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## **“Send Me Your Location”: Examining Cyber Dating Abuse Victimization and Self-Esteem in Adolescents**

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“SEND ME YOUR LOCATION”: EXAMINING CYBER DATING ABUSE VICTIMIZATION  
AND SELF-ESTEEM IN ADOLESCENTS

by

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Submitted in Partial Fulfillment  
of the requirements for the degree of  
Bachelor of Arts  
in  
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Faculty of Arts and Social Science

Huron University College

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CERTIFICATE OF EXAMINATION

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The thesis by:

Grace Millett

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Date

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## Abstract

Although research on the impact cyber dating abuse (CDA) has on individuals' psychological well-being is beginning to grow, little is known about its relation to self-esteem. This study examined the bidirectional relationship of CDA victimization and self-esteem in adolescents using a longitudinal design. Participants were 28 adolescents (71% female, 25% male, 4% transgender) ranging in age from 14 to 18 years ( $M = 15.89$ ,  $SD = 1.29$ ) who had been in a romantic relationship for at least one month. Participants completed self-report assessments of CDA victimization and self-esteem 3 months apart. It was hypothesized that a reciprocal relationship would emerge between self-esteem and CDA victimization, in which individuals with lower self-esteem at Time 1 would experience increased CDA from Time 1 to Time 2, and individuals who experienced more cyber dating abuse at Time 1 would show decreases in self-esteem from Time 1 to Time 2. Electronic intrusiveness and direct aggression, two subscales of CDA, were also examined individually. A series of linear regressions revealed that lower Time 1 self-esteem predicted an increase in direct aggression victimization from Time 1 to Time 2; however lower self-esteem at Time 1 was not found to be a significant predictor of increased electronic intrusiveness victimization at Time 2. Further, the reverse relations, with CDA victimization predicting self-esteem were not significant. These findings suggest adolescents low in self-esteem may be at increased risk for online direct aggression victimization. Implications, results for adolescents' well-being, as well as prevention, intervention, and future directions are discussed.

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## Introduction

In recent years, the use of technology and social networking sites (SNS) in the romantic relationships of adolescents has become not only normative, but essential. A recent study found that 84% of high school students stated that technology is an integral part of their romantic relationships (Waterlaus, Tulane, Porter & Beckert, 2018). In this same study, adolescents estimated that between 50-60% of their communication with romantic partners occurred through technology. These rates of electronic communication within romantic relationships are startling, and it demonstrates the need for research in this domain. While social networking sites allow adolescents to gain information about their partners as well as to easily communicate with them (Van Ouytsel, Van Gool, Walrave, Ponnet & Peeters, 2016), it can also act as a new and easy way for adolescents to abuse their partners online.

Cyber dating abuse (CDA) has been defined as the "control, harassment, stalking, and abuse of one's dating partner via technology and social media" (Zweig, Lachman, Yahner, & Dank, 2014, p. 1306). Cyber dating abuse can be divided into two components: direct aggression and electronic intrusiveness. Direct aggression consists of electronic behaviours intended to harm a partner such as threats, whereas electronic intrusiveness consists of surveillance or invasion of privacy of a partner (Borrajo, Gámez-Guadix, Pereda, & Calvete, 2015; Doucette et al., 2018). Negative outcomes have been found to be associated with both these components, with victimization of direct aggression and electronic intrusiveness correlating with victimization of in-person physical and psychological abuse (Borrajo et al., 2015).

CDA differs from traditional dating abuse in several ways, the first being its lack of both geographical and temporal boundaries, allowing more opportunities to abuse one's partner

(Kiriakidis & Kavoura, 2010; Smith, 2012). CDA is also unique because technology allows for information to be distributed more quickly, it can be displayed in a public manner, and it may be permanent unless the partner decides to remove it. In addition, the minimal privacy that comes along with constant communication via technology may foster unhealthy relationship behaviours (King-Ries, 2011). These features result in easier perpetration of aggression with partners, which can intensify victims' feelings of emotional distress. These distinct attributes of CDA illustrate the importance of examining it as its own form of dating abuse, and not simply categorizing it as psychological abuse.

Experimentation with romantic relationships begins to emerge in the adolescent years, with almost three quarters of teenagers in the United States between the ages of 13 and 16 years having experience with dating (Eaton, Kann, Kinchen, Shanklin, Ross, & Hawkins, 2010). During this time, adolescents strive to achieve healthy romantic relationships so they can use them to facilitate their sense of identity and sexuality, as well as to increase their interpersonal skills, social status, self-worth, and to gain conflict resolution skills (Brown et al., 1999; Connolly & McIsaac, 2011; Sorensen, 2007). However, adolescents today face the unique problem of attempting to navigate romantic relationships with the integration of technology, which further complicates the distinction between what behaviours between dating partners are considered healthy and unhealthy. Additionally, adolescents aged 12-17 are significantly more likely to use technology to communicate, compared to any other age group (Jones & Fox, 2009), which may put adolescents at an increased risk for CDA victimization. Recent research suggests victimization of CDA seems to peak in middle to late adolescence (Temple, Choi, Brem et al., 2016), with prevalence rates in youth of 22-26% (Temple et al., 2016; Zweig et al., 2014), and up to 41% in clinic-based samples (Dick et al., 2014). Much of the research on CDA has been



conducted on adult populations (Bennett, Guran, Ramos, & Margolin, 2011; Borrajo et al., 2015; Duerksen & Woodin, 2019; Hancock, Keasy, & Ellis, 2017), but due to these unique factors, there is a clear need to study the effects of CDA victimization in adolescent samples.

Another reason it is important to examine the impacts of CDA victimization in adolescents is that previous research has shown that teenagers do not perceive electronic aggression and dating violence to be harmful to their well-being. Patchin and Hinduja (2006) found in their research that out of 113 adolescents who had experienced online bullying, 43% reported they believed electronic aggression did not affect them, and nearly a quarter reported that when they experienced online aggression they did not do anything about it. Literature on intimate partner aggression has shown that adolescents tend to report experiences of dating violence victimization as “not so bad”, and acts of violence such as monitoring and controlling behaviours tend to be seen as irritating, but not aggressive (Baker & Helm, 2010; Helm, Baker, Berlin & Kimura, 2015; Schumacher & Slep, 2004). These findings suggest that adolescents may normalize experiences of electronic aggression, as well as abusive behaviours perpetrated by dating partners. It has been proposed that with adolescents sending many text messages every day, instances of controlling or monitoring may be easy to overlook (Bennett et al., 2011). Additionally, some research has even found that adolescents may mistakenly interpret monitoring and controlling behaviours as signs that their partner trusts and loves them, as well as a sign of being in a committed relationship (Lucero, Weisz, Smith-Darden, & Lucero, 2014; Williams, 2012). Adolescents perceiving electronic and traditional dating aggression simply as bothersome, but not harmful, is concerning, considering the recent literature that has shown the impact it can have on one’s well-being. Victimization of CDA in adolescents has been linked to several negative outcomes, such as depressive symptoms, heavy episodic drinking, and

contraceptive non-use, as well as an increased likelihood of being victims of in-person psychological, physical and sexual abuse (Dick et al., 2014; Van Ouytsel et al., 2016; Zweig et al., 2014). Additionally, research into victimization of CDA in university students has been linked to increased alcohol use, increased substance use, and perpetration of aggression (Bennett et al., 2011). Whereas research into the effects of CDA on behaviour is catching up, its significance on our psychological processes such as self-esteem are less understood.

Taking from the literature on intimate partner aggression, victimization of dating abuse has been shown to have negative impacts on individuals' self-esteem (Rill, Baiocchi, Hopper, Denker, & Olson, 2009). One theory that proposes an explanation for this is Sociolocation Theory, which argues that individuals in part derive their self-identity from relationships, with dating relationships having the most significant impact (Burton, Halpern-Felsher, Rehm et al., 2013). Thus, individuals who experience dating aggression from their partners may incorporate this into their self-identity and overall self-worth, contributing to a lower sense of self-esteem. Low self-esteem in adolescence has been shown to be predictive of decreased academic achievement, higher tolerance for deviancy and increases in depressive symptoms in adulthood (Zimmerman, Copeland, Shope & Dielman, 1997). Thus, it is important to gain knowledge about the potential contributors to low self-esteem in adolescents, in order to promote their psychological well-being.

To date, only two previous studies have been conducted examining the effects of CDA on self-esteem. Hancock, Keasy and Ellis (2017) surveyed 155 Canadian university students aged 17 to 25 and found CDA to be significantly associated with self-esteem in a negative direction. Hancock and colleagues theorize that these results may be due to the tendency for adolescents to incorporate others' perceptions of them into their own self-concept. Thus, victims of CDA

experience constant monitoring and mistreatment from their partners, and interpret these behaviours as representative of their self-worth, causing them to internalize feelings of inferiority and incompetence. Similarly, Smith, Cénat, Lapierre, Dion, Hébert, and Côté (2018) examined a sample of 190 adolescents in Quebec. Their results demonstrated that experiencing victimization of hostile cyber dating abuse such as threats was significantly related to lower self-esteem in adolescents.

In addition to low self-esteem being an outcome of dating abuse, it has been suggested that low self-esteem may also be a risk factor for experiencing aggression. Egan and Perry (1998) posit that perpetrators may view individuals with low self-esteem to be vulnerable, thus making them an ‘easy target’. A potential explanation for why low self-esteem may be a risk factor for dating abuse comes from our knowledge of Self-Verification Theory. Self-Verification Theory states that we tend to seek out information that confirms what we already believe to be true about ourselves (Swann, 1983). Thus, individuals may seek out partners whose behaviours confirm the self-conceptions they already hold. From this we can infer that individuals with low self-esteem may in fact seek out partners who will abuse them, thereby confirming their negative self-beliefs. Individuals who are constantly monitored by their partner may internalize the belief that they themselves are not trustworthy and are a bad partner, contributing to a still-lower sense of self-worth (Hancock et al., 2017). Additionally, it has been found that individuals with low self-esteem will more readily expect and accept negative feedback compared to those with high self-esteem (Blaine & Crocker, 1993). This is especially a concern for teenagers, who generally experience a decrease in self-esteem over the course of adolescence (Robins & Trzesniewski, 2005). Gaining a further understanding of the relationship between CDA victimization and self-esteem in adolescents may allow for greater intervention and prevention methods. For example,

encouraging high schools to incorporate the education of these effects into schools allows for this knowledge to be mobilized towards the population that is affected most.

Previous research has shown a link between CDA victimization and low self-esteem, however no study to date has examined this relationship in a longitudinal design. In the present study, CDA victimization and self-esteem in adolescents will be measured three months apart, thus allowing for this relationship to be examined in a bi-directional manner, with self-esteem acting as both a predictor and an outcome of CDA victimization. Additionally, the present study will examine how two components of CDA, direct aggression and electronic intrusiveness, associate with self-esteem, which has yet to be covered in the literature. It is hypothesized that a reciprocal relationship will emerge between self-esteem and CDA, in which individuals who experience more CDA at Time 1 will show decreased self-esteem from Time 1 to Time 2 (three months later), and individuals with lower self-esteem at Time 1 will show increased CDA from Time 1 to Time 2.

## **Method**

### **Participants**

Participants were 28 adolescents in Grades 9 to 12 from two high schools, Brantford Collegiate Institute & Vocational School and McKinnon Park Secondary School. Both were within the Grand Erie District School Board in Ontario, Canada. Criteria for eligibility in this study included that participants had to be high school students at one of these two schools, have had a dating relationship for at least one month, and be able to read and write in English fluently. From the original sample of 123 students who agreed to participate, data from 17 were removed as these participants did not fill out the validation questions correctly, data from 61 were

removed as they did not meet the dating relationship criterion, and data from a further 17 were removed as they did not complete the Time 2 survey. The final sample of 28 participants ranged in age from 14 to 18 years ( $M_{age} = 15.89$ ,  $SD = 1.29$ ). Participants identified as 71% female, 25% male, and 4% as transgender. The majority of participants in this study identified as White/European (85.7%), with the remainder identifying as Aboriginal/North American Indian (7.1%), Asian (3.6%), and East Indian (3.6%).

### **Procedure**

In December 2019, a research team consisting of six undergraduate researchers and two university professors visited high school classrooms in pairs to personally invite students to participate in the study. Students were given a verbal description of the study, and those who were interested were given letters of information and parental consent forms that they were instructed to have signed by their parents in order for them to be able to participate. Fifteen classrooms were visited at Brantford Collegiate Institute & Vocational School, with approximately 225 consent forms distributed to students. Eight classrooms were visited at McKinnon Park Secondary School, with approximately 200 consent forms distributed to students.

Participants provided the researchers with photos of their signed parental consent forms either via email or text message<sup>1</sup> and were then emailed an online link to Survey 1 that they completed outside of class time. The cell phone numbers and email addresses used to receive consent forms were used only for this purpose, and only the researchers had access to them. Survey 1 was available for participants to complete from December 17<sup>th</sup>, 2019 to February 27<sup>th</sup>, 2020 (last possible response date) and took approximately 30-45 minutes to complete. Survey 1 contained demographic questions such as age, gender, and ethnicity, as well as the validated

<sup>1</sup>Due to a work to rule teacher's strike, we were not permitted to return to these high schools after our initial recruitment date. Therefore, consent forms were collected digitally rather than in hard copy.

Rosenberg Self-Esteem Scale (Rosenberg, 1965) and CDA Victimization items. Participants were also asked general questions relating to their dating relationships such as “What is the length of your current relationship or most recent relationship in months?” and “How often do you communicate online with your partner?”. Further, because this study was conducted as part of a larger project, participants were also asked to complete measures not related to the present study. Finally, in order to link data between Survey 1 and 2, while maintaining participant anonymity, participants were asked to create an ID code consisting of the initial of their first name, initial of their last name, and the first 4 letters of the street they live on, all in capital letters (e.g. BEMAIN).

Participants were contacted 3 months after they completed Survey 1 via email with a link inviting them to complete Survey 2. Survey 2 contained the same measures as Survey 1, except that participants were asked to report on their behaviour in the last 3 months (i.e., since they completed the last survey). Survey 2 was available for participants to complete from March 2<sup>nd</sup> to March 16<sup>th</sup>, 2020<sup>2</sup>.

Participants received a \$10 electronic gift certificate for each survey that they completed. The e-gift certificates were managed through a program called Tango, which sent the participant a code via e-mail that allowed them to select the store they wished to redeem the certificate at from a selection of 40 different stores.

## **Measures**

### ***Cyber Dating Abuse (CDA) Victimization***

This scale assesses intrusive behaviours directed at romantic partners through

<sup>2</sup>Survey 2 data collection from the larger project was stopped on March 16<sup>th</sup>, 2020 as it dealt with the examination of social media use and emotional adjustment, which were both being influenced in unique ways due to the COVID-19 pandemic. To continue with Time 2 data collection for this thesis, a smaller survey that only contained the measures on dating relationships and self-esteem was sent out on March 21<sup>st</sup> to the remaining participants. Participants had 72 hours to complete this survey and receive a \$5 Tango gift card as reimbursement.

technology/social media. The Principal Investigators of the larger research project which this study fell under (Dr. Dumas and Dr. Ellis) originally created this scale from 10 items adapted from Borrajo et al. (2015), Reed et al. (2016), Bennett et al. (2011) and Zweig et al. (2014). From there, a focus group of eight university students completed the measure and discussed the clarity and salience of each item. Based on student feedback, the wording was edited for a few of the scale items to increase clarity and reflect modern online communication norms. For instance, the item “He/she monitored my whereabouts using apps or a cell phone (checking Facebook “status,” calling or texting repeatedly to ask where I was)” was changed to “They tracked my whereabouts using the Internet or a cell phone (via “Snapmap”, via the “share my location” feature on message apps, etc.)”, thereby replacing dated social media use (checking Facebook) with more current use (e.g., using Snapchat maps), in addition to using more socially-acceptable pronouns. Table 1 shows all the final scale items for CDA victimization.

Participants were asked to indicate the degree to which they experienced 10 different behaviours regarding CDA victimization in the past 3 months on a 4-point Likert-type scale, with 1 = *Never*, 2 = *1-2 times*, 3 = *3-4 times* and 4 = *5+ times*. Five of the items measured electronic intrusiveness (EI) victimization (i.e., surveillance and monitoring behaviours), such as “They [my dating partner] intrusively called or texted me to monitor or check on me.” The other five items were used to measure direct aggression (DA) victimization behaviours intended to harm a partner (e.g. through insults or threats) including “They [my partner] have spread rumours about me using a cell phone, email, web chat, social media sites, etc.”. Internal consistency of the full 10-item CDA scale was acceptable (Time 1  $\alpha = .74$ ; Time 2  $\alpha = .80$ ). For DA victimization, Time 1  $\alpha = .62$  and Time 2  $\alpha = .71$ , and for EI victimization both Time 1 and Time 2  $\alpha = .73$ .

**Table 1.** *CDA scale items and the frequency of adolescents who reported experiencing each behaviour within the past 3 months.*

	Electronic Intrusiveness	
	Time 1	Time 2
They intrusively called or texted me to monitor or check on me	54%	54%
They have copied and pasted (or screenshotted) parts of my instant message conversation without my permission	29%	29%
They monitored who I talk to and who I am friends with using social media or a cell phone	25%	32%
They looked at my private information on a computer or cell phone without permission (instant messages, text history, calls log, etc.)	14%	18%
They tracked my whereabouts using the Internet or a cell phone (via "snapmap", via the "share my location" feature on message apps, etc.)	32%	39%
	Direct Aggression	
	Time 1	Time 2
They have spread rumours about me using a cell phone, email, web chat, social networking sites (Snapchat, Facebook, Instagram), etc..	18%	21%
They wrote nasty things about me and/or posted embarrassing photos on his/her profile page/timeline (on Facebook, Instagram, Snapchat, etc.)	7%	7%
They have sent threatening text messages to me	11%	14%
They pretended to be another person using social medias or texting to test me	7%	7%
They made me afraid when I did not respond to his/her cell phone calls, texts, posting on social networking page, etc.	29%	18%



### ***Self-Esteem***

By completing the Rosenberg (1965) Self-Esteem Scale, participants were asked to indicate their degree of agreement with a set of 10 statements regarding feelings about the self on a 4-point Likert-type scale, with 1 = *Strongly Disagree*, 2 = *Disagree*, 3 = *Agree*, 4 = *Strongly Agree*. Higher scores on this scale indicate higher self-esteem. Five items on this scale were reverse scored as they were negatively keyed, and the mean of the 10 items was calculated to create a final score. An example of a positively keyed item is “I feel that I have a number of good qualities” and an example of a negatively keyed item is “I feel I do not have much to be proud of”. Internal consistency for the Rosenberg (1965) Self-Esteem Scale in this study was calculated at both time points, with Time 1  $\alpha = .93$  and Time 2  $\alpha = .96$ .

### ***Relationship Satisfaction***

Adolescents’ satisfaction with their current or most recent romantic relationships was measured at Time 1 with the question “In general, how satisfied are you with your current or most recent relationship?” on a 4-point Likert-type scale, with 1 = *Very Unsatisfied*, 2 = *Somewhat Unsatisfied*, 3 = *Somewhat Satisfied*, and 4 = *Very Satisfied*. Time 1 relationship satisfaction was measured to be used as a control variable in the regression analyses.

### ***Time on Social Media***

The number of hours adolescents spent on social media per day was measured at Time 1 with the question “In the last 3 months, how much time, on average, did you spend on social media (e.g. Instagram, Snapchat, Facebook) in a day?” on an 8-point Likert-type scale, with 1 = *Less than 30 minutes*, 2 = *10-30 minutes*, 3 = *31-60 minutes*, 4 = *1-2 hours*, 5 = *2-3 hours*, 6 = *3-5 hours*, 7 = *5-10 hours*, and 8 = *more than 10 hours*. Time on social media was measured at Time 1 to be used as a control variable in the regression analyses.

## **Analysis**

To test the hypotheses, linear regression analyses were conducted using the statistical program SPSS Version 26. To test the first hypothesis (H1), Time 2 self-esteem was predicted from Time 1 CDA victimization while also controlling for Time 1 self-esteem. For the second hypothesis (H2), in order to test for potential bidirectional effects, another linear regression was run in which Time 2 CDA victimization was predicted from Time 1 self-esteem while also controlling for Time 1 CDA victimization.

Further, in order to gain a more nuanced understanding of associations, I conducted similar analyses with the two subscales of CDA victimization: electronic intrusiveness and direct aggression. Again, EI and DA subscales were each tested as both predictors of and outcome variables of self-esteem at Time 1 and Time 2 respectively, in the same way the larger CDA victimization scale was tested. Although potential covariates were measured (relationship satisfaction, relationship length, time on social media, age) these variables could not be controlled for in the regression analyses, as due to the study's small sample size, the degrees of freedom in the regression models needed to be maximized.

## **Results**

### **Descriptive Statistics**

Table 2 reports the means, standard deviations, and correlations for the variables of interest at Time 1 and Time 2. At both Time 1 and Time 2, 71% of participants reported experiencing at least one incidence of CDA victimization in the past 3 months. Specifically, at both time points, 71% of the sample reported experiencing EI victimization, and 32% and 29%, respectively, reported experiencing DA victimization at Time 1 and Time 2. The most common EI victimization behaviour reported was "They intrusively called or texted me to monitor or

**Table 2.** Means, standard deviations and correlations between self-esteem, cyber dating abuse, and dating variables at Time 1 and Time 2.

	M(SD)	1	2	3	4	5	6	7	8	9	10	11	12
1. Age	15.89(1.29)	-	-.22	.15	.16	.21	.19	.14	.25	-.24	-.27	-.12	<b>.41*</b>
2. Hours on social media per day (T1)	4.27(2.99)		-	.04	-.10	0.10	.13	.01	-.31	<b>.50**</b>	<b>.46*</b>	<b>.40*</b>	-.31
3. Relationship length in months (T1)	7.13(5.29)			-	-.04	-.10	-.19	.07	-.06	.08	-.01	.25	-.09
4. Relationship satisfaction (T1)	3.32(0.95)				-	<b>-.56**</b>	<b>-.45*</b>	<b>-.51**</b>	.07	.01	.02	-.05	-.18
5. CDA Victimization (T1)	1.36(0.40)					-	<b>.90***</b>	<b>.74***</b>	-.09	.31	<b>.37*</b>	.14	.03
6. EI Victimization (T1)	1.49(0.58)						-	<b>.37*</b>	.03	.29	<b>.41*</b>	.04	.09
7. DA Victimization (T1)	1.22(0.38)							-	-.24	.21	.15	.22	-.09
8. Self-esteem (T1)	2.68(0.80)								-	-.31	-.19	<b>-.43*</b>	<b>.86**</b>
9. CDA Victimization (T2)	1.39(0.45)									-	<b>.91***</b>	<b>.81***</b>	-.34
10. EI Victimization (T2)	1.56(0.62)										-	<b>.53**</b>	-.22
11. DA Victimization (T2)	1.21(0.41)											-	<b>-.41*</b>
12. Self-esteem (T2)	2.65(0.83)												-

Note: \* $p \leq .05$ , \*\* $p < .01$ , \*\*\* $p < .001$

check on me”, with 54% of participants experiencing this behaviour at Time 1 and Time 2. The most common DA victimization behaviour reported was “They made me afraid when I did not respond to their cell phone call, text, posting on social networking page, etc.”, with 29% and 18% of participants experiencing this behaviour at Time 1 and Time 2 respectively.

At Time 1, 75% of adolescents indicated they communicated online (texting, SNS) with their current or most recent partner almost every day, 5-10 times per day, whereas only 32% reported communicating face-to-face with their current or most recent partner almost every day, 5-10 times per day. At Time 1, 60.7% of participants stated they were referring to a current partner when completing the EDA questions, 35.7% stated they were referring to an ex-partner, and 3.6% did not specify. The majority of participants indicated that their current or most recent dating partner was of opposite sex (89%), with 7% indicating a same sex partner, and 4% preferring not to disclose this information.

Pearson correlations conducted on the variables of interest found that both Time 1 and Time 2 self-esteem were significantly and negatively correlated with Time 2 DA victimization. Further, significant negative correlations emerged between relationship satisfaction and CDA victimization and both of its subscales EI and DA. Hours on social media per day at Time 1 was also found to significantly and positively correlate with CDA victimization and both its two subscales at Time 2. Finally, age was found to significantly and positively correlate with self-esteem at Time 2.

### **Hypothesis Testing**

The results of the regression analyses are presented in Table 3. H1 was not supported in that Time 1 CDA victimization was not a significant predictor of self-esteem at Time 2,  $\beta = .11$ ,  $t(25) = 1.06$ ,  $p > .05$  (Model 1). Furthermore, the EI subscale at Time 1 was not a significant

**Table 3.** Results of Regression Analyses Predicting Longitudinal Changes in Self-Esteem and CDA Victimization.

	Model 1		Model 2		Model 3		Model 4		Model 5	
	T2 Self-Esteem		T2 Self-Esteem		T2 CDA Victimization		T2 DA Victimization		T2 EI Victimization	
	<i>B</i>	<i>SE</i>	<i>B</i>	<i>SE</i>	<i>B</i>	<i>SE</i>	<i>B</i>	<i>SE</i>	<i>B</i>	<i>SE</i>
T1 Self-Esteem	<b>.90***</b>	.10	<b>.92***</b>	.11	-.16	.10	<b>-.21*</b>	.10	-.16	.14
T1 CDA Victimization	.22	.21	--		.32	.21	--		--	
T1 DA Victimization	--		.24	.25	--		.14	.20	--	
T1 EI Victimization	--		.04	.16	--		--		<b>.44*</b>	.19

Note: \* $p \leq .05$ , \*\* $p < .01$ , \*\*\* $p < .001$

predictor of self-esteem at Time 2,  $\beta = .03$ ,  $t(25) = .27$ ,  $p > .05$ , nor was the DA subscale,  $\beta = .11$ ,  $t(25) = .98$ ,  $p > .05$  (Model 2).

H2 was partially supported in that while Time 1 self-esteem did not predict overall CDA victimization at Time 2,  $\beta = -.28$ ,  $t(25) = -1.53$ ,  $p > .05$  (Model 3), Time 1 self-esteem was found to be a significant predictor of DA victimization at Time 2,  $\beta = -.40$ ,  $t(25) = -2.16$ ,  $p < .05$ , accounting for 18% ( $R^2 = .18$ ) of the variance in T2 DA victimization scores (Model 4). Self-esteem at Time 1 was not a significant predictor of EI victimization at Time 2,  $\beta = -.20$ ,  $t(25) = -1.13$ ,  $p > .05$  (Model 5).

### **Discussion**

Failing to support the first hypothesis, the results showed CDA victimization at Time 1 did not predict lower self-esteem in adolescents at Time 2. The results also found subscales of CDA victimization, electronic intrusiveness (EI) and direct aggression (DA), did not predict lower self-esteem in adolescents at Time 2. However, in partial support for the second hypothesis, lower self-esteem at Time 1 significantly predicted an increase in DA victimization at Time 2.

The findings of the present study that low self-esteem in adolescents at Time 1 led to heightened experiences of DA victimization at Time 2 is in alignment with Self-Verification Theory, which argues that individuals may seek out information that confirms their pre-existing self-beliefs (Swann, 1983). Therefore, adolescents who have low opinions of themselves may pursue or remain in romantic relationships in which their partner insults or threatens them online because they believe it is what they deserve. This is cause for concern for the well-being of these adolescents, as, by romantically involving themselves with someone who abuses them, these

individuals create an environment that reiterates negative self-beliefs, which could help to perpetuate their low self-esteem. Additionally, if adolescents with low self-esteem seek out or stay in relationships where they are victims of DA, there is the risk that this abuse could escalate from online to offline. In a sample of over 3000 adolescents, Zweig, Dank, Yahner, & Lachman (2013) found that of those who were victims of CDA, half of them were also victims of physical violence, and almost all were also victims of psychological abuse in their dating relationships. This suggests that victims of CDA are more likely to be victims of in-person dating violence and abuse compared to non-victims. Further, prior studies have found CDA victimization to be associated with negative outcomes for individuals' well-being including increased depressive symptoms, heavy episodic drinking, substance use, contraceptive non-use, and delinquency (Bennett et al., 2011; Borrajo et al., 2015; Dick et al., 2014; Zweig et al., 2014). Low self-esteem has been linked with several negative outcomes for adolescents including decreased academic achievement, deviancy, and increased depressive symptoms in adulthood (Zimmerman, et al., 1997). With the results of the present study showing low self-esteem predicts an increase in DA victimization, these adolescents may be especially susceptible to additional harmful experiences that could negatively affect their well-being. Considering this, there is a clear need for CDA intervention and prevention efforts to provide education and help resources to adolescents with low self-esteem in particular.

Whereas a relationship did emerge between DA and self-esteem, there did not seem to be an association between EI and self-esteem. This fails to support the original hypothesis, but upon closer consideration, perhaps it is not so surprising. Although prior researchers who looked at the relationship between self-esteem and CDA did not explicitly differentiate EI and DA behaviours, they primarily examined behaviours that would be considered more directly aggressive in their

measures. Smith et al. (2018) in their research found CDA to be significantly associated with both low self-esteem and psychological distress using a CDA measure with items that exclusively examined what would be categorized as DA behaviours (e.g. blackmailing, insults, threats, spreading of their personal information, etc.). Similarly, Hancock et al. (2017) found higher CDA victimization to be a significant predictor of low self-esteem using a CDA measure with approximately three quarters of the items corresponding to DA behaviours. Therefore, previous findings that have shown a link between CDA victimization and low self-esteem have only been thoroughly examined in terms of DA behaviours, not EI. Perhaps it is the case that because EI victimization behaviours tend to be less explicit compared to DA behaviours, adolescents may not experience as much emotional distress from them, meaning their self-esteem would not be significantly impacted.

While this may offer an insight into why EI did not significantly predict low self-esteem, it does little to explain why DA at Time 1 did not predict a significant decrease in self-esteem at Time 2. If emotional distress is the mediating variable between CDA victimization and self-esteem, then we would expect behaviours such as online threats and insults to elicit this distress, thus resulting in lower self-esteem over time. One potential reason as to why DA was not found to predict lower self-esteem in the present study may be that 3 months was not a sufficient amount of time to see significant changes in self-esteem, as self-esteem is a relatively stable factor (Trzesniewski, Donnellan, & Robins, 2003). Related to this, another contributing factor may be that many participants in this study had not been in their romantic relationships very long; therefore, perhaps they were not yet experiencing emotional distress as a result of being victims of DA behaviours. The average length of a romantic relationship for the participants in this study was 6.7 months, whereas the sample used by Hancock et al. (2017) had an average



relationship length of 19 months. Further, in the present study 41% of participants who had experienced CDA victimization reported being with their partner for less than 3 months. In their study, Hancock et al. (2017) found that the relationship between CDA victimization and self-esteem was fully mediated by emotional distress. Similarly, Smith et al. (2018) also found CDA victimization to be significantly associated with both psychological distress and low self-esteem. Therefore, it appears that an individual must feel emotional distress as a result of CDA victimization in order for their self-esteem to be negatively affected (Hancock et al., 2017). Prior research has found that the repetition of negative messages that occurs through CDA contributes to the intensity of emotional distress (Temple et al., 2016). Therefore, individuals who have been in longer relationships would necessarily experience more CDA over time, thus contributing to increased emotional distress. Of course, emotional distress was not examined within the present study, so it is not known if adolescents in shorter romantic relationships who experienced CDA victimization reported less emotional distress than those who were in relationships longer. However, this is something that would be beneficial to investigate in future longitudinal CDA research, to gain a clearer understanding of the relationship between CDA victimization, self-esteem and emotional distress.

Although a relationship did not emerge in the present study between self-esteem and EI, it was found that experiencing EI victimization at Time 1 predicted the experience of EI victimization at Time 2. This finding is troublesome as it indicates adolescents who are experiencing EI victimization in their romantic relationships are likely to continue to be victims of EI in the future. While EI victimization may not have a significant impact on self-esteem, it has been found to be associated with other negative outcomes, such as the victimization of in-person psychological and physical abuse (Borrajo et al., 2015). Therefore, in educating

adolescents about the impacts of CDA victimization it would be beneficial to include information about EI in addition to DA, as this knowledge may allow individuals to protect themselves from both future EI victimization and in-person dating abuse.

Findings from the present study showed a significant negative correlation between CDA victimization and relationship satisfaction at Time 1, indicating that adolescents who were experiencing CDA victimization to a higher degree were also reporting greater dissatisfaction in their relationships compared with non-victims. The Investment Model of Relationships proposed by Rusbult (1980) argues that the level of satisfaction one feels in their relationship contributes to their commitment to that relationship. If adolescents who experience CDA victimization feel less committed to that romantic relationship as a result, it may make it easier for them to leave their partners who are abusing them online, thereby removing themselves from a relationship that could harm their well-being. However, one barrier to this may be that even though adolescents realize they are not satisfied in their relationships, they may not make the connection between this dissatisfaction and the CDA behaviours they are experiencing. Prior research has found that adolescents tend to write off experiences of dating abuse victimization as being irritating, but not harmful to them (Helm et al., 2015). Efforts towards educating adolescents about how CDA is a serious form of abuse that can impact the quality of their romantic relationships may further encourage individuals who are experiencing CDA victimization to reach out and seek help.

The present study found 32% of adolescents reported experiencing at least one instance of DA victimization within the past 12 months, which parallels findings by Smith et al. (2018), who found one in three adolescents reported directly aggressive CDA victimization within 12 months. These prevalence rates are higher than what has previously been reported by Borrajo et al. (2015) for DA rates in adults aged 18-30 years (10-14%). Findings of higher prevalence rates

of CDA victimization in adolescents compared to adults is consistent with previous research identifying that CDA victimization peaks in middle to late adolescence (Temple et al., 2016). These increased rates do not come as a surprise, considering how integral electronic communication has become in adolescents' romantic relationships (Vaterlaus et al., 2018). The present study found 75% of adolescents communicated online with their partners every day, whereas only 32% reporting communicating with a partner face to face every day. Thus, with such high rates of technology usage in dating relationships, and higher rates of CDA in adolescence, it would be beneficial to increase efforts towards educating adolescents through school-based programming or other services about CDA, what it looks like, and how it can affect their well-being, to help them recognize and protect themselves against this type of abuse.

Taking into consideration the findings of the present study as well as that of prior research, there is a clear need to implement preventative and intervention measures for those who are victims of CDA. Van Ouytsel, et al. (2016) emphasized the importance of the role of school nurses in educating adolescents in schools about CDA victimization, including indicating that it contributes to increased risk of offline dating violence, as well as providing them with information about what constitutes healthy communication in romantic relationships. Providing education about CDA and its effects on adolescents would likely aid in their recognition of these harmful behaviours, which may help them leave relationships in which they are being abused. With findings from the present study identifying low self-esteem as a potential risk factor for DA victimization, it is particularly important to target adolescents with low self-esteem in preventative and intervention efforts.

There are several limitations to the present study that should be addressed. One limitation is that due to its small sample size the study was underpowered, which resulted in an inability to

control for important factors such as age, relationship length, relationship satisfaction, and time on social media. Additionally, this meant I was unable to look at moderation effects such as potential gender differences. Future researchers may wish to replicate the present study's findings with a larger sample size and control for the aforementioned variables, to gain a more comprehensive insight into the nature of the relationship between self-esteem and CDA victimization.

Another limitation is that all the data collected came as the result of self-report. Therefore, participants' responses may have been influenced by self-presentation bias. Prior research has revealed how victims of intimate partner violence often feel ashamed or embarrassed about their victimization (Enander, 2010). It is possible that victims of CDA also feel embarrassment towards their own victimization, and therefore may underreport the frequencies at which they experience these behaviours for fear that others may see them in a more negative light because of it. Additionally, underreporting of CDA, particularly EI, might occur because, contrary to traditional forms of intimate partner dating violence involving blatant forms of abuse such as physical aggression, CDA behaviours are more covert. Therefore, individuals in this study may not even have been aware that they are victims of some of the EI behaviours. For example, if a partner screenshots conversations on their phone or goes through their partner's private information, the victim may not even know that these behaviours are occurring. In order to prevent potential issues of underreporting frequencies of CDA and to provide a clearer understanding of the prevalence of CDA behaviours in relationships, researchers may wish to collect information regarding perpetration and victimization of CDA from both partners in a relationship.

Finally, this study was limited in that attitudes, feelings, and emotional distress surrounding participants' CDA victimization were not assessed. Thus, the underlying reasons behind the results can only be proposed in a speculative way. Additionally, though internal consistency was calculated and was found to be adequate, future researchers should further examine the psychometric properties of the DA victimization measure. Two of the questions on this measure were reported by very few participants, with "they wrote nasty things about me and/or posted embarrassing photos on his/her profile page/timeline" and "they pretended to be another person using social medias or texting to test me" only being reported by 7% of participants at both Time 1 and Time 2. Therefore, looking into replacing these items with more relevant DA behaviours might be beneficial.

In conclusion, the present research has expanded on previous findings that a link exists between CDA victimization and self-esteem by examining this relationship with a longitudinal design in a sample of adolescents, which, to my knowledge, has not yet been done. The results found low self-esteem to be a significant predictor of adolescents' victimization of directly aggressive online behaviours such as threats, insults, etc. These findings have important implications, as prior research has linked CDA victimization to several negative outcomes such as depressive symptoms, heavy episodic drinking, substance use, delinquency, contraceptive non-use, and increased risk of being victims of in-person psychological, physical and sexual abuse (Bennett et al., 2011; Borrajo et al., 2015; Dick et al., 2014; Van Ouytsel, et al., 2016; Zweig et al., 2014). Future researchers may wish to examine potential underlying factors behind this temporal relationship, such as emotional distress, as well as attitudes and feelings towards CDA victimization. Additionally, in order to gain a greater understanding of CDA overall, future researchers may wish to consider collecting reports of CDA victimization and perpetration from

both partners within a couple. While the present study provides us with more information, it is clear the relationship between different types of CDA victimization and self-esteem in adolescents is a complex one, and there is still much to learn before we can truly understand what CDA victimization means for adolescents' psychological well-being.

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