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THE USE OF TECHNOLOGY IN DATING RELATIONSHIPS

The Use of Technology in Dating Relationships

By

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Honours Thesis

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Abstract

The following study examined predictors of cyber dating abuse. Early life factors including attachment style, history of bullying as well as relationship attributes (trust, jealousy and frequency of communication) were examined. The primary goal was to test the relative strength of one's early life factors, peer experiences and current relationship qualities. The first hypothesis proposed that early life factors would be more significant variables than relationship attributes in predicting cyber dating abuse. The secondary hypothesis tested for potential moderating effects of attachment style on trust and jealousy predicting cyber dating abuse. A total of 110 undergraduate students from 18-25 years ($M = 20.73$, $SD = 1.86$), who were in a current romantic relationship completed a series of self-reports. Using multiple regression, avoidant attachment style, bullying perpetration, relationship trust and emotional jealousy were all significant predictors of Cyber Dating Abuse (CDA). The study showed no interaction between avoidant attachments with other predicting variables. These findings can be added to the limited body of research on cyber dating abuse in hopes to stimulate further investigation on the possible risk factors of cyber dating abuse.

The Use of Technology in Dating Relationships

Technology has become an essential in our everyday life with its main advantage of keeping us connected to our loved ones. The benefits of technology are furthermore appreciated for those in romantic relationships. Technology has allowed couples to constantly stay connected through its various forms such as text messages, phone calls and emails, despite geographical barriers. Although technology can be very rewarding, it is not a surprise that it also has its limitations. In extreme cases, technology can be used as a tool to abuse a partner. Cyber dating abuse is a phenomena characterized by one's intent to humiliate, harass, stalk or control their partner through the use of technology (Zweig, Lachman, Yahner & Dank, 2013). The prevalence of cyber dating abuse is especially prevalent in younger demographics with 15% of 6 graders involved in cyber dating abuse perpetration (Peskin et al., 2017). This form of abuse also occurs in young adults with 50% of college students reporting to have experienced cyber dating abuse at least once (Borrajo, Galmez & Calvete, 2015). In response to these alarming rates, researchers are interested in investigating the risk factors in perpetration. Studies show that cyber dating abuse occurs under the context of jealousy, reciprocity, anger and humour (Borrajo, Galmez & Calvete, 2015). In addition, individual factors such as being a female, having poor problem solving skills and psychological issues influence cyber dating abuse perpetration (Peskin et al.,2017). To date, studies on cyber dating abuse is still in its preliminary stages. The purpose of this study is to further investigate potential factors that may influence the perpetration of cyber

dating abuse. This will be done by exploring the role of attachment style, history of bullying, trust, jealousy and frequency of communication. Furthermore, I aim to see if attachment style and bullying experiences pose a greater influence on cyber dating abuse perpetration than relationship qualities.

Attachment and Cyber Dating Abuse

Attachment Theory, a concept developed by John Bowlby (1973), emphasizes the importance of parenting as a model for secondary relationships whether platonic or romantic. According to Bowlby the level of attachment a child adopts in the future depends on the degree to which a child's needs were met by their caregiver (Shieh, 2000). Someone with a secure attachment views their caregiver as reliable and protective. In contrast, those with an insecure attachment such as anxious attachment, had parents who were inconsistent in meeting their needs while children who grow to have an avoidant attachment had parents who were rejecting, cold and critical (Shieh, 2000).

Bowlby hypothesized that the type of bond established between the child and parent will not only influence the type of relationship the child will have in later life, but will also create an internal working model that will dictate how the child perceives one's self and others. Good parent-child relationships result in a securely attached individual viewing themselves and others as competent, lovable and worthy (Shieh, 2000). In contrast, poor early life interactions leads to an insecure attachment style paired with negative evaluations of the self and others known as "early maladaptive schemas". Early maladaptive schemas are distorted truths one carries, such as feelings of inferiority, low self-esteem or fear of abandonment. Studies have shown that children insecure attachments are associated with higher rates of early maladaptive schemas against those

with secure attachments (Simard, Moss & Pascuzzo, 2011). These toxic beliefs can influence the development of personality traits deemed threatening to a relationship and in turn affect overall relationship satisfaction. For instance, people with an anxious or avoidant attachment show lower levels of trust, stability, relationship satisfaction (Marshall et al. 2013) and jealous tendencies (Hazan & Shaver, 1987) making them more likely to exhibiting problematic or abusive behaviour in relationships. Several studies also outline the link between insecure attachment and cyber dating abuse. A study by Fox & Warber (2014) demonstrates how partner surveillance is most often endorsed by those with preoccupied and fearful attachments. In another study, Facebook jealousy is seen to be positively correlated to those with anxious attachments in comparison to other attachment styles. In addition their pessimistic schema allows them to interpret cryptic information as threatening (Marshall et al., 2013). Overall, a dysfunctional upbringing and maladaptive schema can make one with an insecure attachment more likely to experience jealousy, interpersonal conflicts and abuse in relationships in comparison to those with secure attachment styles.

History of Bullying and Cyber Dating Abuse

Studies have shown how parent-child attachment predicts one's behaviour with peers. It is evident that differences in attachment styles also produce distinct experiences in friendships. Those with secure attachments have closer connection with their peers, experience lower anxiety and exhibit effective conflict resolution skills (Zimmerman, 2004). In contrast, those with preoccupied attachments were more hostile in their friendships, possess poor conflict resolution skills and were more socially anxious (Zimmerman, 2004). Finally avoidant attached people are emotionally independent and do not place much importance in their relationships (Zimmerman,

2004). Studies have also shown how parenting styles can vary the likelihood of bullying experiences in children. Children of overprotective, cold or rejecting parents are more likely to be perpetrators of bullying whereas parental permissiveness is associated with bullying victimization in girls (Van der Watt, 2014). Furthermore avoidant and anxious attached children are more likely to be the aggressive towards peers in comparison to securely attached individuals. For example, relational aggression is most often seen in girls who develop an anxious attachment toward their mother. Physical aggression is most often seen in males with an anxious attachment toward their father (Williams & Kennedy, 2012). Unfortunately, aggressive behaviour displayed by those with insecure attachments is not only limited to peer relationships. As of now, many studies have shown the link between bullying and physical dating violence. A longitudinal study sampling grade 6 children show that physical bullying was a significant predictor of physical dating violence (Foshee et al., 2014). In addition, group membership may also serve as a predictor to dating violence. Adolescents who associate with peer groups who engage in high levels of relational aggression are more likely to be victims or perpetrators of dating violence (Ellis, Chung-Hall & Dumas, 2013). Moreover, aggression and violent behaviour may further be reinforced and justified for youths who associate with others who also show aggression in peer group context (Ellis, Chung-Hall & Dumas, 2013). To date, only a few studies show the relationship between traditional bullying and cyber dating abuse. Victims and perpetrators of bullying are twice as likely to become perpetrators of cyber dating abuse than those who have never experienced any form of bullying (Yahner, Dank, Zweig & Lachman, 2015). It is important to note as well that the relationship between bullying and cyber dating abuse can be explained by a traumatic or abusive upbringing. Children exposed to harsh discipline or abuse were more likely to view their parents' behaviour as normal. This increases

the likelihood of a child repeating or expecting this behaviour in future relationships (Smith & Wilson, 1998). This study will investigate the influence of bullying perpetration and victimization online and offline on the onset of cyber dating abuse perpetration.

Relationship Attributes and Cyber Dating Abuse

In general, romantic relationships characterized by abusive behaviours are lower in overall quality (Ellis, Chung-Hall & Dumas, 2013). Studies have also shown the link between relationship attributes, jealousy and trust, and the occurrence of cyber dating abuse. Jealousy can be explained by one's emotional or cognitive response to a perceived threat. Both cognitive and emotional appraisal of jealousy can lead to abusive behaviours in a relationship. The cognitive aspect of jealousy is derived from suspicion or lack of trust in one's partner (Pfeiffer & Wong, 1989). The emotional aspect of jealousy is characterized as an affective response to a potential threat in a relationship (Pfeiffer & Wong, 1989). This reactive response can involve any feelings of confusion, fear and anxiety (Pfeiffer & Wong, 1989). Emotional jealousy can also lead to insecurities and snooping behaviour. A study shows how male partners gained access to their partner's online account for the purpose of finding any potential threat. This was done to relinquish their control and ease their feelings of jealousy. Overall the act of checking someone's phone or personal account without permission was correlated with low levels of disclosure, jealousy and feelings of suspicions (Derby, Knox & Easterling, 2012). This type of behaviour in relationships is likely to re-occur due to its rewarding outcomes acting as a negative reinforcement. When one feels threatened or suspicious of their partner, jealousy arises. As a response, partners engage in these behaviours in effort to reduce any feelings of jealousy and gain more control. Similarly snooping behaviour can alleviate feelings of anxiety or uncertainty

in relationships however negative consequences may also follow. For example, snooping behaviour is negatively associated with relationship strain and decreased levels of trust. (Derby, Knoxx & Easterling, 2012). This risky behaviour can create more problematic relationships or breakups. Despite the fact that recent researchers stated jealousy as a precursor to cyber dating abuse (Borrajo, Galmez & Calvete, 2015) this study examined whether both emotional or cognitive jealousy correspond to cyber dating abuse.

Trust is known to be an essential component of a relationship. The absence of trust can come as a result of lack in communication or disclosure in a relationship (Derby, Knoxx & Easterling, 2012). When trust is compromised, a partner may feel less connected, devalued and confused about the state of their relationship (Derby, Knoxx & Easterling, 2012). Researchers have shown how suspicion can serve as motivation for one to engage in behaviours involving breaching their partner's privacy. A study illustrates how female partners log into their partners account in efforts to restore validation of their relationship (Baker & Carreno, 2015). For example, snooping behaviour is negatively associated with relationship strain and decreased levels of trust. (Derby, Knoxx & Easterling, 2012). The following study tested the role of trust on the onset of cyber dating abuse.

Communication and Cyber Dating Abuse

Finally, communication largely plays a role in predicting abusive behaviour in relationships. Communication by technology or in person can have a significant impact on the overall quality of a relationships. Through the use of technology, partners use various mediums to talk to their partners with texting being the most popularly used (Off, 2016). The frequency

and quality of communication can also affect overall relationship satisfaction. For example communication styles employed by couples can promote aggression and hostility in a relationship. Studies have shown that violent couples are more likely to use contempt and criticism in comparison to non-violent couples (Glueck, 1999). Moreover the frequency of communication can also be problematic and at times abusive. Partners who use excessive communication towards a partner may appear as an indication of abuse (Borrajo, Galmez & Calvete, 2015). Research has shown a positive relationship between frequency of communication and perpetration of cyber dating abuse. People who spend more time on social networking sites and receive more text messages were more likely to be perpetrators of cyber aggression (Melander, 2010). This could be explained by the fact that online users are exposed to more information about their partner which could be perceived as threatening to the individual. In relationships, specific patterns of communication employed by partners may also be problematic. For example, partners' actual use of communication outside of the relationship is predictive of jealousy whereas a partner's perceived communication with others is not (Off, 2016). This study will consider how couples frequency of communication inside and outside of the relationship can influence cyber dating abuse.

The Present Study

As of now, research on cyber dating abuse is still in its infancy, focusing on its conceptualization and prevalence. Researchers have also documented the negative effects of cyber dating victimization, such as feelings of low self-esteem (Hancock & Keast, 2016), depressive symptoms, high levels of anger and hostility and delinquent behaviour (Zweig, Lachman, Yahner & Dank, 2014). Researchers have also begun to examine the role of personal

attributes, relationship qualities, peer relationships and familial qualities on cyber dating abuse. To date, no studies have examined multiple predictors simultaneously.

The primary goal of the study was to identify which factors predicted cyber dating abuse and to test their relative strength. For this study, early life experiences (attachment style) and bullying and relationship qualities (jealousy, trust and frequency of communication) were tested as potential determinants of cyber dating abuse. It is expected that all variables would be significant predictors on the criterion variable, cyber dating abuse. The second goal of the study was to test for any moderating effects of attachment style on the following relationships; jealousy predicting cyber dating abuse, relationship trust predicting cyber dating abuse and frequency of communication predicting cyber dating abuse. Due to the importance of one's early life experiences, the first hypothesis proposed that one's attachment style and past bullying experiences would be more significant predictors of cyber dating abuse than relationship factors. The second hypothesis expected for attachment style to moderate other variables in predicting cyber dating abuse. It was expected for those with anxious attachments and lower trust experienced or higher emotional and cognitive jealousy and frequency of communication to be more likely to report cyber dating abuse. The overall data was collected and analyzed from university students at Kings University College.

Methods

Participants

A total of 110 students (89 females and 20 males) from King's University College participated in the study. Students range from 18-25 years old ($M = 20.9$, $SD = 6.54$). All participants were in a current romantic relationship of at least 3 months with 105 being in a

heterosexual relationship and 5 in a homosexual relationship. The duration of participants relationship ranged from 3 months to 3 years ($M = 1.18$ years, $SD = 1.36$). Participants in the study represented various ethnicities with the sample primarily being Caucasian/White (73.6%), Asian (9.1%), Other (11.8%) and African American (5.5%). Most participants stated that their relationship was not long distance (72.7%) versus (27.3%) claiming their relationship to be long distance. Recruitment occurred in the form of distribution of posters around campus and through online postings on the SONA server, an online system that manages research studies accessible to students enrolled in Introduction to Psychology and several second year courses. Students taking Psychology 1000 earned an additional 2.5% towards their final mark for their participation while the remaining participants were awarded a 5\$ coffee gift card.

Materials

Qualtrix method. This website allows questionnaires to be readily accessible to participants online. Online distribution of this survey allowed research students to gain as much data as possible by reaching an optimal amount of participants. All questionnaires for this study were made available on this site. Students accessed the website through the SONA server.

Measures

Demographic form. The initial questions of the study regarded basic information on the participants including age, cultural background/ethnicity, sex, gender of the partner, duration of the relationship, if the relationship is long distance or not, total number of serious relationships in lifetime and age of first relationship.

Communication and technology frequency scale. This scale measured the frequencies of communication between partners and outside of the relationship. The scale included 3

different subscales regarding specific communication patterns listed. The first subscale consisted of communication patterns with members outside of the relationship. The second subscale measured the participant's perspective about their partner's communication habits outside of the relationship. The third subscale measured the patterns of communication between partners. All three items each contained one item.

Communication with others, excluding the partner. This 1 item subscale focused on the daily amount of time participants spent socializing with people other than their partner. Response scale for this item ranged from 0 to 3 with 0 (*less than 1 hours*) and 3 (*5 hours or more*). A sample question from the measure was "How many hours per day, on average, do you spend using on-line communication to talk to others, not including your romantic partner (e.g., social networking site, texting, etc.)."

Partner communicating with others, excluding participant. This subscale consisted of 1 item that measured how often the participant believed their partner was communicating with members outside of the relationship on a daily basis. Response scale range from 1 to 5 with (1- *Less than 1 hour*; 2- *2-3 hours*; 3 – *4-5 hours*; 4 – *5 hours or more*). The item from this subscale was "How many hours per day, on average, do you think YOUR PARTNER spends using on-line communication to talk to others not including you (e.g., social networking site, texting, etc.)."

Communication with only the partner. This 1-item subscale measured both online and offline communication habits between partners. Response scale ranged from 0 – (*a few times a week*), 1- (*1-4 times a day*) 2 – (*5-10 times a day*) 3 – (*10 or more times a day*). Sample item from the scale was "How often do you and your partner communication face to face and/or talk over the phone per day."

Multidimensional jealousy scale (MJS;(Pfeiffer & Wong, 1989). This 15–item scale measured the degree of jealousy one experienced in a romantic relationship. This measure contained two subscales that each assessed different aspects of jealousy. The first subscale included 7 items that evaluating the cognitive aspect of the relationship. The second subscale contained 8 items that measured the emotional aspect of jealousy. Response scales were on a 7-point Likert rating scale with 1 (*very pleased*) and 7 (*very upset*). Questions from the scale included “My romantic partner comments to you on how great looking a particular member of the opposite sex is” and “I suspect that my romantic partner is crazy about members of the opposite sex”. The Cronbach’s alpha for the emotional jealousy subscale was .887 and .782 for the cognitive jealousy subscale.

Perceived Relationship quality components inventory modified (PRQC) (Fletcher, Simpson & Thomas, 2000). This 6 item scale measured the quality of trust and intimacy experienced in a relationship. A 7- point Likert scale was used to answer the following questions ranging from 1(*not at all*) – 7 (*extremely*). Questions from the scale include “How much do you trust your partner?” and “I am satisfied with the intimacy in my relationship”. The Cronbach’s alpha of this scale was .910.

The Experiences in close relationship scale – Short Form (Wei, Russell, Mallinckrodt, & Vogel, 2007). This 12 item scale was used to identify participant’s attachment as either an avoidant or anxious style. Participants used the 7 point Likert response scale, where one indicated (*strongly disagree*) and 7 meant (*strongly agree*). Reverse coding was conducted for several items on the avoidant attachment subscale and one on the anxious attachment subscale. Sample items “I want to get close to my partner, but I keep pulling back” was found on the avoidant subscale and “I worry that romantic partners won’t care about me as much as I care

about them” from the anxious attachment subscale. The Cronbach’s alpha for this scale varies between subscales, with 0.813 on the avoidant subscale and 0.707 for the anxious subscale.

Online communication with peers scale (Holfeld & Leadbeater, 2015). This 8- item questionnaire measured past experiences with cyber bullying. The measure was divided in two subscales, with first 4 items focused on cyber bullying perpetration while items 5-8 measured cyber bullying victimization. All of the questions from the victimization subscale were reverse coded. The measure involved a response rating scale that ranged from 0 (*never*) to 4 (*everyday*). Featured items from the perpetration subscale include “Have you posted something online about someone else to make other people laugh?” and “Have you received a text message on your cell phone that made you upset or uncomfortable” for the victimization subscale. Cronbach’s alpha was 0.651 for the perpetration subscale and 0.753 for victimization subscale.

Forms of bullying scale (Shaw et al., 2013) This 5-item scale measured the individual’s past experiences of bullying perpetration. The scale asked questions about any physical or verbal bullying. Response score included a 5 point scale, where 1 means “*I did not do this*” and 5 “*several times a week or more*”. Sample questions from the scale were “I teased someone in nasty ways” and “I called someone names in nasty ways”. This measure yielded a Cronbach’s alpha of 0.665.

Cyber dating abuse questionnaire (Borrajo, Gamez, Manuel & Noemi, 2015). This 18 item questionnaire assessed one’s behavioural patterns in romantic relationships. The goal of this measure was to capture how often participants engaged in cyber abusive behaviour towards their partners. Participants answered each items using 1-6 Likert scale where 1 indicated (*never*) and 6 (*always: more than 20 times*). An example question from the scale include “I checked a

partner's mobile phone without permission". Reliability analysis revealed a Cronbach's alpha of .811

Rosenberg self-esteem scale (Rosenberg, 1965). This measure contained 10 items asking about the self. Participants were be asked to rate level of agreement on the following questions regarding their sense of self. Several items from the measure were reverse coded. Ratings scales for the measure ranged from 1 (*I strongly agree*) to 4 (*I strongly disagree*). Sample questions from scale is "I feel that I have a number of good qualities" and "I certainly feel useless at times." This scale generated a Cronbach's alpha of 0.910.

Procedure

The study was completed on-line using a host called Qualtrics. Several methods were used to recruit students. First the study was posted on the SONA website primarily for students taking Psychology 1000. In order to participate, students registered to any available time slot posted on the website and were provided a direct link to the survey on Qualtrics. Secondly, follow up students who participated in the previous study were informed of the study by email. Lastly, student posters were distributed around campus to recruit remaining university students. The study was also advertised in several second year classes by the researcher. Those who responded to the researcher by email were sent a direct link to the survey on Qualtrics.

Before completing the survey, students read an informed consent that outlined the general information, risks and requirements about the study. An online signature was required before the student could begin the study. Participants first completed a demographic section followed by the experiences in close relationships in short form, the perceived relationship quality components inventory, the communication technology frequency scale, the

multidimensional jealousy scale, the online communication with peers scale, the forms of bullying scale, the online relationship experience questionnaire and the self-esteem questionnaire. After completion, students read a debriefing form which provided more information about the topic of the study. The debriefing form also offered additional resources for those interested in learning more about the topic or those whom experienced any form of distress during the study. For compensation, Psych1000 students were granted credit for their participation. The remaining students were instructed a specific time and place to redeem their \$5 coffee gift card at the end of the survey.

Results

Descriptive information of sample

Descriptive statistics were run on all participants' demographic information and overall dating history. All participants in the study were in a current relationship, with a minimum duration of 3 months to 3 years ($M = 1.18$ years, $SD = 1.36$). Participants reported to have been involved in their first relationship from age 10-22 years of age ($M_{age} = 17.07$ years, $SD = 2.05$). The majority of participants lived in the same city as their partners (71%) while (27%) were in long distance relationships. Most participants have been in at least two serious relationship in their lifetime (60.8%; $M = 1.90$, $SD = 0.93$) with the amount ranging from 1 to 10 relationships over.

Frequency of Cyber Dating Abuse Behaviours

The study involved participants reporting how often they engaged in any cyber dating abuse behaviours. Frequencies were calculated for participants who reported abusive behaviour one or more times. Findings show that most participants engaged in at least one act of cyber

dating abuse. The most common behaviour was “checking a partner’s mobile phone without permission” (67%). The second most common was “checking a partner’s social network ie. Whatsapp or email without permission” (54%) followed by “using one’s password to browse messages and or contacts without permission” (41%). Frequencies for the 18 items are shown in Table 1.

Table 1.

Frequency of Cyber Dating Abuse Behaviours

Behaviour	Percentage
Checked a partner's mobile phone without permission	67%
Checked social networks, Whatsapp or email without permission	54%
Used passwords (phone, social networking, email) to browse messages	41%
Checked last connection in mobile applications	37%
Sent insulting and/or demeaning messages using new technologies	25%
Used new technologies to control where my partner is and with whom	25%
Posted music, poems or phrases on social networking sites with the intent to insult or humiliate.	19%
Pretended to be another person using new technology to test a partner	13%
Written a comment on the wall of a social network to insult or humiliate	12%
Spreading secrets and/or compromised information using new technologies	11%
Made excessive calls to control where my partner is and with whom	11%
Controlled status updates on social networks	11%
Creating a fake profile on social networks to create problems	9%
Threatened to spread secrets of embarrassing information using new technologies	9%
Sent or uploaded photos, images and/or videos with intimate or sexual content without permission	8%

Threatened to answer calls or messages immediately using new technologies 8%

Using new technology to pretend to be my partner and cause problems 6%

Gender Differences in Cyber Dating Abuse Behaviours

This study also examined gender differences in frequencies of cyber dating abuse behaviours. An independent sample t-test was computed to compare the means for the summary score of cyber dating abuse. No gender differences were found ($t_{(105)} = -.58$, n.s.). Next, we tested for gender differences in each of the scale items. The analysis showed several significant gender differences. First a significant gender difference in mean scores was found on item “Written a comment on the wall of a social network to insult or humiliate”. Findings show that males ($M = 1.55(.61)$) reported this behaviour more often than females ($M = 1.18 (.45)$, $t_{(105)} = 2.55$, $p < .01$). Next, females reported higher means scores ($M = 1.49(.89)$) than males ($M = 1.15(.49)$ $t_{(105)} = -2.37$, $p = 0.021$) on item “Used new technologies to control where you are/I am and with whom”. Females also reported more behaviours ($M = 2.58(1.38)$) than males ($M = 1.75 (.72)$, $t_{(105)} = -3.80$, $p < .001$) on item “Checked a partner’s mobile phone without permission”. A significant gender difference in mean scores was also found on item on “Checked social networks, Whatsapp or email without permission” where female participants ($M = 2.15(1.27)$) reported to have engaged more in behaviour than male participants ($M = 1.55 (.76)$, $t_{(105)} = -2.75$ $p = .008$). Finally results also show a significant gender difference in mean scores on item “Used passwords (phone, social networking, and email) to browse messages and/or contacts without permission”. Female participants ($M = 1.85(1.17)$) reported more behaviour than male participants ($M = 1.30 (.57)$, $t_{(105)} = -3.08$ $p = .003$). In summary, female participants in the study reported to have been more involved in cyber dating abuse behaviours in comparison to males.

Correlations among demographic variables and cyber dating abuse

A correlation analysis was run to test demographic variables such as age of the participant, duration of current relationship, overall number of relationships, age of first relationship and self-esteem and cyber dating abuse. There was a significant positive relationship with participant's age and the duration of the relationship, age of first relationship and overall number of relationships. This suggests that the older the age, the more relationships they had and the longer they were. Results also show a significant negative relationship between age of first relationship and the number of serious relationships meaning that those who started dating at an earlier age were found to have a greater number of relationships in their lifetime. The correlation analysis also revealed a significant positive correlation between self-esteem and total number of relationships in a lifetime. Those with high self-esteem would also have more relationships than those with low self-esteem. Results showed no significant gender differences on all variables. Overall, no correlation was found between cyber dating abuse and demographic variables. Findings are shown in Table 2.

Table 2

Correlations, means and standard deviations of cyber dating abuse and demographic variables

	M(SD)	1	2	3	4	5	6
1. Cyber dating abuse	1.39(.38)						
2. Age	20.73(1.86)	-0.65					
3. Duration of Relationship	3.18(1.36)	.03	.24*				
4. Total number of Relationships	1.90(93)	.11	.24*	-.11			
5. Age of First Relationship	7.98(2.05)	-.19	-.21	-.17	-.43*		
6. Self-Esteem	1.99(.68)	.09	-.16	.09	.23*	.19	

Note. $N = 110$, * $p < .05$, ** $p < .01$

Correlations among cyber dating abuse and predictor variables.

A correlational analysis was computed among cyber dating abuse and avoidant/anxious attachment style, bullying perpetration, cyberbullying perpetration/victimization, and frequency of communication, quality, emotional and cognitive jealousy to test any significant relationships. A significant positive relationship was found with cyber dating abuse and anxious attachment meaning that those with higher levels of anxious attachments also showed high levels of cyber dating abuse perpetration. Bullying perpetration was also positive associated with cyber dating abuse. Those who have engaged verbal and physical bullying behaviours in the past were more likely to show aggression through technology in dating relationships. Cyber dating abuse also had a significant positive correlation with cognitive jealousy, meaning that the more suspicious

thoughts one had, the more they would endorse in cyber dating abuse perpetration. Relationship qualities such as trust was negatively correlated with cyber dating abuse, suggesting that lower levels of trust was related to more cyber dating abuse behaviours. Lastly cyber dating abuse was negatively correlated with cyberbullying victimization. Those who experienced cyberbullying were less likely to be perpetrators of cyber abuse.

Looking at attachment styles, the quality of relationship also had a significant negative correlation with anxious attachment. This showed that participants with higher levels of anxious attachments experienced lower levels of trust with their partners. The study also showed a positive correlation with cognitive jealousy and anxious attachment meaning that the more anxious one is in their relationship, the more they suspected their partner to be cheating or else. Overall, emotional jealousy showed no significant correlation with any other predictors. Findings are shown in Table 3.

Table 3

Means, standard deviation and correlations of cyber dating abuse, attachment style, bullying, communication, quality and jealousy variables

	M(SD)	1	2	3	4	5	6	7	8	9	10	11	12
1. Cyber Dating Abuse	1.39(.38)												
2. Anxious Attachment	3.32(1.11)	.25**											
3. Avoidant Attachment	6.06(.96)	-.02	-.18										
4. Cyber Bullying Perpetration	1.61(.55)	.14	.02	-.17									
5. Cyber Bullying Victim	1.97(.63)	-.15	-.19	.15	.22*								
6. Bullying Perpetration	1.55(.44)	.31**	.01	-.14	.55**	-.21*							

7. Partner's Communi- cation	2.08(.95)	.13	-.22*	-.14	.09	.27**	.17					
8. Commun- ication with Partners	1.89(.81)	.16	.19	-.09	.01	-.30**	.09	.50**				
9. Commun- ication Between Partners	2.25(1.04)	-.07	-.01	.18	.04	.14	-.14	.04	-.03			
10. Cognitive Jealousy	1.86(.79)	.30*	.42**	-.21*	.89	-.27*	.07	.32**	.26	-.60		
11. Emotional Jealousy	5.21(1.07)	.08	.15	.12	-.08	-.11	-.09	.00	.03	-.60	.14	
12. Quality	6.21(.90)	-.34**	-.41	.54**	-.03	.24*	.02	.33**	-.29**	.20	-.44**	1.61

Note. $N = 110$, * $p < .05$, ** $p < .01$

Analytic Plan and Hypothesis Testing

The hypotheses in the study was tested through a series of regression analysis. In these regression analyses sex and gender were held as controlled variables while the remaining variables were predictor variables. The third step involved a moderation analysis to test for any interaction between specific variables. The first hypothesis was run through a multiple regression analysis testing for any significant relationship between anxious/avoidant attachment, bullying perpetration, and cyberbullying victimization/perpetration, frequency of communication, emotional/cognitive jealousy and quality of relationship on predicting cyber dating abuse.

The second regression analysis tested for any moderating effects between avoidant attachment style and emotional jealousy, and avoidant attachment style and quality of relationship. Two new interaction variables were computed, combining avoidant attachment with quality of relationship, and avoidant attachment with emotional jealousy. These variables were added along with the significant predictors; emotional jealousy, quality of relationship and bullying perpetration.

The multiple regression analysis tested for any significant prediction between all variables; anxious/avoidant attachment, bullying perpetration, and cyberbullying victimization/perpetration, frequency of communication, emotional/cognitive jealousy and quality of relationship on predicting cyber dating abuse. Findings show that this model does significantly predict cyber dating abuse $F(6,106) = 8.333 p < .001$. Report shows that only avoidant attachment and bullying perpetration, quality of relationship and emotional were significant predictors of cyber dating abuse, accounting for 33% of the variance. This shows that those with avoidant attachment and/or past experiences of bullying perpetration reported to be perpetrators of cyber dating abuse. In addition, low levels of trust and overall quality experienced

in a relationship also predicted cyber dating abuse. Lastly, participants' high levels of emotional jealousy experienced predicted the onset of cyber dating abuse. Findings for significant predictors are shown in Table 4, regression 1.

The second regression tested for moderation effects between avoidant attachment style and quality of relationship, as well avoidant attachment style and emotional jealousy. Looking at Table 4 avoidant attachment, emotional jealousy and quality of relationship were all shown to significantly predict cyber dating abuse. We proposed that avoidant attachment would then create a moderating effect with the remaining quality of relationship and emotional jealousy in predicting cyber dating abuse. Results show no significant interaction in both variables, meaning that one with avoidant attachment style does not moderate neither significant variables for emotional jealousy $b = .88, t(106) = .96, n.s$ or quality of relationship $b = .68, t(106) = .50, n.s$ in predicting cyber dating abuse. $F(8,106) = 6.435 p < .001$, and accounted for less than 1% of cyber dating abuse. (See Table 4 regression 2).

Table 4

Regression 1: Predicting Cyber dating abuse from avoidant attachment, quality, emotional jealousy and bullying perpetration

Variables	Beta(C.I)	SE	t
Age	-.09 (-.05 -.01)	.49	-1.14
Gender	.09 (-.08- .25)	.08	1.03
Avoidant Attachment	.30 (.04-.20)	.04	2.95*
Quality	-.55 (-.32- -.15)	.04	-5.49**
Emotional Jealousy	.17 (.00-.13)	.03	1.97*
Bullying Perpetration	.41 (.21-.50)	.07	4.75**

Note. * $p < .05$, ** $p < .01$

Discussion

The present study aimed to identify predictors of cyber dating abuse. This was done by examining several variables, with some pertaining to early life factors (attachment style and history of bullying), and relationship attributes such as trust, frequency of communication and jealousy. We proposed that early life factors would pose a greater influence on predicting cyber dating abuse than relationship qualities. Overall, the first hypothesis was partially supported as early life factors were found to be significant predictors of cyber dating abuse, however relationship qualities such as trust weighed as the most significant predictor followed by bullying perpetration, avoidant attachment style and emotional jealousy. The second hypothesis was not supported, as avoidant attachment style did not moderate emotional jealousy or trust in predicting cyber dating abuse.

Most participants reported to have engaged in cyber dating abuse perpetration with accessing their partner's personal accounts as the most commonly reported. This finding is in line with previous studies identifying this intrusive acts as the most prevalent in youth (Peskin et al., 2017) and college samples (Borrajo, Gámez-Guadix & Calvete, 2015). The current study did not find any gender differences in cyber dating abuse, however gender differences were found in specific behaviours. Checking social networks and phones without the partner's knowledge was routinely endorsed by female participants. This finding is supported with earlier research indicating women report more non sexual cyber dating violence perpetration (Zweig, Dank, Yahner & Lachman, 2013). This may be due to the fact these behaviours are an indirect form of abuse, a practice women are more likely to use when facing social conflicts. Cyber dating abuse includes a passive-aggressive approach most women would find attractive and preferable. In contrast, the study showed that men were more likely to report behaviour classified as directly aggression (i.e. Written a comment on the wall of a social network to insult or humiliate)

Looking closely at early life factors, research shows that people with avoidant attachments in relationships were more likely to be involved in cyber dating aggression. This result is consistent with correlational studies that link insecure attachments and relationship aggression (Bookwala & Zdaniuk, 1998). In addition this strongly suggests the importance of attachment theory and interpersonal conflicts. According to Bowlby, the quality of a relationship between a parent and a child can affect how one attaches to others in future relationships. Those with avoidant attachments were often brought in an environment that lacked emotional warmth and raised by parents who were disapproving, overly critical and showed direct hostility (Simpson, 1990). In turn these individuals may develop trust issues and suspicion (Marshall et al., 2013) making them prone to experience hostile behaviour in romantic relationships.

According to previous research, avoidant attachment is related to other forms of dating abuse in addition to predicating cyber abuse (Fox & Warber, 2014). Conversely, anxious attachment was found to not be a significant predictor, however the study showed a significant positive correlation with cyber dating abuse. This result was surprising as many studies have reported a significant correlation between anxious attachment and cyber dating abuse behaviours (Fox & Warber, 2014) as well as bullying perpetration (Zimmerman, 2004). This outcome could be due to the differences in coping styles in the face of conflicts. According to (Ben-Ari and Hirshberg, 2009) people with avoidant attachment style employ a dominant coping strategy, a strategy that includes using controlling or aggressive behaviour to get their way. These individuals are self-serving and are less interested in compromising with others. In contrast, those with anxious attachments use an avoidant approach which includes ignoring problems altogether or quickly resolving conflicts to maintain a harmonious relationship with others. This can explain why those with anxious attachments are less likely to show aggression or perpetuate aggressive behaviours.

The present study also revealed bullying perpetration as a significant predictor of cyber dating abuse. These results are similar to another study affirming bullying perpetration as a determinant of dating abuse perpetration in a sample of sixth graders (Peskin et al. 2017). This finding can be explained by the social learning theory introduced by Albert Bandura (1977). According to this theory, exposure towards aggression paired with positive reinforcement such as social acceptance can explain why bullies continuously show aggression towards peers. For example children who often associate with peers who also bully, were more likely to be victims or perpetrators of dating violence (Ellis, Chung-Hall & Dumas, 2013), therefore, unsurprisingly, these people would also use technology as another tool to violate their partners. In the present study, it is possible that participants who reported to have avoidant attachment styles may have

also admitted to bullying perpetration which increases their likelihood of committing cyber dating offences. Avoidant attachment styles is often linked to aggressive behaviour amongst peers (Williams & Kennedy, 2012).

Results also showed that relationship attributes such as lack of trust and emotional jealousy were also significant predictors of cyber dating abuse. This is similar to a previous study that credited jealousy as one of the many contributing factors to cyber dating violence (Borrajé, Gámez & Calvete, 2015). The uncertainty reduction theory by Charles Berger (1975) works to explain this finding which simply states that feelings of uncertainty can drive one to engage in information seeking behaviour. This notion can also be applied in relationships as recent research has shown that feelings of uncertainty can influence Facebook monitoring behaviours amongst partners (Fox & Warber, 2014). In this case, feelings of uncertainty come from a lack of trust or feelings of jealousy experienced in relationships. In turn this can create doubts, making one question their partner's level of commitment towards the relationship. These feelings can motivate one to address these concerns by possibly checking their partner's personal accounts in efforts to restore faith or trust in the relationship. In addition, avoidant attachment styles are also prone to be suspicious in nature which can increase the likelihood to perceive ambiguous situations as threatening leading to cyber aggressive behaviour.

As stated the present study did not produce any moderating effects on avoidant attachment and other variables in predicting cyber dating abuse. This finding means that attachment style does not increase or decrease the effect emotional jealousy or trust has in predicting cyber dating abuse. The absence of trust and or emotional jealousy can still be threatening in relationship for anyone despite one's attachment style. For example, it is possible that someone with an anxious attachment to react in the same manner as someone with an

avoidant attachment style if they feel jealous or suspicious of their partner. This is supported by a study that investigates the relationship between romantic jealousy and excessive communication between partners and harassment (Rueda, Lindsay & Williams, 2015) Since this study identified lack of trust as the most significant predictor to cyber dating abuse, couples that deal with trust issues are at greater risk of exhibiting abusive behaviours than couples who do not. This concept goes for all attachment styles. Overall this shows the importance of trust is in any relationship and how emotional jealousy serve as risk factors which can provoke unhealthy behaviours between couples.

Overall the onset of cyber dating abuse is determined by individual (avoidant attachment style), social (bullying perpetration) and relationship factors (trust and emotional jealousy). This shows that attachment style and peer relationship do not override the effects of relationship attributes. It is possible that someone with a secure attachment attitude or someone who has not bullied to also have reported cyber dating violence. All of these factors should be equally recognized as significant predictors when understanding the occurrence of cyber dating aggression. It should also be noted that these predictors accounted for less than 50% of predictors on cyber dating abuse, meaning that more factors are yet to be discovered.

Study Limitations

A major limitation in this study was sampling population. Looking at the overall sample population, the majority of participants were females (79%) with less than a quarter being males (21%). This gender gap hindered the study from revealing any significant gender differences on cyber dating abuse. The methodology used also presented some challenges. The use of self-reports often include biases such as social desirability. This meant that some underreporting was expected for scales that measured bullying and abusive dating behaviours. Another issue faced

with the use of self-reports was the use of open ended items in the frequency of communication scale, resulting in inconsistent responses from participants. This made it difficult to properly measure this factor's predicting value. Due to the correlational design of the study, most of the findings presented did not imply causation and could only identify significant relationships between predicting variables and cyber dating abuse. The research design used for the study was also limiting as it did not generate any causal findings. The study only aimed to test the strength of relation of all predicting variables on cyber dating abuse. One way to test out causation would be to create a longitudinal study, tracking participants from high school to college to see the real impact of each attachment styles, bullying experiences and relationship attributes on cyber dating abuse. For sensitive purposes special attention should be paid to the ordering of measurements in the study, with attachment style and peer experience being tested first, followed by cyber dating abuse behaviours last.

Practical Implications

In conclusion, there is a substantial amount of literature on the topic of dating violence, however research specifically on cyber dating abuse is insufficient. This study has shown unique results that can be added with existing literature on the topic of cyber dating abuse. This study can also be useful for any preventative models aimed at reducing dating violence, especially towards the younger demographics. To date, it is evident that technology is the primary method used for communication in peer and romantic relationships, with 90% of youths age 11 and up having a social network account (Atheunis, Schouten & Kraemer, 2016). The earlier we become connected, the sooner we become vulnerable to harmful online behaviour such as cyber dating abuse. Research has shown that the rate of cyber dating violence experienced amongst youths is comparable to the rates of physical dating violence (Zweig, Dank, Yahner & Lachman, 2013)

with 15% of children in elementary school reporting to have been perpetrators of cyber dating violence (Peskin et al., 2017). This is very concerning for various reasons. First those who perpetrate cyber dating abuse at a young age are more likely to continue this behaviour in later years. Next, cyber dating violence usually occurs with another form of dating violence, meaning that victims experience partner violence online and offline. (Zweig, Dank, Yahner & Lachman, 2013). In addition, victims of cyber dating abuse often report feeling harassed more than once. For instance a study stated that participants felt victimized at least 23 times by their partner (Borrajo, Gámez-Guadix & Calvete, 2015). These repeated attacks can put victims at risk for depression and externalizing behaviours such as violence and hostility (Zweig, Dank, Yahner & Lachman, 2013). In the current study, most participants admitted to engaging in cyber aggressive behaviour at least once towards their partner. For these reasons these findings can be beneficial in efforts to continue to educate youths and adolescents about all of the potential risk factors that lead to cyber dating violence.

Future studies should consider further investigating what other factors contributes to cyber dating abuse. Researchers should consider the role of perception and attitudes youths have in the onset of cyber dating violence. It is likely that the high prevalence rates in both youth and college samples reflects a universal attitude of acceptance towards the behaviour. Most may believe that because it is initiated through technology, that no harm is being done. In summary more time and attention should be allotted to investigating factors related to perpetration in efforts to implement effective intervention programs to stop this ever growing phenomenon.

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