Dating violence refers to any sexual, physical, or psychological behaviour used to control someone within a romantic relationship (Olson, Rickert, & Davidson, 2004). The prevalence of dating violence (DV) is disquieting among today's adolescents. Previous research has found that 43% of police-reported DV incidents in Canada occurred among adolescents aged 15 to 24 (Hotton Mahoney, 2010). Further, in a study of 664 adolescents in a Canadian community sample, 33% of youth reported at least one act of dating aggression in a current or past dating relationship (Connolly et al., 2010).

Studies have found that victims of adolescent dating violence exhibit a higher likelihood of participating in unhealthy behaviours including: substance use, risky sexual behaviours, displays of somatization, depression, suicidal ideation and unhealthy weight control, suggesting a connection between teen DV and mental health problems. (Brown et al., 2008; Nahapetyan, Orpinas, Song, & Holland, 2014; Rizzo, Esposito-Smythers, Spirito, & Thompson, 2014). According to the World Health Organization (2014) *mental health* is defined as:

“A state of well-being in which every individual realizes his or her own potential, can cope with the normal stresses of life, can work productively and fruitfully, and is able to make a contribution to her or his community. (p.1)”

Recently, more attention has been devoted to understanding *mental well-being*, defined as

the ability to enjoy one's life, having a healthy balance between life activities, and the ability to cope with stressful situations (Patnaik, 2013). Although previous research has examined the relationship between mental health and DV, there has yet to be research exploring the relationships among adolescent dating violence, mental health, and mental well-being. The current study will explore this relationship by examining the similarities and differences across different DV profile types, while moderating for gender and binge drinking. It is expected that findings could contribute to mental health programs for youth, a priority listed by the Mental Health Commission of Canada (Mental Health Commission of Canada, 2012).

Literature Review

The relationship between DV victimization and mental health problems

Various studies have examined the co-occurrence of both internalizing and externalizing symptoms among victims of DV. Rizzo et al.'s (2010) study of 155 youth from an adolescent inpatient hospital found that victims of DV were more likely to present severe cognitive distortions specifically in relation to the cognitive triad (negative views of the self, world and future) than youth who were not victimized. Additionally, Brown et al. (2009) found that victims of DV also reported stronger levels of anxiety and depression than non-victims. This research suggests that DV victimization among adolescents is related to negative thinking patterns and mental health problems.

Another study by Nahapetyan and colleagues (2014) assessed adolescents between the grades of 6 and 12 over a five-year span. The longitudinal findings reported that adolescent victims of DV were twice as likely to report suicidal ideation in comparison to non-victims. Moreover, Belshaw et al.'s study (2012) found that victims of DV were twice as likely to attempt suicide, suggesting that victims are at a higher risk of severe self-injury. Victims of DV have

been found to exhibit more internalizing behaviours (for example, depression, anxiety, and suicidal ideation) and externalizing behaviours (for example, substance use, risky sexual behaviours, and somatization) than non-victims, underscoring the need to reduce the prevalence of dating violence among adolescents (Belshaw et al., 2012; Brown et al., 2008; Nahapetyan et al., 2014).

Co-occurring DV victimization and perpetration

Although previous research has often separated dating violence into two types (victims vs. perpetrators), recent research has revealed the prevalence of co-occurring violence. In a 5-year longitudinal study examining 1,316 adolescents, Richards and Branch (2011) found that 19% of youth identified as both a victim and a perpetrator dating relationships, suggesting the existence of co-occurring DV in some teen dating relationships. Similarly, in a qualitative study involving interviews with 956 adolescents, it was found that co-occurring DV was the most common (almost half of the sample) form of DV reported (Giordano, Soto, Manning, & Longmore, 2010). In addition, a recent study by Goncy and colleagues (2016) found that 40% of youth reported perpetration and almost half reported victimization within the previous three months. When examining the impact of dating violence perpetration and victimization on mental health, it was found that participants who identified as both a victim and a perpetrator reported similar levels of psychological distress as those who solely identified as victims (Goncy et al., 2016). Thus, these studies first indicate the frequency of co-occurring DV in adolescent dating relationships and its relation to adolescent mental health.

Gender

There have been differing results produced from recent research examining gender differences between both dating violence victimization and perpetration among adolescents. In a

nationwide study, Wolitzky-Taylor et al. (2008) found that female participants reported a higher prevalence of involvement in serious dating violence (2.7%) than males (0.7%). Similarly, Gony and colleagues (2016) found that female adolescents were more likely to be psychologically aggressive in romantic relationships than their male counterparts. Moreover, Sears, Byers and Price (2007) assessed the co-occurrence of multiple forms of dating violence among 633 adolescent boys and girls. The results from their study suggested that girls reported more psychological and physical forms of perpetration than males, except for sexually abusive behaviours (boys reported 17%, while girls reported only 5%) (Sears et al., 2007).

It is important to look at the severity of and the context in which the DV incident occurred in the context of gender inequality. Although some studies have reported more female perpetration (Gony et al., 2016; Wolitzky-Taylor et al., 2008), female adolescent police-reported DV victimization incidents in Canada were rated 10 to 1, in comparison to their male counterparts (Hotton Mahoney, 2008). Another study found that males reported more dating violence victimization, though female victims were almost three times more likely to report fear and injury (Hamby, Finkelhor, & Turner, 2012). It has been found that girls are more likely to use physical violence as self-defense, while boys are more likely to use it as a way to exert control (Connolly & Friedlander, 2009). This indicates that dynamics in adolescent relationships differs in terms of the motivation for the use of violence against a romantic partner.

Exner-Cortens, Eckenrode and Rothman (2013) compared the longitudinal effects of DV victimization amongst male and female youth. They found that five years following victimization, female victims reported more depression, alcohol and cigarette use, suicidal ideation, and repeated dating violence victimization in comparison to nonvictims. Male victims reported increased marijuana use, suicidal ideation, antisocial behaviours, and repeated dating

violence victimization in comparison to their nonvictim counterparts. Although there were some shared outcomes at the five-year interval, there were fewer shared outcomes after 10 years, suggesting that there is a difference in severity of impact between males and females.

Substance use

Several of the aforementioned studies have found the co-occurrence of mental health problems and substance use amongst both victims and perpetrators of teen dating violence (e.g., Brown et al., 2008; Exner-Cortens et al., 2013). These findings have been consistent throughout the literature and additional studies have examined the relationship between substance use and adolescent DV.

Temple and Freeman (2011) found that youth victimized by dating violence were more likely to report using substances, including: alcohol, cigarettes, marijuana and prescription drugs. Mason, Campbell, Zaharakis, Foster, & Richards (2014) found that youth psychologically victimized in a dating relationship were twice as likely to engage in substance use in comparison to youth who were physically victimized. Similarly, Parker and Bradshaw (2015) found that adolescents who were previously physically victimized in a romantic relationship were five times more likely to identify as high polysubstance users, while those psychologically victimized were four times more likely to identify as high polysubstance users than non-victims. In summary, findings across the literature suggest that substance use is a co-occurring problem with mental health for victims of teen DV, and may be used as a form of self-medication. Due to this strong relationship, future research necessitates examining substance use as a moderator for the effects of teen DV in order to fully understand the problems within the adolescent population.

Problem behaviour theory

Much of the dating violence research has integrated problem behaviour theory in generating possible explanations for the behaviours of both victims and perpetrators. Problem behaviour theory (Jessor & Jessor, 1977) proposes that individuals who have been involved in dating violence have a higher likelihood of developing psychopathologies due to the co-occurrence of problem behaviours (such as substance use and risky sexual behaviours), which can be health-compromising behaviours among adolescents. As such, problem behaviour theory used alongside research on the relationship between substance use and mental health problems provides a possible explanation of the behaviours of victims in abusive relationships.

Dating violence has also been linked to high-risk sexual behavior and substance misuse amongst victims (e.g. Parker & Bradshaw, 2015; Silverman, Raj, Mucci, & Hallaway, 2001; Vagi et al., 2013). Brown et al. (2008) recruited 204 youth between the ages of 15 and 25 in Melbourne, Australia who were involved in a public youth mental health service. After six months, the researchers found that victims of DV exhibited a higher likelihood of participating in risky behaviours including: substance use, risky sexual behaviours, displays of somatization and unhealthy weight control (Brown et al., 2008). Similarly, Silverman, (2001) found that female adolescent victims of dating violence were more likely to have strong suicidal ideation and engage in substance use, unhealthy weight control, and risky sexual behaviours. As aforementioned, Parker and Bradshaw (2015) found that adolescents victimized by teen DV within the past year are more likely to use substances, compared to those who were not involved in DV. In summary, utilizing problem behavior theory (Jessor & Jessor, 1977) could help identify risk factors for youth who are more vulnerable to engage in teen dating violence and create preventive programs for these youth.

The relationship between DV and mental well-being

Although previous research has found the strong association between teen DV and mental health problems, it is important to also consider its relationship to mental well-being.

Unfortunately, there is a large gap in the literature examining the relationship between mental well-being and teen dating violence.

Keyes' Two Continua Model

Over the past decade, Corey Keyes has argued that mental health is not a single construct; there are in fact various factors affecting positive and negative mental health (Westerhorf & Keyes, 2010). He describes two types of mental well-being: *languishing*, low subjective, psychological and social well-being and *flourishing*, high subjective, psychological and social well-being (as cited in Westerhorf & Keyes, 2010). In assessing the relationship between mental health and mental well-being, Keyes formulated the *two continua model* (Keyes, 2002).

According to Westerhorf and Keyes (2010):

“The two continua model of mental illness and health holds that both are related, but distinct dimensions: one continuum indicates the presence or absence of mental health, the other the presence or absence of mental illness. (p. 112).”

In adapting Keyes' two continua model to our current study, we will be referring to “mental health” as *mental well-being* and “mental illness” as *mental health problems* in order for the discussion to be more comprehensible for readers. In this study, we are talking about mental health problems more broadly because mental illness has connotations of diagnosis.

Keyes' two continua model is beneficial to research due to its view of mental health problems and well-being as separate entities, instead of two ends of one spectrum (Keyes, 2002). In other words, the model allows for the possibility for an individual to score low on mental

well-being, but that does not indicate that they also will present a high score on mental health problems (Keyes, 2002). Since mental health problems and mental well-being have yet to be examined in relation to adolescent dating violence, the two continua model will be valuable in developing a deeper understanding of the functional relationship among the three constructs.

Summary

Presently, there is an abundance of research demonstrating the prevalence of DV among adolescents and its influence on mental health problems. Victimization from an intimate partner can trigger mental health problems including: depression, anxiety, substance use, and suicidal ideation (Brown et al., 2008). Unfortunately, there has yet to be research comparing the relationship between both mental health and mental well-being to DV among youth. By using Keyes' two continua model, we will be able to further examine these relationships in the context of teen dating violence.

Methodology

The purpose of this study was to examine the overlap between mental health problems and mental well-being across different dating violence profiles among Canadian youth. In addition, gender and binge drinking were explored both as a main effect on mental well-being and mental health problems, and also as a potential moderator.

Procedure:

Secondary data were retrieved from the 2014-2015 pretest data from the evaluation of the *Healthy Relationships Plus Program (HRPP)*, a 15-week small groups program in Canada developed for youth to promote healthy relationships, mental health and substance use prevention (Townesley et al., 2015). Schoolboards across Canada were contacted by the HRPP team in regards to running the program with a research component (pre and post surveys), and

each school who did so was offered a \$500 compensation. Teachers then chose students who they thought would benefit from the program. Of the overall sample ($N = 879$), inclusion criteria consisted of participants who indicated being in a romantic relationship within the past six months and participants who were 14 years of age and older when the surveys were administered, resulting in 338 eligible participants. Ethics approval was provided by the university ethics review board.

Participants:

Participants ranged in age from 14 to 21 years ($M = 16.18$, $SD = .50$). Approximately half (53.8%) of participants identified as female, and 46.2% identified as male. The majority of participants (65.2%) were of White ethnic background, 21.7% Aboriginal, 1.8% African Canadian, 1.8% Arab Canadian, 1.5% Hispanic or Latino, 0.9% Asian Canadian, 0.3% other, and 6.8% were of mixed ethnicity. In addition, 58% of participants resided in the province of Ontario, 16.6% in Saskatchewan, 14.5% in Alberta, and 10.9% in the Northwest Territories.

Measures

Gender

Participants were able to identify their gender as: male, female, or “other”. Due to the small number of participants who identified as “other”, these cases were filtered out for subsequent quantitative analyses.

Mental Health Continuum – Short Form (MHC-SF; Keyes, 2009)

The MHC-SF is a self-report scale that was derived from the long form version (MHC-L) and consists of 14 items assessing overall well-being; three assessing emotional well-being, five assessing social well-being, and six assessing psychological well-being. Items were based on questions that asked participants to rate their experiences within the past month, ranging from 0

(never) to 5 (every day) on each of the 14 items. Example items assessing the different forms of well-being are: “happiness” for emotional well-being, “that you belonged to a community” for social well-being, and “that your life had a sense of meaning and direction to it” for psychological well-being. Higher scores indicated increased levels of mental well-being, while lower scores indicated decreased mental well-being. Preliminary analyses reported that the scale was reliable with this sample ($n = 300$, $\alpha = .92$).

Depression, Anxiety and Stress Scale (DASS-21; Lovibond & Lovibond, 1995)

The DASS-21 is a 21-item self-report scale assessing frequency of three negative emotion states: depression, anxiety and stress, with higher scores indicating increased levels of distress. The current study utilized 14 items assessing depression and anxiety on the DASS-21. Respondents were asked if they had experienced feelings characterized by statements within the past week, and rated the items on a scale from 0 (never) to 3 (more than 2 times). Items were subsequently recoded from 1 to 4 to accommodate analyses. An example of one of the items for depression is “I couldn’t seem to experience any positive feelings at all”, while an example for an item assessing anxiety is “I felt close to panic”. The depression scale was reliable with this sample ($n = 319$, $\alpha = .91$), as was the anxiety scale ($n = 319$, $\alpha = .84$).

Conflict Tactics Scale (CTS2, 10-item version; Straus & Douglas, 2004)

The self-report scale is a revised 10-item version of the CTS2, asking the respondent about the various occurrences of psychological and physical abuse within a dating relationship over the past six months. An example of psychological victimization is if a partner “call you names, insulted you, or treated you disrespectfully in front of others”, while an example of physical perpetration is if the participant themselves have “pushed or shoved” a romantic partner. Since they are yes/no questions, scoring is simple in indicating the prevalence of both

victimization and perpetration. Preliminary analyses reported that the scale was reliable ($n = 329$, $\alpha = .87$). In order to determine dating violence profile type (not involved, perpetrators, victims, combined), researchers identified whether a participant has indicated at least one type of involvement in either dating violence victimization or perpetration. If the participant indicated involvement in both, they would be identified as combined. If a participant didn't indicate any involvement, they would be identified as not involved.

Substance Use Behaviours (adapted from 2013 Youth Risk Behavior Survey, CDC)

The adapted 10-item self-report version from the Youth Risk Behavior Survey assesses the frequency youths use substances such as: alcohol, marijuana, other illegal drugs and prescription drugs. It also determines the age the youth first tried both alcohol and marijuana. In order to determine binge drinking, researchers examined participants' responses to one question: "During the past 30 days, on how many days did you have 5 or more drinks in a row, that is, within a couple of hours?" Participants rated from 0 (0 days) to 6 (all 30 days). If a participant indicated one or more days, they were classified in the binge-drinking category.

Design and Analyses

Preliminary analyses revealed that the distribution of residuals for depression was positively skewed, thus the assumptions for ANOVA were not met. For each of the main outcomes, the DV "involved" types were compared to the "no involvement" group using Generalized Linear Models (GLM). GLM was chosen because the residual distributions for both depression and anxiety were positively skewed. Following the initial model, a second model was run using the victim group as the reference to compare the combined and victim types. Gamma distribution with log link and robust estimation was used to examine depression and anxiety, and a normal distribution with log link and robust estimation was used for mental well-being, since

its distribution was close to normal.

Analyses looked at similarities and differences across DV types: not involved, perpetrators, victims, and combined on mental health outcomes. It was hypothesized that:

1. There would be a difference across DV types (not involved, perpetrators, victims, and combined) in mental health outcomes (depression, anxiety and mental well-being).
Specifically, that members in the victims group would be at an elevated risk of having mental health problems and decreased mental well-being than other types. Further, it is possible that the combined type would report even more mental health problems and decreased mental well-being compared to the other types.
2. That gender would moderate the mental health outcomes across DV types.
Specifically, that female participants would report increased levels of depression and anxiety, and decreased mental well-being compared to male participants.
3. That binge drinking would moderate the effect of DV type on mental health outcomes. Specifically, a significant relationship between DV type and binge drinking was expected.

Results

Initially, there were four DV types identified (not involved, victims, perpetrators, and combined). The perpetrators only type was significantly smaller than the other categories. (see Table 1).

Table 1*Number of participants in each dating violence profile type*

<u>DV Type</u>	<u>N</u>	<u>%</u>
Not involved	211	61.7
Perpetrators	17	5.0
Victims	38	11.1
Combined	76	22.2

Preliminary analyses of dating violence group means were conducted on levels of depression, anxiety, mental well-being, and binge drinking. Participants in the victims and combined types reported increased levels of depression, anxiety, and decreased levels of mental well-being compared to participants in the not involved and perpetrators types, however there appeared to be only minimal differences between the victims and combined types (see Table 2).

Table 2*Depression, anxiety, and mental well-being means by dating violence profile type*

	<u>Not involved</u>	<u>Perpetrators</u>	<u>Victims</u>	<u>Combined</u>
	<i>M(SD)</i>	<i>M(SD)</i>	<i>M(SD)</i>	<i>M(SD)</i>
Depression	13.80(6.22)	16.69(6.29)	17.17(7.21)*	17.55(6.49)*
Anxiety	13.15(5.61)	15.12(5.80)	17.21(6.23)*	16.08(5.45)*
Mental Well-being	42.46(14.44)	36.71(12.43)	35.41(13.30)*	34.13(13.38)*

Note * $p < .05$

Due to the small sample size of the perpetrators type, and our interest in examining victimization, we decided to collapse the perpetrators type into the not involved type. A Wald Chi-Square analysis from a GLM model reported that the difference between not involved and perpetrators was not significant on depression $\chi^2(1, N = 316) = 1.25$, n.s., nor anxiety $\chi^2(1, N =$

317) = .39, n.s. Similarly, the difference between not involved and perpetrators was not significant for mental well-being $\chi^2(3, N = 338) = 1.60$, n.s. Thus, due to the small number of perpetrators and the lack of significant differences between both types, researchers combined both the not involved and perpetrator types into one type “not victimized”. Hence, the dating violence type profiles became: not victimized, victims, and combined.

Preliminary results

A 2x3 chi-square analysis was used to examine the distribution of gender across types (not victimized, victims, and combined). As seen in Table 3, results indicated that the percentage of females and males was approximately even for the not victimized and victims typologies, however there were differences among the victims and combined profile types. There were more female victims (57%) than male victims (43%), and the percentage of females (64%) in the combined type was significantly higher than that of males (36%).

Table 3

Distribution of gender across types

<u>DV Type</u>	<u>Male</u> (%)	<u>Female</u> (%)
Not victimized (N = 226)	113 (50)	113 (50)
Victims (N = 37)	16 (43)	21 (57)
Combined (N = 75)	27 (36)	48 (64)

Gender, DV profile type and depression

A GLM model was used to look at the relationship between DV profile type, gender and

level of depression. Wald Chi-Square results indicated that the main effects of DV type on depression were significant $\chi^2(2, N = 316) = 15.73, p < .001$). Results indicated that victims reported more depression than those who were not victimized, and participants who identified as combined reported higher levels of depression than the not victimized type (see Table 4). As hypothesized, there was a significant main effect of gender on depression $\chi^2(1, N = 316) = 22.21, p < .001$, indicating that females reported higher levels of depression than males (see Table 4). Interaction effects between both gender and DV type were not significant $\chi^2(2, N = 316) = 2.01, n.s.$

Table 4

The relationship between gender, DV type and depression

	<u>B</u>	<u>SE</u>	<u>Wald χ^2</u>	<u>p</u>
Male	0 ^a			
Female	.23	.05	22.22	.000
Not victimized	0 ^a			
Victims	.18	.07	6.58	.010
Combined	.20	.06	12.53	.000

Thus, both hypotheses were supported in regards to depression. Victims and participants who identified as combined reported more depression than those who were not victimized, and female participants reported more depression than male participants. A second GLM model was run to determine the difference between participants in the victims and combined types. Wald Chi-Square results indicated that there was no significant difference on levels of depression between members in the victims and members combined types (see Table 5).

Table 5*Difference between victims and combined types on depression*

<u>DV Type</u>	<u>B</u>	<u>SE</u>	<u>Wald χ^2</u>	<u>p</u>
Victims	-.01	.09	.02	.893
Combined	0 ^a			

Gender, DV profile type and anxiety

A GLM model was used to look at the relationship between DV profile type and gender on level of anxiety. A Wald Chi-Square analysis indicated that main effects of DV type on levels of anxiety were significant $\chi^2(2, N = 317) = 18.76, p = .000$, and main effects of gender were significant $\chi^2(1, N = 317) = 28.29, p < .001$ (see Table 6). A two-way interaction between group membership and gender showed no significance $\chi^2(2, N = 317) = .11, n.s.$ As hypothesized, female participants reported more anxiety than male participants, and both victims and members of the combined types reported more anxiety than participants who were not victimized (see Table 6).

Table 6*The relationship between gender, DV type and anxiety*

<u>DV Type</u>	<u>B</u>	<u>SE</u>	<u>Wald χ^2</u>	<u>p</u>
Male	0 ^a			
Female	.23	.04	28.29	.000
Not victimized	0 ^a			
Victims	.24	.07	12.53	.000
Combined	.16	.05	11.17	.001

Both hypotheses were supported in regards to anxiety. Female participants reported more anxiety, and both victims and members in the combined types reported more anxiety than

participants in the not victimized group. A second GLM model was run to determine the difference between participants in the victims and combined types. Similar to depression, Wald Chi-Square results indicated that there were no significant differences between the two types (see Table 7).

Table 7

Difference between victims and combined types on anxiety

<i>DV Type</i>	<i>B</i>	<i>SE</i>	<i>Wald χ^2</i>	<i>p</i>
Victims	.08	.07	1.35	.245
Combined	0 ^a			

Gender, DV profile type and mental well-being

A GLM model was run to look at the relationship between DV profile type and gender on mental well-being. A Wald Chi-Square analysis indicated that main effects of DV type on mental well-being were significant $\chi^2(2, N = 338) = 18.78, p = .000$. Results indicated that victims and combined members reported lower levels of mental well-being, in comparison to the not victimized profile type (see Table 8). Main effects of gender on mental well-being were significant $\chi^2(1, N = 338) = 9.37, p = .002$. Female participants reported decreased levels of mental well-being, in comparison to male participants (see Table 8). Again, interaction effects between gender and DV type were not significant $\chi^2(2, N = 338) = .88, n.s.$

Table 8*The relationship between gender, DV type and mental well-being*

	<u>B</u>	<u>SE</u>	<u>Wald χ^2</u>	<u>p</u>
Male	0 ^a			
Female	-.17	.04	9.37	.002
Not victimized	0 ^a			
Victims	-.016	.06	6.78	.009
Combined	-.19	.05	14.65	.000

Thus, the first and second hypotheses were confirmed, because the victims and combined types reported decreased mental well-being compared to the not victimized type, and females reported worse mental well-being than males. A second GLM model was run to determine the difference between participants in the victims and combined types. Similar to depression and anxiety, a Wald Chi-Square analysis determined that there was no significant difference on mental well-being between members in the victims' type and members in the combined type (see Table 9).

Table 9*Difference between victims and combined types on mental well-being*

<u>DV Type</u>	<u>B</u>	<u>SE</u>	<u>Wald χ^2</u>	<u>p</u>
Victims	.03	.07	.19	.667
Combined	0 ^a			

Binge drinking and depression

It was hypothesized that a two-way interaction between binge drinking and DV profile type would be found, specifically that victims and combined group members who reported binge drinking would have increased levels of depression. A GLM model was run to look at this

relationship and Wald Chi-Square results indicated that the main effects of binge drinking on depression were not significant $\chi^2(1, N = 315) = .00$, n.s. However, interaction effects between DV type and binge drinking were significant $\chi^2(2, N = 315) = 8.45$, $p = .014$. No other two-way interaction effects were significant, nor the three-way interaction between gender, group membership and binge drinking. To follow-up, differences in binge drinking (yes vs. no) were examined within each type, controlling for gender. Similar to the preliminary findings, the main effects of gender were significant $\chi^2(1, N = 315) = 22.99$, $p = .000$, and female participants reported more depression than male participants in the not victimized and victims profile types. However, gender was not significant in the combined group (see Table 10). Surprisingly, victims who reported binge drinking in fact reported *less* depression than victims who did not binge drink (see Table 10).

Table 10

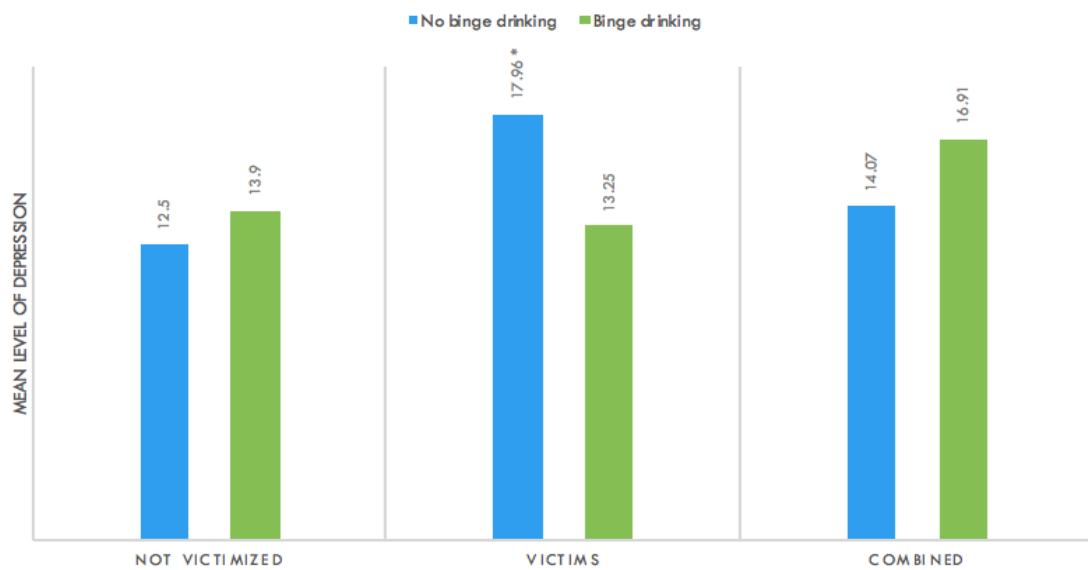
The relationship between gender, DV type, binge drinking and depression

<u>DV Type</u>		<u>B</u>	<u>SE</u>	<u>Wald χ^2</u>	<u>p</u>
Not victimized (N = 226)	Male (113)	0 ^a			
	Female (113)	.22	.06	13.68	.000
	Binge-No (191)	0 ^a			
	Binge- Yes (35)	.10	.06	2.39	.122
Victims (N = 37)	Male (16)	0 ^a			
	Female (21)	.43	.17	13.86	.000
	Binge-No (20)	0 ^a			
	Binge-Yes (17)	-2.86	.12	6.12	.013
Combined (N = 75)	Male (27)	0 ^a			
	Female (48)	.15	.10	2.17	.141
	Binge-No (24)	0 ^a			
	Binge-Yes (51)	.17	.11	2.61	.106

To summarize, the third hypothesis was partially supported. Victims who reported binge drinking actually presented with lower levels of depression than victims who did not binge drink, however this relationship was not observed with the combined profile type. To further examine this relationship, the interaction effect was plotted in Table 11.

Table 11

Interaction effects between DV type and binge drinking



Note * $p < .05$
 Estimated marginal means adjusted for sex

Binge drinking and anxiety

It was expected that a two-way interaction between binge drinking and DV profile type on levels of anxiety would be found. Specifically, that victims and combined participants who reported binge drinking would have more anxiety. Unlike the findings on depression, binge drinking did have a significant effect on anxiety $\chi^2(1, N = 315) = 4.01, p = .045$, however there were no significant interaction effects. Participants who did binge drink reported increased levels of anxiety (see Table 12). Main effects of gender were significant $\chi^2(1, N = 315) = 39.50, p =$

.000, as were the main effects of DV type $\chi^2(2, N = 315) = 14.12, p = .001$. Unlike the findings on depression, there were no interaction effects between DV profile type and binge drinking. Victims and combined types reported more anxiety than participants in the not victimized type (see Table 12).

Table 12

The relationship between gender, DV type, binge drinking type and anxiety

	<i>B</i>	<i>SE</i>	<i>Wald χ^2</i>	<i>p</i>
Male	0 ^a			
Female	.228	.04	27.50	.000
Not victimized	0 ^a			
Victims	.24	.07	11.49	.001
Combined	.12	.05	6.08	.014
Binge-No	0 ^a			
Binge-Yes	.09	.05	4.01	.045

To summarize, the main hypotheses were supported. Female participants reported more anxiety than male participants, and victims and combined types experienced higher levels of anxiety than the not victimized group. Participants who did binge drink reported increased levels of anxiety. Similar to the earlier findings, there were no significant differences on anxiety between victims and combined types $\chi^2(1, N = 316) = 2.42, n.s.$

Binge drinking and mental well-being

A two-way interaction was expected between binge drinking and DV profile type, specifically that victims and combined participants who reported binge drinking would have decreased levels of mental well-being. Wald Chi-Square results indicated that binge drinking did not have any main effects on mental well-being $\chi^2(1, N = 337) = 1.32, n.s.$, and there were no

significant interaction effects. Again, main effects of gender were significant $\chi^2(1, N = 337) = 8.91, p = .003$, as were the main effects of DV profile type $\chi^2(2, N = 337) = 14.32, p = .001$ and participants in the victims and combined types reported decreased levels of mental well-being (see Table 13).

Table 13

The relationship between gender, DV type, binge drinking and mental well-being

	<u>B</u>	<u>SE</u>	<u>Wald χ^2</u>	<u>p</u>
Male	0 ^a			
Female	-.12	.04	8.91	.003
Not victimized	0 ^a			
Victims	-.12	.06	6.00	.014
Combined	-.17	.05	10.56	.001
Binge-No	0 ^a			
Binge-Yes	-.05	.04	1.32	.250

To summarize, participants in the victims and combined types reported decreased levels of mental well-being, however there were no main effects of binge drinking on mental well-being, nor were there any interaction effects. Similar to the earlier findings, there were no significant differences between the victims and combined types $\chi^2(1, N = 337) = .07, n.s.$

Discussion

The purpose of this study was to examine the overlap between mental health problems and mental well-being across different dating violence profiles (not victimized, victims and combined) among Canadian youth, while also exploring co-occurring and moderating of binge drinking. In order to determine mental health problems, we examined levels of both depression and anxiety. We examined anxiety due to the fact it is the most common form of mental illness for children and youth in Canada, with a prevalence of 6.5% (Kirby & Keon, 2004), and depression because 3.2 million Canadian youth between the ages of 12 and 19 are at risk for developing depression (CMHA, n.d). By comparing levels of depression, anxiety, and well-being, we were able to develop a more holistic perspective when comparing the similarities and differences among different dating violence profile typologies. In this section, we will discuss preliminary findings, findings in context of previous literature, limitations of the study, implications for both practice and policy, and future directions.

Out of 338 participants, approximately half (53.8%) were female, and the majority of participants (65.2%) identified as white ethnic background. Preliminary analyses revealed that 66.9. % of the sample identified as not victimized from dating violence, 11.1% identified as victims, and 22.2% identified as both a victim and a perpetrator (i.e. “combined”). As hypothesized, there were some significant differences among the three DV types on mental health problems and mental well-being. Participants in the victims and combined types reported more depression and anxiety, and less mental well-being than members in the not victimized type, supporting previous research examining the effects of teen dating violence victimization (Brown et al., 2008). However, there was no significant difference between the victims and

combined types, suggesting that co-occurring dating violence can be just as distressing as solely victimization, similar to previous findings (Goncy et al., 2016).

With respect to gender, more female participants identified as a victim (57%) and combined (64%), in comparison to male participants. This is consistent with previous research on the prevalence of victimization among girls aged 15-24 (Hotton Mahoney, 2008), although other studies found higher rates of male perpetration (Wolitzky-Taylor et al., 2008). In addition, girls reported increased levels of depression and anxiety, and decreased levels of mental well-being than males, however, there were no interaction effects with DV profile types. These findings are consistent with previous research comparing gender differences on mental health problems following dating violence victimization (Exner-Cortens et al., 2013; Silverman et al., 2001).

Participants in the victims and combined profile types who reported binge drinking, had higher levels of depression and anxiety and lower levels of mental well-being. These results are consistent with problem behaviour theory, which postulates that youth involved in dating violence are more likely to develop psychopathologies and engage in risky behaviours (Jessor & Jessor, 1977). However, when examining depression, there was a significant interaction effect between DV type and binge drinking. Members in the victims profile type who reported binge drinking had *decreased* levels of depression, in comparison to victims who didn't report binge drinking. This new finding has yet to be presented in previous research on teen dating violence, and contradicts problem behavior theory (Jessor & Jessor, 1977). It is interesting that findings were different for members in the combined type since there were no significant differences between the two victims types in all other analyses, suggesting that the influence of perpetration creates a difference between the two profile types. One possibility for this finding is that victims

are using alcohol as a coping strategy to escape their depression alone, while members of the combined type drink socially. Unfortunately, alcohol has been found to decrease emotion regulation (Berking et al., 2011), and if members in the combined type are drinking in social situations and have decreased emotional regulation, they might get into more conflicts, thus increasing their levels of depression. However, levels of anxiety did not decrease for victims who reported binge drinking, suggesting that there is a difference between the two forms of mental health problems examined in the current study. In all other analyses from this study, when depression increased among participants, so did anxiety. Thus, why does the factor of binge drinking provide a different result among victims? Somehow, binge drinking becomes a protective factor for depression among victims of DV. Would this be consistent with other substances, such as marijuana? It is also important to consider the trajectory for binge drinking in this study, since participants were classified into this group as long as they reported binge drinking at least once within the past month. Therefore, we are unsure of the severity and frequency of binge drinking among this group, and there could be differences between participants who reported binge drinking only once within the past month, and those who reported binge drinking 20 days or more.

Limitations

There are several limitations to this study that should be taken into consideration. Firstly, the data relied on self-reported data, which can be subject to social desirability bias and problems with recollection (can you get a reference here?). Secondly, surveys were developed for a broader purpose than investigating dating violence and mental health. As a result, there was limited attention to potential protective factors. In addition, due to the proportion of youth dating, some groups could not be considered due to small sample size once the groups were broken

down. For example, the sample group of perpetrators was not large enough to be analyzed separately. In addition, we were unable to compare different forms of dating violence (such as physical, sexual, and psychological). We were also unable to examine participants' histories of trauma, which may have distinguished the severity of victimization among the victims' typologies. More importantly, contextual factors such as the severity and impact of dating violence were not included, such that all experiences of violence were grouped together. Another limitation is the binge drinking variable had a range from 1 day to 20 or more days, and grouping participants into one group could be an overestimate and blur the results. Furthermore, the study was cross-sectional, so we were unable to look at the longitudinal effects of DV victimization and the differences regarding the severity of mental health problems and mental well-being between males and females that have been found in previous studies (e.g. Exner-Cortens et al., 2013).

Moreover, there was only 17 victims who reported binge drinking. Thus, the finding that victims who binge drink present lower levels of depression than those that don't must be further examined to determine its significance. Lastly, due to the small number of trans youth, we were unable to examine that population and how the relationships among dating violence, mental well-being and mental health problems might have differed for this group.

Implications and Future Directions

The current study examined the relationship between teen dating violence and mental health problems, but was expanded to also include its impact on mental well-being. Keyes' two continua model (2002) states that mental health problems and mental well-being are not two ends of a continuum, but should be viewed as separate entities. Though findings between dating violence and mental health problems and mental well-being are complementary (i.e. participants who had

decreased mental well-being showed increased mental health problems, and vice versa), the current study is notable by being one of the first to look at this relationship among Canadian youth. However, it would be beneficial for future research examining teen DV to focus on both mental health problems and mental well-being together with Keyes' two continua model in order to determine the consistency of these findings. As mentioned in the limitations, different results might have presented if the researchers could have examined contextual factors and different forms of dating violence (such as physical, psychological, and sexual).

There are several implications for both practice and policy resulting from this study. Firstly, it supports previous research on both the prevalence and the effect of DV victimization on adolescent females (Exner-Cortens et al., 2013; Silverman et al., 2001). More girls were in the victims and combined typologies, and reported more mental health problems and decreased well-being, in comparison to boys. Secondly, participants in the victims and combined profile types reported increased depression and anxiety, and decreased mental well-being, suggesting that both forms of victimization can be equally distressing. A new finding from this study was that victims who reported binge drinking had *decreased* levels of depression compared to victims that did not, suggesting that alcohol is potentially being used as a coping strategy. Further research is needed due to adolescents' access to alcohol and whether this "protective factor" reduces depression long-term, or only in the short-term. It would be useful for future research to include age as a moderator, in order to examine the developmental differences across adolescence. Moreover, why did only the level of depression decrease with victims who reported binge drinking, but not the level of anxiety? In all other analyses from this study, results were comparable between depression and anxiety (i.e. when one increased, as did the other, and vice versa). Thus, further examination of the differences between depression and anxiety among

victims of teen DV is important. Additional research would also be helpful by looking at other forms of substances, such as marijuana, prescription drugs, and hard drugs.

Unlike the combined type, victims who reported binge drinking had lower levels of depression, suggesting that the influence of perpetration creates a distinction between the two typologies. Additional research could be helpful in determining the differences between the two profile types (victims vs. combined) and their relationships with substance use. Further, with a larger sample it would be helpful to look at differences between perpetrators and individuals who identify as combined. Though this study found no other differences between the combined and victims groups besides binge drinking, it was previously found that delinquency was more likely to predict co-occurring violence, while sexual harassment predicted victimization (Chiodo et al., 2012). Thus, examining other factors and different forms of victimization and perpetration could lead to new insights in this area of research.

As discussed in the limitations section, the current study was unable to look at the effects of teen dating violence among trans youth. There is emerging literature on dating violence among LGBTQ youth (Dank, Lachman, Zweig, & Yahner, 2014; Freedner, Freed, Yang, & Austin, 2002; Gillmun & DiFulvio, 2014; Martin-Storey, 2015). Findings from a recent study examining 3,745 youth in the United States found higher rates of LGB youth DV victimization, including physical, psychological, cyber, and sexual abuse, than did heterosexual youth (Dank et al., 2014). It was also found that DV perpetration was higher among LGB youth than heterosexual youth (Dank et al., 2014). Unfortunately, there have not been recent studies examining this topic among trans youth in Canada. Future research could examine the roles of intersecting gender and sexual identities and the relationships with mental well-being, mental health problems and dating violence. This is an important topic due the higher risk of trans youth

in developing mental health problems and substance abuse (CMHA, n.d). It was found that LGBTQ youth in Canada are at a greater risk of suicide and substance abuse than their heterosexual peers (CMHA, n.d). Due to the higher likelihood of attempted suicide for both victims of teen DV, and for LGBTQ youth (Belshaw et al., 2012; CMHA, n.d), additional research examining the effect of teen DV victimization among Canadian trans youth is important.

The implications from this study in turn provide suggestions when working with today's youth. For example, it should be kept in mind when working with adolescents that now there is a difference between males and females on the severity of impact following dating violence victimization. Acknowledging the heightened level of risk for LGBTQ youth could also aid in developing a more sensitive perspective when working with this population. Further, the finding that co-occurring violence can be just as distressing as victimization alone, can help in identifying and preventing abusive adolescent relationships.

In summary, the current study provides insight on the individual factors related to effects of adolescent dating violence and binge drinking on mental health outcomes among Canadian youth. Youth aged 15 to 24 are at higher risk for mental illness and substance abuse (Statistics Canada, 2013). Further, between the years of 2011 and 2014, the number of Canadian youth aged 12-19 diagnosed with a mood disorder rose from 1,334,198 to 1,460,337 (Statistics Canada, 2016). Thus, mental illness in Canada is rising among Canadian youth, and with research suggesting that DV victimization is associated with additional mental health problems, the development of programs addressing the promotion of positive mental health and prevention of both teen dating violence and substance abuse is essential. Programs such as the *Healthy Relationships Plus Program* (Townesley et al., 2015) and *The Fourth R* (Wolfe et al., 2001) have

been designed to promote mental health and well-being, while reducing substance abuse among Canadian youth. In a study of 1,722 students, *The Fourth R* was found to reduce physical dating violence and improve condom use 2.5 years following program implementation (Wolfe et al., 2009). Future programs can be modeled on the proven success of *The Fourth R* by addressing issues in holistic ways suitable for adolescent development. The focus on children and adolescent mental health has been listed as a priority for the Mental Health Strategy for Canada (Mental Health Commission of Canada, 2012), and programs such as these can help by increasing positive mental health, developing adaptive coping skills, and reducing substance use among Canada's adolescent population.

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