ABSTRACT

Title of Dissertation: INTIMATE PARTNER CYBERSTALKING AMONG YOUNG ADULTS: ASSOCIATIONS WITH PSYCHOLOGICAL AND SOCIAL WELL-BEING

Dana M. Reiss, Doctor of Philosophy, 2020

Dissertation Directed By: Dr. Barbara A. Curbow, Professor
Department of Behavioral and Community Health

Intimate partner cyberstalking (IPC) is problematic among young adults, as they often use technology when managing their romantic relationships. There is limited research investigating IPC and associated psychological and social well-being. To address these gaps, three manuscripts were written that included an examination of IPC (victimization, perpetration, and experiencing/engaging in both) among young adults and associations with depressive symptoms, social isolation, emotional reactions, attachment dimensions, and social support.

The samples in Manuscripts 1 and 3 included 469 Amazon Mechanical Turk (MTurk) workers (ages 18-25) who completed a survey online about IPC and health states. The sample in Manuscript 2 included 104 university students of comparable ages who identified IPC behaviors and completed a Q-sort about their perceived severity of IPC via a second online survey. Students also provided qualitative responses about

severity. The Q-sort scores were applied to victimization data reported by MTurk workers (n=181) to understand IPC severity experienced.

In Manuscript 1, MTurk workers who reported IPC victimization and perpetration and those who experienced victimization only were more likely to report depressive symptoms and greater social isolation than those who indicated neither victimization nor perpetration. Participants who reported victimization and perpetration were more likely to feel flattered and loved from victimization than those who experienced victimization only.

In Manuscript 2, fourteen themes were generated from the students' qualitative responses that described the mildest and most severe IPC behaviors (seven themes each). As the students' perceived severity of behaviors increased, reported victimization frequency among MTurk workers decreased. MTurk workers who were victims of severe IPC were more likely to experience depressive symptoms and greater social isolation than victims of moderate and mild IPC.

In Manuscript 3, MTurk workers were more likely to engage in IPC perpetration when attachment anxiety increased. They were more likely to experience victimization when attachment avoidance increased. Social support from family, friends, and a special person protected against perpetration. Social support from friends and a special person protected against victimization.

The results confirm that IPC is problematic among young adults, and the findings can inform policies and programs that aim to prevent IPC among this population.

INTIMATE PARTNER CYBERSTALKING AMONG YOUNG ADULTS: ASSOCIATIONS WITH PSYCHOLOGICAL AND SOCIAL WELL-BEING

By

Dana M. Reiss

Dissertation submitted to the Faculty of the Graduate School of the
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Advisory Committee:

Professor Barbara A. Curbow, Chair
Professor Robert S. Gold, Committee Member
Professor Donna E. Howard, Committee Member
Professor Richard Q. Shin, Dean's Representative
Professor Min Qi Wang, Committee Member

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Dedication

This dissertation is dedicated to my dear husband and sweet son who provided me with their unconditional love, support, and patience while I devoted most of my time to studying, analyzing data, and writing throughout the doctoral program and my dissertation.

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I would like to acknowledge my dear advisor and dissertation chair, Dr. Barbara Curbow, for her enduring support throughout the doctoral program and my dissertation research. Thank you for your guidance, encouragement, and brilliant insight that inspired me to develop and strive towards achieving my research goals. I could not have made it this far without your passionate and selfless support.

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List of Abbreviations

CESD-10	Short form of the Center for Epidemiologic Studies Depression Scale (Andresen et al., 1994)
CPI	Controlling Partners Inventory (Burke et al., 2011)
ECR-12	Short form of the Experiences in Close Relationships Questionnaire (Lafontaine et al., 2016)
GPS	Global Positioning System
HIT	Human intelligence task completed by Amazon Mechanical Turk workers
IPC	Intimate partner cyberstalking
IPV	Intimate partner violence
IRB	Institutional Review Board
MTurk	Amazon Mechanical Turk

Chapter 1: Introduction

Background

Intimate partner cyberstalking (IPC) is a relatively new, understudied public health problem that has emerged from technological advancements that offer opportunities for relationship abuse (Marcum et al., 2017; Tokunaga, 2011, 2016). Cyberstalking involves the use of the internet and other information and communication technologies to repeatedly monitor, threaten, and/or harass another person, causing them fear or concern for their safety (Bocij & McFarlane, 2002; Finn, 2004; Fissel, 2018; Maple et al., 2011, 2012; Reyns, 2010; Reyns et al., 2018; United States Department of Justice, 2000). In terms of IPC, cyberstalking behaviors are directed towards a current, former, or known potential romantic partner (Smoker & March, 2017). Cyberstalkers persistently pursue their victims in a manner that is unwanted, coercive, intimidating, intends to cause harm, and may include sexual language (Reyns, 2010; Reyns et al., 2012). Incidents may occur publicly online or privately online between the victim and the perpetrator (Ogilvie, 2000). Perpetrators may use a variety of technologies to stalk their intimate partners, such as phones, global positioning system (GPS) tracking devices and other location software, spyware, hidden cameras, email, social networking sites, instant messages, text messages, and video messages (Reyns, 2010; Southworth et al., 2007). Examples of IPC include repeatedly checking a partner's phone and computer history, monitoring their activity on social network pages, using location devices or social network check-ins to monitor their location, using social networking sites to shame them (e.g., threating to post inappropriate photos, posting inappropriate photos, or making other embarrassing/threatening posts about their partner), using a webcam or spyware to

spy on them, and using their password to monitor their activities (Burke et al., 2011; Finn, 2004; Smoker & March, 2017; Southworth et al., 2007).

Partners often rely on technology such as text messaging and social networking sites to communicate with each other in order to initiate and maintain their romantic partnerships (Boyle & O'Sullivan, 2016; Papp et al., 2012; Pew Research Center, 2016). Twenty-seven percent of young adults ages 18-24 have used online dating sites or mobile apps to meet a romantic partner (Pew Research Center, 2016). Young adults have used technology to stay connected with their partners, as a study found that 95% of college students (ages 18-24) have texted their partner and 100% have written messages to their partner via the internet in the previous three days (Boyle & O'Sullivan, 2016). Partners disclose information to each other via communication technology, and this technology-facilitated disclosure has been associated with greater intimacy and communication quality within the relationship among college students ages 18-24 (Boyle & O'Sullivan, 2016). Furthermore, Facebook relationship status has been associated with relationship satisfaction among adults ages 18 and older (Papp et al., 2012). Therefore, some technology-facilitated behaviors such as frequent text messages or phone calls may be viewed as acceptable in courtship and as evidence of romantic interest (Boyle & O'Sullivan, 2016; Spitzberg & Cupach, 2007).

Romance may blur the ability to recognize stalking (Lee, 1998). If the victim feels flattered or not threatened as a result, these behaviors are not considered IPC (Strawhun et al., 2013), particularly because fear is a necessary element in most definitions of cyberstalking (Finn, 2004; Fissel, 2018; Reyns et al., 2018; Strawhun et al., 2013; United States Department of Justice, 2000). Because the victim's subjective reactions can

indicate whether or not they have experienced cyberstalking, the threshold of when a technology-facilitated behavior among partners becomes cyberstalking can be ambiguous. However, behaviors may escalate and become cyberstalking in various ways, such as if the partner continues to contact the victim after they were asked to stop; they engage in unwanted sexual advances towards their partner; the perpetrator makes it seem as if they are their actual partner online, but are not, in order to cause harm; or they persistently harass or threaten their partner, causing them fear or concern for their safety (Bocij & McFarlane, 2002; Reyns, 2010). Many cyberstalking victims fear physical, emotional, social, and/or economic harm (Maple et al., 2011).

Problem Statement

IPC is a problem among young adults between ages 18 and 32 years (Acquadro Maran & Begotti, 2019; Lyndon et al., 2011; Reyns et al., 2012). However, prevalence estimates of IPC victimization and perpetration among young adults, as well as other age groups, are unclear due to a paucity of literature focusing on cyberstalking specific to intimate partners (Lyndon et al., 2011; Marcum et al., 2016, 2017; Shorey et al., 2015; Smoker & March, 2017), a lack of a consistent definition of cyberstalking that accurately captures associated behaviors and includes the victim's emotional reactions as an outcome (Bocij & McFarlane, 2002; Finn, 2004; Reyns et al., 2012, 2018; L. Roberts, 2008; Shorey et al., 2015; Smoker & March, 2017; United States Department of Justice, 2000), and the use of different samples and study methodologies (Dreßing et al., 2014; Fisher et al., 2002; Maple et al., 2011; Marcum et al., 2016, 2017; Reyns et al., 2012, 2018; Shorey et al., 2015; Smoker & March, 2017). It is debated whether IPC only

includes internet-facilitated behaviors (Bahm, 2003; Marcum et al., 2017; Reyns et al., 2012) or additional technologies, such as texting and tracking applications, as well (Shorey et al., 2015; Smoker & March, 2017). The majority of studies that included the prevalence of cyberstalking among young adults were not specific to intimate partners (i.e., included partners, a partner's ex, strangers, relatives, friends, and acquaintances) and comprised of college samples with students that ranged in age from young adults to older adults (i.e., 18 years and older; Alexy et al., 2005; Fisher et al., 2002; Kalaitzaki, 2017; Kraft & Wang, 2010; Reyns et al., 2012, 2018; Shorey et al., 2015; Strawhun et al., 2013). Additionally, only a few studies with college, internet, and community samples from a variety of age groups included fear as an emotional reaction, either in the cyberstalking measure or by assessing fear as an outcome of the behavior (Dreßing et al., 2014; Fisher et al., 2002; Kalaitzaki, 2017; Kraft & Wang, 2010; Maple et al., 2011; Reyns et al., 2018; Shorey et al., 2015). Estimates of IPC among college students that occurred since breaking up with their partner or while in a current relationship ranged from 0.9-36.0% for victimization and 0.6-67.3% for perpetration for a variety of IPC behaviors via telephones, social networking sites, text messaging, email, instant messaging, webcams, hidden cameras, spyware, and location software (Acquadro Maran & Begotti, 2019; Dardis & Gidycz, 2017; Finn, 2004; Lyndon et al., 2011; Shorey et al., 2015). There is a lack of literature indicating the prevalence of both experiencing and perpetrating IPC.

Although the prevalence of IPC among young adults is unclear, it is apparent that this population has a high risk for IPC, both as a victim and as a perpetrator. Young people ages 18-25 are in a period commonly known as "emerging adulthood," and the

developmental milestones and challenges of this period can impact their romantic relationships (Arnett, 2015). Although social identities can differ within this age group, many young adults are exploring their identity, trying to determine who they are and experimenting with intimate partnerships (Arnett, 2015). Many are investigating various possibilities in terms of their direction in life and may envision a future that includes a loving, long-term intimate relationship with a partner (Arnett, 2015). Despite this hope for the future, they often experience instability in romantic relationships and are self-focused (Arnett, 2015), which could increase opportunities for IPC victimization and/or perpetration.

Furthermore, young adults' risk for IPC is increased as a result of their high technology use. The majority of young adults ages 18-24 use social media sites (e.g., Facebook, 76% and Snapchat, 73%; Pew Research Center, 2019b) and use technology to communicate with their romantic partner (e.g., texting in previous three days, 95%; Boyle & O'Sullivan, 2016). Some young adults (27%) of the same ages initiate relationships using dating sites (Pew Research Center, 2016). Almost half (48%) of young adults ages 18-29 go online "almost constantly" (Pew Research Center, 2019a), and greater internet use has been associated with cyber violence among youth and young adults ages 11-20 (Šincek et al., 2017). Additionally, young adults ages 18-29 have been more likely to report that technology negatively impacted their romantic relationship compared to all adult couples (Pew Research Center, 2014). Therefore, it is important to study IPC among this population.

The adverse health states associated with IPC victimization among young adults are unclear, as the majority of studies investigating these relationships were not restricted

to intimate partners (Acquadro Maran & Begotti, 2019; Begotti & Acquadro Maran, 2019; Melander, 2010). Victims of IPC have experienced social isolation (Melander, 2010). Among studies including intimate partners and other victim-perpetrator relationships, victims may experience fear, sadness, anger, paranoia, panic attacks, depressive symptoms, and anxiety symptoms (Acquadro Maran & Begotti, 2019; Begotti & Acquadro Maran, 2019). Additionally, they may experience headaches, weight changes, tiredness, and a sleep disorder (Acquadro Maran & Begotti, 2019; Begotti & Acquadro Maran, 2019). Because there is limited literature investigating adverse health states associated with IPC, more research is necessary to understand these relationships.

There is a lack of literature exploring adverse health states associated with IPC perpetration and experiencing/engaging in both victimization and perpetration. The limited literature focused on perpetration explored risk factors or predictors of the behavior, such as personality traits, attachment style, and perceiving that peers cyberstalk their romantic partners as well (Marcum et al., 2017; Marshall et al., 2012; Smoker & March, 2017). However, researchers have found associations between perpetrating cyberbullying (a form of cyber abuse that includes cyberstalking; Kraft & Wang, 2010) and depression, emotional problems, and peer relationship problems among youth and young adults ages 9-19 (Campbell et al., 2013). Furthermore, researchers have found that youth and young adults ages 11-20 who have experienced victimization and engaged in perpetration of cyber violence (a broad term that encompasses cyberstalking and other forms of cyber abuse; Šincek, Duvnjak, & Milić, 2017) have indicated greater depression and stress compared to those who were only victims or perpetrators (Šincek et al., 2017). Youth and young adults ages 11-19 who were both victims and perpetrators of

cyberbullying have had significantly more school absences compared to victims and those indicating neither victimization nor perpetration (Kowalski & Limber, 2013). These relationships provide insight into potential adverse health states associated with IPC perpetration and experiencing/engaging in both victimization and perpetration.

Conceptual Model

The conceptual model for this dissertation is shown in Figure 1. Attachment Theory (Bowlby, 1969, 1973, 1977, 1980, 1982) was applied to examine IPC among young adults because this theory conceptualizes relationship bonds among close individuals (Ainsworth et al., 1978; Bowlby, 1969, 1973, 1977, 1980, 1982; Hazan & Shaver, 1987). Based on this theory and empirical findings about attachment as it relates to IPC among college and community samples (average age in the mid-20s; Fox & Warber, 2014; Marshall et al., 2012; Muise et al., 2014), I expected that young adults were more likely to experience IPC victimization when attachment avoidance increased. Additionally, I anticipated that they were more likely to engage in perpetration when attachment anxiety increased. In general, attachment avoidance is characterized as emotional distance, discomfort with closeness and dependence, self-reliance, and utilizing deactivating strategies (i.e., avoiding closeness with their partner) to handle insecurity and distress in the relationship (Mikulincer et al., 2003; Mikulincer & Shaver, 2007). Attachment anxiety is characterized as worries about the relationship, a desire for closeness, fear of rejection or abandonment, and utilizing hyperactivating strategies (i.e., becoming clingy and controlling) to handle insecurity and distress in the relationship

(Mikulincer et al., 2003; Mikulincer & Shaver, 2007). Chapter 2 includes supporting literature about Attachment Theory and its relationship with IPC.

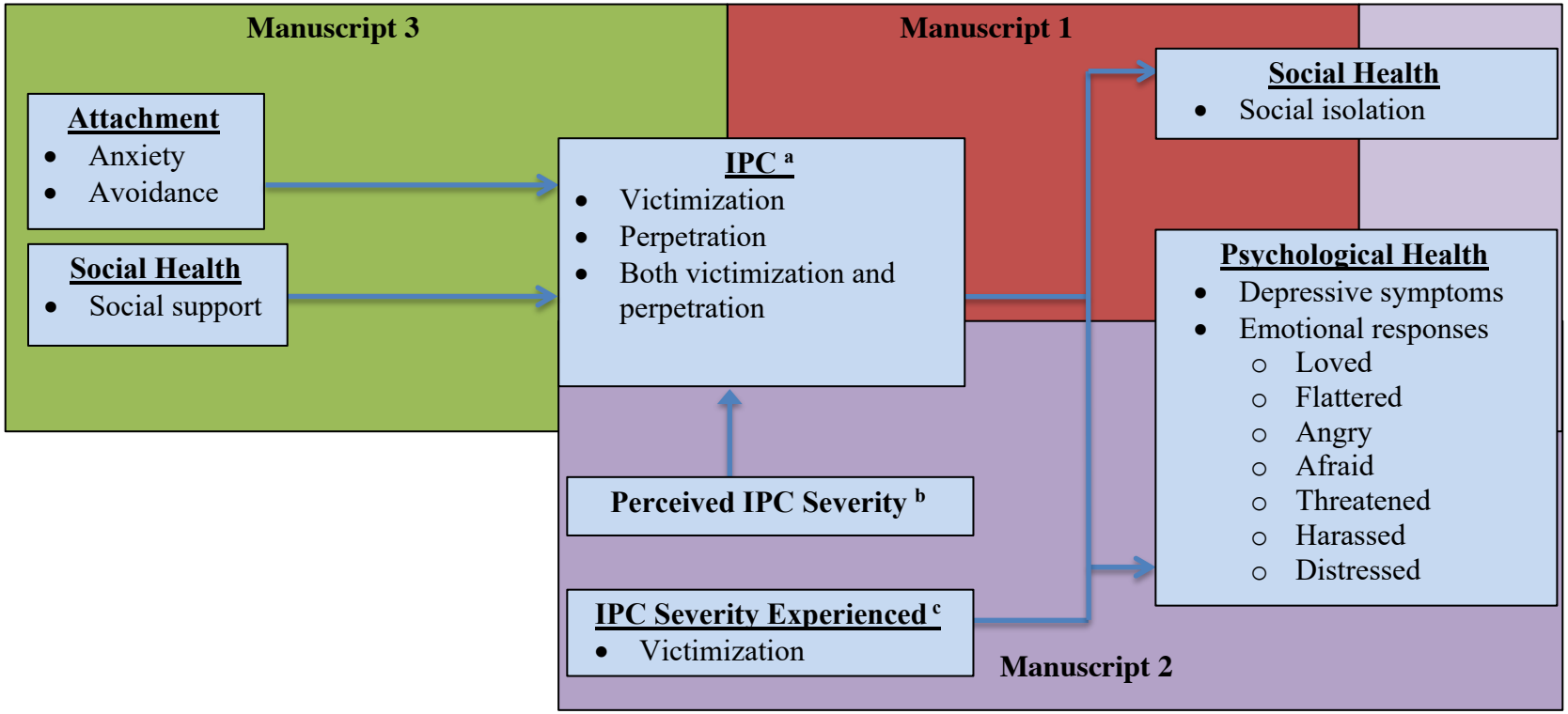
I anticipated that young adults were less likely to experience IPC victimization or to engage in perpetration when social support increased. According to Shumaker and Brownell (1984), social support is "an exchange of resources between two individuals perceived by the provider or the recipient to be intended to enhance the well-being of the recipient" (Shumaker & Brownell, 1984, p. 11). Many cyberstalking victims of all ages seek social support from friends and family after the cyberstalking incident (Fissel, 2018; Haron & Yusof, 2010; Worsley et al., 2017). There is a lack of literature about whether social support protects against experiencing IPC victimization or engaging in perpetration. However, social support can encourage health-promoting behaviors (Geertsen, 1997; Uchino, 2006). Additional details are provided in Chapter 2.

Based on empirical literature about associations between well-being and IPC among college students (Melander, 2010), general cyberstalking among college students (Acquadro Maran & Begotti, 2019; Begotti & Acquadro Maran, 2019), and related cyber abuse among youth and young-adult students (Campbell et al., 2013; Hinduja & Patchin, 2010; Kowalski & Limber, 2013; Šincek et al., 2017), I expected that IPC victims, perpetrators, and those who have experienced/engaged in both victimization and perpetration were more likely to report depressive symptoms, social isolation, and negative emotional responses (i.e., feeling angry, afraid, threated, harassed, and/or distressed) than those who have indicated neither victimization nor perpetration. I anticipated that victims, perpetrators, and those who have experienced/engaged in both were less likely to report positive emotional reactions (i.e., feeling flattered and/or loved)

than those who have indicated neither IPC roles. More details about IPC and associated health states are discussed in Chapter 2.

Additionally, I expected that IPC severity experienced among young-adult victims was associated with depressive symptoms and social isolation. I examined perceived severity of IPC behaviors and applied these perceptions to victimization data to examine the relationship between IPC severity experienced and well-being. Perceived severity is a theoretical construct of the Health Belief Model (Hochbawum, 1958; I. M. Rosenstock et al., 1988; Irwin M. Rosenstock, 1974a, 1974b) and, in terms of IPC, involves the subjective perception of the seriousness of certain IPC behaviors. According to college students, severe intrusive behaviors conducted by someone who presumed an intimate relationship were perceived as more threatening, violating, annoying, and upsetting (Cupach & Spitzberg, 2000). Although the associations between IPC severity experienced and health states are unclear due to a lack of literature exploring these relationships, researchers have examined these associations with stalking (combining both in-person and electronic stalking) using community-based samples of adults (Mechanic et al., 2000; Purcell et al., 2004). Moreover, I expected that perceived severity of IPC behaviors was negatively associated with the occurrence of IPC victimization, as severe pursuits and intrusions among college students have occurred less frequently than minor behaviors (Cupach & Spitzberg, 2000; Dardis & Gidycz, 2017). Further details are discussed in Chapter 2.

Figure 1: Conceptual Model



Note: IPC=intimate partner cyberstalking. Manuscript 1=red, Manuscript 2=purple, and Manuscript 3=green. Variables spanning multiple colors were included in at least two manuscripts (i.e., IPC was included in all manuscripts; depressive symptoms and social isolation were included in Manuscripts 1 and 2; negative emotional responses were included in all manuscripts).

[a] Manuscript 3 included victimization and perpetration separately. I did not examine those who reported both IPC roles because the sample size for this group was small.

[b] I expected that perceived severity of IPC behaviors was negatively associated with victimization frequency.

[c] Q-sort scores of perceived severity were applied to victimization data to determine IPC severity experienced. Manuscript 2 did not include perpetration because the sample size for this group was small.

Brief Justification or Rationale for the Problem

IPC will remain problematic as new advancements in and greater reliance on technology provide more opportunities for perpetrators to cyberstalk their dating partners (Parsons-Pollard & Moriarty, 2009; Sugarman & Willoughby, 2013). In order to reduce and prevent this public health problem among young adults, it is necessary to understand IPC among this population. However, there is limited research examining IPC among young adults and exploring associations with psychological and social health states. In this dissertation, I addressed these gaps.

The purpose of this dissertation research was to investigate IPC (victimization, perpetration, and experiencing/engaging in both) among young adults and to test associations with depressive symptoms, social isolation, emotional reactions, attachment dimensions, and social support. Additionally, I explored young adults' perceptions of IPC behaviors and the severity of these behaviors. Relationships among IPC severity experienced, depressive symptoms, and social isolation were examined. The results improve our understanding of IPC among this highly vulnerable population and can inform policies and programs that aim to prevent IPC.

Aims and Hypotheses

Manuscript 1

The purpose of this manuscript was to investigate IPC among young adults and to test associations with psychological and social well-being. I used three definitions of IPC that are present in the literature in order to clarify how related measurement issues influence study findings. For all definitions, I defined IPC as the use of the internet and

other information and communication technologies to repeatedly monitor, threaten, and/or harass a current or former romantic partner. The definitions varied in whether or not they incorporated the victim's negative reactions (i.e., 1. irrespective of reactions; 2. feeling afraid, threatened, harassed and/or distressed; or 3. feeling afraid). Four groups of IPC involvement were examined: victims only (victims), perpetrators only (perpetrators), both victims and perpetrators (victim/perpetrators), and neither victims nor perpetrators (neither). Demographic and relationship characteristics of each group were investigated for all IPC definitions.

Aim 1. Test the associations between IPC and depressive symptoms, social isolation, and emotional reactions (i.e., feeling flattered, loved, angry, afraid, threated, harassed, and/or distressed) for three definitions/measures of IPC.

Hypothesis 1. Victim/perpetrators, victims, and perpetrators are more likely to experience depressive symptoms and greater social isolation compared to those who reported neither victimization nor perpetration.

Hypothesis 2. Victim/perpetrators are more likely to experience depressive symptoms and greater social isolation compared to victims and perpetrators.

The following hypotheses were tested only when defining IPC irrespective of emotional responses:

Hypothesis 3. When experiencing victimization, victim/perpetrators are more likely to feel angry, afraid, threatened, harassed, and distressed and less likely to feel flattered and loved compared to victims.

Hypothesis 4. When engaging in perpetration, victim/perpetrators are more likely to intend for their partners to feel angry, afraid, threatened, harassed, and distressed and less likely to intend for them to feel flattered and loved compared to perpetrators.

Manuscript 2

In Manuscript 2, I defined IPC as the use of the internet and other information and communication technologies to repeatedly monitor, threaten, and/or harass a current or former romantic partner, causing them to feel afraid, threatened, harassed, and/or distressed. The study was conducted in two phases. In Phase 1, I examined young adults' perceptions of which technology-facilitated behaviors they considered to be IPC and the severity of these behaviors. To my knowledge, there is no validated tool to assess IPC experiences in a hierarchy of increasing severity. Therefore, the severity perceptions from Phase 1 were used to operationalize severity experienced in the next phase. In Phase 2, I investigated the association between perceived severity of behaviors and victimization frequency among young adults. Also, I examined severity of IPC victimization experienced and associations with depressive symptoms and social isolation.

Aim 2. Identify young adults' perceptions of which IPC behaviors they consider to be cyberstalking and the severity of these behaviors.

Aim 3. Test the association between perceived severity of IPC behaviors and victimization frequency among young adults.

Hypothesis 5. As perceived severity of IPC behaviors increases, the frequency of victimization decreases.

Aim 4. Test the associations between IPC severity experienced, depressive symptoms, and social isolation.

Hypothesis 6. Victims of severe IPC are more likely to experience depressive symptoms and greater social isolation compared to victims of mild and moderate IPC.

Hypothesis 7. Victims of moderate IPC are more likely to experience depressive symptoms and greater social isolation compared to victims of mild IPC.

Manuscript 3

In Manuscript 3, I defined IPC as the use of the internet and other information and communication technologies to repeatedly monitor, threaten, and/or harass a current or former romantic partner, causing them to feel afraid, threatened, harassed, and/or distressed. The purpose of this study was to test associations between attachment (anxiety and avoidance), social support (from family, friends, and a special person), and IPC (victimization and perpetration separately) reported by young adults.

Aim 5. Test the associations between attachment (anxiety and avoidance) and IPC (victimization and perpetration separately).

Hypothesis 8. As attachment anxiety increases among young adults, they are more likely to engage in IPC perpetration.

Hypothesis 9. As attachment avoidance increases among young adults, they are more likely to experience IPC victimization.

Aim 6. Test the associations between social support (from family, friends, and a special person) and IPC (victimization and perpetration separately).

Hypothesis 10. As social support from family, friends, and a special person increases among young adults, they are less likely to engage in IPC perpetration.

Hypothesis 11. As social support from family, friends, and a special person increases among young adults, they are less likely to experience IPC victimization.

Dissertation Organization

This dissertation document is organized in the following order: introduction, literature review, Manuscript 1, Manuscript 2, Manuscript 3, and an overall discussion of the manuscripts. The manuscripts are based on the aims and hypotheses presented above. All manuscripts include results from a secondary analysis of data that were collected via Amazon Mechanical Turk (MTurk). I collected this data in Spring 2018 through an online survey about the use of computer-based technology in young-adult intimate relationships. The second manuscript also includes results from another online survey about university students' perceptions of IPC behaviors and the severity of these behaviors. These data were collected in Fall 2019 after the dissertation proposal. The final chapter includes a discussion of the key findings that were elucidated by this dissertation research. Following this discussion, strengths, limitations, implications for the public health field, and future directions are acknowledged. This dissertation

document is formatted according to the Electronic Thesis and Dissertation Style Guide, 2017 edition and the American Psychological Association reference style, 7th edition. Each manuscript follows the format of the particular journal to which it will be submitted.

Definitions of Variables and Terms

Definitions of key variables and terms are presented in Table 1 below.

Table 1: Definitions of Variables and Terms

Term	Definition
Intimate Partner Cyberstalking	The use of the internet and other information and communication technologies to repeatedly monitor, threaten, and/or harass a current, former, or potential romantic partner, causing them fear or concern for their safety (Bocij & McFarlane, 2002; Finn, 2004; Maple et al., 2012; Smoker & March, 2017; United States Department of Justice, 2000). Although most definitions include the victim's emotional responses (Bocij & McFarlane, 2002; Finn, 2004; Fissel, 2018; Maple et al., 2011, 2012; Reyns et al., 2018; L. Roberts, 2008; Strawhun et al., 2013; United States Department of Justice, 2000; Worsley et al., 2017), others do not (Henson, 2010; Piotrowski & Lathrop, 2012; Reyns et al., 2012). In this dissertation, IPC will be measured with and without accounting for emotional responses.
Intimate Partner	In a dating context, "An intimate partner is a person with whom one has a close personal relationship that may be characterized by the partners' emotional connectedness, regular contact, ongoing physical contact and sexual behavior, identity as a couple, and familiarity and knowledge about each other's lives. The relationship need not involve all of these dimensions" (Breiding, Basile, Smith, Black, & Mahendra, 2015, p. 11). Examples of intimate partner relationships include current or former spouses, boyfriends/girlfriends, dating partners, and ongoing sexual partners.
Young Adult	Individuals ages 18-25 years. This age range is considered emerging adulthood, a time between the end of adolescence and an established adulthood (i.e., marriage, parenthood, long-term job, Arnett, 2015).
Attachment Anxiety	Attachment anxiety is characterized as worries about the relationship, a desire for closeness, fear of rejection or abandonment, and utilizing hyperactivating strategies (i.e., being clingy and controlling) to handle insecurity and distress in the relationship (Mikulincer et al., 2003; Mikulincer & Shaver, 2007).
Attachment Avoidance	Attachment avoidance is characterized as emotional distance, discomfort with closeness and dependence, self-reliance, and utilizing deactivating strategies (i.e., avoiding closeness with their partner) to handle insecurity and distress in the relationship (Mikulincer et al., 2003; Mikulincer & Shaver, 2007).
Social Support	Social support is "an exchange of resources between two individuals perceived by the provider or the recipient to be intended to enhance the well-being of the recipient" (Shumaker & Brownell, 1984, p. 11). Social support is provided via emotional concern/empathy, instrumental aid, information, and appraisal (House, 1981).

Chapter 2: Literature Review

Inconsistent Definitions and Measurement of IPC

Definitions of Cyberstalking

Cyberstalking is inconsistently defined in the literature and in legislation with regards to incorporating the victim's emotional responses (e.g., fear). Most definitions include an emotional response (Bocij & McFarlane, 2002; Finn, 2004; Fissel, 2018; Maple et al., 2011, 2012; Reyns et al., 2018; L. Roberts, 2008; Strawhun et al., 2013; United States Department of Justice, 2000; Worsley et al., 2017), which is similar to the definition of offline stalking (Breiding et al., 2015). For example, Finn (2004) stated, "The term 'cyberstalking' has been used to describe a variety of behaviors that involve (a) repeated threats and/or harassment (b) by the use of electronic mail or other computer-based communication (c) that would make a reasonable person afraid or concerned for their safety" (Finn, 2004, p. 469), which he gathered from cyberstalking literature and legislation (Fisher et al., 2000; United States Department of Justice, 2000). According to the President's working group on unlawful conduct on the internet, "Cyberstalking generally refers to the use of the Internet, e-mail, or other electronic communications devices to 'stalk' another person – where 'stalking' in the traditional sense means to engage in repeated harassing or threatening behavior (such as following a person, appearing at a person's home or workplace, making harassing telephone calls, or leaving written messages or objects) that places the victim in reasonable fear of death or bodily injury, cf. 18 U.S.C. § 2261A (prohibiting interstate stalking)" (United States Department of Justice, 2000, p. 10). Some definitions also include distress and alarm as outcomes of cyberstalking (Maple et al., 2011, 2012; Worsley et al., 2017). Maple et al. (2011) stated,

"Cyberstalking is a course of action that involves more than one incident perpetrated through or utilising electronic means, that causes distress, fear or alarm" (Maple et al., 2011, p. 4).

Other definitions of cyberstalking do not include the victim's emotional responses (Henson, 2010; Piotrowski & Lathrop, 2012; Reyns et al., 2012). For example, according to Reyns el al. (2012), "Cyberstalking can be defined as the repeated pursuit of an individual using electronic or Internet-capable devices" (Reyns et al., 2012, p. 1). They argued that some cyberstalking definitions and state statutes do not include emotional responses; a lack of physical proximity in cyberspace and the relationship between the victim and the perpetrator (e.g., friend or intimate partner) may minimize a fear response; and certain characteristics of the victim may impact their response, such as if victims are skilled in using computer-based technology and are confident in their ability to deal with the situation (Reyns et al., 2012). Therefore, they suggest that cyberstalking occurs regardless of the subjective responses of the victim. However, this reasoning is perplexing when some partners view the behaviors as acceptable in romantic relationships, such as sending multiple text messages to stay connected with their partner (Boyle & O'Sullivan, 2016). For definitions without emotional reactions, technology-facilitated behaviors are automatically considered cyberstalking when they occur, whereas with definitions that include reactions such as fear, the threshold is more easily identifiable (although still subjective because emotions are not universally experienced) and occurs when the victim is afraid.

Definitions of IPC

Because of the inconsistent definitions of cyberstalking, literature specific to IPC has included similar variations. IPC definitions have varied with regards to incorporating emotional responses and repeated behaviors (Lyndon et al., 2011; Marcum et al., 2016, 2017; Shorey et al., 2015; Smoker & March, 2017). For example, Smoker and March (2017) did not specifically mention emotional reactions or repeated occurrences in their definition. They stated that IPC "refers to cyberstalking behaviour towards current, former, or potential intimate partners," and they defined cyberstalking as "the stalking of another through methods of electronic access and communication, such as the use of hidden webcams, GPS devices, and SpyWare to monitor victim's behaviour, and pursuit and contact under anonymity through fake online profiles" (Smoker & March, 2017, p. 391). Their definition was based on cyberstalking and stalking literature (Sheridan & Grant, 2007; Shorey et al., 2015). Lyndon et al. (2011) indicated that cyberstalking in romantic relationships involves repeated technology-facilitated behaviors that evoke fear. Also, researchers have indicated that the term "cyber dating abuse" has been used interchangeably with IPC, particularly when it occurs among young adults and adolescents because it involves the same behaviors (e.g., monitoring partners, sending threatening messages, or posting embarrassing photos online; Borrajo et al., 2015; Flach et al., 2017; Marcum et al., 2016, 2017; Zweig et al., 2013). As mentioned in the literature review of Borrajo et al. (2015), cyber dating abuse involves using information and communication technologies to abuse a romantic partner via threats, insults, humiliation, or denigration; jealous behaviors conducted with the intention of causing the partner distress; isolating the partner; or behaviors intending to control the partner. Flach

et al. (2017) in their literature review stated that cyber dating abuse is "a new expression of intimate partner violence; an emerging phenomenon with specific characteristics and elements that are different from the violence that takes place in face-[to]-face amorous exchange and cyberbullying, perpetrated through internet and digital technologies with no geographic or temporal barriers to its expression, intended to harm the partner, and with relevant consequences for the victims' mental health" (Flach et al., 2017, p. 4). However, these definitions do not require repeated occurrences.

Measurement of IPC

Because of the various definitions used in the literature, the same differences are seen in the measurement of IPC (Reyns et al., 2012; Shorey et al., 2015; Smoker & March, 2017). For example, Smoker and March (2017) developed their own IPC perpetration scale based on the limited availability of related scales, but the scale did not specifically include repeated occurrences that evoke fear (Smoker & March, 2017). Shorey et al. (2015) measured perpetration and victimization of a combination of in-person intimate partner stalking and cyberstalking, and they assessed frequency of the behaviors. However, they did not measure fear specific to the cyberstalking or stalking behavior (Shorey et al., 2015). They only included one item that assessed overall whether the participants' partners were afraid as a result of their behaviors or if the participants were fearful when victimized (Shorey et al., 2015). These inconsistencies, as well as differences in study samples and IPC behaviors measured, have resulted in disparate findings (Reyns et al., 2012; Shorey et al., 2015) and make it difficult to obtain clear and reliable results when examining this abuse. We cannot accurately understand IPC until

we establish a consistent definition and measurement of IPC, which is important for developing successful prevention strategies. Investigating definition and measurement discrepancies more closely will help clarify how these differences can impact the understanding of IPC.

Debated Technologies Used for IPC

Further complicating our understanding of IPC, the behaviors that are considered to be IPC are unclear because the technologies used to cyberstalk are debated (Bahm, 2003). Despite definitions of cyberstalking including the internet and other information and communicating technologies (Bocij & McFarlane, 2002; Reyns et al., 2012), some college-student studies have only focused on internet-based behaviors (e.g., repeatedly contacting a partner online after being asked to stop or attempting to log in to a partner's social networking account without them knowing; Acquadro Maran & Begotti, 2019; Marcum et al., 2017), and it is argued that stalking with technology beyond the internet should not be termed "cyberstalking" (Bahm, 2003). However, other researchers assessing IPC among college students and social media users have included various technologies, such as phones, texting and tracking applications, when assessing IPC behaviors (e.g., using a phone application to track a partner's activities, checking a partner's phone messages without their knowledge, or sending unwanted texts; Shorey et al., 2015; Smoker & March, 2017). Therefore, these researchers have accepted a broader definition of IPC. There is a lack of research investigating which technology-facilitated behaviors young adults consider to be IPC, which could provide insight into the technologies that are accepted among them as tools for this form of relationship abuse.

Gaining an understanding of their perspectives of IPC behaviors could provide clarity regarding which technologies should be included when investigating and addressing IPC among young adults.

Prevalence of IPC Among Young Adults

Victimization

There is a limited amount of literature that includes the prevalence of IPC among young adults. Shorey et al. (2015) found that college students (mean age of 19 years) have experienced various IPC behaviors by their current partner, with estimates ranging from 2-36% via phone, social networking sites, and text messaging. The most common acts were receiving unwanted phone calls from their partner (36%), and their partner tried to monitor or find out their behavior and/or activities by checking their Facebook/Myspace or another social networking site (31%; Shorey et al., 2015). Finn (2004) found that approximately 1-7% of college students (mean age of 20 years) have received repeated messages via email or instant message from a significant other (i.e., boy/girlfriend, spouse) that threatened, insulted, or harassed them, depending on the frequency of occurrence. However, participants were not asked about fear for their safety (Finn, 2004). According to another college study, 20% of college students (ages 18-27 years) have repeatedly received unwanted online contact from an ex-partner, 16% have been repeatedly harassed online by an ex-partner, 4% have repeatedly received unwanted sexual advances online from their ex-partner, 11% have repeatedly received online threats of violence from their ex-partner, and 11% have had an ex-partner who repeatedly pretended to be them online (Acquadro Maran & Begotti, 2019). Another study found

that 29% of social network users (mean age of 24 years) have been cyberstalked via the internet by an ex-partner (e.g., repeatedly experienced unwanted contact, harassment, and/or insults, and/or had lies spread about them; Dreßing et al., 2014).

These prevalence estimates are difficult to integrate, as they include a wide variety of IPC behaviors and have been measured over a span of 15 years when technology has changed rapidly. Additionally, these studies were not restricted to young adults ages 18-25, which is the priority population of my research. However, they indicate that IPC victimization occurs among young adults primarily in their late teens to late 20s. More research is necessary that restricts the sample to young adults who are in emerging adulthood (i.e., 18-25 years). This age group experiences unique developmental milestones and challenges that impact romantic relationships (Arnett, 2015), as discussed in Chapter 1 of this dissertation (e.g., experimentation with romantic relationships, instability in these romantic partnerships, and are self-focused).

Perpetration

Perpetration estimates of IPC are limited as well. Shorey et al. (2015) found that college students (mean age of 19 years) have perpetrated various IPC behaviors in their current relationship, ranging from 1-38% via phone, social networking sites, and text messaging. The most common acts were trying to monitor or find out their partner's behavior and/or activities by checking their Facebook/Myspace or another social networking site (38%), and calling their partner when they did not want them to call (35%; Shorey et al., 2015). According to Lyndon et al. (2011), college students (ages 18-32) have used Facebook to monitor or harass an ex-partner at least once via tactics

including covert provocation (67%; e.g., looked at an ex-partner's photos or wrote posts to taunt an ex-partner), public harassment (18%; e.g., posted embarrassing photos of ex-partner or spread rumors about an ex-partner on Facebook), and venting (18%; e.g., wrote inappropriate posts about an ex-partner or posted spiteful comments on a photo of an ex-partner). Additionally, 51% have engaged in cyber obsessional pursuit to establish an intimate relationship (e.g., persistently pursued someone electronically to establish an unwanted intimate relationship; Lyndon et al., 2011). Furthermore, Dardis and Gidycz (2017) found that approximately 43% of college students (ages 18 and older) have repeatedly engaged in minor cyber pursuit of an ex-partner (e.g., checked their partner's call history or sent an excessive number of texts to their partner), while 11% have repeatedly engaged in severe cyber pursuit of an ex-partner (e.g., used a hidden camera to monitor their partner or made threatening calls to their partner).

Similar to the victimization literature, the perpetration literature includes a wide variety of IPC behaviors, which are difficult to integrate to understand an overall prevalence estimate of IPC. However, reported estimates for some behaviors were especially high (over 50%; e.g., looked at an ex-partner's photos and pursued someone to establish an unwanted romantic relationship), as mentioned above. This literature further confirms that IPC is problematic among young adults. However, the perpetration and victimization literature is limited in terms of generalizability because the majority of studies included college-student samples. Investigating the prevalence of IPC perpetration and victimization with an internet-based sample of young adults would clarify how problematic it is among young adults who may not be attending college.

Victimization and Perpetration

There is a lack of literature that indicates the prevalence of experiencing IPC victimization and engaging in perpetration (i.e., victimization/perpetration). Victimization/perpetration estimates have been examined in research about cyber violence (i.e., a broad term that involves using information and communication technologies to harm another person, such as by harassing, insulting, trolling, cyberbullying, and cyberstalking them, and spreading rumors about them; Šincek et al., 2017) and cyberbullying (Kowalski & Limber, 2013; Kritsotakis et al., 2017; i.e., using electronic devices to hurt or embarrass another person; National Crime Prevention Council, 2020). Cyberstalking is considered a form of cyberbullying (Willard, 2007). According to Kritsotakis et al. (2017), approximately 10% of college students (mean age of 19 years) have been both victims and perpetrators of cyberbullying. Some of these acts occurred online, but specific electronic platforms were not provided in this study (Kritsotakis et al., 2017). Other studies have included a combination of adolescents and young adults (i.e., ages 11-20; Kowalski & Limber, 2013; Šincek et al., 2017). They found estimates of 2-5% for cyberbullying via email, instant messaging, a chat room, a website, or text messaging (Kowalski & Limber, 2013), and estimates of 13% for cyber violence via the internet (Šincek et al., 2017). Although IPC involves romantic relationship dynamics, the results suggest that individuals can experience victimization and also engage in perpetration of cyber abuse. However, this literature combines both adolescents and young adults, and the developmental milestones and challenges of these age groups are different. For example, adolescents are more likely to engage in risk-taking and be emotionally reactive, while young adults are usually exploring their

identity and experimenting with romantic partnerships (Arnett, 2015; Casey et al., 2008; Jaworska & MacQueen, 2015). A full discussion of adolescent development and its comparison to young adulthood are beyond the scope of this dissertation. More research is needed to clarify the prevalence of victimization/perpetration of IPC among young adults.

Psychological and Social Health States Associated with IPC

Victimization

The relationships between IPC and adverse psychological and social health states among young adults are elusive based on the limited literature. The majority of studies examining associated health states were not specific to intimate partners (Acquadro Maran & Begotti, 2019; Dreßing et al., 2014; Kalaitzaki, 2017; Maple et al., 2011, 2012; Sheridan & Grant, 2007; Short et al., 2014; Worsley et al., 2017). Additionally, only a few of these studies examined cyberstalking restricted to young adults (Acquadro Maran & Begotti, 2019; Begotti & Acquadro Maran, 2019; Hancock et al., 2017; Melander, 2010). According to a qualitative study of 39 college students (ages 18-23), victims of IPC have experienced a loss of friends due to their partner monitoring their social networks and isolating them from their friends (Melander, 2010). Hancock et al. (2017) investigated cyber dating abuse and found that college students (ages 17-25) who experienced greater victimization experienced significantly lower self-esteem and greater emotional distress (Hancock et al., 2017). However, it is unclear which occurred first, the victimization or the health state. According to studies that included intimate partners and other victim-perpetrator relationships, college-student victims (ages 18-27) may

experience fear, sadness, anger, paranoia, panic attacks, depressive symptoms, and anxiety symptoms as a result (Acquadro Maran & Begotti, 2019; Begotti & Acquadro Maran, 2019). These findings suggest that IPC victimization is associated with adverse health states. However, more research is necessary to clarify these relationships, particularly among young adults ages 18-25.

Perpetration

There is a lack of literature examining the associations between IPC perpetration and adverse psychological and social health states among young adults. Associated adverse health states have been explored in cyberbullying literature (Campbell et al., 2013; Kowalski & Limber, 2013). Campbell et al. (2013) found that cyberbullying perpetration was associated with greater stress, anxiety, depression, conduct problems, hyperactivity, emotional problems, and peer relationship problems among youth and young adults ages 9-19 (Campbell et al., 2013). According to Kowalski and Limber (2013), youth and young adults ages 11-19 who perpetrated cyberbullying have had a significantly greater number of school absences compared to those who were neither victims nor perpetrators (Kowalski & Limber, 2013). Because these results indicate associations, it is unclear which occurred first, the perpetration or the health state. Although IPC involves different dynamics and this cyberbullying literature included a combination of youth and young adults (i.e., different developmental periods, as mentioned above), it suggests that perpetration of IPC may be associated with adverse health states. More research is necessary to clarify these relationships among young adults.

Victimization and Perpetration

Given the lack of literature about IPC victimization/perpetration, associated psychological and social health states are unclear. These relationships have been explored in cyberbullying and cyber violence literature (Kowalski & Limber, 2013; Šincek et al., 2017). Youth and young adults ages 11-20 who were perpetrators and victims of cyber violence have experienced significantly greater depressive symptoms than victims only, perpetrations only, and uninvolved individuals (Šincek et al., 2017). They also have experienced significantly greater stress than victims only and perpetrators only, and significantly lower self-esteem than uninvolved individuals (Šincek et al., 2017). According to Kowalski and Limber (2013), youth and young adults ages 11-19 who were both victims and perpetrators of cyberbullying have had significantly greater anxiety, depression, and suicidal ideation as well as lower self-esteem compared to victims only, perpetrators only, and those uninvolved (Kowalski & Limber, 2013). Additionally, they have had significantly more school absences compared to victims only and those uninvolved (Kowalski & Limber, 2013). It is unclear from this literature which occurred first, victimization/perpetration or the health state. Although these studies combined both adolescents and young adults and included different forms of cyber abuse, the results suggest that victim/perpetrators experience the worst health states. Similar relationships may be found among victim/perpetrators of IPC. More research is necessary to clarify these associations among young adults.

Severity of Cyberstalking and Related Cyber Abuse

There is a lack of literature about the severity of IPC, either determined by perception, harm, duration, or frequency. Looking to other cyber abuse for insight, cyberstalking incidents among victims (i.e., not specific to intimate partners) that included media supporting verbal communication (i.e., video or phone) were more severe than incidents with media supporting text communications (Barnes & Biros, 2007). Severity was determined by an assessment of the stalker's actions and threats and an analysis of victim advocates' case notes (Barnes & Biros, 2007). Details regarding age and other demographics were not reported.

Dardis and Gidycz (2017) designated severe and minor perpetration of cyber pursuit behaviors of an ex-partner (i.e., repeated and persistent behaviors to contact a former partner electronically) among college students (ages 18 and older) using exploratory and confirmatory factor analyses. The four factor model originally found by Burke et al. (2011; i.e., 1. photos, camera, spyware; 2. excessive communication; 3. threatening; and 4. checking behaviors) did not fit their data well when conducting confirmatory factory analysis (Dardis & Gidycz, 2017). Therefore, they conducted exploratory factor analysis with principal axis factoring and promax rotation and found two factors which appeared to result in severe and minor cyber pursuit behaviors (Dardis & Gidycz, 2017). Their severe factor included GPS/surveillance and threatening items (e.g., using a webcam to monitor their ex-partner's activities or sending threatening emails to their ex-partner) and the minor factor included communication and checking items (e.g., sending excessive texts to their ex-partner or checking their ex-partner's cell

phone call history). Among college students in this study, 11% reported any severe pursuit and 43% reported any minor pursuit (Dardis & Gidycz, 2017). The authors noted that the pursuit behaviors examined in this study may or may not have been cyberstalking because unwanted pursuit involves a wider range of behaviors, varying from normal romantic acts such as giving gifts to more severe behaviors that are threatening and harmful, and may or may not cause fear (Dardis & Gidycz, 2017). However, considering the inconsistencies in IPC definitions that were mentioned previously (i.e., repeated occurrences and emotional reactions), this pursuit may be IPC when defining the abuse irrespective of evoking fear. Therefore, there may be some overlap in types of cyber pursuit and terminology, further complicating our understating of IPC.

Cupach and Spitzberg (2000) examined the perceived severity of obsessive relational intrusion (i.e., repeated pursuit and invasion of privacy by someone who wants or presumes a romantic partnership; Cupach & Spitzberg, 1998) among college students (ages 18-36; Cupach & Spitzberg, 2000). Severity was determined by the extent participants felt (if experienced since age 18) or would feel (if not experienced since age 18) annoyed, upset, threatened, and their privacy violated by the behavior (Cupach & Spitzberg, 2000). Some of the behaviors were technology-facilitated such as "cluttered your e-mail with messages" and "made obscene phone calls to you" (Cupach & Spitzberg, 2000, p. 363). Violation behaviors (e.g., recorded conversations without the victim's knowledge) were perceived as significantly more annoying, upsetting, threatening, and privacy violating than pursuit (e.g., called the victim while working), threat (e.g., called and argued with the victim), and hyper-intimacy (e.g., told others that the victim was more intimate with them than they were) behaviors (Cupach & Spitzberg,

2000). Among three samples of college students (mean ages 21-22), violation behaviors occurred less frequently than pursuit, threat, and hyper-intimacy behaviors (Cupach & Spitzberg, 2000). Some electronic obsessive relational intrusions may be considered IPC based on definitions that do not include the victim's emotional reactions.

Based on this literature about related cyber abuse, it is apparent that there is no consensus regarding the measurement of severity. The results suggest that cyber abuse involving verbal communication, surveillance, threats, and behaviors conducted without consent are more severe. Additional research is necessary to understand perceived IPC severity as well as IPC severity experienced among young adults, as this research could inform the development of IPC prevention strategies among this population.

Severe Stalking and Associated Psychological and Social Health States

Given the lack of studies about IPC severity, the associations between IPC severity experienced and health states are unclear. However, the relationships between severe stalking in general (i.e., combining both in-person and electronic stalking) and health states have been examined (Mechanic et al., 2000; Purcell et al., 2004). Among a community-based sample of adults (ages 19-59), battered women who experienced more severe stalking (i.e., relentlessly stalked, or experienced at least six different stalking incidents that each happened at least once per week) by an intimate partner have reported greater depression and PTSD compared to battered women who experienced less severe stalking (i.e., infrequently stalked, or experienced stalking monthly or less frequent (Mechanic et al., 2000). Among another community-based sample of adults (ages 18 and older), victims of more severe stalking (i.e., enduring pursuit and harassment for more

than 2 weeks, which could have exposed victims to more methods of stalking and possibly more threatening behaviors) have been more likely to relocate their residence, change their phone number, reduce social outings, and experience greater psychological morbidity compared to those who experienced less severe stalking (i.e., for 2 weeks or less; Purcell et al., 2004). Based on this literature, victims of severe stalking can experience adverse health states, and similar relationships may be found for IPC severity. However, these results only indicate associations, so it is unclear if the stalking caused the adverse health states. Additionally, these studies did not focus on young adults. The authors measured severity based on experiencing multiple types of stalking, frequency, and/or duration of stalking incidents, so it remains unclear how perceived severity is associated with adverse health states. Investigating perceived severity of IPC among young adults and utilizing these perceptions to understand the relationships between IPC severity experienced and adverse health states will address these gaps in the literature.

Social Support and Health-Promoting Mechanisms

Social support is provided via emotional concern (i.e., empathy, love, trust, and care), instrumental aid (i.e., tangible support and services), information (i.e., advice, suggestions, and information), and appraisal (i.e., useful information for self-evaluation; Glanz et al., 2008; House, 1981). It can protect against various adverse health states such as depression (Gariépy et al., 2016; Santini et al., 2015; J. Wang et al., 2018), anxiety (J. Wang et al., 2018), and stress (H.-H. Wang et al., 2003). It is theorized that social support buffers the health outcomes of stressful life events or can directly provide benefits regardless of stress by encouraging self-esteem, self-regulation (Cohen & Wills, 1985;

Lakey & Cohen, 2000), and health-promoting behaviors (Geertsen, 1997; Uchino, 2006). Additionally, it is suggested that social support is a part of relationship processes such as intimacy and cannot be separated from these processes (Lakey & Cohen, 2000).

Thoits (2011) described seven social psychological mechanisms through which social ties enhance physical and psychological health. These mechanisms include social influence/social comparison, social control, role-based purpose and meaning, self-esteem, sense of control, belonging and companionship, and perceived social support (Thoits, 2011). According to Thoits (2011), when an individual is experiencing a stressful situation, the social support provided by their social network becomes visible and deliberate. She suggested that social support buffers the impact of stress through emotional sustenance and active coping assistance, which are provided differently by "significant others" who have never personally experienced the stressor and by "similar others/peers" who have previously experienced the stressor (Thoits, 2011). She suggested that significant others provide emotional sustenance via sympathy, concern, care for the person, and "being there" (Thoits, 2011). Similar others provide emotional sustenance through empathic understanding, accepting ventilation, and validating feelings and concerns (Thoits, 2011). Significant others provide active coping assistance via instrumental support, and similar others provide active coping assistance through coping encouragement, information and advice, and appraisal feedback (Thoits, 2011). Thoits (2011) also suggested that similar others can provide social influence/social comparison support by acting as role models because they have dealt with the same situation. Furthermore, similar others provide hope to the stressed individual because they have handled the situation (Thoits, 2011). She suggested that significant others' emotional and

instrumental support should influence the stressed individual's mattering (i.e., role-based purpose and meaning in life), self-esteem, and belonging, which should then alleviate the physical and emotional impact of stress (Thoits, 2011). The ways similar others provide emotional sustenance can reduce tension and improve self-esteem, and their coping assistance directly influences physical and psychological health and indirectly enhances their sense of control (Thoits, 2011). Furthermore, acting as a role model influences the stressed individual's sense of control and coping strategies (Thoits, 2011). Therefore, the ways in which social support enhance health can be complex and depends on whether the source providing the support has encountered the same stressful situation.

Social Support and IPC Victimization

Research examining the relationship between social support and IPC victimization among young adults is limited. Among an internet-based sample of MTurk workers, young adults (ages 18-25) who were cyberstalked by a current partner have been more likely to report the incident to law enforcement and seek professional help (e.g., counseling, legal services, told a family or friend) compared to other victim-perpetrator relationships (Fissel, 2018). Cyberstalking victims (i.e., not specific to intimate partners) of all ages (15-65 years) have sought social support from friends and family to help them cope with the situation (Haron & Yusof, 2010; Worsley et al., 2017). They have discussed the situation with their family, friends, and colleagues in order to obtain guidance and moral support (Haron & Yusof, 2010). After talking about the incident with their family and friends, these sources of social support have acted as barriers between the victim and the perpetrator, have reduced the likelihood of the victim experiencing

paranoia, and have confronted the perpetrator for the victim (Worsley et al., 2017). These studies suggest that social support is important to victims of cyberstalking after the incident has occurred. However, there is a lack of research exploring whether social support decreases the likelihood of experiencing IPC victimization. According to the social support mechanisms theorized by Thoits (2011), sources of social support may provide guidance regarding healthy romantic relationship behaviors, which could decrease the likelihood of becoming a victim. More research is necessary to understand the role of social support in protecting against IPC victimization.

Social Support and Intimate Partner Violence Perpetration

Unfortunately, negative social ties, interactions, and support can also harm well-being by setting a negative example, promoting risky behaviors, and causing distress in the relationship (Burg & Seeman, 1994; Lincoln, 2000; Uchino, 2006). A study found that college students (mean ages of 18-20 years) were more likely to login to their romantic partner's social networking account without their knowledge if they perceived that their friends engaged in IPC (Marcum et al., 2017). However, this study examined perceived norms among peers and not social support. There is a lack of literature examining the relationship between social support and IPC perpetration.

A study about intimate partner violence (IPV, "includes physical violence, sexual violence, stalking and psychological aggression [including coercive tactics] by a current or former intimate partner;" Breiding et al., 2015, p. 11) assessed the role of social support. According to a national epidemiological survey conducted in the United States, adults (ages 18 and older) who perpetrated physical and/or sexual IPV in the past year

had significantly smaller social networks and less perceived availability of social support compared to non-perpetrators (Okuda et al., 2015). IPV is most often conducted in person without technology. However, this literature suggests that social support may decrease the likelihood of IPC perpetration, as it is a form of intimate partner abuse. To clarify this relationship, research is warranted that examines the role of social support in IPC perpetration.

Attachment Theory

Attachment Theory is rooted in John Bowlby's research examining relationship bonds between infants and caregivers (Bowlby, 1969, 1973, 1977, 1980, 1982). According to Bowlby, infants seek to gain and maintain proximity to their caregiver when experiencing physical and psychological threats, and they experience protest, despair, and detachment when separated (Bowlby, 1969, 1973, 1977, 1980, 1982). The working models, or internal cognitive representations of attachment relationships, that develop in infancy based on these experiences can influence adult relationships (Bowlby, 1973, 1977). These working models include beliefs about whether the self is worthy of attention and support from the attachment figure, and whether the attachment figure is believed to provide attention and support (Bowlby, 1973).

Another seminal work in Attachment Theory was Ainsworth et al.'s (1978) study, the "Strange Situation" (Ainsworth et al., 1978). According to the results, infants exhibit secure, avoidant, and anxious/ambivalent attachment styles when separated from their mother and left with a stranger, and then reunited with their mother (Ainsworth et al., 1978). Secure infants were distressed when their mother left, wanted comfort from their

mother when she returned, and then continued to explore (Ainsworth et al., 1978). Avoidant infants were not upset when the mother left and avoided or ignored the mother when she returned (Ainsworth et al., 1978). Anxious/ambivalent infants were distressed when the mother left and ambivalent when the mother returned, wanting to seek comfort but also resentful for the mother leaving and thus resisting her (Ainsworth et al., 1978). These different attachment styles depended on the emotional availability and responsiveness of the mother when the child exhibited proximity-seeking behaviors at home (Ainsworth et al., 1978). Although this study by Ainsworth et al. (1978) focused on mothers as attachment figures, fathers are important attachment figures as well (Bretherton, 2010).

Researchers have also applied Attachment Theory to understand adult romantic relationships. Hazan and Shaver (1987) were the first to do so based on previous work on infant-caregiver attachment (Ainsworth et al., 1978; Bowlby, 1969, 1973, 1977, 1980, 1982). They found that adults in intimate relationships exhibited secure, avoidant, and anxious/ambivalent attachment styles (Hazan & Shaver, 1987) similar to the styles seen in infant-caregiver relationships (Ainsworth et al., 1978). Additionally, they found that romantic love was experienced differently depending on the attachment style; individuals' working models were related to attachment style; and attachment histories with parents, particularly the quality of their relationship with each parent and the parents' relationship with each other, predicted adult attachment style (Hazan & Shaver, 1987). Other researchers investigated associations between attachment and relationship characteristics (N. L. Collins et al., 2006; Dutton & Winstead, 2006; Etcheverry et al., 2013; Hadden et al., 2014; Simpson, 1990). For example, attachment has been linked to

unwanted pursuit (Dutton & Winstead, 2006), relationship commitment (Etcheverry et al., 2013; Hadden et al., 2014; Simpson, 1990), relationship satisfaction (Hadden et al., 2014; Simpson, 1990), trust, interdependence (Simpson, 1990), and conflict in relationships (Simpson et al., 1996).

According to Bowlby (1977), attachment behavior persists "from cradle to the grave" (Bowlby, 1977, p. 203). Individuals of all ages seek proximity to an attachment figure when experiencing anxiety and distress, and adults in particular seek proximity, generally to a romantic partner, in order to protect, comfort, or engage in sexual activity with their partner (Hazan & Shaver, 1994). Based on Attachment Theory, satisfying relationships meet basic needs for comfort, care, and sexual gratification, and a quality relationship involves trusting the partner to be available and responsive to their needs (Hazan & Shaver, 1994). However, people differ in the way they relate to each other and behave in relationships (Hazan & Shaver, 1994). Attachment behavior aims to achieve a sense of security, but some individuals may have to exert intense effort to do so because they may not be confident in the responsiveness of others to attend to their needs, or they may avoid intimate social contact as a result of consistent unresponsiveness from attachment figures (Hazan & Shaver, 1994). Additionally, the attachment figure's availability and responsiveness can influence strategies of affect regulation while experiencing threatening events in the relationship (Bowlby, 1973; Mikulincer et al., 2003). These strategies of affect regulation involve attachment behaviors and are explained by the dynamics of the attachment system (Mikulincer et al., 2003; Mikulincer & Shaver, 2007; Shaver & Mikulincer, 2002).

The Dynamics of the Attachment System

Shaver and Mikulincer developed a model for the activation and dynamics of the attachment system (i.e., mechanisms by which attachment behaviors occur to achieve a sense of security in a relationship; Mikulincer et al., 2003; Mikulincer & Shaver, 2007; Shaver & Mikulincer, 2002). Applying this model to adult romantic relationships, the attachment system is first activated if the person appraises signs of threat in the relationship, and then they aim to seek proximity to their partner (Mikulincer et al., 2003; Mikulincer & Shaver, 2007; Shaver & Mikulincer, 2002). Second, the person assesses their partner's availability and attentiveness (Mikulincer et al., 2003; Mikulincer & Shaver, 2007; Shaver & Mikulincer, 2002). If the partner is perceived to be available, they sense attachment security and use security-based strategies (i.e., optimism about managing stress, trusting others, and self-efficacy to handle the threat) that alleviate distress and improve personal adjustment (Mikulincer et al., 2003; Mikulincer & Shaver, 2007; Shaver & Hazan, 1993; Shaver & Mikulincer, 2002). If the partner is perceived to be unavailable, they sense attachment insecurity, compounding the distress (Mikulincer et al., 2003; Mikulincer & Shaver, 2007; Shaver & Mikulincer, 2002). Third, they then assess whether proximity-seeking is a viable option for protection (Mikulincer et al., 2003; Mikulincer & Shaver, 2007; Shaver & Mikulincer, 2002). If so, they utilize hyperactivating strategies, which can exacerbate distress (Mikulincer et al., 2003; Mikulincer & Shaver, 2007; Shaver & Mikulincer, 2002). Hyperactivating strategies involve becoming clingy and controlling and aiming to reduce the distance between them and their partner (Shaver & Hazan, 1993). They are hypervigilant about cues of threat and attachment until their partner becomes available and they achieve a sense of security

in the relationship (Mikulincer et al., 2003; Mikulincer & Shaver, 2007; Shaver & Mikulincer, 2002). If proximity-seeking is not a viable option, they may exhibit deactivating strategies, which involve distancing themselves from the threat and the partner and trying to handle the distress alone (Mikulincer et al., 2003; Mikulincer & Shaver, 2007; Shaver & Mikulincer, 2002). They suppress negative emotions and cognitions; deny their attachment needs; avoid closeness, intimacy, and dependence in the relationship; and become self-reliant (Mikulincer et al., 2003; Mikulincer & Shaver, 2007; Shaver & Mikulincer, 2002). The individual's propensity to use hyperactivating or deactivating strategies to handle the insecurity can be unconscious and determined by past life experiences (Mikulincer & Shaver, 2007).

Attachment Dimensions: Anxiety and Avoidance

Although early researchers in adult romantic attachment have investigated attachment styles or prototypes (Hazan & Shaver, 1987), later researchers have argued that attachment is most appropriately measured as regions within a continuous, two-dimensional space (Brennan et al., 1998; Fraley & Waller, 1998). The anxiety dimension (attachment anxiety) is characterized by worries about the availability of their partner and their worth to the partner, a desire for closeness, and fear of rejection or abandonment (Mikulincer et al., 2003; Mikulincer & Shaver, 2007; Simpson & Rholes, 2012). Highly anxious individuals are extremely invested in their relationship (Simpson & Rholes, 2012). They utilize hyperactivating strategies (i.e. being clingy and controlling) to handle insecurity and distress in the relationship (Mikulincer et al., 2003; Mikulincer & Shaver, 2007), which may be activated when a partner is unavailable to address their needs but proximity-seeking is perceived to be a viable option for protection (Mikulincer et al.,

2003; Mikulincer & Shaver, 2007; Shaver & Mikulincer, 2002). They vigilantly monitor their partner's behavior and are more likely to perceive a lack of availability and responsiveness (Mikulincer & Shaver, 2007).

The avoidance dimension (attachment avoidance) is characterized by emotional distance; uncomfortable with closeness, intimacy, and dependence on partners; and self-reliance (Mikulincer et al., 2003; Mikulincer & Shaver, 2007; Simpson & Rholes, 2012). Highly avoidant individuals are less invested in their relationship (Simpson & Rholes, 2012). They utilize deactivating strategies (i.e., distancing themselves from the relationship threat and the partner) to handle insecurity and distress in the relationship, which may be activated when a partner is unavailable to address their needs and proximity-seeking is not a viable option for protection (Mikulincer et al., 2003; Shaver & Mikulincer, 2002). As a result of distancing themselves, they may misperceive cues of availability from their partner (Mikulincer & Shaver, 2007).

Individuals who score low on both the anxiety and avoidance dimensions are considered to be prototypically secure (Simpson & Rholes, 2012). They trust their partners, particularly their availability and responsiveness (Mikulincer & Shaver, 2007). Additionally, they are comfortable being close to and interdependent with others, and they are able to constructively handle threats and stressors in the relationship (Mikulincer & Shaver, 2007).

Associations Between Attachment Dimensions and IPC

Perpetration

Few studies have examined the relationship between attachment and IPC perpetration (Fox & Warber, 2014; Marshall et al., 2012; Muise et al., 2014). Attachment anxiety has been positively associated with surveillance of a current partner's Facebook page among a community-based sample of individuals (mean age for males was 27 years, and mean age for females was 25 years; Marshall et al., 2012). Attachment avoidance has been negatively associated with surveillance of a current partner's Facebook page among the same community-based sample (Marshall et al., 2012). Similarly, preoccupied attachment type (i.e., high anxiety and low avoidance) has been positively associated with monitoring a current or former partner's Facebook page among a college-student sample (mean age of 21 years; Fox & Warber, 2014). Furthermore, another study found that female college students (mean age of 21 years) with increased levels of attachment anxiety have engaged in greater partner monitoring on Facebook (Muise et al., 2014). According to these studies and Attachment Theory, IPC perpetrators may be anxiously attached individuals who engage in IPC to get closer to their partner and to reach a sense of security in the relationship. Individuals who experience attachment avoidance may be less likely to engage in IPC because they prefer emotional distance from their partner and are uncomfortable with closeness. The current literature examining these relationships focuses on one IPC behavior (i.e., monitoring a partner's Facebook page). The relationships between attachment dimensions and perpetration of other IPC behaviors remain unclear. Additional research is necessary that explores these relationships.

Victimization

There is a lack of literature examining the relationship between attachment and IPC victimization. Among literature that explored cyberstalking not specific to intimate partners, findings have been conflicting. A study among college students (mean age of 19 years) found a significant positive, but weak correlation between fearful attachment type (i.e., high anxiety and avoidance) and cyberstalking victimization (Strawhun et al., 2013). Another study found that college students (primarily between ages 17-27) who were neutral distant (i.e., not letting people get too close, similar to attachment avoidance) were less likely to experience cyberstalking victimization (Kalaitzaki, 2017). This literature about cyberstalking does not provide much insight because findings differ, and the researchers did not measure attachment as dimensions. More research is necessary to clarify the relationships between attachment dimensions and IPC victimization.

Summary

As indicated in the above literature review, there are many outstanding questions to be answered regarding the relationships between IPC among young adults and psychological and social well-being. To address these gaps, I investigated IPC (victimization, perpetration, and experiencing/engaging in both) among young adults and tested associations with depressive symptoms, social isolation, emotional reactions, attachment dimensions, and social support. I clarified one measurement issue that results from inconsistent definitions of IPC, which at times do and other times do not include the victim's emotional responses. Furthermore, I examined young adults' perceptions of IPC behaviors and the severity of these behaviors. The severity perceptions were applied to

victimization data to understand IPC severity experienced and associations with depressive symptoms and social isolation.

Chapter 3: Manuscript 1:

Intimate Partner Cyberstalking Among Young Adults: Associations with Depressive Symptoms, Social Isolation, and Emotional Reactions

Abstract

Intimate partner cyberstalking (IPC) is a serious public health problem among young adults. Definitions of IPC vary, and research examining associated psychological and social health states is limited. The purpose of this study was to test associations between IPC and depressive symptoms, social isolation, victims' emotional reactions, and perpetrators' intended emotional reactions for their partners. IPC was defined three ways: cyberstalking experienced (1) irrespective of victims' reactions, (2) causing victims to feel afraid, threatened, harassed and/or distressed, and (3) provoking fear. Amazon Mechanical Turk workers (N=469, ages 18-25) completed a survey online. Respondents were categorized as both victims and perpetrators (victim/perpetrators), victims only, perpetrators only, and neither IPC roles. Controlling for demographics and defining IPC with negative reactions, victim/perpetrators and victims were more likely to experience depressive symptoms and greater social isolation than those who reported neither. Irrespective of reactions, victim/perpetrators were more likely to experience depressive symptoms than those who reported neither. Defining IPC with fear, victim/perpetrators experienced greater social isolation than perpetrators. Victim/perpetrators were more likely to feel flattered and loved from victimization than victims. Results confirm the need for policies and programs that prevent IPC among young adults, as victims and perpetrators can experience adverse health states.

1. Introduction

Intimate partner cyberstalking (IPC) is a relatively new, understudied public health problem that has emerged from technological advancements that offer opportunities for relationship abuse (Marcum et al., 2017; Tokunaga, 2011, 2016). Although definitions vary, cyberstalking typically involves the use of the internet and other information and communication technologies to repeatedly monitor, threaten, and/or harass another person, causing them fear or concern for their safety (Bocij & McFarlane, 2002; Finn, 2004; Maple et al., 2012; United States Department of Justice, 2000). In terms of IPC, cyberstalking behaviors are directed towards a current, former, or known potential romantic partner (Smoker & March, 2017). A variety of technologies are used to cyberstalk, such as cell phones, text messaging, tracking/location software, email, and social networking sites (Reyns, 2010; Southworth et al., 2007).

Some technology-facilitated behaviors, such as frequent text messages or phone calls, may be viewed as acceptable in courtship and as evidence of romantic interest (Boyle & O'Sullivan, 2016; Spitzberg & Cupach, 2007). If the victim feels flattered and unharmed as a result, these behaviors are not considered IPC according to most definitions, which require the victim to feel afraid (e.g., Finn, 2004; United States Department of Justice, 2000). However, these behaviors may escalate and become cyberstalking if they are unwanted and the partner fears physical, emotional, social, or economic harm from the abuse (Bocij & McFarlane, 2002; Maple et al., 2011; Reyns, 2010).

1.1 Definition and measurement inconsistencies

IPC has been defined inconsistently in the literature and in legislation. Most cyberstalking definitions include repeated occurrences and the victim's negative responses, particularly fear (Finn, 2004; Maple et al., 2012; Reyns et al., 2018; United States Department of Justice, 2000). Other definitions include repeated occurrences and do not address the victim's responses (Henson, 2010; Reyns et al., 2012). Although the term "cyber dating abuse" has been used synonymously with IPC (Marcum et al., 2017), its definition does not include repeated occurrences (Borrajo et al., 2015; Flach et al., 2017). Because of these definition variations, the same differences are seen in the measurement of IPC (Reyns et al., 2012; Shorey et al., 2015; Smoker & March, 2017). These inconsistencies, as well as differences in study samples and IPC behaviors measured, have resulted in disparate findings (Reyns et al., 2012; Shorey et al., 2015) and make it difficult to obtain clear and reliable results when examining this abuse. Investigating these discrepancies more closely will help clarify how these differences can impact the understanding of IPC.

1.2 IPC among young adults

IPC is a problem among young adults (Lyndon et al., 2011; Marcum et al., 2017). Estimates of IPC among college students ranged from 0.9-36.0% for victimization and 0.6-67.3% for perpetration for a variety of IPC behaviors via telephones, social networking sites, text messaging, email, instant messaging, webcams, hidden cameras, spyware, and location software (Acquadro Maran & Begotti, 2019; Dardis & Gidycz, 2017; Finn, 2004; Lyndon et al., 2011; Shorey et al., 2015).

Young adults have a high risk for IPC, both as victims and as perpetrators. People ages 18-25 are in a period commonly known as "emerging adulthood" (Arnett, 2015). Although social identities can differ within this age group, it is a time when many individuals experiment with romantic partnerships, experience instability in these intimate relationships, and are self-focused (Arnett, 2015). The majority of young adults ages 18-24 use social media sites (e.g., Facebook, 76% and Snapchat, 73%, Pew Research Center, 2019b) and use technology to communicate with their romantic partner (Boyle & O'Sullivan, 2016). Almost half (48%) of young adults ages 18-29 go online "almost constantly" (Pew Research Center, 2019a), and greater internet use has been associated with cyber violence among youth and young adults ages 11-20 (Šincek et al., 2017). Young adults ages 18-29 have been more likely to report that technology negatively impacted their romantic relationship compared to all adult couples (Pew Research Center, 2014). Because young adults have numerous opportunities to experience IPC, it is imperative to understand this type of relationship abuse among this population.

1.3 Associated adverse psychological and social health states

The psychological and social health states associated with IPC victimization are unclear, as the majority of studies examining these associations were not specific to intimate partners (Acquadro Maran & Begotti, 2019; Dreßing et al., 2014; Kalaitzaki, 2017; Maple et al., 2011, 2012; Sheridan & Grant, 2007; Short et al., 2014; Worsley et al., 2017). Victims of IPC have experienced social isolation (Melander, 2010). They may also experience fear, sadness, anger (Acquadro Maran & Begotti, 2019), depression, post-

traumatic stress, and anxiety (Dreßing et al., 2014; Maple et al., 2011; Worsley et al., 2017). Additionally, only a few of these studies examined cyberstalking restricted to young adults (Acquadro Maran & Begotti, 2019; Begotti & Acquadro Maran, 2019; Hancock et al., 2017; Melander, 2010).

There is a lack of literature regarding the psychological and social health states associated with IPC perpetration and experiencing/engaging in both victimization and perpetration (i.e., victimization/perpetration). Perpetrating cyberbullying (a form of cyber abuse that includes cyberstalking, Kraft & Wang, 2010) has been associated with stress, anxiety, depression, emotional problems, peer relationship problems, and school absences among youth and young adults ages 9-19 (Campbell et al., 2013; Kowalski & Limber, 2013). Youth and young adults ages 11-20 who have reported victimization/perpetration of cyber violence (a broader term that encompasses cyberstalking and other forms of cyber abuse) have experienced significantly greater depressive symptoms than victims only, perpetrations only, and uninvolved individuals (Šincek et al., 2017). They also have experienced significantly greater stress than victims only and perpetrators only, and significantly lower self-esteem than uninvolved individuals (Šincek et al., 2017). Youth and young adults ages 11-19 who were victim/perpetrators of cyberbullying have had significantly more school absences compared to victims only and those uninvolved (Kowalski & Limber, 2013). Although these studies combined both adolescents and young adults and included different forms of cyber abuse, the results suggest that perpetrators of IPC may experience psychological and social health issues, and victim/perpetrators of IPC may suffer from the worst health states.

1.4 The present study

The purpose of this study was to investigate IPC among young adults by testing associations with depressive symptoms, social isolation, victims' emotional reactions, and perpetrators' intended emotional reactions for their partners. We used three definitions of IPC in order to clarify how related measurement issues influence study findings. For all definitions, we defined IPC as the use of the internet and other information and communication technologies to repeatedly monitor, threaten, and/or harass a current or former romantic partner. The definitions varied in whether or not they incorporated the victim's negative reactions (i.e., irrespective of reactions; feeling afraid, threatened, harassed and/or distressed; or feeling afraid). Individuals who experienced/engaged in both victimization and perpetration (victim/perpetrators), victimization only (victims), preparation only (perpetrators), and neither victimization nor perpetration (neither) were examined. Characteristics of each group were investigated for all IPC definitions. Our hypotheses are displayed in Table 1.

2. Methods

2.1 Sampling and recruitment

We recruited a convenience sample of young adults through Amazon Mechanical Turk (MTurk), a marketplace of internet-based workers who perform tasks (also known as Human Intelligence Tasks or HITs) requested by businesses or individuals (Amazon Mechanical Turk, 2018). MTurk workers can select from a variety of HITs, such as transcribing audio recordings or taking a survey, which they complete virtually. Requestors, the people requesting the work, approve their work and pay them if they

accurately complete the chosen HITs. MTurk is a useful and reliable tool for data collection, as researchers have found that this sample was demographically diverse, data had good psychometrics, and results were similar to findings from traditional community and student samples (Buhrmester et al., 2011; Goodman et al., 2013; Mason & Suri, 2012; Nguyen et al., 2016).

Eligible participants included young adults ages 18-25 who were located in the United States, had ever had an intimate partner, and had high-quality performance statistics on MTurk. Participants were eligible if requestors approved at least 98% of their submitted HITs, and they completed and were approved for at least 500 HITs (Nguyen et al., 2016). Therefore, only high-quality workers who were frequent users of MTurk and familiar with the type of work posted on the website were eligible. Additionally, we checked the data for suspicious and discordant responses, but none were found.

The HIT created for this study was only visible to participants who met the age, location, and performance statistics eligibility criteria. If interested, these workers clicked on the HIT and were directed to a recruitment page that provided information about the study and a link to the survey.

2.2 Procedure

Eligible MTurk workers who volunteered to participate completed a 15-minute survey online via Qualtrics and were compensated $3.50 for completing the survey. At the end of the survey, we provided links to information about stalking with technology and resources for victims, which were posted by the National Center for Victims of Crime, Stalking Resource Center (The National Center for Victims of Crime, 2011). We

obtained informed consent online via Qualtrics immediately prior to beginning the survey. The Institutional Review Board at our university approved this research.

2.3 Measures

2.3.1 Intimate partner cyberstalking and emotional reactions

We measured victimization and perpetration of IPC using 24 items for each experience, which included 18 items from the Controlling Partners Inventory (CPI)-Partner subscale (victimization), 18 items from the CPI-Self subscale (perpetration) (Burke et al., 2011), and six items that we added to each subscale to enhance content validity and broaden the scope of IPC behaviors measured (see Table 3). The full CPI had good internal consistently among college students (α=0.90), but alphas for subscales were not reported in the literature (Burke et al., 2011). In this study, the scales used for victimization (α=0.89) and perpetration (α=0.84) had good internal consistency. When responding, we asked participants to think about their current or most recent (if single) intimate relationship and if they ever experienced and/or engaged in the behaviors in that relationship. The IPC items included monitoring, threatening, and/or harassing behaviors using cell phones, text messaging, email, social networking sites, webcams, hidden cameras, GPS, social media check-ins, and spyware. Seven response options were available, which included five possibilities from the CPI, 0="Never" to 4="4 or more times" (simplified to "4 + times"), and two options that we added, 5="I do not use this technology" and 6="My partner does not use this technology." The <3% of responses that were a "5" or "6" were recoded as "not applicable." We classified participants as victims and/or perpetrators if they experienced/engaged in IPC repeatedly by one

behavior at least twice or multiple behaviors at least one time each. The final IPC variable was coded, 1= "Victim/perpetrator" (both victim and perpetrator), 2 = "Victim" (victim only), 3= "Perpetrator," (perpetrator only) and 4= "Neither" (neither victim nor perpetrator). If a respondent indicated a "5" or "6," they were classified into these groups based on their valid responses (i.e., 0-4). One respondent provided a "6" for all perpetration behaviors and was not included in the analyses.

If participants responded at least "1 time" to any victimization behavior, we asked them to indicate how that behavior made them feel. Seven reactions were provided: "I felt… flattered," "loved," "angry," "afraid," "threatened," "harassed," and "distressed." If they responded at least "1 time" to any perpetration behavior, we asked them to indicate how they wanted their partner to feel as a result of that behavior. The same seven emotions were provided, such as, "I wanted my partner to feel…afraid." Responses were measured using a five-point scale from 0="Not at all" to 4="Extremely." The data were recoded as dichotomized variables, with 0= "No" (including "Not at all") and 1= "Yes" (including "A little bit" to "Extremely").

These reactions were used to create three measures of IPC based on the varying definitions of cyberstalking. The first measure/definition, IPC-RO, included repeated occurrences regardless of victims' reactions, which was similar to Reyns et al. (2012). The second measure/definition, IPC-ATHD, included repeated occurrences and feeling afraid, threatened, harassed, and/or distressed as the victim and/or the perpetrator wanting their partner to feel these ways. IPC-ATHD was based on definitions that include behaviors that threaten and harass and cause fear and distress (e.g., Bocij & McFarlane, 2002; Finn, 2004; Maple et al., 2012). The third measure/definition, IPC-A, included

repeated occurrences and feeling afraid as the victim and/or the perpetrator wanting their partner to feel this way. IPC-A was based on the majority of cyberstalking definitions, which mention provoking fear (e.g., Finn, 2004; Maple et al., 2012; Reyns et al., 2018).

2.3.2 Depressive symptoms

We measured depressive symptoms using all 10 items from the CESD-10, a short form of the Center for Epidemiologic Studies Depression Scale (Andresen et al., 1994). The scale had good internal consistency among college students (α=0.72) (Oppong Asante & Andoh-Arthur, 2015), and convergent validity was established among older adults (Andresen et al., 1994). In this study, the scale had good internal consistency as well (α=0.89). Examples of items are: "During the past week…I felt depressed," and, "I was bothered by things that usually don't bother me." Responses were measured using a four-point scale from 0="Rarely or none of the time (less than 1 day)" to 3="Most or all of the time (5-7 days)." Positively worded items were reverse coded to ensure that higher scores for all items indicated greater depressive symptoms. All items were summed to create a total scale score ranging from 0-30. The final variable was coded as 0="No depressive symptoms" (score of 0-9) and 1="Depressive symptoms" (score ≥ 10) utilizing the cut score recommended by Andresen et al. (1994).

2.3.3 Social isolation

We measured social isolation using all six items from the Friendship Scale (Hawthorne, 2006). Among older adults, the scale had good internal consistency (α=0.83), and concurrent validity was established (Hawthorne, 2006). In this study, the

scale had good internal consistency as well (α=0.89). Examples of items are: "During the past four weeks…I felt isolated from other people," and, "I felt alone and friendless." Responses were measured using a five-point scale from 0="Not at all" to 4="Almost always." Positively worded items were reverse coded to ensure that higher scores for all items indicated greater social isolation. All items were summed to create a total scale score ranging from 0-24. Social isolation was used as a continuous variable because, to our knowledge, there is no validated cut score in the literature.

2.3.4 Demographics

We measured age (1="18-22" and 2="23-25"), gender (1="Male," 2="Female," and 3="Transgender" [recoded as missing and not included in the analyses because the frequency was small, n=10]), race/ethnicity (1="Non-Hispanic White," 2="Non-Hispanic other" [including African American, Asian, American Indian/Alaska Native, Native Hawaiian/Pacific Islander, those who indicated "other," and multiracial], and 3="Hispanic/Latinx"), annual income (1="$19,999 or less" and 2="$20,000 or more"), education (1="No college degree" and 2="College degree" [including an Associate's or higher]), sexual orientation (1="Heterosexual," 2="Gay, lesbian, or bisexual," and 3="Unsure" [recoded as missing and not included in the analyses because the frequency was small, n=5]), relationship status (1="Single," 2="Dating or engaged" [including n=3 separated/divorced individuals who were currently dating], and 3="Married"), the length of their current or most recent relationship if single (1="12 months or less," 2="13-36 months," and 3="37 months or more"), and hours per day in the virtual presence of others

(i.e., in a social setting via technology, such as the internet or cell phone; 1="3 hours or less," 2="4-7 hours," and 3="8 hours or more").

2.4 Statistical analyses

We used the IBM Statistical Package for Social Sciences (SPSS) version 25 to perform all analyses for this study. Descriptive statistics were examined for every variable. We conducted chi-square tests to investigate the following bivariate associations: each IPC definition with demographics and depressive symptoms, and IPC-involved groups of IPC-RO (i.e., victim/perpetrators, victims, and perpetrators) with victims' reactions and perpetrators' intended reactions for their partners. Proportions were compared using a z-test with Bonferroni adjustment for associations with demographics and depressive symptoms, and without the adjustment for associations with reactions. We used one-way ANOVA and Bonferroni post hoc tests to examine associations between each IPC definition and social isolation. Any significant chi-square tests and ANOVAs were further explored with multivariate analyses ($p<0.05$).

We examined separate logistic regression models with each IPC definition (categorical independent variables) and depressive symptoms (binary dependent variable), while controlling for age, gender, education, income, sexual orientation, relationship status, and hours per day in the virtual presence of others (categorical variables). We determined control variables based on significant chi-square tests between demographics and depressive symptoms. Individuals with depressive symptoms were more likely to be ages 18-22, female, have no college degree, earn $19,999 or less, identify as gay, lesbian, or bisexual, single, and spend 4 hours or more in the virtual

presence of others ($p<0.05$). Using Bonferroni adjustment, results were significant at $p<0.008$ and 99.2% confidence intervals for odds ratios not including one, based on six possible pairwise comparisons with the four-group IPC variable.

We used separate ANCOVA models to investigate the associations between each IPC definition (categorical independent variables) and social isolation (continuous dependent variable) while controlling for age, gender, education, income, sexual orientation, relationship status, and hours per day in the virtual presence of others (categorical variables). We determined control variables based on significant bivariate associations between social isolation and demographics, and associations found in the literature. Using independent t-tests and ANOVA, social isolation was greater for those who were ages 18-22, had no college degree, earned $19,999 or less, identified as gay, lesbian, or bisexual, single, and spent 4-7 hours per day in the virtual presence of others ($p<0.05$). Although no associations were found between gender and social isolation in this study, differences were found in the literature (Vandervoort, 2000). Therefore, we used gender as a control variable as well. Post-hoc tests applied Bonferroni adjustment (i.e., significance was $p<0.008$ after adjustment).

We investigated separate logistic regression models with IPC-involved groups of IPC-RO (categorical independent variable) and each reaction (binary dependent variables). No control variables were included in these models because chi-square tests did not indicate any significant associations with demographics. Statistical significance was determined using p-values <0.05 and 95% confidence intervals for odds ratios not including one.

2.5 Missing data

The following variables had nonresponse missing data: race/ethnicity (1.3%), relationship length (0.4%), virtual presence (0.6%), depressive symptoms (1.9%), and social isolation (3.4%). We conducted chi-square tests to examine patterns of missing data for each variable with demographics. Missing data for social isolation were significantly associated with virtual presence ($p<0.05$), suggesting missing at random. Therefore, this missing data may be explained by observed data. No significant relationships were found for the other variables.

Data that were provided and recoded as missing or not applicable (i.e., gender, 2.1%; sexual orientation, 1.1%; and all definitions of IPC, 0.2%) remained missing/not applicable for all analyses and were not imputed. Assuming missing at random for nonresponses, we used multiple imputation to handle missing data that were unanswered. The imputation model included age, gender, race/ethnicity, education, income, sexual orientation, relationship status, relationship length, and virtual presence as predictors and imputed social isolation using linear regression and depressive symptoms using logistic regression. Demographic variables with missing data were imputed using logistic regression. All demographic variables were included in the model because using an inclusive strategy can minimize the chances of excluding a variable that contributed to the non-response and reduce bias (L. M. Collins et al., 2001; Sterne et al., 2009). Forty imputations were used, as this amount retains power while producing unbiased estimates (Graham et al., 2007). These imputations were averaged to create the final imputed value.

3. Results

Table 1 includes a summary of the results according to our hypotheses. Details regarding how the results support or do not support our hypotheses are discussed in the sections below.

Table 1. Summary of hypotheses and results

Hypotheses		Results
H1.	Victim/perpetrators, victims, and perpetrators are more likely to experience depressive symptoms and greater social isolation compared to those who reported neither victimization nor perpetration.	Supported for victim/perpetrators and victims compared to neither
H2.	Victim/perpetrators are more likely to experience depressive symptoms and greater social isolation compared to victims and perpetrators.	Supported for victim/perpetrators compared to perpetrators for social isolation only
H3.	When experiencing victimization, victim/perpetrators are more likely to feel angry, afraid, threatened, harassed, and distressed and less likely to feel flattered and loved compared to victims.	Not supported
H4.	When engaging in perpetration, victim/perpetrators are more likely to intend for their partners to feel angry, afraid, threatened, harassed, and distressed and less likely to intend for them to feel flattered and loved compared to perpetrators.	Not supported

Note: Victim/perpetrator= both victim and perpetrator, victim=victim only, perpetrator=perpetrator only, neither=neither victim nor perpetrator.

3.1 Demographics of participants

The study sample consisted of 469 MTurk workers and was 64.1% female, 62.9% ages 23-25, 67.0% Non-Hispanic White, 22.8% Non-Hispanic "other," and 10.2% Hispanic/Latinx. Over half of participants had a college degree (52.7%) and an annual income of $20,000 or more (54.6%). Most participants were heterosexual (75.0%) and 68.2% were currently dating or engaged, 18.6% were married, and 13.2% were single. They reported their most recent relationship as being 12 months or less (31.3%), 13-36 months (32.8%), or 37 months or longer (35.8%). Time spent per day in the virtual

presence of others was reported as 3 hours or less (34.8%), 4-7 hours (33.0%), or 8 hours or more (32.2%).

3.2 Prevalence of IPC and reactions

Table 2 includes the prevalence of IPC according to definition and positive reactions. When defining IPC with negative reactions, the prevalence of victimization/perpetration and perpetration decreased while the prevalence of victimization and experiencing neither increased. These differences were seen because a participant's role in IPC can change depending on the definition (i.e., whether or not accounting for negative reactions). Furthermore, over half of victim/perpetrators, victims, and perpetrators of IPC-RO reported positive reactions to IPC.

Table 2. Prevalence of IPC according to definition and positive reactions

	IPC definition 1: IPC-RO	IPC definition 2: IPC-ATHD	IPC definition 3: IPC-A	Positive reactions
	Repeated occurrences regardless of reactions	Repeated occurrences, feeling afraid, threatened, harassed, and/or distressed	Repeated occurrences, feeling afraid	Repeated occurrences, feeling flattered and/or loved
Role/group	n (%)	n (%)	n (%)	n (%)
Victim/perpetrator	202 (43.2)	52 (11.1)	30 (6.4)	117 (57.9)[a]
Victim	68 (14.5)	128 (27.4)	83 (17.7)	36 (52.9)[b]
Perpetrator	68 (14.5)	18 (3.8)	18 (3.8)	35 (51.5)[c]
Neither	130 (27.8)	270 (57.7)	337 (72.0)	--
Total	468 (100.0)	468 (100.0)	468 (100.0)	--

Note: Reactions refer to how the victim felt and how the perpetrator intended for their partner to feel. The roles can change depending on the IPC definition.
[a] Among victim/perpetrators for definition 1 (n=202)
[b] Among victims for definition 1 (n=68)
[c] Among perpetrators for definition 1 (n=68)

Table 3 includes descriptive statistics for each victimization and perpetration behavior occurring at least twice with and without accounting for negative reactions.

Overall, the prevalence of IPC behaviors occurring at least twice decreased when accounting for negative reactions. For both victimization (including victim/perpetrators and victims) and perpetration (including victim/perpetrators and perpetrators), “checked my/my partner’s text message history” was the most common behavior that occurred at least twice.

Table 3. Descriptive statistics of victimization and perpetration behaviors occurring at least twice (2+) with and without accounting for negative reactions

	Victimization (victim/perpetrator and victim)			Perpetration (victim/perpetrator and perpetrator)		
Behaviors	Total yes 2+ n	Yes 2+, felt afraid, threatened, harassed, and/or distressed n (%)	Yes 2+, felt afraid n (%)	Total yes 2+ n	Yes 2+, wanted partner to feel afraid, threatened, harassed, and/or distressed n (%)	Yes 2+, wanted partner to feel afraid n (%)
[a] Checked my/my partner's text message history	164	97 (59.1)	54 (32.9)	129	31 (24.0)	25 (19.4)
Checked my/my partner's cell phone call history	121	69 (57.0)	42 (34.7)	79	24 (30.4)	21 (26.6)
Sent an excessive number of texts to me/my partner	108	72 (66.7)	30 (27.8)	91	22 (24.2)	10 (11.0)
Checked my/my partner's Facebook page to monitor me/them	93	51 (54.8)	28 (30.1)	100	15 (15.0)	13 (13.0)
Checked my/my partner's sent/received email history	88	45 (51.1)	26 (29.5)	64	15 (23.4)	10 (15.6)
Made an excessive number of cell phone calls to me/my partner	87	66 (75.9)	35 (40.2)	62	18 (29.0)	10 (16.1)
[a] Checked my/my partner's internet search history	69	40 (58.0)	32 (46.4)	68	15 (22.1)	12 (17.6)
Used GPS or social media "check-ins" to monitor my/my partner's location	59	35 (59.3)	24 (40.7)	40	7 (17.5)	7 (17.5)
Used my/my partner's password to check-up on me/them	57	31 (54.4)	21 (36.8)	52	12 (23.1)	10 (19.2)
[a,b] Checked another social networking page of mine/belonging to my partner to monitor me/them	51	25 (49.0)	12 (23.5)	34	2 (5.9)	1 (2.9)
Sent threatening texts to me/my partner	40	37 (92.5)	30 (75.0)	15	11 (73.3)	10 (66.7)
Checked my/my partner's cell phone bill	34	16 (47.1)	15 (44.1)	22	13 (59.1)	11 (50.0)
Sent an excessive number of emails to me/my partner	24	19 (79.2)	16 (66.7)	16	9 (56.3)	9 (56.3)

	Victimization (victim/perpetrator and victim)			Perpetration (victim/perpetrator and perpetrator)		
Behaviors	Total yes 2+ n	Yes 2+, felt afraid, threatened, harassed, and/or distressed n (%)	Yes 2+, felt afraid n (%)	Total yes 2+ n	Yes 2+, wanted partner to feel afraid, threatened, harassed, and/or distressed n (%)	Yes 2+, wanted partner to feel afraid n (%)
Made threatening cell phone calls to me/my partner	23	21 (91.3)	18 (78.3)	16	14 (87.5)	11 (68.8)
Made embarrassing, insulting, or threatening Facebook posts about me/my partner	21	19 (90.5)	15 (71.4)	11	9 (81.8)	7 (63.6)
Sent threatening emails to me/my partner	17	16 (94.1)	14 (82.4)	9	6 (66.7)	5 (55.6)
Threatened to post inappropriate photos of me/my partner on Facebook	15	14 (93.3)	12 (80.0)	6	6 (100.0)	6 (100.0)
Used a webcam to monitor my/my partner's activities	14	10 (71.4)	10 (71.4)	8	6 (75.0)	5 (62.5)
Posted inappropriate photos of me/my partner on Facebook	13	12 (92.3)	10 (76.9)	6	6 (100.0)	5 (83.3)
Used a hidden camera to monitor my/my partner's activities	11	9 (81.8)	9 (81.8)	4	3 (75.0)	2 (50.0)
Used spyware to monitor my/my partner's activities	11	10 (90.9)	10 (90.9)	7	6 (85.7)	5 (71.4)
[a,b] Made embarrassing, insulting, or threatening posts about me/my partner on another social networking site	7	7 (100.0)	4 (57.1)	1	1 (100.0)	1 (100.0)
[a,b] Threatened to post inappropriate photos of me/my partner on another social networking site	7	7 (100.0)	6 (85.7)	1	1 (100.0)	1 (100.0)
[a,b] Posted inappropriate photos of me/my partner on another social networking site	2	2 (100.0)	2 (100.0)	1	1 (100.0)	1 (100.0)

[a] Items we added to the Controlling Partners Inventory.

[b] Other social networking sites reported include Foursquare, Instagram, Snapchat, Pinterest, Reddit, Tumblr, Twitter, Google Hangouts, Discord, Pornhub, Myspace, Plenty of Fish, Second Life, and PlayStation Network.

3.3 Associations between IPC and demographics

For IPC-RO, victimization was higher among males and perpetration was higher among females ($p<0.013$ after Bonferroni correction; see Table S1 in Supplementary Material). Victimization/perpetration was higher among heterosexual individuals ($p<0.013$ after Bonferroni correction) and a relationship length of 13 months or longer ($p<0.004$ after Bonferroni correction). For IPC-ATHD, victimization/perpetration was higher among males and an income of $20,000 or more ($p<0.013$ after Bonferroni correction). Victimization was higher among heterosexual individuals ($p<0.013$ after Bonferroni correction) and a relationship length of 13-36 months ($p<0.004$ after Bonferroni correction). For IPC-A, victimization/perpetration was higher among males, an income of $20,000 or more ($p<0.013$ after Bonferroni correction), and spending 7 hours or less in the virtual presence of others ($p<0.004$ after Bonferroni correction). No other differences were found between IPC-involved groups and demographics.

3.4 Hypothesis 1 results

3.4.1 Depressive symptoms

The results of this study partially support Hypothesis 1. A greater proportion of victim/perpetrators (IPC-ATHD) and victims (IPC-A) experienced depressive symptoms compared to those who reported neither victimization nor perpetration ($p<0.004$ after Bonferroni correction; see Table S2 in Supplementary Material). IPC-RO was associated with depressive symptoms ($p<0.05$), but no proportional differences were found between IPC groups.

Table 4. Logistic regression analyses with each IPC definition as the independent variable and depressive symptoms as the dependent variable

IPC definition	b	SE	Wald	df	p-value	OR	99.2% CI for OR	Nagelkerke R^2
IPC-RO			13.64	3	0.003*			0.15
V/P (reference=N)	0.94	0.26	13.26	1	0.000*	2.57	1.29-5.11*	
V (reference=N)	0.54	0.34	2.58	1	0.108	1.71	0.71-4.16	
P (reference=N)	0.72	0.33	4.71	1	0.030	2.06	0.85-4.99	
V/P (reference=V)	0.41	0.30	1.82	1	0.177	1.50	0.68-3.32	
V/P (reference=P)	0.22	0.31	0.51	1	0.477	1.25	0.55-2.82	
IPC-ATHD			23.79	3	0.000*			0.18
V/P (reference=N)	1.54	0.35	19.02	1	0.000*	4.64	1.83-11.81*	
V (reference=N)	0.76	0.24	10.15	1	0.001*	2.13	1.14-4.01*	
P (reference=N)	-0.03	0.54	0.00	1	0.953	0.97	0.23-4.01	
V/P (reference=V)	0.78	0.37	4.49	1	0.034	2.18	0.82-5.76	
V/P (reference=P)	1.57	0.62	6.47	1	0.011	4.79	0.94-24.54	
IPC-A			21.58	3	0.000*			0.18
V/P (reference=N)	1.36	0.44	9.79	1	0.002*	3.91	1.23-12.40*	
V (reference=N)	1.07	0.28	15.04	1	0.000*	2.90	1.40-6.01*	
P (reference=N)	0.08	0.52	0.03	1	0.874	1.09	0.28-4.29	
V/P (reference=V)	0.30	0.48	0.39	1	0.532	1.35	0.38-4.76	
V/P (reference=P)	1.28	0.66	3.78	1	0.052	3.60	0.63-20.64	

Note: IPC-RO included repeated occurrences regardless of reactions. IPC-ATHD included repeated occurrences and victims feeling and/or perpetrators intending for their partners to feel afraid, threatened, harassed and/or distressed. IPC-A included repeated occurrences and victims feeling and/or perpetrators intending for their partners to feel afraid. V/P= victim/perpetrator, V=victim, P=perpetrator, and N=neither. Bonferroni adjustment was applied. Regression models controlled for age, gender, education, income, sexual orientation, relationship status, and hours per day in the virtual presence of others.
*p<0.008 and 99.2% CI not including 1 (Bonferroni adjusted)

Table 4 provides the results of the logistic regression analyses with each IPC definition and depressive symptoms while controlling for age, gender, education, income, sexual orientation, relationship status, and hours per day in the virtual presence of others. There was no multicollinearity among IPC definitions and control variables (condition indices <30, tolerance >0.20, and VIF <4). The -2 log likelihood was 572.32 for IPC-RO, 560.95 for IPC-ATHD, and 563.59 for IPC-A. Each IPC definition with control variables explained less than 20% of the variance in depressive symptoms.

The regression results partially support Hypothesis 1. Victim/perpetrators (all definitions) and victims (IPC-ATHD and IPC-A) were more likely to experience

depressive symptoms compared to those who reported neither victimization nor perpetration ($p<0.008$ and 99.2% CI not including 1 after Bonferroni correction). Perpetrators were not significantly more likely to experience depressive symptoms compared to those who reported neither for any IPC definition.

3.4.2 Social isolation

Table 5 provides the associations between each IPC definition and social isolation. Levene's Test of Equality of Error Variances was non-significant ($p\geq0.05$), standardized residuals were approximately normally distributed, there was no multicollinearity among IPC and control variables (condition indices <30, tolerance >0.20, and VIF <4), and all interactions between IPC and each control variable were non-significant ($p\geq0.05$).

These results partially support Hypothesis 1. Before and after controlling for age, gender, education, income, sexual orientation, relationship status, and hours per day in the virtual presence of others, victim/perpetrators (IPC-ATHD and IPC-A) and victims (IPC-A and IPC-ATHD in adjusted model only) experienced greater social isolation compared to those who reported neither victimization nor perpetration ($p<0.008$ after Bonferroni correction). IPC-RO was not associated with social isolation, and perpetrators did not experience significantly greater social isolation compared to those who reported neither for any IPC definition.

Table 5. One-way ANOVA and ANCOVA results with each IPC definition as the independent variable and social isolation as the dependent variable

Statistical test	IPC definition	Mean/adjusted mean	SD/SE	F	df (between, within)	p-value	eta squared/ partial eta squared
ANOVA							
	IPC-RO			1.98	(3,464)	0.116	0.01
	Victim/perpetrator	9.34	6.03				
	Victim	9.10	5.97				
	Perpetrator	8.91	5.43				
	Neither	7.76	5.82				
	IPC-ATHD			4.54	(3,464)	0.004*	0.03
	Victim/perpetrator	11.17[a]	5.59				
	Victim	9.36[a,b]	6.10				
	Perpetrator	8.28[a,b]	5.50				
	Neither	8.12[b]	5.76				
	IPC-A			7.46	(3,464)	0.000**	0.05
	Victim/perpetrator	12.13[a]	5.30				
	Victim	10.48[a,b]	6.04				
	Perpetrator	7.11[b]	4.54				
	Neither	8.18[c]	5.81				
ANCOVA							
	IPC-ATHD			7.85	(3, 440)	0.000**	0.05
	Victim/perpetrator	12.60[a]	0.84				
	Victim	10.67[a]	0.60				
	Perpetrator	9.16[a,b]	1.36				
	Neither	8.80[b]	0.45				
	IPC-A			9.68	(3, 440)	0.000**	0.06
	Victim/perpetrator	13.49[a]	1.07				
	Victim	11.38[a,b]	0.68				
	Perpetrator	8.24[b]	1.36				
	Neither	8.83[c]	0.43				

Note: Adjusted mean, SE, and partial eta squared were calculated for ANCOVA. IPC-RO included repeated occurrences regardless of reactions. IPC-ATHD included repeated occurrences and victims feeling and/or perpetrators intending for their partners to feel afraid, threatened, harassed and/or distressed. IPC-A

included repeated occurrences and victims feeling and/or perpetrators intending for their partners to feel afraid. Control variables in the ANCOVA model included age, gender, education, income, sexual orientation, relationship status, and hours per day in the virtual presence of others. Post hoc tests used Bonferroni adjustment. Different superscripts indicate significant differences between IPC groups ($p<0.008$ after Bonferroni adjustment).
*$p<0.01$ **$p<0.001$

Table 6. Logistic regression analyses with IPC-RO as the independent variable and victims' positive reactions as the dependent variable

Victims' reactions	IPC definition	b	SE	Wald	df	p-value	OR	95% CI for OR	Nagelkerke R^2
Flattered	IPC-RO								0.03
	V/P (reference=V)	0.64	0.28	5.00	1	0.025*	1.89	1.08-3.30*	
Loved	IPC-RO								0.04
	V/P (reference=V)	0.80	0.29	7.80	1	0.005*	2.23	1.27-3.92*	

Note: IPC-RO included repeated occurrences regardless of reactions. V/P= victim/perpetrator and V=victim.
*$p<0.05$ and 95% CI not including 1

3.5 Hypothesis 2 results

3.5.1 Depressive symptoms

Regarding depressive symptoms, the results do not support Hypothesis 2. Victim/perpetrators were not significantly more likely to experience depressive symptoms compared to victims or perpetrators for any IPC definition (see Table 4).

3.5.2 Social isolation.

As indicated in Table 5, the results for social isolation partially support Hypothesis 2. Victim/perpetrators (IPC-A) experienced greater social isolation compared to perpetrators before and after controlling for demographics ($p<0.008$ after Bonferroni correction). However, no significant differences were found between victim/perpetrators and victims for any IPC definition.

3.6 Hypothesis 3 results

The results do not support Hypothesis 3. When victimized according to definition IPC-RO, a greater proportion of victim/perpetrators felt flattered and loved from IPC compared to victims ($p<0.05$; see Table S3 in Supplementary Material). No significant associations were found for feeling angry, afraid, threatened, harassed, or distressed.

Table 6 includes the results from the logistic regression analyses with IPC-RO (victim/perpetrators and victims) and victims' positive reactions. The -2 log likelihood was 368.28 for feeling flattered and 339.97 for feeling loved. IPC-RO explained less than 5% of the variance in feeling flattered and loved. These regression results do not support

Hypothesis 3. When victimized, victim/perpetrators were more likely to feel flattered and loved compared to victims ($p<0.05$; 95% CI not including 1).

3.7 Hypothesis 4 results

No significant associations were found between IPC-RO (victim/perpetrators and perpetrators) and perpetrators' intended reactions for their partners (see Table S3 in Supplementary Material). Therefore, the results do not support Hypothesis 4.

4. Discussion

IPC was fairly common among this sample of young-adult MTurk workers, particularly among victim/perpetrators when measuring IPC irrespective of reactions. Across all IPC definitions, the overall prevalence of IPC victimization (i.e., victim only, 14.5-27.4%) and perpetration (i.e., perpetrator only, 3.8-14.5%) were within estimates found among college students for various IPC behaviors (0.9-36.0% for victimization and 0.6-67.3% for perpetration) (Acquadro Maran & Begotti, 2019; Dardis & Gidycz, 2017; Finn, 2004; Lyndon et al., 2011; Shorey et al., 2015). However, most of these studies did not include fear in their measurement, and none of them distinguished between victim/perpetrators, victims, and perpetrators. These measurement differences make it difficult to compare results. Our results elucidate how findings can change depending on how you define and measure IPC, which related to the participant's role in IPC and how they reacted or intended for their partner to react.

The associations found between IPC and demographics support some studies and refute others. Depending on the IPC definition used, our results confirm relationships found with gender (Alexy et al., 2005; Kalaitzaki, 2017; Šincek et al., 2017; Smoker &

March, 2017) and hours per day on the internet (Šincek et al., 2017). However, our results do not support literature that reports different relationships with gender (i.e., victims were more likely to be female, Burke et al., 2011; Kalaitzaki, 2017; Reyns et al., 2012), sexual orientation (i.e., victims and perpetrators of cyberstalking were more likely to be non-heterosexual, Reyns et al., 2012), and relationship length (i.e., no associations found, Borrajo et al., 2015; Hancock et al., 2017; Van Ouytsel, Ponnet, & Walrave, 2017). The differences found between our study and these previous studies could be related to using different samples and measurement strategies for IPC and distinguishing between IPC roles.

As hypothesized (H1), victim/perpetrators and victims were more likely to experience depressive symptoms and greater social isolation compared to those who reported neither victimization nor perpetration. The significant findings confirm that victims may experience psychological and social repercussions as a result of IPC (Acquadro Maran & Begotti, 2019; Begotti & Acquadro Maran, 2019; Dreßing et al., 2014; Melander, 2010; Short et al., 2014; Worsley et al., 2017). Although our study was cross-sectional, the depressive symptoms experienced by victim/perpetrators and victims may have been related to feeling a lack of control over the cyberstalking, low mood, rumination, feelings of helplessness, and a pessimistic outlook on the future, all of which have been expressed by victims of cyberstalking in the literature (Worsley et al., 2017). Additionally, researchers have found that victims' social relationships were impaired as a result of their low mood, chronic anxiety, and stopping their use of certain websites and other internet technology (Worsley et al., 2017). It is possible that victim/perpetrators and

victims in our study experienced similar situations that were associated with their social isolation.

The differences found between victim/perpetrators and those who reported neither IPC roles for depressive symptoms and social isolation were more pronounced than the differences found between victims and those who reported neither, based on larger odds ratios and mean differences. Because victim/perpetrators experienced/engaged in both roles of IPC, they may have encountered a combination of depressive symptoms and social isolation related to both victimization and perpetration. Perpetrating IPC may have damaged or ended their intimate relationship, and this loss may have been associated with experiencing depressive symptoms and social isolation. Moreover, researchers have found that narcissism, Machiavellianism, psychopathy, and sadism were predictors of perpetrating IPC (Smoker & March, 2017). These troubled personality traits have been correlated with depression (Black et al., 2014) and can impact social interactions (Rauthmann, 2012).

As hypothesized (H2), victim/perpetrators experienced greater social isolation than perpetrators when defining IPC with fear. There is a paucity of literature about victim/perpetrators of IPC, but our results confirm studies about victim/perpetrators of cyber violence and cyberbullying among adolescents and young adults (Kowalski & Limber, 2013; Nixon, 2014; Šincek et al., 2017). Additionally, our results further suggest that victim/perpetrators may experience a combination of social isolation associated with both victimization and perpetration, which could have increased their isolation.

Although we hypothesized that victim/perpetrators would be less likely to react in a positive way to IPC (H3), we found that victim/perpetrators were more likely to feel

flattered and loved as a result of IPC victimization compared to victims only. These results support literature indicating that some technology-facilitated behaviors, such as frequent text messages or phone calls, may be viewed as acceptable in courtship and as evidence of romantic interest (Boyle & O'Sullivan, 2016; Spitzberg & Cupach, 2007). Because of the lack of literature investigating victim/perpetrators of IPC, it is unclear why this population tended to react more positively than victims. However, among victim/perpetrators, reacting positively as a victim may be associated with positive intentions as a perpetrator. Victims may be less likely to react positively if they have not perpetrated the behavior, particularly with positive intentions. Furthermore, the narcissistic nature of perpetrators (Smoker & March, 2017) may encourage them to interpret IPC behaviors as acts of love that affirm their exaggerated sense of self-importance and superiority, boosting their ego.

Despite our significant findings, the other hypotheses were not supported. These results may be related to limited statistical power, and the analyses may require a larger number of participants in each group to detect a significant difference. Perpetrators may have felt less comfortable reporting how they intended for their partner to feel from the IPC, which could have contributed to the lower number of participants reporting this role of IPC.

4.1 Strengths and limitations

This study has many strengths that should be noted. In addition to investigating an understudied public health problem, we examined three different definitions of IPC, which clarified how variations in measurement can impact study findings. We

distinguished between various roles of IPC and were the first, to our knowledge, to explore victim/perpetrators of IPC and positive reactions to IPC behaviors. We incorporated a wide variety of behaviors and technology in the measurement of IPC, which broadened the scope of IPC measured. Finally, we used an internet-based sample instead of a college-based sample, which most cyberstalking studies have utilized.

Despite the strengths of this study, there are some limitations that should be acknowledged when interpreting the findings. It was cross-sectional, and the results cannot indicate casual relationships among variables, only associations. The depressive symptoms and social isolation questions were not asked as a direct result of IPC, and therefore, it is unclear whether the associations found indicate consequences of IPC. Also, it is unknown how the perpetrators' partners responded to the IPC and which IPC role occurred first for victim/perpetrations. Furthermore, our gender variable was binary. A convenience sample of young-adult MTurk workers was used, and therefore, the results cannot be generalized to all young adults ages 18-25 who have ever had an intimate partner or a college sample. Data were self-reported, which may introduce social desirability bias, especially for perpetration behaviors. The frequencies for some groups were very low when accounting for negative reactions, which may be a result of social desirability bias or the lower occurrence of IPC with negative reactions in general. Because of these small frequencies in some groups, the results of this study should be interpreted cautiously, as they could cause inflated confidence intervals and biased estimates. The logistic regression analyses with depressive symptoms resulted in large confidence intervals for odds ratios. The low samples sizes in some groups reduced the power to detect statistical differences between groups, and therefore, may require larger

samples. Also, the chi-square test results with race/ethnicity, sexual orientation, and relationship status had at least one cell with an expected count less than five for IPC-ATHD and IPC-A. Multiple comparisons were conducted in this study, which increase the risk of Type I errors being committed. However, Bonferroni adjustment was used to minimize these chances.

4.2 Recommendations for future research and practice

Future research should continue to add to the limited, but growing literature regarding predictors and outcomes of IPC, and continue to aim for a consistent definition of IPC with regards to incorporating reactions. Furthermore, future studies should examine intimate partner dyads who have experienced victimization and/or engaged in perpetration in order to gain a better understanding of reactions and associated health states. More research is necessary to understand victim/perpetrators of IPC, such as which role occurred first, personality traits, motivation for perpetrating IPC, and associated health states and adverse childhood experiences. Additionally, future research should explore mediators and moderators in the relationship between IPC, depressive symptoms, and social isolation. Moreover, additional research is necessary to understand the severity of IPC behaviors and how the severity is related to these health states.

The results from this study confirm the need for policies and programs that aim to prevent and reduce IPC among young adults. Programs such as health communication campaigns and interventions could target victim/perpetrators, victims, and perpetrators and aim to promote healthy technology use in intimate relationships. Given the high use of technology among young adults, these programs could utilize social media, mobile devices, and other forms of technology to administer these programs and promote

awareness of the public health problem. Additionally, new technological strategies should be developed that enhance identification of cyberstalking incidents via social media platforms such as Facebook. Furthermore, programs can engage in restorative justice to bring together victims, perpetrators, and the community to promote healing and prevention of IPC. Finally, policies should focus on protecting privacy, holding violators accountable for their actions, and providing various forms of support for victims.

5. Conclusion

The results from this study enhance our understanding of victimization and perpetration of IPC and associated health states. They confirm that IPC is a problem among young adults and highlight the need for interventions that aim to prevent this public health problem. In particular, victim/perpetrators are a population that has been neglected in the IPC literature, but we found that they need particular attention when implementing prevention programs. Future researchers should continue to build the literature about IPC to support the development and implementation of programs and policies that aim to ensure healthy intimate relationships and reduce opportunities for cyberstalking.

Supplementary Material

Table S1. Chi-square associations between IPC definitions and demographics, and proportional comparisons within IPC groups

		IPC-RO				IPC-ATHD				IPC-A			
	Total	V/P	V	P	N	V/P	V	P	N	V/P	V	P	N
	n (%)	n (%)	n (%)	n (%)	n (%)	n (%)	n (%)	n (%)	n (%)	n (%)	n (%)	n (%)	n (%)
Age													
18-22	173 (100.0)	70 (40.5)	29 (16.8)	30 (17.3)	44 (25.4)	19 (11.0)	43 (24.9)	9 (5.2)	102 (59.0)	13 (7.5)	30 (17.3)	7 (4.0)	123 (71.1)
23-25	295 (100.0)	132 (44.7)	39 (13.2)	38 (12.9)	86 (29.2)	33 (11.2)	85 (28.8)	9 (3.1)	168 (56.9)	17 (5.8)	53 (18.0)	11 (3.7)	214 (72.5)
		χ^2 (3)=3.441, p=0.328 Cramer's V=0.086				χ^2 (3)=2.017, p=0.569 Cramer's V=0.066				χ^2 (3)=0.606, p=0.895 Cramer's V=0.036			
Gender													
Male	165 (100.0)	80 (48.5)[a]	36 (21.8)[a]	14 (8.5)[a]	35 (21.2)[a]	26 (15.8)[a]	53 (32.1)[a]	3 (1.8)[a]	83 (50.3)[a]	21 (12.7)[a]	35 (21.2)[a]	4 (2.4)[a]	105 (63.6)[a]
Female	293 (100.0)	118 (40.3)[a]	31 (10.6)[b]	52 (17.7)[b]	92 (31.4)[b]	25 (8.5)[b]	75 (25.6)[a]	15 (5.1)[a]	178 (60.8)[b]	9 (3.1)[b]	47 (16.0)[a]	14 (4.8)[a]	223 (76.1)[b]
		χ^2 (3)=20.994, p=0.000*** Cramer's V=0.214				χ^2 (3)=11.505, p=0.009** Cramer's V=0.158				χ^2 (3)=20.382, p=0.000*** Cramer's V=0.211			
Race/ethnicity													
Non-Hispanic white	313 (100.0)	129 (41.2)	42 (13.4)	43 (13.7)	99 (31.6)	31 (9.9)	80 (25.6)	10 (3.2)	192 (61.3)	17 (5.4)	54 (17.3)	10 (3.2)	232 (74.1)
Non-Hispanic other	107 (100.0)	45 (42.1)	18 (16.8)	18 (16.8)	26 (24.3)	12 (11.2)	34 (31.8)	6 (5.6)	55 (51.4)	7 (6.5)	20 (18.7)	6 (5.6)	74 (69.2)
Hispanic/Latinx	48 (100.0)	28 (58.3)	8 (16.7)	7 (14.6)	5 (10.4)	9 (18.8)	14 (29.2)	2 (4.2)	23 (47.9)	6 (12.5)	9 (18.8)	2 (4.2)	31 (64.6)
		χ^2 (6)=11.537, p=0.073 Cramer's V=0.111				χ^2 (6)=7.596, p=0.269 Cramer's V=0.090				χ^2 (6)=5.275, p=0.509 Cramer's V=0.075			

	Total	IPC-RO				IPC-ATHD				IPC-A			
		V/P	V	P	N	V/P	V	P	N	V/P	V	P	N
	n (%)	n (%)	n (%)	n (%)	n (%)	n (%)	n (%)	n (%)	n (%)	n (%)	n (%)	n (%)	n (%)
Annual income													
$19,999 or less	213 (100.0)	84 (39.4)	29 (13.6)	34 (16.0)	66 (31.0)	13 (6.1)[a]	54 (25.4)[a]	10 (4.7)[a]	136 (63.8)[a]	6 (2.8)[a]	36 (16.9)[a]	6 (2.8)[a]	165 (77.5)[a]
$20,000 or more	255 (100.0)	118 (46.3)	39 (15.3)	34 (13.3)	64 (25.1)	39 (15.3)[b]	74 (29.0)[a]	8 (3.1)[a]	134 (52.5)[b]	24 (9.4)[b]	47 (18.4)[a]	12 (4.7)[a]	172 (67.5)[b]
		χ^2 (3)=3.483, p=0.323 Cramer's V=0.086				χ^2 (3)=12.695, p=0.005** Cramer's V=0.165				χ^2 (3)=10.720, p=0.013* Cramer's V=0.151			
Education													
No college degree	221 (100.0)	98 (44.3)	34 (15.4)	29 (13.1)	60 (27.1)	23 (10.4)	57 (25.8)	9 (4.1)	132 (59.7)	15 (6.8)	37 (16.7)	9 (4.1)	160 (72.4)
College degree	247 (100.0)	104 (42.1)	34 (13.8)	39 (15.8)	70 (28.3)	29 (11.7)	71 (28.7)	9 (3.6)	138 (55.9)	15 (6.1)	46 (18.6)	9 (3.6)	177 (71.7)
		χ^2 (3)=0.977, p=0.807 Cramer's V=0.046				χ^2 (3)=0.915, p=0.822 Cramer's V=0.044				χ^2 (3)=0.390, p=0.942 Cramer's V=0.029			
Sexual orientation													
Heterosexual	348 (100.0)	163 (46.8)[a]	56 (16.1)[a]	48 (13.8)[a]	81 (23.3)[a]	44 (12.6)[a]	106 (30.5)[a]	14 (4.0)[a]	184 (52.9)[a]	26 (7.5)	66 (19.0)	14 (4.0)	242 (69.5)
Gay, lesbian, or bisexual	115 (100.0)	39 (33.9)[b]	12 (10.4)[a]	19 (16.5)[a]	45 (39.1)[b]	8 (7.0)[a]	22 (19.1)[b]	4 (3.5)[a]	81 (70.4)[b]	4 (3.5)	17 (14.8)	4 (3.5)	90 (78.3)
		χ^2 (3)=13.622, p=0.003** Cramer's V=0.172				χ^2 (3)=11.226, p=0.011* Cramer's V=0.156				χ^2 (3)=3.953, p=0.267 Cramer's V=0.092			
Relationship status													
Single	62 (100.0)	21 (33.9)	10 (16.1)	9 (14.5)	22 (35.5)	9 (14.5)	14 (22.6)	1 (1.6)	38 (61.3)	8 (12.9)	11 (17.7)	1 (1.6)	42 (67.7)
Dating or engaged	319 (100.0)	140 (43.9)	47 (14.7)	47 (14.7)	85 (26.6)	31 (9.7)	95 (29.8)	13 (4.1)	180 (56.4)	17 (5.3)	54 (16.9)	13 (4.1)	235 (73.7)
Married	87 (100.0)	41 (47.1)	11 (12.6)	12 (13.8)	23 (26.4)	12 (13.8)	19 (21.8)	4 (4.6)	52 (59.8)	5 (5.7)	18 (20.7)	4 (4.6)	60 (69.0)
		χ^2 (6)=3.497, p=0.744 Cramer's V=0.061				χ^2 (6)=5.206, p=0.518 Cramer's V=0.075				χ^2 (6)=6.630, p=0.356 Cramer's V=0.084			

	Total	IPC-RO				IPC-ATHD				IPC-A			
	n (%)	V/P n (%)	V n (%)	P n (%)	N n (%)	V/P n (%)	V n (%)	P n (%)	N n (%)	V/P n (%)	V n (%)	P n (%)	N n (%)
Relationship length													
12 months or less	147 (100.0)	44 (29.9)[a]	25 (17.0)[a]	22 (15.0)[a]	56 (38.1)[a]	12 (8.2)[a]	31 (21.1)[a]	5 (3.4)[a]	99 (67.3)[a]	10 (6.8)	17 (11.6)	5 (3.4)	115 (78.2)
13-36 months	153 (100.0)	75 (49.0)[b]	24 (15.7)[a]	19 (12.4)[a]	35 (22.9)[b]	15 (9.8)[a]	54 (35.3)[b]	5 (3.3)[a]	79 (51.6)[b]	9 (5.9)	33 (21.6)	5 (3.3)	106 (69.3)
37 months or longer	168 (100.0)	83 (49.4)[b]	19 (11.3)[a]	27 (16.1)[a]	39 (23.2)[b]	25 (14.9)[a]	43 (25.6)[a,b]	8 (4.8)[a]	92 (54.8)[a,b]	11 (6.5)	33 (19.6)	8 (4.8)	116 (69.0)
		χ^2 (6)=19.635, p=0.003** Cramer's V=0.145				χ^2 (6)=13.534, p=0.035* Cramer's V=0.120				χ^2 (6)=6.603, p=0.359 Cramer's V=0.084			
Hours per day in the virtual presence of others													
3 hours or less	163 (100.0)	73 (44.8)	21 (12.9)	26 (16.0)	43 (26.4)	20 (12.3)	42 (25.8)	5 (3.1)	96 (58.9)	13 (8.0)[a]	24 (14.7)[a]	5 (3.1)[a]	121 (74.2)[a]
4-7 hours	155 (100.0)	67 (43.2)	23 (14.8)	18 (11.6)	47 (30.3)	20 (12.9)	43 (27.7)	4 (2.6)	88 (56.8)	14 (9.0)[a]	30 (19.4)[a]	3 (1.9)[a]	108 (69.7)[a]
8 hours or more	150 (100.0)	62 (41.3)	24 (16.0)	24 (16.0)	40 (26.7)	12 (8.0)	43 (28.7)	9 (6.0)	86 (57.3)	3 (2.0)[b]	29 (19.3)[a]	10 (6.7)[a]	108 (72.0)[a]
		χ^2 (6)=2.653, p=0.851 Cramer's V=0.053				χ^2 (6)=4.983, p=0.546 Cramer's V=0.073				χ^2 (6)=13.175, p=0.040* Cramer's V=0.119			

Note: IPC-RO included repeated occurrences regardless of reactions. IPC-ATHD included repeated occurrences and victims feeling and/or perpetrators intending for their partners to feel afraid, threatened, harassed and/or distressed. IPC-A included repeated occurrences and victims feeling and/or perpetrators intending for their partners to feel afraid. V/P= victim/perpetrator, V=victim, P=perpetrator, and N=neither. Proportions were compared using a z-test with Bonferroni adjustment. Different superscripts indicate significant differences in row proportions by column (i.e., within IPC groups; $p<0.013$ after Bonferroni adjustment for demographic variables with two groups [four possible pairwise comparisons across IPC groups]; $p<0.004$ after Bonferroni adjustment for demographic variables with three groups [12 possible pairwise comparisons across IPC groups]). Race/ethnicity, sexual orientation, and relationship status had at least one cell with an expected count less than five for IPC-ATHD and IPC-A.

*p<0.05 **p<0.01 ***p<0.001

Table S2. Chi-square associations between IPC definitions and depressive symptoms, and proportional comparisons between IPC groups

	IPC-RO				IPC-ATHD				IPC-A			
	V/P n=202	V n=68	P n=68	N n=130	V/P n=52	V n=128	P n=18	N n=270	V/P n=30	V n=83	P n=18	N n=337
	n (%)	n (%)	n (%)	n (%)	n (%)	n (%)	n (%)	n (%)	n (%)	n (%)	n (%)	n (%)
Depressive symptoms												
Yes	110 (54.5)[a]	30 (44.1)[a]	38 (55.9)[a]	52 (40.0)[a]	35 (67.3)[a]	70 (54.7)[a,b]	8 (44.4)[a,b]	117 (43.3)[b]	19 (63.3)[a,b]	54 (65.1)[b]	8 (44.4)[a,b]	149 (44.2)[a]
No	92 (45.5)[a]	38 (55.9)[a]	30 (44.1)[a]	78 (60.0)[a]	17 (32.7)[a]	58 (45.3)[a,b]	10 (55.6)[a,b]	153 (56.7)[b]	11 (36.7)[a,b]	29 (34.9)[b]	10 (55.6)[a,b]	188 (55.8)[a]
	χ^2 (3)=8.552, p=0.036* Cramer's V=0.135				χ^2 (3)=12.245, p=0.007** Cramer's V=0.162				χ^2 (3)=14.266, p=0.003** Cramer's V=0.175			

Note: IPC-RO included repeated occurrences regardless of reactions. IPC-ATHD included repeated occurrences and victims feeling and/or perpetrators intending for their partners to feel afraid, threatened, harassed and/or distressed. IPC-A included repeated occurrences and victims feeling and/or perpetrators intending for their partners to feel afraid. V/P= victim/perpetrator, V=victim, P=perpetrator, and N=neither. Proportions were compared using a z-test with Bonferroni adjustment. Different superscripts indicate significant differences in column proportions by row (i.e., between IPC groups; $p<0.004$ after Bonferroni adjustment for 12 possible pairwise comparisons with the four IPC groups [six pairwise comparisons for each group of depressive symptoms]).
*$p<0.05$ **$p<0.01$

Table S3. Chi-square associations between IPC-RO, victims' reactions, and perpetrators' intended reactions for their partners, and proportional comparisons between IPC groups

	Victimization (IPC-RO)			Perpetration (IPC-RO)		
Victim felt/ perpetrator wanted their partner to feel	V/P n=202 n (%)	V n=68 n (%)	Chi-square (df), p value Phi value	V/P n=202 n (%)	P n=68 n (%)	Chi-square (df), p value Phi value
			χ^2 (1)=5.068, p=0.024*			χ^2 (1)=3.581, p=0.058
Flattered			Phi=-0.137			Phi=-0.115
Yes	115 (56.9)[a]	28 (41.2)[b]		107 (53.0)	27 (39.7)	
No	87 (43.1)[a]	40 (58.8)[b]		95 (47.0)	41 (60.3)	
			χ^2 (1)=7.986, p=0.005**			χ^2 (1)=3.009, p=0.083
Loved			Phi=-0.172			Phi=-0.106
Yes	142 (70.3)[a]	35 (51.5)[b]		128 (63.4)	35 (51.5)	
No	60 (29.7)[a]	33 (48.5)[b]		74 (36.6)	33 (48.5)	
			χ^2 (1)=0.567, p=0.452			χ^2 (1)=2.853, p=0.091
Angry			Phi=0.046			Phi=-0.103
Yes	145 (71.8)	52 (76.5)		46 (22.8)	9 (13.2)	
No	57 (28.2)	16 (23.5)		156 (77.2)	59 (86.8)	
			χ^2 (1)=0.826, p=0.364			χ^2 (1)=1.896, p=0.169
Afraid			Phi=-0.055			Phi=-0.084
Yes	96 (47.5)	28 (41.2)		42 (20.8)	9 (13.2)	
No	106 (52.5)	40 (58.8)		160 (79.2)	59 (86.8)	
			χ^2 (1)=0.051, p=0.822			χ^2 (1)=0.001, p=0.975
Threatened			Phi=0.014			Phi=-0.002
Yes	83 (41.1)	29 (42.6)		33 (16.3)	11 (16.2)	
No	119 (58.9)	39 (57.4)		169 (83.7)	57 (83.8)	
			χ^2 (1)=0.827, p=0.363			χ^2 (1)=2.516, p=0.113
Harassed			Phi=0.055			Phi=-0.097
Yes	109 (54.0)	41 (60.3)		26 (12.9)	4 (5.9)	
No	93 (46.0)	27 (39.7)		176 (87.1)	64 (94.1)	
			χ^2 (1)=0.085, p=0.771			χ^2 (1)=1.477, p=0.224
Distressed			Phi=-0.018			Phi=-0.074
Yes	114 (56.4)	37 (54.4)		40 (19.8)	9 (13.2)	
No	88 (43.6)	31 (45.6)		162 (80.2)	59 (86.8)	

Note: IPC-RO included repeated occurrences regardless of reactions. V/P= victim/perpetrator, V=victim, and P=perpetrator. Proportions were compared using a z-test. Different superscripts indicate significant differences in column proportions by row (i.e., between IPC groups) ($p<0.05$). *$p<0.05$ **$p<0.01$

Chapter 4: Manuscript 2:

Young Adults' Perceptions of Intimate Partner Cyberstalking: Behaviors, Severity, and Associations with Depressive Symptoms and Social Isolation

Abstract

Intimate partner cyberstalking (IPC) among young adults is not well-understood. There are inconsistent definitions of IPC, and the behaviors that are considered cyberstalking are unclear. Additionally, there is a dearth of literature examining perceived severity of IPC and the associations between severity experienced and adverse health states. This study involved two phases. During Phase 1, 104 university students (ages 18-25) rated the inclusion of and perceived severity of a list of potential IPC behaviors via an online survey. They also provided qualitative responses to support their severity ratings. Most students believed multiple technology-facilitated behaviors were IPC. The most severe behavior was monitoring a partner's activities using a hidden camera. Seven themes were identified from students' qualitative responses describing the mildest behaviors, which they believed were harmless and consensual. Seven themes also were identified for the most severe behaviors, which they believed were intentionally harmful and not consensual. During Phase 2, 181 Amazon Mechanical Turk workers of comparable ages completed another online survey. They were victims of the same IPC behaviors. The perceived severity ratings first investigated in Phase 1 were used to operationalize the victims' severity experienced in Phase 2. As perceived severity of behaviors increased (i.e., more severe), reported victimization frequency decreased. Victims of severe IPC were more likely to experience depressive symptoms and greater social isolation compared to victims of moderate and mild IPC. Additional research about

IPC severity is encouraged in order to develop effective policies and programs for prevention.

Introduction

Romantic partners often rely on technology to initiate and maintain their intimate relationship (Boyle & O'Sullivan, 2016; Papp et al., 2012; Pew Research Center, 2016), but using technology can open opportunities for intimate partner cyberstalking (IPC) (Marcum et al., 2017; Smoker & March, 2017). Many young adults experience instability in romantic partnerships (Arnett, 2015) and engage in computer-mediated communication in their intimate relationships (Boyle & O'Sullivan, 2016), which could increase their risk for IPC. College-student studies have found estimates up to 36% for victimization and 67% for perpetration of various IPC behaviors (Lyndon et al., 2011; Shorey et al., 2015).

IPC is not well-understood. Definitions and measurement vary (Finn, 2004; Maple et al., 2012; Marcum et al., 2017; Reyns et al., 2012; Shorey et al., 2015; Smoker & March, 2017; United States Department of Justice, 2000), and the behaviors that are considered to be IPC are unclear because the technologies used to cyberstalk are debated (Bahm, 2003). IPC generally involves the use of the internet and other information and communication technologies to repeatedly monitor, threaten, and/or harass a current, former, or known potential romantic partner, causing them fear or concern for their safety (Bocij & McFarlane, 2002; Finn, 2004; Maple et al., 2012; Smoker & March, 2017; United States Department of Justice, 2000). Some college-student studies have only focused on internet-based IPC behaviors (Acquadro Maran & Begotti, 2019; Marcum et al., 2017), and it is argued that stalking with technology beyond the internet should not be

termed “cyberstalking” (Bahm, 2003). However, other studies among college students and social media users have included various technologies, such as phones, texting and tracking applications, when assessing IPC behaviors (Shorey et al., 2015; Smoker & March, 2017), thus accepting a broader definition of IPC.

Severity of intimate partner cyberstalking

There is a lack of literature about IPC severity and its measurement. Among studies including community and college-based samples, severe forms of general cyberstalking and other unwanted pursuits have involved media platforms for verbal communication (e.g., video, phone; Barnes & Biros, 2007); monitoring and threatening acts using a cell phone, cameras, spyware, social media, email, and GPS (Dardis & Gidycz, 2017); and violation behaviors (e.g., done without consent; Cupach & Spitzberg, 2000). Severe pursuits and intrusions have occurred less frequently among college students than minor behaviors (Cupach & Spitzberg, 2000; Dardis & Gidycz, 2017), as they have been perceived as more threatening, violating, annoying, and upsetting (Cupach & Spitzberg, 2000). There is no consensus regarding the measurement of severity, but methods have included an assessment of the stalker’s actions and threats and an analysis of victim advocates’ case notes (Barnes & Biros, 2007); a factor analysis of pursuit behaviors that resulted in severe and minor factors (Dardis & Gidycz, 2017); the extent participants felt or would feel annoyed, upset, threatened, and their privacy violated by the behaviors (Cupach & Spitzberg, 2000); duration (Purcell et al., 2004); and experiencing multiple forms of stalking each at a high frequency (Mechanic et al., 2000). More research is necessary to clarify IPC severity and its measurement.

General stalking severity and psychological and social health states

Given the dearth of literature about IPC severity, the associations between IPC severity and adverse health states are unclear. Among studies that combined both in-person and electronic stalking and included community-based samples of adults, victims of stalking for longer than two weeks have been more likely to relocate their residence, change their phone number, reduce social outings, and experience greater psychological morbidity compared to those who reported stalking for 2 weeks or less (Purcell et al., 2004). Battered women who were relentlessly stalked by an intimate partner have reported greater depression and post-traumatic stress compared to women who were infrequently stalked (Mechanic et al., 2000). Victims of severe IPC may experience similar adverse psychological and social health states.

The present study

We defined IPC as the use of the internet and other information and communication technologies to repeatedly monitor, threaten, and/or harass a current or former romantic partner, causing them to feel afraid, threatened, harassed, and/or distressed. The study was conducted in two phases. In Phase 1, we examined young adults' perceptions of which technology-facilitated behaviors they considered to be IPC and the severity of these behaviors. To our knowledge, there is no validated tool to assess IPC experiences in a hierarchy of increasing severity. Therefore, the severity perceptions from Phase 1 were used to operationalize severity experienced in the next phase. In Phase 2, we investigated the association between perceived severity of behaviors and victimization frequency among young adults. Also, we examined severity of IPC

victimization experienced and associations with depressive symptoms and social isolation. We hypothesized:

H1: As perceived severity of IPC behaviors increases, the frequency of victimization decreases.

H2: Victims of severe IPC are more likely to experience depressive symptoms and greater social isolation compared to victims of mild and moderate IPC.

H3: Victims of moderate IPC are more likely to experience depressive symptoms and greater social isolation compared to victims of mild IPC.

Methods

Sampling and recruitment

Phase 1 included a convenience sample of undergraduate and graduate students at a mid-Atlantic university. Eligible participants were between ages 18-25, currently and/or previously had an intimate partner, and were proficient in English. We recruited participants through classroom visits to four public health courses and a recruitment email. Because fewer students between ages 23-25 volunteered to participate after this strategy, we sent a recruitment email to the public health graduate student listserv to increase recruitment of these ages.

The data reported in Phase 2 were part of a larger study assessing IPC among young adults. The sample in this phase was drawn from a sample (N=469) first reported in Reiss et al. (2020). This study was unique in that it examined IPC severity. Phase 2 included a convenience sample of Amazon Mechanical Turk (MTurk) workers (Amazon Mechanical Turk, 2018). Eligible participants were between ages 18-25, located in the

United States, currently and/or previously had an intimate partner, had high-quality performance statistics on MTurk (i.e., requestors approved ≥98% of their tasks; they completed and were approved for ≥500 tasks; Nguyen et al., 2016) and were victims of IPC. Information about the study and the survey link were posted on the MTurk website.

Procedure

Phase 1 participants completed a 25-minute survey online and received a $10 electronic gift card to Target. Phase 2 participants completed a 15-minute survey online and were paid $3.50. After both surveys, we provided links to information about technology-facilitated stalking (National Network to End Domestic Violence, 2017; The National Center for Victims of Crime, 2011) and to resources that assist victims. These resources were offered by the university (Phase 1 only) and the National Center for Victims of Crime (The National Center for Victims of Crime, 2011). Participants provided informed consent online immediately before beginning both surveys. The university's Institutional Review Board approved both phases.

Measures

Perceptions of IPC behaviors. We asked Phase 1 participants, "Intimate partner cyberstalking involves the use of the internet and other information and communication technologies to repeatedly monitor, threaten, and/or harass a current, former, or potential romantic partner. Do you think any of the following behaviors are cyberstalking?" Twenty behaviors were provided, including 18 items from the Controlling Partners Inventory (CPI, α=0.90 among college students [Burke et al., 2011]

and α=0.84 in Phase 1) and two items that we added to increase the scope of IPC behaviors measured (i.e., checking text message and internet search histories). We depersonalized the items from the CPI (e.g., "Using a webcam to monitor a partner's activities"). Items that addressed Facebook were generalized to any social networking site (see Table 2). Responses included, 0="No" and 1="Yes." The cyberstalking definition provided to participants did not include the victims' reactions to the behaviors because we wanted to focus purely on the occurrence and minimize any bias from the participants' emotions.

IPC perceived severity weights. Using a Q-sort (Barbosa et al., 1998; Stephenson, 1935, 1953), Phase 1 participants categorized these same 20 behaviors into boxes according to their beliefs about the severity of the behaviors. Seven boxes were provided, ranging from "1-Most Mild" to "7-Most Severe." Weights for each behavior were calculated by averaging the Q-sort scores. Participants also provided open-ended responses regarding why they sorted particular behaviors as "1-Most Mild" and "7-Most Severe."

IPC victimization. In Phase 2, the same 20 behaviors were utilized, but they were personalized and included the CPI-Partner subscale (α=0.86 in Phase 2; e.g., "Partner used a webcam to monitor my activities;" Burke et al., 2011). Participants were asked to think about their current or most recent (if single) intimate relationship and if they ever experienced the behaviors in that relationship. Seven options were provided, including the CPI's original five categories from 0="Never" to 4="4 or more times"

(shortened to “4+ times”). We added 5=“I do not use this technology” and 6=“My partner does not use this technology.” The “5s” and “6s” were recoded as “not applicable” (<4% for all behaviors). Valid responses were 0-4.

Participants who answered at least “1 time” to any behavior were asked if the behavior made them feel afraid, threatened, harassed, and/or distressed. Five responses were provided, from 0=“Not at all” to 4=“Extremely.” The data were recoded as, 0= “No” (“Not at all”) and 1= “Yes” (“A little bit” to “Extremely”). Participants were categorized as victims if they experienced any of the 20 behaviors repeatedly (i.e., one behavior at least twice or multiple behaviors at least one time each), which made them feel afraid, threatened, harassed, and/or distressed.

IPC severity experienced. The severity weights from Phase 1 were applied to the IPC victimization data collected in Phase 2. A severity score was calculated by averaging the weighted items that each participant experienced. The score ranged from 1-7, with higher scores indicating greater IPC severity experienced. The scores were partitioned into three groups using tertiles, with 1=mild (score 1.00-3.09), 2=moderate (score 3.10-3.52), and 3=severe (score 3.53-7.00).

Depressive symptoms. We used a short form of the Center for Epidemiologic Studies Depression Scale (CESD-10; Andresen et al., 1994) to measure depressive symptoms, which included ten items with established convergent validity among older adults (Andresen et al., 1994) and α=0.72 among college students (Oppong Asante & Andoh-Arthur, 2015) (α=0.89 in Phase 2; e.g., “During the past week…I felt

depressed."). The four response options ranged from 0="Rarely or none of the time (less than 1 day)" to 3="Most or all of the time (5-7 days)." Positively worded items were reverse coded so that higher scores for all items represented greater depressive symptoms. A total scale score was calculated by adding the items (range 0-30). Using the recommended cut-off score for depressive symptoms (Andresen et al., 1994), the variable was coded as 0="No depressive symptoms" (score of 0-9) and 1="Depressive symptoms" (score ≥ 10).

Social isolation. We used the Friendship Scale (Hawthorne, 2006) to measure social isolation ,which included six items with established concurrent validity and α=0.83 among older adults (Hawthorne, 2006) (α=0.90 in Phase 2; e.g., "During the past four weeks…I felt isolated from other people."). The five response options ranged from 0="Not at all" to 4="Almost always." Positively worded items were reverse coded so that higher scores for all items signified greater social isolation. A total scale score was calculated by adding the items (range 0-24). To our knowledge, there is no validated cut-off score for social isolation, so it was used as a continuous variable.

Demographics. The demographic variables are summarized in Table 1. Originally, gender included a "transgender" response and sexual orientation included an "unsure" response. These responses were recoded as missing and were not included in the analyses because the frequencies were small (transgender, n=2, 1.9% for Phase 1 and n=1, 0.6% for Phase 2; unsure, n=4, 3.8% for Phase 1 and n=0, 0.0% for Phase 2).

Statistical analyses

All quantitative analyses were conducted with SPSS v25. Descriptive statistics were calculated for all variables. A z-test with Bonferroni adjustment was used to explore differences in demographic proportions between our two samples. The association between IPC perceived severity weights (independent variable, IV) and IPC victimization frequency (dependent variable, DV) was assessed with Pearson correlation and linear regression (cases included the IPC behaviors, and victimization frequency included the number of participants who experienced the behaviors at least twice). Because heteroskedasticity was present, a heteroskedasticity-consistent standard error estimator was applied to the regression (Hayes & Cai, 2007). The association between IPC severity experienced (IV) and depressive symptoms (DV) was examined with a chi-square test, a z-test with Bonferroni adjustment to compare proportions, and logistic regression with Bonferroni adjustment that controlled for age, gender, highest level of education, income, sexual orientation, relationship status, and hours/day in the virtual presence of others (i.e., in a social setting via technology). The association between IPC severity experienced (IV) and social isolation (DV) was assessed with ANOVA and ANCOVA with Bonferroni post hoc tests and the same control variables. Significance for analyses with Bonferroni adjustment was $p<0.025$ for two pairwise comparisons and $p<0.017$ for three pairwise comparisons (with 98.3% confidence intervals for odds ratios not including one for logistic regression). Otherwise, significance was $p<0.05$. Assumptions for analyses were satisfied.

Thematic analysis was conducted using NVivo 12 to identify themes from Phase 1 participants' open-ended responses regarding why they rated IPC behaviors as the

mildest or the most severe. Themes were determined for the mildest and most severe behaviors separately. We followed qualitative analytic steps provided by Braun and Clarke (Braun & Clarke, 2006). Driven by the data, codes were generated across all IPC behaviors and grouped into emergent themes. Themes were reviewed, refined, and defined. Two coders were used, and the inter rater reliability was 92% agreement. Differences in coding were discussed until consensus was reached.

Missing data

Nonresponse missing data in Phase 1 included age (3.8%), race/ethnicity (1.0%), annual income (1.9%), parental income (1.0%), and perceptions of IPC behaviors (1.0% for two behaviors). Nonresponse missing data in Phase 2 included race/ethnicity (2.2%), relationship length (0.6%), virtual presence (0.6%), depressive symptoms (3.3%), and social isolation (5.0%). Using chi-square tests, missing data for social isolation and virtual presence were associated with gender and relationship status, respectively ($p<0.05$). No other associations were found for missing data. Because missing data for some variables may be explained by observed data, as noted, we assumed missing at random and used multiple imputation to handle unanswered missing data for Phase 2. Age, gender, race/ethnicity, highest level of education, income, sexual orientation, relationship status, relationship length, and virtual presence were used as predictors to impute social isolation, depressive symptoms, and demographic variables with missing data. Forty imputations were generated (Graham et al., 2007) and averaged to create the final imputed value. Data that were recoded as missing or not applicable, as noted above (i.e., responses for transgender, unsure of sexual orientation, and not using the technology

included in the IPC victimization items), were not imputed. Unanswered missing data for Phase 1 were not imputed because these data were only used for descriptive analyses.

Results

Participant characteristics

Phase 1 included 104 students and Phase 2 included 181 MTurk workers who were victims of IPC. More participants in Phase 2 were ages 23-25, male, employed ($p<0.025$ after Bonferroni adjustment), Non-Hispanic White, not attending school, earning $20,000 or more, and married ($p<0.017$ after Bonferroni adjustment; see Table 1).

TABLE 1. PARTICIPANT CHARACTERISTICS

	Phase 1-Student	*Phase 2-Amazon Mechanical Turk*
	N=104 *n (%)*	*N=181* *n (%)*
Age		
18-22	68 (68.0) [a]	63 (34.8) [b]
23-25	32 (32.0) [a]	118 (65.2) [b]
Gender		
Male	17 (16.7) [a]	79 (43.9) [b]
Female	85 (83.3) [a]	101 (56.1) [b]
Race/ethnicity		
Non-Hispanic white	44 (42.7) [a]	112 (61.9) [b]
Non-Hispanic other	45 (43.7) [a]	46 (25.4) [b]
Hispanic/Latinx	14 (13.6)	23 (12.7)
Current grade level		
Undergraduate student	69 (66.3) [a]	73 (40.3) [b]
Graduate student [c]	35 (33.7) [a]	15 (8.3) [b]
Not attending school	0 (0.0) [a]	93 (51.4) [b]
Highest level of education		
No college degree	--	81 (44.8)
College degree (associate's or higher)	--	100 (55.2)
Employed-yes	69 (66.3) [a]	181 (100.0) [b]

	Phase 1-Student	*Phase 2-Amazon Mechanical Turk*
	N=104 *n (%)*	*N=181* *n (%)*
Annual income		
$19,999 or less	73 (71.6) [a]	67 (37.0) [b]
$20,000-$39,999	16 (15.7) [a]	63 (34.8) [b]
$40,000 or more	13 (12.7) [a]	51 (28.2) [b]
Parental income		
$59,999 or less	15 (14.6)	--
$60,000-$99,999	23 (22.3)	--
$100,000 or more	65 (63.1)	--
Sexual orientation		
Heterosexual	87 (87.0)	150 (82.9)
Gay, lesbian, or bisexual	13 (13.0)	31 (17.1)
Relationship status		
Single	29 (27.9) [a]	23 (12.7) [b]
Dating or engaged [d]	72 (69.2)	127 (70.2)
Married	3 (2.9) [a]	31 (17.1) [b]
Relationship length		
12 months or less	--	43 (23.8)
13-36 months	--	70 (38.7)
37 months or longer	--	68 (37.6)
Hours per day in the virtual presence of others		
3 hours or less	--	62 (34.3)
4-7 hours	--	63 (34.8)
8 hours or more	--	56 (30.9)
Severity of IPC victimization experienced	--	
Mild	--	60 (33.1)
Moderate	--	61 (33.7)
Severe	--	60 (33.1)
Depressive symptoms-yes	--	106 (58.6)
Social isolation, mean (SD)	--	9.90 (5.99)

Note: IPC=intimate partner cyberstalking. Age, race/ethnicity, annual income, parental income, and sexual orientation had <4% missing for Phase 1. Gender had <2% missing for both phases.

[a-b] Significant difference in proportions by row (i.e., between phases/samples) using a z-test with Bonferroni adjustment (after correction, $p<0.025$ for two pairwise comparisons and $p<0.017$ for three pairwise comparisons)

[c] Includes professional school for Phase 2

[d] Includes n=1 divorced individual who was currently dating

-- Data not available

Severity weights, perceptions, and prevalence of IPC behaviors

Monitoring a partner with a hidden camera received the most severe weight in Phase 1 and was the least common behavior experienced at least twice in Phase 2 (see Table 2). The majority of Phase 1 participants thought each technology-facilitated behavior was cyberstalking (see Table 2).

TABLE 2. SEVERITY WEIGHTS, PERCEPTIONS, AND PREVALENCE OF BEHAVIORS EXPERIENCED AT LEAST TWICE (2+)

	Phase 1		*Phase 2*
	Severity weights	*Yes, this is intimate partner cyberstalking*	*Victimization experienced 2+ times*
		n=104	*n=181*
Behaviors	*Mean (SD)*	*%*	*%*
Checking a partner's social network page to monitor them	2.63 (1.55)	61.2 [a]	33.2
Checking a partner's sent/received email history	2.68 (1.48)	75.0	24.9
Checking a partner's sent/received cell phone call history	2.75 (1.38)	72.1	38.1
Checking a partner's internet search history	2.85 (1.49)	79.8	22.1
Checking a partner's sent/received text message history	2.96 (1.47)	75.0	53.6
Checking a partner's cell phone bill	3.01 (1.52)	65.4	8.8
Sending an excessive number of texts to a partner	3.16 (1.58)	63.5	39.8
Sending an excessive number of emails to a partner	3.42 (1.65)	73.1	10.5
Making an excessive number of cell phone calls to a partner	3.47 (1.56)	73.1	36.5
Using a partner's password to check up on them	4.32 (1.43)	88.5	17.1

	Phase 1		*Phase 2*
	Severity weights	*Yes, this is intimate partner cyberstalking*	*Victimization experienced 2+ times*
Behaviors	*Mean (SD)*	*n=104 %*	*n=181 %*
Using GPS or social media "check-ins" to monitor a partner's location	4.53 (2.03)	68.0 [a]	19.3
Sending threatening emails to a partner	5.61 (1.46)	94.2	8.8
Sending threatening texts to a partner	5.83 (1.25)	93.3	20.4
Making threatening cell phone calls to a partner	5.87 (1.31)	94.2	11.6
Making embarrassing, insulting, or threatening social network posts about a partner	6.08 (1.05)	90.4	12.7
Threatening to post inappropriate photos of a partner on a social networking site	6.24 (0.88)	92.3	11.1
Posting inappropriate photos of a partner on a social networking site	6.58 (0.81)	92.3	6.6
Using a webcam to monitor a partner's activities	6.77 (0.69)	94.2	5.5
Using spyware to monitor a partner's activities	6.91 (0.32)	97.1	5.5
Using a hidden camera to monitor a partner's activities	6.94 (0.23)	96.2	5.0

[a] 1% missing

Themes describing the mildest and most severe behaviors

We identified seven themes from Phase 1 participants' qualitative responses that described the mildest behaviors (see Table 3). Additionally, we identified seven themes that described the most severe behaviors. Some participants commented that the victims' perceptions of the behaviors are subjective.

TABLE 3. THEMES DESCRIBING THE MILDEST AND MOST SEVERE CYBERSTALKING BEHAVIORS

Themes for mildest behaviors	*Contextual details*	*Relevant behaviors*	*Quotes*
Harmless but unhealthy (stated by 44.2% of participants)	• Not directly causing harm • Only checking/ investigating • Just curious • Not threatening or violating • Unhealthy behavior in the relationship; inappropriate and breaks trust, but not as hurtful as other behaviors	• Checking social network page • Checking email, text message, cell phone call, and internet search histories	• "This [checking internet search history] will most likely not lead to violence or harm the mental health of the individual." • "Just checking [email history] - not causing harm." • "Although it [checking cell phone call history] will break the partner's trust, it is not on the same level as other stalking or harassing behaviors."
Justified by positive intentions (stated by 26.0% of participants)	• May be worried about their partner and want to ensure they are okay • May want to ensure that they arrived at their destination safely • May check their cell phone bill for financial reasons • May be more attentive to their partner	• Using GPS or social media "check-ins" • Checking cell phone bill • Sending/making excessive emails, text messages, and cell phone calls	• "… 'checking-in' on someone's location … could be done in a healthy context of seeing where a partner is in their drive on their way somewhere, or checking to make sure they got where they are going." • "…checking a phone bill could be an action that is strictly for financial purposes. If you're married and check your spouse's phone bill to make sure everything is in order." • "Depending on the partner, some are just more attentive." [excessive cell phone calls]

Themes for mildest behaviors	*Contextual details*	*Relevant behaviors*	*Quotes*
Public vs. private information (stated by 18.3% of participants)	• Victim chooses to post information and location on social media for public to see • Internet search history may be visible to partners who share a computer (i.e., seen without searching for it) • Cell phone call history is not generally publicized	• Checking social network page • Checking cell phone call and internet search histories • Using GPS or social media "check-ins"	• "The content available on a social network page has been posted for people to see and it isn't necessarily intrusive to view content that a person chose to make available." • "It [internet history] may be left out like on a computer y'all share." • "…although it [checking cell phone call history] is an invasion of privacy, it doesn't go public."
Common/normal (stated by 15.4% of participants)	• Common among young adults, partners in untrusting relationships, and partners in serious committed, relationships • Normal in this age of technology • Societal norms involve constantly updating one's status	• Checking social network page and cell phone bill • Checking email, text message, cell phone call, and internet search histories	• "…this [checking a partner's social network page] is wildly common among most people between the ages of 18-25. People joke about 'stalking' people's social media pages, but in reality, we all do it." • "Many people do this [checking a partner's social network page] because of society and the 'constant updating' norms." • "Texts are often shared anyways…" • "If the partners are living together, checking a cell phone bill is a normal thing."

Themes for mildest behaviors	*Contextual details*	*Relevant behaviors*	*Quotes*
Consensual (stated by 12.5% of participants)	• May consent to monitor each other • Victim is aware of the monitoring • Shared based on mutual trust	• Checking cell phone bill • Using a partner's password • Checking email, text message, cell phone call, and internet search histories • Using GPS or social media "check-ins"	• "My partner and I have always been open with our calls and texts…we have both consented to this kind of 'monitoring.'" • "…it [checking text message history] is not monitoring what your partner is doing at all times when he does not know." • "When two people live together, things like internet search history are … shared out of mutual trust."
Easily ignored or blocked (stated by 9.6% of participants)	• Can block the number • Do not have to answer/ respond	• Sending/making excessive, emails, text messages, and cell phone calls • Sending/making threatening emails, text messages, and cell phone calls	• "…they always have the option to block the number. They also have the option of whether or not they want to answer the phone call." • "They also have the option to respond to the email or not."

Themes for mildest behaviors	*Contextual details*	*Relevant behaviors*	*Quotes*
Personal experience with perpetration (stated by 6.7% of participants)	• Not a big deal to those who engage in the behavior	• Checking social network page • Checking cell phone call and text message histories • Sending excessive text messages	• "This [checking cell phone call history] is no big deal, I do this." • "I know I personally am guilty of sending my partner many, many texts in a row, but not in a controlling or obsessive way, or in a way to elicit a response."
Themes for most severe behaviors	*Contextual details*	*Relevant behaviors*	*Quotes*
Invasion of privacy (stated by 67.3% of participants)	• Privacy compromised • Private, sensitive information becomes public (personal information and relationship issues)	• Checking cell phone bill • Checking email, cell phone call, and text messages histories • Using a partner's password • Making embarrassing, insulting or threatening social network posts • Posting inappropriate photos • Using GPS or social media "check-ins" • Using a webcam, hidden camera, and spyware to monitor	• "It's [checking cell phone call history] an invasion of privacy." • "Texts these days are more personal than call logs for this generation of millennials. It's not appropriate to check their texts." • "Posting inappropriate photos is a major violation of privacy just like posting embarrassing, insulting, or threatening things about a partner." • "Monitoring their partner's location is a violation of privacy, and they have no business knowing where their partner is."

Themes for most severe behaviors	*Contextual details*	*Relevant behaviors*	*Quotes*
Impacting the victim's physical, mental, social, academic, and economic health (stated by 59.6% of participants)	• May cause mental and emotional distress, provoke fear, and lower self-esteem • May harm physical safety, reputation, relationships with others, intimate relationship with partner, academics, and career/professional life • May not be able to flee relationship with partner if their location is tracked	• Sending/making threatening emails, text messages, and cell phone calls • Making embarrassing, insulting, or threatening social network posts • Threatening to post inappropriate photos • Posting inappropriate photos • Using a webcam, hidden camera, and spyware • Using GPS or social media "check-ins"	• "…for the partner receiving the [threatening] email, it can affect their mental health." • "Sending direct threats, no matter what form (email, text, or phone call) … will evoke fear in the person that receives them." • "It [making embarrassing, insulting or threatening posts] can hurt the person's career and personal relationships and cause them stress."
Intentionally harmful (stated by 50.0% of participants)	• Purposefully harming their partner • Perpetrator is aware of their intention to harm	• Making embarrassing, insulting or threatening social network posts • Threatening to post inappropriate photos Posting inappropriate photos	• "The action itself [making embarrassing, insulting, or threatening posts] is malicious, and it is clear that the person making the embarrassing, etc. posts is intentionally trying to damage their partner's reputation." • "You are actually doing something [posting inappropriate photos] to actively harm the person."

Themes for most severe behaviors	*Contextual details*	*Relevant behaviors*	*Quotes*
Not consensual (stated by 32.7% of participants)	• Conducted without permission • Victim may be unaware of the monitoring	• Making embarrassing, insulting, or threatening social network posts • Posting inappropriate photos • Using GPS or social media "check-ins" • Using a webcam, hidden camera, and spyware	• "Actively posting content about a partner without their permission is never okay to do." • "This [using a webcam] is extreme stalking as they are unaware of you watching them."
Illegal (stated by 26.9% of participants)	• Involves criminal activity	• Sending/making threatening emails, text messages, and cell phone calls • Threatening to post inappropriate photos • Posting inappropriate photos • Using a webcam, hidden camera, and spyware	• "Most illegal or criminal activity." [posting inappropriate photos] • "This can also be called revenge porn and is illegal in some states." [posting inappropriate photos] • "Against the law." [using a webcam]

Themes for most severe behaviors	*Contextual details*	*Relevant behaviors*	*Quotes*
Leading to other forms of abuse (stated by 8.7% of participants)	• May lead to violence, physical or sexual abuse, cyberbullying, harassment, and revenge porn	• Sending/making threatening emails, text messages, and cell phone calls • Making embarrassing, insulting, or threatening social network posts • Threatening to post inappropriate photos • Posting inappropriate photos	• "[Sending threatening emails] may forecast to future physical or sexual abuse." • "…it [threatening texts] can potentially lead to a violent situation." • " …it [embarrassing, insulting, or threatening posts] invites the other problems that come with social media like cyberbullying."
Uncommonly used technology (stated by 3.8% of participants)	• Email is not commonly used among young adults except for school or work, so using it to cyberstalk requires effort	• Checking email history • Sending threatening and excessive emails	• "People don't usually use email anymore, so to go to that extreme and that energy to check email is borderline crazy." • "Email is not used often so it's very much going out of your way to see what they're doing on e-mail."

Note: Results are from Phase 1 (N=104)

Hypothesis 1

Supporting Hypothesis 1, the severity weights from Phase 1 were negatively correlated with victimization frequency in Phase 2 ($r=-0.72$, $p<0.001$). As the severity weights increased by one unit, victimization frequency decreased by 11 participants ($p<0.001$; see Table 4).

TABLE 4. LINEAR REGRESSION ANALYSIS WITH SEVERITY WEIGHTS (INDEPENDENT VARIABLE) AND VICTIMIZATION FREQUENCY (DEPENDENT VARIABLE)

	b (SE)	*t*	*p*	*Model*
IPC severity weights	-10.95 (2.48)	-4.41	0.000*	F(1,18)=19.43, p=0.000*, R^2=0.52, adjusted R^2=0.49

Note: IPC=intimate partner cyberstalking. Cases included the 20 intimate partner cyberstalking behaviors measured, and victimization frequency included the number of participants who experienced the behavior at least twice. A heteroskedasticity-consistent standard error estimator was applied.
*p<0.001

Hypothesis 2

The results support Hypothesis 2. Before and after controlling for demographics (i.e., age, gender, highest level of education, income, sexual orientation, relationship status, and hours/day in the virtual presence of others), victims of severe IPC in Phase 2 were more likely to experience depressive symptoms and greater social isolation than victims of moderate and mild IPC ($p<0.017$ after Bonferroni correction; see Tables 5-8). In the adjusted model, females were more likely to have depressive symptoms than males (OR=2.77, 98.3% CI after Bonferroni correction=1.18-6.49). No other control variables were significant.

TABLE 5. BIVARIATE ASSOCIATIONS WITH SEVERITY EXPERIENCED AND DEPRESSIVE SYMPTOMS

	Depressive Symptoms					
	Yes	*No*				*Cramer's*
	n (%)	*n (%)*	χ^2	*df*	*p*	*V*
IPC severity experienced			12.20	2	0.002*	0.26
Severe, n=60	46 (76.7) [a]	14 (23.3) [a]				
Moderate, n=61	31 (50.8) [b]	30 (49.2) [b]				
Mild, n=60	29 (48.3) [b]	31 (51.7) [b]				

Note: IPC=intimate partner cyberstalking.
[a-b] Significant differences in proportions by column (i.e., between severity groups) using a z-test with Bonferroni adjustment ($p<0.017$ after correction)
*$p<0.01$

TABLE 6. LOGISTIC REGRESSION ANALYSIS WITH SEVERITY EXPERIENCED (INDEPENDENT VARIABLE) AND DEPRESSIVE SYMPTOMS (DEPENDENT VARIABLE)

	b (SE)	*Wald(df)*	*p*	*OR (98.3% CI)*	*-2 Log likelihood (LL),* Nagelkerke R^2
IPC severity experienced		13.79 (2)	0.001*		-2 LL =205.98, R^2=0.26
Severe vs. mild	1.56 (0.46)	11.66 (1)	0.001*	4.74 (1.60-14.08)*	
Severe vs. moderate	1.41 (0.44)	10.24 (1)	0.001*	4.09 (1.43-11.68)*	
Moderate vs. mild	0.15 (0.40)	0.14 (1)	0.713	1.16 (0.44-3.05)	

Note: IPC=intimate partner cyberstalking. Model controlled for age, gender, highest level of education, income, sexual orientation, relationship status, and hours per day in the virtual presence of others.
*$p<0.017$ and 98.3% CI not including 1 (after Bonferroni adjustment)

TABLE 7. ANOVA WITH SEVERITY EXPERIENCED (INDEPENDENT VARIABLE) AND SOCIAL ISOLATION (DEPENDENT VARIABLE)

	Social isolation Mean (SD)	*F*	*df*	*p*	*eta²*
IPC severity experienced		10.17	2, 178	0.000*	0.10
Severe	12.58 [a] (5.75)				
Moderate	8.89 [b] (5.94)				
Mild	8.23 [b] (5.41)				

Note: IPC=intimate partner cyberstalking.
[a-b] Significant differences in means by column (i.e., between severity groups) using Bonferroni post hoc tests (p<0.017 after correction)
*p<0.001

TABLE 8. ANCOVA WITH SEVERITY EXPERIENCED (INDEPENDENT VARIABLE) AND SOCIAL ISOLATION (DEPENDENT VARIABLE)

	Social isolation Adjusted mean (SE)	*F*	*df*	*p*	*Partial eta²*
IPC severity experienced		9.68	2, 167	0.000*	0.10
Severe	14.31 [a] (1.97)				
Moderate	10.66 [b] (2.05)				
Mild	10.07 [b] (2.06)				

Note: IPC=intimate partner cyberstalking. Model controlled for age, gender, highest level of education, income, sexual orientation, relationship status, and hours per day in the virtual presence of others.
[a-b] Significant differences in adjusted means by column (i.e., between severity groups) using Bonferroni post hoc tests (p<0.017 after correction)
*p<0.001

Hypothesis 3

The results do not support Hypothesis 3. Before and after controlling for demographics, no significant differences were found between Phase 2 victims of mild and moderate IPC for either health state (see Tables 5-8).

Discussion

The young adults in this study thought IPC involved various technology-facilitated behaviors. Their perceptions support a broad definition of IPC and are

consistent with studies that assessed IPC with technologies besides the internet (Shorey et al., 2015; Smoker & March, 2017). These results suggest that IPC is perceived to be a complex issue. Their perceptions may be influenced by advancements in technology, which enable individuals to quickly and easily monitor and harass their partners via multiple devices and applications (Melander, 2010). Young adults' perceptions of IPC may continue to evolve as new technologies are developed.

Consistent with the cyberstalking literature (Barnes & Biros, 2007), threatening cell phone calls (i.e., verbal communication) received a slightly higher severity weight than threatening texts and emails (i.e., text communication). Threatening behaviors and monitoring partners via cameras and spyware received the highest severity weights, which were similar to severe cyber pursuit behaviors (Dardis & Gidycz, 2017). Additionally, our results support literature indicating that violation-related intrusion behaviors (e.g., done without consent) are the most severe (Cupach & Spitzberg, 2000). Based on the themes that were generated, behaviors are more severe when the perpetrator's intentions are harmful, the victim's health is negatively impacted, and their privacy is violated. These results are consistent with literature assessing severity based on the extent participants felt or would feel annoyed, upset, threatened, and their privacy violated by the behaviors (Cupach & Spitzberg, 2000).

As hypothesized (H1), perceived severity weights increased as victimization frequency decreased. Similarly, severe in-person and cyber pursuits and intrusions have occurred less frequently than minor behaviors (Cupach & Spitzberg, 2000; Dardis & Gidycz, 2017). According to the themes that emerged, mild behaviors may be more frequent because they can be justified by positive intentions and are considered harmless,

consensual, and normal among partners. Severe behaviors may be less frequent because they are damaging, illegal, not consensual, and may include uncommonly used technology.

As hypothesized (H2), victims of severe IPC were more likely to experience depressive symptoms and greater social isolation than victims of moderate and mild IPC. These results support findings from stalking studies (Mechanic et al., 2000; Purcell et al., 2004). Victims of severe IPC may experience lower mood, greater helplessness, and less control over the situation, which could contribute to their depressive symptoms (Worsley et al., 2017). They may also be more likely to experience social isolation as a result of their lower mood, increased anxiety, curtailing their use of social media and other technology (Worsley et al., 2017), and their partner controlling their network of friends (Melander, 2010).

No significant differences were found between experiencing mild and moderate IPC, which does not support our last hypothesis (H3). These results may be related to assessing severity based on perception, as the perceived distinction between mild and moderate behaviors may be less clear. Results may be different if severity was defined as increased duration and/or frequency of occurrences.

Strengths and limitations

This study was the first, to our knowledge, to: 1) have young adults identify IPC from a list of potential behaviors; 2) measure perceived IPC severity via a Q-sort; and 3) apply severity perceptions to understand the relationships between IPC severity experienced and health states. Also, we included a larger sample size than traditional Q-

sorts (Brown, 1980; Dziopa & Ahern, 2011). However, the study utilized two different samples, which were demographically disparate. Both phases were cross-sectional, and the results can only suggest associations, not causality. The questions assessing depressive symptoms and social isolation were not asked as direct outcomes of IPC, so it is uncertain whether they resulted from IPC. Because data were self-reported, there may be social desirability bias present. The odds ratios from the logistic regression analyses had large confidence intervals when comparing some severity groups, indicating increased uncertainty of estimates. A larger sample may be needed. Both phases included convenience samples and cannot be generalized to all young adults ages 18-25 who have ever had an intimate partner. Because students in Phase 1 were recruited from public health classes, they may be more health-conscious than other young adults.

Implications and future direction

The results from this study enhance our understanding of young adults' perceptions of IPC behaviors and the severity of these behaviors. We captured their thoughts about severity quantitatively and qualitatively, which enabled us to contextualize IPC severity. Future research should utilize mixed methods approaches to further explain the dynamics surrounding IPC risk and prevention. Based on young adults' perceptions of IPC behaviors, future research should include a variety of technology-facilitated behaviors in their measurement of IPC and utilize a standardized definition of IPC that incorporates multiple technologies. Furthermore, their perceptions of severity inform potential methods for assessing severity in future studies. Young

adults' thoughts about IPC behaviors and severity can inform prevention strategies to address IPC among this population.

The results from this study increase our knowledge of psychological and social health states associated with IPC severity. Future research should continue to investigate the epidemiology surrounding IPC severity, such as further exploration of prevalence estimates, risk factors, and high risk groups. Additionally, more research is necessary to comprehend mediators and moderators in the relationships between IPC severity and adverse health states. Once we gain a better understanding of the epidemiology of severity and associated mechanisms, the results can be used to develop effective policies and programs to prevent IPC among young adults.

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Author disclosure statement

No competing financial interests exist.

Chapter 5: Manuscript 3:

Intimate Partner Cyberstalking Among Young Adults and Associations with Attachment and Social Support

Abstract

Intimate partner cyberstalking (IPC) is an understudied public health problem that often occurs among young adults. There is limited research examining psychosocial constructs related to IPC. The purpose of this study was to test associations among attachment (anxiety and avoidance), social support (from family, friends, and a special person), and IPC victimization and perpetration reported by young adults. A sample of 469 Amazon Mechanical Turk workers (ages 18-25) completed a survey online. As attachment anxiety increased among participants, they were more likely to engage in IPC perpetration. As attachment avoidance increased, they were more likely to experience IPC victimization. They were less likely to engage in perpetration when social support from family, friends, and a special person increased. Additionally, they were less likely to experience victimization when social support from friends and a special person increased. The results inform the development of IPC prevention programs and policies that intend to address the attachment needs of victims and perpetrators and increase social support activities among individuals in romantic relationships.

Introduction

The internet has become a battleground for intimate relationship abuse, as some individuals have taken advantage of its capabilities to cyberstalk their romantic partners (Marcum et al., 2017; Smoker & March, 2017). Definitions vary, but intimate partner cyberstalking (IPC) generally involves the use of the internet and other information and communication technologies to repeatedly monitor, threaten, and/or harass a current, former, or known potential romantic partner, causing them fear or concern for their safety (Bocij & McFarlane, 2002; Finn, 2004; Maple et al., 2012; Smoker & March, 2017; United States Department of Justice, 2000). Young adults have a greater risk of experiencing IPC because they frequently use technology to communicate with their intimate partners (Boyle & O'Sullivan, 2016), they often experience instability in their romantic relationships (Arnett, 2015), and they have indicated that technology use has negatively impacted their intimate relationships (Pew Research Center, 2014). Among college students, studies have reported prevalence estimates up to 36% for victimization and 67% for perpetration of various individual and combinations of individual IPC behaviors (Lyndon et al., 2011; Shorey et al., 2015).

Attachment Theory and Romantic Relationships

Although Attachment Theory is rooted in research examining affectional bonds between infants and caregivers (Bowlby, 1969, 1973, 1977, 1980, 1982), researchers have applied it to enhance understanding of adult romantic relationships (e.g., Dutton & Winstead, 2006; Etcheverry et al., 2013; Hazan & Shaver, 1987). The internal cognitive representations of attachment relationships that develop in infancy, based on experiences

with caregivers (i.e., seeking proximity to a caregiver when experiencing physical and psychological threats and experiencing protest, despair and detachment when separated), can influence adult relationships (Bowlby, 1969, 1973, 1977, 1980, 1982). Individuals of all ages seek proximity to an attachment figure when experiencing anxiety and distress, and adults in particular seek proximity, generally to a romantic partner, in order to protect, comfort, or engage in sexual activity with their partner (Hazan & Shaver, 1994). Satisfying relationships meet basic needs for comfort, care, and sexual gratification, and a quality relationship involves trusting the partner to be available and responsive to their needs (Hazan & Shaver, 1994). People aim to achieve a sense of security in relationships, but some individuals may have to exert intense effort to do so because they may not be confident in the responsiveness of others to attend to their needs, or they may avoid intimate social contact as a result of consistent unresponsiveness from attachment figures (Hazan & Shaver, 1994). A partner's perceived availability and responsiveness can influence strategies of affect regulation when encountering threats in the relationship (Bowlby, 1973; Mikulincer et al., 2003).

Attachment Dimensions

Although early researchers in adult romantic attachment have investigated attachment styles or prototypes (Hazan & Shaver, 1987), later researchers have argued that attachment is most appropriately measured as regions within a continuous, two-dimensional space (Brennan et al., 1998; Fraley & Waller, 1998). The anxiety dimension (attachment anxiety) is characterized by worries about the availability of the partner and their worth to the partner, a desire for closeness, and fear of rejection or abandonment

(Mikulincer et al., 2003; Mikulincer & Shaver, 2007; Simpson & Rholes, 2012). Those experiencing attachment anxiety utilize hyperactivating strategies to handle insecurity and distress in the relationship, which may involve becoming clingy, controlling, and hypervigilant about cues of threat and attachment until the partner becomes available and a sense of security is achieved (Mikulincer et al., 2003; Mikulincer & Shaver, 2007; Shaver & Mikulincer, 2002). Anxiously attached individuals may be more likely to perceive a lack of availability and responsiveness from their partner (Mikulincer & Shaver, 2007).

The avoidance dimension (attachment avoidance) is characterized by emotional distance, being uncomfortable with closeness and/or intimacy, or dependence on partners, and self-reliance (Mikulincer et al., 2003; Mikulincer & Shaver, 2007; Simpson & Rholes, 2012). Those experiencing attachment avoidance utilize deactivating strategies to handle insecurity and distress in the relationship, which may involve avoiding frustration and additional distress by denying their attachment needs and averting closeness with their partner (Mikulincer et al., 2003; Mikulincer & Shaver, 2007; Shaver & Mikulincer, 2002). As a result of distancing themselves, they may misperceive cues of availability from their partner (Mikulincer & Shaver, 2007).

Individuals with low anxiety and avoidance are considered to be prototypically secure (Simpson & Rholes, 2012). They trust their partners and their availability and responsiveness, are comfortable being close to and interdependent with others, and are able to constructively handle threats and stressors (Mikulincer & Shaver, 2007).

Associations Between Attachment and Intimate Partner Cyberstalking

There is limited literature investigating the relationship between attachment and IPC perpetration among young adults. Among college students and a community-based sample of individuals with an average age in their mid-late 20s, attachment anxiety has been positively associated with monitoring a partner's Facebook page (Fox & Warber, 2014; Marshall et al., 2012; Muise et al., 2014), and attachment avoidance has been negatively associated with the same behavior (Marshall et al., 2012). Similarly, college students experiencing high attachment anxiety have engaged in greater unwanted pursuit behaviors (not specific to technology) of an ex-partner than secure individuals (Dutton & Winstead, 2006). The analogous findings in the IPC and unwanted pursuit literature suggest that attachment anxiety among perpetrators is expressed similarly with and without technology. However, the IPC literature reviewed investigated one IPC behavior (i.e., Facebook surveillance), and it remains unclear how attachment dimensions relate to perpetrating other IPC behaviors.

There is a lack of literature examining the relationship between attachment and IPC victimization. Looking to literature about cyberstalking not specific to intimate partners for insight, findings have been conflicting. A college-based study found a significant positive, but weak, correlation between fearful attachment type (i.e., high anxiety and avoidance) and victimization (Strawhun et al., 2013). Another study found that neutral distant college students (i.e., not letting people get too close, similar to avoidance) have been less likely to experience victimization (Kalaitzaki, 2017). Given the limitations in the literature, more research is necessary to understand the relationship between attachment and IPC experiences.

Social Support

Social support is provided via emotional concern/empathy, instrumental aid, information, and appraisal (House, 1981). Social support can buffer the health outcomes of stressful life events or can directly provide benefits regardless of stress by encouraging self-esteem, self-regulation (Cohen & Wills, 1985; Lakey & Cohen, 2000), and health-promoting behaviors (Geertsen, 1997; Uchino, 2006). Additional theorized mechanisms include social influence/social comparison, social control, role-based purpose and meaning, sense of control, belonging and companionship, and perceived social support (Thoits, 2011). Social support can buffer the impact of stress through emotional sustenance and active coping assistance, which are provided differently by others who have and have not experienced the stressor (Thoits, 2011). Others who have experienced the stressor can also act as role models and provide hope for handling the situation (Thoits, 2011). Unfortunately, negative social ties, interactions, and support can also harm well-being by setting a negative example, promoting risky behaviors, and causing distress in the relationship (Burg & Seeman, 1994; Lincoln, 2000; Uchino, 2006)

Associations Between Social Support and Intimate Partner Cyberstalking

Research examining the relationship between social support and IPC victimization among young adults is limited. Among an internet-based sample of Amazon Mechanical Turk workers, young adults who were cyberstalked by a current partner have been more likely to report the incident to law enforcement and seek professional help (e.g., counseling, legal services, told a family or friend) compared to other victim-perpetrator relationships (Fissel, 2018). Cyberstalking victims of all ages

have sought social support from friends and family as a coping strategy (Haron & Yusof, 2010; Worsley et al., 2017). It is unclear if having social support from these sources decreases the likelihood of experiencing IPC victimization.

There is a lack of research investigating the relationship between social support and IPC perpetration. Based on literature about intimate partner violence among adults (Okuda et al., 2015), perpetrators of IPC may have a significantly smaller social networks and less perceived availability of social support compared to those who have not perpetrated IPC. Additional research is needed to understand the relationship between social support and IPC.

The social support and attachment literature reviewed for both victimization and perpetration was limited in terms of diversity, as most studies included samples that were primarily college students, White, female, and heterosexual. Although generalizability is limited, they suggest potential relationships among attachment, social support, and IPC experiences. These limitations further support the need for more research to understand these relationships.

The Present Study

We defined IPC as the use of the internet and other information and communication technologies to repeatedly monitor, threaten, and/or harass a current or former romantic partner, causing them to feel afraid, threatened, harassed, and/or distressed. The purpose of this study was to test the associations among attachment (anxiety and avoidance), social support (family, friends, and a special person), and IPC

victimization and perpetration reported by young adults. We proposed the following hypotheses:

H1: As attachment anxiety increases among young adults, they are more likely to engage in IPC perpetration.

H2: As attachment avoidance increases among young adults, they are more likely to experience IPC victimization.

H3: As social support from family, friends, and a special person increases among young adults, they are less likely to engage in IPC perpetration.

H4: As social support from family, friends, and a special person increases among young adults, they are less likely to experience IPC victimization.

Methods

The data included in this article were part of a larger study investigating various psychological and social health states associated with IPC victimization and perpetration among young adults. The sample, procedures, and some measures were first reported in Reiss et al. (2020) and are summarized below. This article is unique in that it focuses on associations with attachment dimensions and sources of social support.

Sampling and Recruitment

Participants were a convenience sample of Amazon Mechanical Turk (MTurk) workers who met the following eligibility criteria: between ages 18-25, living in the United States, had currently and/or previously had an intimate partner, and had high-quality performance statistics on MTurk (i.e., requestors approved ≥98% of their

completed tasks; they finished and were approved for ≥500 tasks, Nguyen et al., 2016). Information about the study and the survey link were posted on the MTurk website as a task.

Procedure

MTurk workers who volunteered to participate completed a 15-minute survey online via Qualtrics and were compensated $3.50. After completing the survey, we provided links to information about technology-facilitated stalking and resources for victims, which were made available by the National Center for Victims of Crime (The National Center for Victims of Crime, 2011). Participants provided informed, written consent online via Qualtrics immediately before starting the survey. The Institutional Review Board at our university approved this research.

Measures

Intimate partner cyberstalking. Victimization and perpetration of IPC were measured using 24 items for each experience, which included 18 items from the Controlling Partners Inventory (CPI)-Partner subscale (victimization), 18 items from the CPI-Self subscale (perpetration; Burke et al., 2011), and six items that we added to each subscale to increase the scope of behaviors measured (i.e., checking text message and internet search histories; monitoring and threatening behaviors on other social networking sites besides Facebook). The full CPI had good internal consistency (α=0.90) in the original study among college students, but alphas for the subscales were not reported (Burke et al., 2011). The scales in our study had good internal consistency as well, with

victimization α=0.89 and perpetration α=0.84 (Reiss et al., 2020). When responding to the items about IPC behaviors, participants were asked to think about their current or most recent (if single) intimate relationship and if they ever experienced or engaged in the behaviors during that relationship. Examples of IPC items are: "Partner used a webcam to monitor my activities," and, "Used a webcam to monitor my partner's activities." Additional technologies included in the items were cell phones, text messaging, email, social networking sites, hidden cameras, GPS, social media check-ins, and spyware. Seven response options were provided, including the CPI's original five possibilities (0="Never" to 4="4 or more times," [simplified to "4 + times"]). We added two options (5="I do not use this technology" and 6="My partner does not use this technology"). Responses that were a "5" or "6" (< 3%) were recoded as "not applicable." Valid responses were 0-4. One respondent provided a "6" for all perpetration behaviors and was not included in the perpetration analyses.

Participants that responded at least "1 time" to any victimization or perpetration behavior were asked if the behavior made them feel afraid, threatened, harassed, and/or distressed (as a victim) or if they intended for their partner to feel these ways (as a perpetrator). Five response options were provided, ranging from 0="Not at all" to 4="Extremely." The data were recoded as dichotomized variables, with 0= "No" (including "Not at all") and 1= "Yes" (including "A little bit" to "Extremely"). Participants were categorized as victims or perpetrators if they experienced IPC repeatedly (i.e., one behavior at least twice or multiple behaviors at least one time each), which made them feel or they wanted their partner to feel afraid, threatened, harassed, and/or distressed. The final victimization variable was coded as 0="Non-victim" and

1="Victim." The final perpetration variable was coded as 0="Non-perpetrator" and 1="Perpetrator." To note, we did not examine IPC as one variable with four groups (i.e., victim and perpetrator, victim only, perpetrator only, and neither victim nor perpetrator) because the sample sizes for perpetrators only and victims and perpetrators were smaller (3.8% and 11.1%, respectively). Therefore, we chose to investigate IPC as two separate binary variables to include a larger sample size for each IPC role and maximize power in the data analyses.

Attachment. Attachment anxiety and avoidance were measured using the anxiety and avoidance subscales (six items each) of the ECR-12, a short form of the Experiences in Close Relationships Questionnaire (Lafontaine et al., 2016). The subscales had good internal consistency in the original study among four samples of Canadian adults in the community or seeking couples therapy (anxiety α=0.78-0.87 and avoidance α=0.74-0.83, Lafontaine et al., 2016). Additionally, subscales had good internal consistency in our study (anxiety α=0.92 and avoidance α=0.89). Convergent and predictive validity were established previously among the same Canadian samples (Lafontaine et al., 2016). Examples of items are: "I worry a fair amount about losing my partner," (negatively worded item for anxiety) and, " I feel comfortable sharing my private thoughts and feelings with my partner" (positively worded item for avoidance). Responses were measured using a seven-point scale from 1="Disagree strongly" to 7="Agree strongly." Most of the avoidance items were positively worded, such as the example above, so these items were reverse coded to ensure that higher scores indicated greater attachment avoidance. All anxiety items were negatively worded and included the original coding so

that higher scores indicated greater attachment anxiety. Items for both attachment dimensions were averaged to create a scale score.

Social support. Social support was measured using the family, friends, and special person (originally called "significant other") subscales (four items each) of the Multidimensional Scale of Perceived Social Support (Zimet et al., 1988). The subscales had good internal consistency in the original study among college students (family α=0.87, friends α=0.85, and special person α=0.91, Zimet et al., 1988) and in our study (family α=0.93, friends α=0.94, and special person α=0.96). Construct validity was established previously among college students (Zimet et al., 1988). Examples of items are: "I can count on my friends when things go wrong," "I can talk about my problems with my family," and, "There is a special person who is around when I am in need." Responses were measured using a seven-point scale from 1="Very strongly disagree" to 7="Very strongly agree." Items were averaged to create a scale score, with higher scores indicating greater social support.

Demographics. We measured age, gender, race/ethnicity, annual income, education, sexual orientation, relationship status, relationship length, and hours per day in the virtual presence of others (i.e., in a social setting via technology, such as the internet or cell phone). Categories and codes can be found in Reiss et al. (2020). To note, gender originally included "male," "female," and "transgender" as response options, but "transgender" was recoded as missing and was not included in the analyses because of a small percentage of responses (2.1%). Sexual orientation originally included

"heterosexual," "gay, lesbian, or bisexual," and "unsure" as response options, but "unsure" was recoded as missing and was not included in the analyses because of a small percentage of responses (1.1%).

Statistical Analyses

SPSS v25 was used to conduct all analyses. Descriptive statistics were calculated for all variables. We used Pearson and point-biserial correlations to assess bivariate associations among each attachment dimension, each source of social support, and each IPC role. Separate logistic regression models were examined with each attachment dimension (continuous independent variables, IV) and each IPC role (binary dependent variables, DV). If significant ($p<0.05$ and 95% confidence intervals for odds ratios not including one), we then controlled for gender, income, sexual orientation, relationship length, and virtual presence. These control variables were chosen based on significant associations between demographics and IPC found by Reiss et al. (2020). Additionally, separate logistic regression models were examined with each source of social support (continuous IV) and each IPC role (DV). If significant, we then controlled for the same variables. There was no multicollinearity among independent variables and control variables (condition indices <30, tolerance >0.20, and VIF <4). As a post-hoc analysis, interactions between each attachment dimension (IV) and each source of social support (potential moderators) were investigated with each IPC role (DV). However, no interactions were significant ($p\geq0.05$).

Missing Data

Nonresponse missing data were present for race/ethnicity (1.3%), relationship length (0.4%), virtual presence (0.6%), attachment anxiety (0.2%), attachment avoidance (0.4%), family social support (3.2%), and friend social support (1.9%). Using chi-square tests, missing data for attachment avoidance and friend social support were associated with race/ethnicity ($p<0.05$). Missing data for family social support were associated with relationship length ($p<0.05$). These relationships suggest missing at random (i.e., missing data may be explained by observed data). No other associations were found for missing data. Assuming missing at random, we used multiple imputation to handle unanswered missing data. Age, gender, race/ethnicity, education, income, sexual orientation, relationship status, relationship length, and virtual presence were predictors that were used to impute attachment, social support, and demographics with missing data. Forty imputations were used (Graham et al., 2007), and the imputations were averaged to create the final imputed value. Data that were recoded as missing or not applicable as a result of small percentages (transgender=2.1% and unsure about their sexual orientation=1.1%) and participants or their partners not using the technology included in the IPC items (< 3% among the items) remained missing and were not imputed.

Results

Participant Characteristics

A sample of 469 MTurk workers participated in the study. Demographics are reported in Reiss et al. (2020). In summary, the majority of participants were female, ages

23-25, Non-Hispanic White, heterosexual, and currently dating or engaged. Less than 40% of participants were IPC victims and 15% were perpetrators (see Table 1).

Table 1. Descriptive Statistics of Intimate Partner Cyberstalking (IPC) Victimization and Perpetration, Attachment, and Social Support.

	Total sample N=469				
Variable	n	%	M	SD	Range
IPC victimization					
Victim	181	38.6			
Non-victim	288	61.4			
IPC perpetration [a]					
Perpetrator	70	15.0			
Non-perpetrator	398	85.0			
Attachment anxiety			4.09	1.71	1-7
Attachment avoidance			2.88	1.39	1-7
Family social support			4.76	1.70	1-7
Friends social support			5.08	1.43	1-7
Special person social support			5.61	1.44	1-7

[a] <1% missing

Hypothesis 1

The results support our first hypothesis. Before and after controlling for demographics (i.e., gender, income, sexual orientation, relationship length, and virtual presence), participants were more likely to engage in IPC perpetration when attachment anxiety increased ($p<0.01$, see Tables 2, 3, and 4).

Hypothesis 2

The results support our second hypothesis. Before and after controlling for demographics, participants were more likely to experience IPC victimization when attachment avoidance increased ($p<0.01$, see Tables 2, 5, and 6).

Hypothesis 3

The results support our third hypothesis. Before and after controlling for demographics, participants were less likely to engage in IPC perpetration when social support from family, friends, and a special person increased ($p<0.05$, see Tables 2, 3, and 4).

Hypothesis 4

The results primarily support our fourth hypothesis. Before and after controlling for demographics, participants were less likely to experience IPC victimization when social support from friends and a special person increased ($p<0.01$, see Tables 2, 5, and 6). No relationship was found with family social support for victimization.

Table 2. Pearson and Point Biserial Correlations Among Intimate Partner Cyberstalking (IPC), Attachment, and Social Support

Variable	1	2	3	4	5	6	7
1. Attachment anxiety	—						
2. Attachment avoidance	0.153**	—					
3. Family social support	-0.335**	-0.237**	—				
4. Friends social support	-0.302**	-0.293**	0.479**	—			
5. Special person social support	-0.232**	-0.451**	0.400**	0.475**	—		
6. IPC victimization [a]	0.076	0.164**	-0.074	-0.180**	-0.176**	—	
7. IPC perpetration [a]	0.137**	0.023	-0.111*	-0.130**	-0.142**	0.309**	-

[a] Point biserial correlation was used to assess correlations with this binary variable
*p<0.05, **p<0.01

Table 3. Unadjusted Logistic Regression Analyses with Intimate Partner Cyberstalking Perpetration, Attachment, and Social Support

Variable	b	SE	Wald	df	p	OR	95% CI for OR	-2 LL[a]	R^{2} [b]
Attachment anxiety	0.24	0.08	8.50	1	0.004**	1.26	1.08-1.48	386.00	0.03
Attachment avoidance	0.05	0.09	0.25	1	0.615	1.05	0.87-1.26	394.71	0.00
Family social support	-0.18	0.07	5.69	1	0.017*	0.84	0.73-0.97	389.36	0.02
Friends social support	-0.24	0.09	7.69	1	0.006**	0.79	0.67-0.93	387.45	0.03
Special person social support	-0.25	0.08	9.07	1	0.003**	0.78	0.67-0.92	386.34	0.03

[a] -2 log likelihood
[b] Nagelkerke R^{2}
*p<0.05, **p<0.01

Table 4. Adjusted Logistic Regression Analyses with Intimate Partner Cyberstalking Perpetration, Attachment, and Social Support

Variable	b	SE	Wald	df	p	OR	95% CI for OR	-2 LL[a]	R^{2} [b]
Attachment anxiety	0.33	0.09	13.38	1	0.000**	1.38	1.16-1.65	361.04	0.10
Family social support	-0.24	0.08	8.74	1	0.003*	0.79	0.68-0.92	366.87	0.07
Friends social support	-0.27	0.09	8.60	1	0.003*	0.77	0.64-0.92	367.01	0.07
Special person social support	-0.27	0.09	9.12	1	0.003*	0.77	0.64-0.91	366.82	0.07

Note: Regression models controlled for gender, income, sexual orientation, relationship length, and virtual presence.
[a] -2 log likelihood
[b] Nagelkerke R^{2}
*p<0.01, **p<0.001

Table 5. Unadjusted Logistic Regression Analyses with Intimate Partner Cyberstalking Victimization, Attachment, and Social Support

Variable	b	SE	Wald	df	p	OR	95% CI for OR	-2 LL[a]	R^{2} [b]
Attachment anxiety	0.09	0.06	2.69	1	0.101	1.10	0.98-1.22	622.83	0.01
Attachment avoidance	0.24	0.07	12.33	1	0.000*	1.28	1.11-1.46	612.94	0.04
Family social support	-0.09	0.06	2.54	1	0.111	0.92	0.82-1.02	623.00	0.01
Friends social support	-0.26	0.07	14.62	1	0.000*	0.77	0.68-0.88	610.43	0.04
Special person social support	-0.25	0.07	13.90	1	0.000*	0.78	0.68-0.89	611.18	0.04

[a] -2 log likelihood
[b] Nagelkerke R^{2}
*p<0.001

Table 6. Adjusted Logistic Regression Analyses with Intimate Partner Cyberstalking Victimization, Attachment, and Social Support

Variable	b	SE	Wald	df	p	OR	95% CI for OR	-2 LL[a]	R^{2} [b]
Attachment avoidance	0.34	0.08	19.52	1	0.000*	1.41	1.21-1.63	565.39	0.13
Friends social support	-0.32	0.07	19.16	1	0.000*	0.73	0.63-0.84	565.73	0.13
Special person social support	-0.31	0.08	17.09	1	0.000*	0.73	0.63-0.85	567.89	0.12

Note: Regression models controlled for gender, income, sexual orientation, relationship length, and virtual presence.

[a] -2 log likelihood

[b] Nagelkerke R^{2}

*p<0.001

Discussion

As attachment anxiety increased among participants, they were more likely to engage in IPC perpetration, as hypothesized (H1). These results are consistent with studies about monitoring a partner's Facebook page, which included college and community-based samples (Fox & Warber, 2014; Marshall et al., 2012; Muise et al., 2014). Anxious individuals may engage in IPC if they perceive a threat in the relationship and believe their partner is unavailable and unresponsive to their needs (Mikulincer et al., 2003; Mikulincer & Shaver, 2007; Shaver & Mikulincer, 2002). They may fear abandonment, and IPC may be a way of executing hyperactivating strategies, in which they become clingy, controlling, and closer to their partner until their partner becomes available and they feel secure in the relationship (Mikulincer et al., 2003; Mikulincer & Shaver, 2007; Shaver & Mikulincer, 2002).

As attachment avoidance increased among participants, they were more likely to experience IPC victimization, as hypothesized (H2). Other IPC studies investigating these relationships are lacking. However, the results support a study among college students that found a positive correlation between fearful attachment type (i.e., high anxiety and avoidance) and victimization of cyberstalking not specific to intimate partners (Strawhun et al., 2013). Our findings refute another study that found that neutral distant college students (similar to avoidance) have been less likely to experience cyberstalking victimization (Kalaitzaki, 2017). Inconsistent findings may be related to different study samples, attachment measures, and not focusing specifically on cyberstalking among intimate partners. We did not survey the participants' partners, but based on characteristics associated with this attachment dimension (Mikulincer et al., 2003;

Mikulincer & Shaver, 2007; Simpson & Rholes, 2012), the avoidant individuals may have experienced IPC if their partners sensed their emotional distance (Allison et al., 2008). Their partners may have engaged in cyberstalking behaviors to get closer to them and establish a sense of security in the relationship (Mikulincer et al., 2003; Mikulincer & Shaver, 2007; Shaver & Mikulincer, 2002). The avoidant victims may have had anxiously attached partners.

As social support from family, friends, and a special person increased, IPC perpetration decreased, as hypothesized (H3). There are a lack of studies exploring these relationships for comparison purposes, but similar results were found in literature about intimate partner violence among adults (Okuda et al., 2015). Based on Thoits (2011), family, friends, and special people may provide normative and behavioral guidance to individuals in romantic partnerships and encourage them to adopt healthy relationship behaviors. These sources of social support may also enhance the potential perpetrator's self-esteem and sense of control regarding a stressful situation in their relationship. The social supports may inspire them to not engage in IPC.

As social support from friends and a special person increased, IPC victimization decreased, as hypothesized (H4). There is a lack of literature investigating these protective relationships, as well, but cyberstalking victims of all ages seek support from various sources to cope after the incident (Fissel, 2018; Haron & Yusof, 2010; Worsley et al., 2017). Based on Thoits (2011), friends and special people may provide a potential victim guidance and encouragement related to not engaging in unhealthy behaviors that would prompt their partner to cyberstalk. Although, if the potential victim has an anxiously attached partner, their partner may be more likely to perceive a lack of

availability and responsiveness from them (Mikulincer & Shaver, 2007). In this case, friends and special people may provide guidance regarding how potential victims can elucidate their availability and responsiveness to their partner, which could discourage their partner from engaging in IPC behaviors. Social support from family was not associated with victimization, suggesting that support from this source does not decrease the likelihood of experiencing IPC victimization.

Strengths and Limitations

Among the strengths of our study, we investigated understudied relationships among IPC, attachment, and social support. We measured multiple technology-facilitated behaviors when examining IPC, which enhanced the scope of our measure. Furthermore, our sample was internet-based, while most cyberstalking studies have used college-student samples.

Among limitations, the study was cross-sectional and only associations, not causality, can be assumed from the results. It is unknown which 'special person' participants were referring to when responding to questions related to this type of social support, and we do not know the attachment dimensions of the participants' partners. Social desirability bias may be present, as data was self-reported. Because we used a convenience sample of young-adult MTurk workers, the results cannot be generalized to all young adults or a college sample.

Implications and Future Direction

The results from this study address various gaps in the IPC literature, particularly related to understanding the attachment dimensions of victims and perpetrators and identifying sources of social support that may protect against experiencing or perpetrating IPC. Given the limited literature exploring these relationships, more research is necessary to further understand and contextualize these associations. Future research should examine mediators and moderators that may explain the associations. Additionally, future research should explore the attachment dimensions of romantic-couple dyads who have experienced and/or perpetrated IPC and the various types of social support provided by family, friends, and/or a special person that encourage them not to engage in IPC. Gaining a better understanding of the relationships among IPC, attachment, and social support will enable us to develop successful policies and programs aiming to prevent IPC among young adults.

Given our results and the existing literature about IPC, attachment, and social support, public health practitioners should implement primary prevention programs that spread awareness about IPC and address attachment dimensions of young adults in intimate partnerships by promoting healthy romantic relationship behaviors (e.g., appropriate technology use and strategies for constructively handling perceived insecurity in relationships). Additionally, these primary prevention programs should aim to enhance social support activities among young adults in romantic relationships to ensure they do not engage in IPC. Secondary prevention programs should be developed to screen for IPC in relationships and to improve affect regulation among victims and perpetrators that would encourage secure attachment behaviors and prevent reoccurrence of IPC. Among

other secondary prevention strategies, policies should be implemented that aim to stop IPC occurrences by supporting victims and holding perpetrators accountable. Tertiary prevention strategies should aim to encourage help-seeking behaviors and promote social support activities that alleviate the adverse effects of IPC already experienced.

Conclusion

The results from this study increase our understanding of the relationships among attachment, social support, and IPC victimization and perpetration. Victims and perpetrators in our study reported different attachment dimensions, and having social support from various sources decreased their likelihood of both IPC perpetration and victimization. Policies and programs are necessary to address this public health problem.

Chapter 6: Discussion

I wrote three manuscripts that included an investigation of IPC among young adults and associations with depressive symptoms, social isolation, emotional reactions, attachment, and social support. Because definitions and, consequently, measurement of IPC vary in the inclusion of repeated cyberstalking occurrences and the victim's negative responses, findings in the literature are discordant. Therefore, we do not accurately understand this public health problem, which is important for developing and implementing prevention strategies. To clarify one of the measurement issues, Manuscript 1 included an analysis of IPC among young-adult MTurk workers using three definitions, each of which varied on the inclusion of the victim's negative reactions. Associations among IPC (victimization only, perpetration only, and experiencing/engaging in both roles), depressive symptoms, social isolation, and emotional reactions were assessed with each definition. In Manuscript 2, young-adult university students indicated their perceptions of various IPC behaviors and completed a Q-sort to rate their perceived severity of these behaviors. Their perceptions of severity were applied to victimization data experienced among young-adult MTurk workers to understand the relationships among IPC severity experienced, depressive symptoms, and social isolation. Manuscript 3 included an investigation of attachment (anxiety and avoidance) and social support (from family, friends, and a special person) among young-adult MTurk workers who were victims or perpetrators of IPC. This chapter includes a discussion of the key issues that were elucidated by the findings of these studies. Following this discussion, strengths, limitations, implications for public health, and future directions are acknowledged.

Issue 1: Definition and Measurement Inconsistencies

The results of Manuscript 1 clarify how findings can change depending on how IPC is defined and measured. I found a wide variation in the number of cases for each level of stringency of the definition. For example, 43.2% of MTurk workers reported both victimization and perpetration (i.e., victimization/perpetration) when the IPC measure did not include the victim's reactions. The prevalence estimate decreased to 11.1% when including multiple negative reactions and then dropped further to 6.4% when including fear only. Additionally, differences between IPC groups for depressive symptoms and social isolation were not consistent across definitions. For example, MTurk workers who reported victimization/perpetration experienced greater social isolation compared to those who engaged in perpetration only for one definition (i.e. when including fear only). These discordant results confirm that IPC prevalence estimates among young adults and associations with adverse health states are unclear and will remain unclear until a consistent definition is used in IPC research.

My research also elucidates how inconsistencies in the definition and measurement of IPC can impact an individual's designated role in IPC. For some definitions, this role was determined by the victim's subjective reactions and the perpetrator's intentions. Although some victims felt afraid, threatened, harassed and/or distressed as a result of experiencing IPC, which confirms cyberstalking literature (Acquadro Maran & Begotti, 2019; Maple et al., 2011; Shorey et al., 2015), others felt flattered and/or loved. Additionally, not all perpetrators intended for their partners to react negatively to the IPC behaviors. These results confirm literature indicating that

some technology-facilitated behaviors may be viewed as acceptable in courtship and as evidence of romantic interest (Boyle & O'Sullivan, 2016; Spitzberg & Cupach, 2007). However, I acknowledge that some participants may have felt uncomfortable reporting their true reactions or intentions, which could have contributed to the number of participants reporting positive reactions. Furthermore, I acknowledge that perpetrators who intended for their partners to react positively instead may have received a negative response. As a result of the narcissist nature of perpetrators (Smoker & March, 2017), they may be insensitive to others and believe others to be inferior, so their behaviors that aim to achieve positive feedback may not be successful and may actually harm their relationships (Morf & Rhodewalt, 2001; Vazire & Funder, 2006). Utilizing a standardized definition and measurement of IPC will clarify an individual's defined role in IPC and will improve our understanding of the public health problem.

Issue 2: Positive Emotional Reactions to Victimization

The findings of Manuscript 1 illuminate differences in positive emotional reactions between young adults who reported victimization/perpetration and those who experienced victimization only. I found that victim/perpetrators were more likely to feel flattered and loved as a result of victimization compared to those who reported victimization only. It is possible that positive reactions to victimization may be related to previously perpetrating IPC with positive intentions. However, I do not know which role occurred first, the victimization or the perpetration, which could provide better insight into this relationship. Additionally, the narcistic nature of perpetrators (Smoker & March,

2017) may encourage victim/perpetrators to interpret cyberstalking behaviors as acts of love, further boosting their ego and sense of superiority.

Issue 3: Adverse Health States of Victims, Perpetrators, and Victim/perpetrators

My research elucidates differences in adverse heath states between victim/perpetrators, victims only, perpetrators only, and those who reported neither victimization nor perpetration. As mentioned in Manuscript 1, victim/perpetrators and victims only were more likely to experience depressive symptoms and greater social isolation compared to those who reported neither victimization nor perpetration. Additionally, victim/perpetrators reported greater social isolation compared to perpetrators when defining IPC with fear only. It is important to note that although I measured depressive symptoms and social isolation separately, they can be related among cyberstalking victims (Worsley et al., 2017). Victims have reported depressive symptoms, such as low mood, as a result of cyberstalking, and they have indicated that the related low mood and anxiety have harmed their jobs and social relationships (Worsley et al., 2017). Therefore, the exact pathways linking IPC, depressive symptoms, and social isolation remain unclear and deserve further exploration using structural equation modeling.

Adding to the discussion presented in Manuscript 1, experiencing greater adverse health states may also be related to other victimization experienced or the number of types of IPC experienced. College students who have experienced offline physical and emotional violence previously and cyberstalking have reported greater depressive and anxiety symptoms than those who did not experience either violence or cyberstalking

(Acquadro Maran & Begotti, 2019). These victims of previous violence may already be suffering from adverse health states. Furthermore, researchers found that college students who were victims of more than one type of cyberstalking have reported greater depressive symptoms than non-victims, and they have been more likely to decrease their use of the internet and ask for an intervention by a social network administrator than victims of one type (Begotti & Acquadro Maran, 2019). Therefore, there may be multiple reasons why victim/perpetrators and victims were more likely to experience depressive symptoms and greater social isolation, which indicates the complexity of the relationships.

Issue 4: Young Adults' Perceptions of IPC Behaviors

The results of Manuscript 2 improve our understanding of young adults' perceptions of which behaviors they consider to be IPC. Although it is argued that stalking with technology beyond the internet should not be termed "cyberstalking" (Bahm, 2003), this is not the belief of the young adults that participated in my study. University students thought IPC involved various technology-facilitated behaviors. Their perceptions indicate that IPC is perceived to be a complicated issue that cannot be assessed with a few survey items and one computer-based device or application. It is possible that the various forms of technology that are present in our lives today have influenced their perceptions of IPC behaviors. Additionally, the technologies available today make it easy to monitor and harass a romantic partner (Melander, 2010). It is likely that young adults' perceptions of IPC behaviors will change as new technologies are invented and adopted by the population. Such advancements in technology make it

difficult to establish a standardized definition and measurement of IPC. However, they will need to evolve as technology changes.

Issue 5: Young Adults' Perceptions of IPC Severity

The results from Manuscript 2 provide insight into how young adults perceive the severity of various IPC behaviors. Checking a partner's social network page to monitor them received the lowest severity weight based on the university students' Q-sort scores. According to the themes generated from their qualitative responses, this behavior is considered common/normal among young-adult couples, and it is not a big deal to those who have personally engaged in the behavior. Furthermore, monitoring information that a partner chose to make public is considered mild. Using a hidden camera to monitor a partner's activities received the highest severity weight. Based on the identified themes, this behavior was considered the most severe because it invades the victim's privacy, is illegal, is not consensual among partners, and can impact the victim's health. In general, the participants' perceptions suggest IPC severity depends on the agreements set in the relationship (whether discussed or implied), the intentional harm, and the actual harm on the victim's health. These results support research that has measured severity of related pursuits and intrusions based on the victim's subjective reactions and threats involved (Barnes & Biros, 2007; Cupach & Spitzberg, 2000; Dardis & Gidycz, 2017).

Issue 6: Perceived Severity vs. Frequency of Victimization

My research enhances our understanding of the relationship between perceived severity of various IPC behaviors and the occurrence of these behaviors. As indicated in

Manuscript 2, perceived severity of IPC behaviors increased (based on the university students' Q-sort scores from the first phase) as reported victimization frequency decreased (among MTurk victims in the second phase). Victims may be less likely to engage in unhealthy relationship behaviors that would encourage their partner to cyberstalk, given the harmfulness of the behaviors. They may be more likely to engage in relationship behaviors that are perceived as harmless, common, and consensual among partners.

Issue 7: Severity Experienced vs. Adverse Health States

The results in Manuscript 2 provide insight into the relationships between severity of IPC experienced and adverse health states. I found that MTurk workers who experienced severe IPC victimization were more likely to report depressive symptoms and greater social isolation compared to victims of moderate and mild IPC. Although this study adds to the gaps in the literature about IPC severity, further exploration is necessary to accurately understand severity estimates, risk factors, high-risk groups, relationships with other adverse health states, and pathways linking severity to these health issues.

Issue 8: Attachment Dimensions of Victims and Perpetrators

My research increases our understanding of the attachment dimensions associated with IPC victimization and perpetration. As found in Manuscript 3, victimization and perpetration were associated with different attachment dimensions. As attachment anxiety increased among participants, they were more likely to engage in IPC perpetration. As attachment avoidance increased among participants, they were more likely to experience

IPC victimization. Based on the dynamics of attachment (Mikulincer et al., 2003; Mikulincer & Shaver, 2007; Shaver & Mikulincer, 2002), their different attachment dimensions may be activated when they appraise signs of threat in the relationship. Both victims and perpetrators may aim to seek proximity to their partners to destress from the threat, but they must assess their partners' availability and attentiveness beforehand. Perpetrators may engage in IPC if they fear abandonment and believe that proximity-seeking is a viable option for protection (Mikulincer et al., 2003; Mikulincer & Shaver, 2007; Shaver & Mikulincer, 2002). IPC may be a way of executing hyperactivating strategies, in which they become clingy, controlling, and closer to their partner until their partner becomes available and they feel secure in the relationship (Mikulincer et al., 2003; Mikulincer & Shaver, 2007; Shaver & Mikulincer, 2002). Victims may experience IPC if they believe that proximity-seeking is not a viable option during a threatening situation in the relationship (Mikulincer et al., 2003; Mikulincer & Shaver, 2007; Shaver & Mikulincer, 2002). They may exhibit deactivating strategies, in which they distance themselves from the threat and the partner and try to handle the distress alone (Mikulincer et al., 2003; Mikulincer & Shaver, 2007; Shaver & Mikulincer, 2002). This act of distancing themselves may increase their likelihood of experiencing IPC, especially if their partner is anxiously attached and fears abandonment. The individual's propensity to use hyperactivating or deactivating strategies to handle the insecurity can be unconscious and determined by past life experiences (Mikulincer & Shaver, 2007).

It is important to highlight that the appraisal of threats in the relationship is subjective and related to the attachment dimension (Mikulincer & Shaver, 2007). Anxiously attached individuals vigilantly monitor their partner's behavior and may be

more likely to perceive a lack of availability and responsiveness from their partner (Mikulincer & Shaver, 2007). Because avoidant individuals tend to distance themselves from their partner, they may be more likely to misperceive cues of availability from their partner (Mikulincer & Shaver, 2007). Therefore, the relationship between attachment and IPC is complex and deserves further attention.

Issue 9: The Role of Social Support in Victimization and Perpetration

The results of Manuscript 3 illuminate the relationships between social support and IPC victimization and perpetration. As indicated in Manuscript 3, I found that social support from family, friends, and a special person protected against engaging in IPC perpetration. Social support from friends and a special person protected against experiencing victimization as well. Based on social support literature (Thoits, 2011), these sources may provide normative and behavioral guidance regarding healthy relationship behaviors and appropriate technology use among intimate partners. Considering that perpetrators tend to experience attachment anxiety, these sources of social support may boost a potential perpetrator's self-esteem and sense of control in the relationship, particularly if they sense trouble and they fear their partner will end the relationship. These sources may be helpful when the potential perpetrator's attachment system is activated by steering them away from implementing hyperactivating strategies such as IPC to regain a sense of security in the relationship. Considering that victims tend to experience attachment avoidance, these sources of social support may provide potential victims guidance when their attachment system is activated by encouraging them to not engage in avoidance-related behaviors that would prompt their partner to

cyberstalk (e.g., communicate with their partner if they are unhappy in the relationship instead of emotionally disengaging themselves).

Strengths and Limitations

I addressed various gaps in the literature by investigating an understudied public health problem. I examined three different definitions of IPC, which clarified how variations in definition and measurement can impact study findings. I distinguished between various roles of IPC and was the first, to my knowledge, to explore victim/perpetrators of IPC and positive reactions to IPC behaviors. I was also the first, to my knowledge, to examine young adults' perceptions of which behaviors they considered to be IPC, measure perceived IPC severity via a Q-sort, and apply severity perception weights to understand the relationships between IPC severity experienced and health states. I included a larger sample size than traditional Q-sorts (Brown, 1980; Dziopa & Ahern, 2011). I measured multiple technology-facilitated behaviors when examining IPC, which enhanced the scope of the measure. Furthermore, all manuscripts included a sample that was internet-based (i.e., MTurk), while most cyberstalking studies have used college-student samples.

Despite these strengths, all three manuscripts were based on studies that were cross-sectional, so the results can only suggest associations, not causality. The depressive symptoms and social isolation questions were not asked as a direct result of IPC, and therefore, it is unclear whether the associations found indicate consequences of IPC. I do not know how the perpetrators' victims actually felt as a result of IPC, the attachment dimensions of the participants' partners, or which special person participants were

referring to when responding to questions related to this type of social support. All manuscripts included a gender variable that was binary. The sample sizes for some IPC-involved groups were smaller than anticipated, especially when defining IPC with negative reactions. These small frequencies may be a result of social desirability bias or the lower occurrence of IPC with negative reactions in general. Some logistic regression analyses resulted in large confidence intervals for odds ratios, indicating increased uncertainty of estimates. Additionally, the low sample sizes reduced the power to detect statistical differences between groups, particularly for perpetration. Therefore, a larger sample may be needed for some groups. The IPC roles included in the second and third manuscripts were not separated into victim/perpetrators, victims only, and perpetrators only in order to adjust for the smaller sample sizes. Furthermore, two manuscripts included multiple comparisons, but Bonferroni adjustment was applied to reduce the risk of committing Type I errors. I used convenience samples of young-adult MTurk workers and university students, and therefore, the results cannot be generalized to all young adults ages 18-25 who have ever had an intimate partner. I applied results from the student sample to data collected from the MTurk sample. However, the samples were demographically desperate. Furthermore, the student sample included individuals who may be more health-conscious because they were recruited through public health classes.

Implications for Public Health and Future Directions

The results from all manuscripts improve our understanding of IPC among young adults and associations with depressive symptoms, social isolation, emotional reactions, attachment dimensions, and social support. They confirm that IPC is a problem among

young adults and highlight the need for policies and programs that prevent this form of intimate partner abuse. Victim/perpetrators are a population that has been neglected in IPC literature, but the results indicate that they need particular attention when implementing prevention programs. Victims who have experienced severe IPC require special attention as well. Furthermore, students indicated that severe IPC may lead to other forms of abuse, which further supports the need for addressing this public health problem. Depressive symptoms, social isolation, attachment dimensions, and social support from family, friends, and a special person are critical factors to address when implementing prevention strategies. Moreover, the results found in all manuscripts may be applicable to other victim-perpetrator relationships, as cyberstalking does not only occur among romantic partners. Perpetrators can be a coworker, friend, family member, stranger, or an ex-partner of one's current partner (Dreßing et al., 2014; Reyns et al., 2012).

The young adults' perceptions about IPC behaviors and severity provide insight into their perspectives of the public health problem. By assessing their perceptions both quantitatively and qualitatively, I was able to contextualize IPC from their viewpoint. Young adults' thoughts about IPC behaviors and severity can inform prevention strategies to address this issue among the population. Their perceptions of severity inform potential methods for assessing severity in future studies. Furthermore, they confirm the need to include victims' negative reactions in the definition and measurement of IPC, as their perceptions endorsed the subjective nature of victims' responses and suggested that that severity depends on the dynamics of the relationship and the harmfulness of the actions.

Future research should continue to investigate this understudied, yet important public health problem and utilize a consistent definition of IPC. However, as mentioned, this definition should be adapted to include advancements in technology. Studies should examine intimate partner dyads who have experienced/engaged in victimization and/or perpetration in order to gain a better understanding of reactions, associated health states, attachment dimensions, and social support activities. More research is needed that distinguishes between victim/perpetrators, victims only, and perpetrators only. Among victim/perpetrators, studies should explore which role occurred first, personality traits, and motivation for perpetrating IPC. We need a better understanding of severity, associated health states, and adverse childhood experiences for all IPC roles. In particular, future research examining the epidemiology of IPC severity deserves further attention given the lack of related literature. Additionally, future research should explore mediators and moderators in the relationships among IPC, severity of IPC, depressive symptoms, social isolation, emotional reactions, attachment, and social support. Other mixed methods studies are needed to understand the voices of young adults who have experienced/engaged in IPC and to better contextualize dynamics surrounding risk and prevention strategies.

The results from all manuscripts can be used to inform policies and programs that aim to prevent IPC among young adults. Public health practitioners should implement primary and secondary prevention efforts that target the specific IPC role experienced, address the appropriate attachment dimensions related to each role, enhance social support activities among romantic partners, and encourage healthy technology use in intimate relationships. For primary prevention, it is crucial to spread awareness of IPC

and of healthy romantic relationship behaviors by utilizing media channels that young adults commonly use/read, such as Facebook, Instagram, and Cosmopolitan magazine. University policies should require all students to participate in IPC-prevention training during orientation and biennially as a refresher until they graduate. Job organizations may incorporate this training into wellness policies as well. For secondary prevention, social media platforms should develop effective technological strategies for identifying cyberstalking incidents in order to stop IPC early. Programs should implement restorative justice strategies that bring together victims, perpetrators, and the community to promote tertiary prevention of IPC through healing. Furthermore, tertiary prevention efforts should address associated adverse health states, such as through counseling.

Social support activities can be enhanced from other sources in the community for secondary prevention. Law enforcement, mobile operators, internet service providers, and administers of online platforms should be required to provide adequate support to victims to prevent reoccurrences of IPC, as literature has found that cyberstalking victims often experience a lack of support from these sources (al-Khateeb et al., 2017; Worsley et al., 2017). Instead of suggesting that victims avoid or reduce their use of the particular technology involved in IPC, as this strategy can reduce their social support and increase social isolation if the technology is used to maintain positive relationships (Worsley et al., 2017), policies should be implemented that require these sources to hold perpetrators accountable for cyberstalking in order to stop IPC.

Conclusion

IPC is a public health problem among young adults and will most likely continue to be an issue as new advancements in technology are adopted among this population. In this dissertation, I began to clarify dynamics surrounding this public health problem, including definition and measurement issues, severity, adverse health states, attachment, and social support. Research should continue to explore this understudied public health problem in order to develop effective prevention strategies for young adults.

Appendix A: Methods

Introduction

A combination of primary and secondary data analyses were conducted. In April and May 2018, I administered a cross-sectional survey online that assessed the use of computer-based technology in young-adult intimate relationships (hereby known as the technology-use survey). Data from this survey were analyzed for all three manuscripts.

Additional data were collected from September-November 2019 for Manuscript 2 using a Q-sort approach. This data collection strategy is rooted in Q-methodology, a research technique that combines qualitative and quantitative principles to analyze subjective data (Barbosa et al., 1998; Stephenson, 1935, 1953). Respondents express their own viewpoints and actively participate in the research process by sorting statements according to a condition of instruction (e.g., "Place the items into piles according to your feelings about…"; Barbosa et al., 1998; Brown, 1980; Corr, 2001; Dennis, 1986). Items are sorted along a spectrum of significance, such as from "most characteristic of me" to "most uncharacteristic of me," or "most agree" to "most disagree" (Brown, 1980; Dennis, 1986). Unlike Likert scales, participants indicate their level of agreement for an item relative to the other items provided (Corr, 2001). Therefore, they are able to finely discriminate between the items (Barbosa et al., 1998). In this study, participants sorted various IPC behaviors according to perceived severity. It should be noted that I did not utilize all of the methods that are traditionally used in Q-methodology (i.e., developing a Q-sample of statements to sort and by-person factor analysis; Barbosa et al., 1998) because they would not allow me to answer my research question of determining the perceived severity of IPC behaviors. I only used the sorting technique to collect and

weight data.

Study Population

The study population was young adults ages 18-25 who have ever had an intimate partner (as defined in Table 1 in Chapter 1, pg. 17). As mentioned, many individuals in this age group have experienced IPC victimization and engaged in IPC perpetration (Acquadro Maran & Begotti, 2019; Lyndon et al., 2011; Reyns et al., 2012). Young adults have an increased risk of IPC because they are at the developmental age when many individuals experiment with romantic partnerships, experience instability in these relationships, and are self-focused (Arnett, 2015), which could increase opportunities for IPC to occur. Additionally, many of them use technology to communicate with their partner (Boyle & O'Sullivan, 2016), and their use of technology can negatively impact their romantic relationships (Pew Research Center, 2014).

Sampling and Recruitment Procedures

Technology-Use Survey

Respondents of the technology-use survey were a convenience sample of young adults who were recruited through Amazon Mechanical Turk (MTurk), a marketplace of internet-based workers who perform tasks (also known as Human Intelligence Tasks or HITs) requested by businesses or individuals (Amazon Mechanical Turk, 2018). MTurk workers can select from a variety of HITs such as transcribing audio recordings or taking a survey, which they complete virtually. Requestors, the businesses or individuals requesting the work, approve their work and pay them if they accurately complete the chosen HITs.

MTurk is a useful and reliable tool for data collection (Buhrmester et al., 2011; Goodman et al., 2013; Mason & Suri, 2012). Researchers can quickly access a large pool of potential participants and conduct studies at low cost (Mason & Suri, 2012). According to Buhrmester et al. (2011), MTurk workers were more demographically diverse than standard internet samples and American college samples. Additionally, data collected from MTurk workers had good to excellent internal consistency (α =0.73-0.93) and high test-retest reliability (r=0.80-0.94) for various scales and compensation levels (Buhrmester et al., 2011). These psychometrics were similar to those collected using traditional undergraduate samples (Buhrmester et al., 2011). Other researchers also found similar results between MTurk, community, and student samples (Goodman et al., 2013; Mason & Suri, 2012; Nguyen et al., 2016).

Eligible participants for the technology-use survey were young adults ages 18-25 who were living in the United States, had ever had an intimate partner, and had high-quality performance statistics on MTurk. Following a similar strategy used by other public health researchers (Nguyen et al., 2016), participants were eligible if requestors approved at least 98% of their submitted HITs (approval rate percent), and they completed and were approved for at least 500 HITs. Therefore, only high-quality workers who were frequent users of MTurk and familiar with the type of work posted on the website were eligible to complete the survey.

The HIT created for the technology-use survey was listed with all other HITs available to workers. However, only workers that met the eligible age, location, and performance statistics were able to view the HIT. If interested, these workers clicked on the HIT and were directed to a recruitment page that provided information about the

study and a link to the consent form and questionnaire.

Q-Sort Study

Participants of the Q-sort study were a convenience sample of undergraduate and graduate students at a mid-Atlantic university. Random sampling was not used because in Q-methodology, "The selection of subjects is likewise a theoretical matter, and the goal is again representativeness, but not in a random-sampling sense: as in the sampling of statements, breadth and diversity are more important than proportionality" (Brown, 1980, p. 260). Although the participants for the technology-use survey were recruited through MTurk, almost half of the respondents (47%) were attending college, graduate, or professional school at the time they completed the survey. Additionally, as mentioned, researchers have found similar results between MTurk and traditional student samples (Buhrmester et al., 2011; Goodman et al., 2013; Nguyen et al., 2016). The participants of the Q-sort study were eligible if they were between ages 18-25 and had ever had an intimate partner. Furthermore, they were proficient in English in order to understand the items in the Q-sort survey.

Participants were recruited from four public health courses. These classes included students from various grade levels and ages. One of these classes included multiple majors from across the university, while the other classes included public health majors. This variety of students encouraged a wide breadth of topic opinion, which is recommended when selecting participants for Q-methodology (Brown, 1980; Dennis, 1986). I visited these classes, shared information about the study, and invited students to participate. Afterwards, a recruitment email was sent to the class that summarized what

was discussed during the classroom visit and included a link that directed them to an eligibility screening questionnaire, which was completed via Qualtrics. If eligible, they were immediately directed to an online consent form, which was completed via Qualtrics as well. Because fewer students between ages 23-25 volunteered to participate after visiting these classes, I sent a recruitment email to the public health graduate student listserv to increase recruitment of these ages.

Power Analysis

Technology-Use Survey

Small to medium effect sizes were found in studies examining health states of cyberstalking and other cyber abuse (Dreßing et al., 2014; Kowalski et al., 2014; Kowalski & Limber, 2013) I anticipated that similar results would be found in this study. A sample of 469 eligible participants completed the technology-use survey. According to G*Power 3.1.9.3, this sample had a power of 0.84 with α=0.05 to detect a small effect size (f=0.16) using ANCOVA with four groups (i.e., IPC victim only, perpetrator only, both victim and perpetrator, and neither victim nor perpetrator) and seven control variables that were determined using bivariate analyses (i.e., age, gender, education, income, sexual orientation, relationship status, and hours per day in the virtual presence of others). Using a medium effect size (f=0.25), the sample had a power of 1.

Only participants who experienced IPC as victims (n=181) were included in the analysis for Manuscript 2. This sample had a power of 0.85 with α=0.05 to detect a small effect size (f^2=0.05) using multiple linear regression with eight predictors (i.e., IPC involvement and same control variables as above). The sample had a power of 1 when

using a medium effect size (f^2 =0.15).

Small effect sizes were found in studies examining relationships between attachment, cyberstalking, and traditional stalking (Fox & Warber, 2014; Patton et al., 2010). Utilizing results found by Patton et al. (2010), a sample of 469 participants had a power of 0.97 to detect a small effect size (odds ratio=1.8) with α=0.05, probability of insecure attachment=0.1 when IPC was at its mean and R^2 between insecure attachment and control variables=0.01 using a two-tailed, logistic regression.

Q-Sort Study

A sample of 104 eligible students participated in the Q-sort study. Q-methodology does not require a large sample of participants (Dennis, 1986; Watts & Stenner, 2005) because researchers using this method usually aim to understand factors that represent particular viewpoints about a topic (Brown, 1980). According to Brown (1980), approximately 40-60 participants is sufficient. According to a systematic review of literature that included Q-methodology, the ratio of participants to Q-sample items was close to 1:1 among 11 articles (Dziopa & Ahern, 2011). Participants sorted 20 items in this study. Therefore, a sample size of 104 was sufficient.

Procedures

Technology-Use Survey

Immediately after providing consent, participants completed a 15-minute survey online via Qualtrics. The link to the survey was provided on the recruitment page that presented information about the HIT. Participants did not answer every question because

the survey included skip patterns. At the end of the survey, they were provided a random, individual confirmation code that they pasted into a box on MTurk's website. This code was used to verify that they completed the survey by matching the code generated by Qualtrics to the code they submitted to MTurk. Participants who completed the survey and provided the appropriate survey code were approved and compensated $3.50. At the end of the survey, they were also provided a link to the Stalking Resource Center website hosted by the National Center for Victims of Crime where they could read about technology and stalking. They were also provided a link to the center's resources for victims. Prior to administration, IRB approval was received in January 2018 for the first draft of the survey and in February 2018 for an amendment that involved adding an Attachment Theory scale. Dr. Barbara Curbow, a professor in the Department of Behavioral and Community Health in the School of Public Health at the University of Maryland, kindly provided funding for this survey.

Q-Sort Study

Immediately after participants provided consent, they completed a 25-minute survey online via Qualtrics. After completing the survey, they were provided a link to a website that provided information about technology-facilitated stalking. This website is hosted by the National Network to End Domestic Violence. A second link was provided that directed them to resources for victims. This website is hosted by the Stalking Resource Center, a program of the National Center for Victims of Crime. Additionally, they were provided links to university resources that could assist victims. All participants received a $10 gift card to Target via email. At the end of the survey, they clicked on a

link that took them to another survey where they entered their name and email address so they could receive their gift card. A separate survey was created in order to avoid being able to link their contact information with their Q-sort survey responses. IRB approval was received in July 2019. Funding for this survey was generously provided by Dr. Barbara Curbow and the Department of Behavioral and Community Health in the School of Public Health at the University of Maryland.

Measures

Technology-Use Survey

Independent Variables

Intimate Partner Cyberstalking. Victimization and perpetration were measured using 24 items each, which included 18 items from the Controlling Partners Inventory (CPI)-Partner subscale (victimization) and 18 items from the CPI-Self subscale (perpetration; Burke et al., 2011). The research team developed six additional items in order to enhance content validity and widen the scope of IPC behaviors measured (i.e., checking text message and internet search histories and monitoring/threatening behaviors conducted on other social networking sites besides Facebook). The full CPI (i.e., Partner and Self subscales) had good reliability among college students, with α=0.9, Guttman split-half coefficient=0.85, and Spearman–Brown coefficient =0.75 (Burke et al., 2011). These psychometrics were not reported for subscales (Burke et al., 2011). Participants were asked to think about their current or, if single, most recent intimate relationship when responding and if they ever experienced and/or engaged in the behaviors in that relationship. A variety of technologies were included in the items, such as cell phones,

text messages, email, social networking sites, webcams, hidden cameras, GPS, social media check-ins, and spyware. Examples of victimization items are: "Partner used a webcam to monitor my activities," and, "Partner checked my sent/received email history." Examples of perpetration items are: "Used a webcam to monitor my partner's activities," and, "Checked my partner's sent/received email history." Seven response options were available, which included five of the original categories from the CPI, ranging from 0="never" to 4="4 or more times" (simplified to "4 + times"). We added two additional options, 5="I do not use this technology" and 6="My partner does not use this technology." Responses that were "5s" or "6s" were recoded as "not applicable" and were not included in the analyses. Valid responses, 0-4, were used to assess IPC involvement. The final IPC variable for Manuscript 1 included four categories: 1= "both victim and perpetrator" (victim/perpetrator), 2= "victim only" (victim), 3= "perpetrator only" (perpetrator), and 4= "neither victim nor perpetrator" (neither). Participants were considered victims and/or perpetrators if they experienced/perpetrated IPC repeatedly (i.e., one behavior at least twice or two or more different behaviors at least one time each). Only victimization was analyzed in Manuscript 2, which included a combination of victims only and victim/perpetrators as a result of small sample sizes in these two groups. For Manuscript 3, victimization and perpetration were measured as two separate binary variables (i.e., 0="non-victim" and 1="victim;" 0="non-perpetrator" and 1="perpetrator"). IPC was a dependent variable in this manuscript.

Intimate Partner Cyberstalking Severity Experienced. Severity of victimization was measured using a combination of data from the technology-use survey and the Q-sort

study. An average severity weight was calculated for each behavior based on its Q-sort score. Then, severity experienced was determined by averaging the weighted items that each participant experienced. The score ranged from 1-7, with higher scores indicating greater IPC severity experienced. The scores were partitioned into three groups using tertiles, with 1=mild, 2=moderate, and 3=severe. More details about the items that were used in the Q-sort study are provided below under "Q-Sort Study."

Attachment Anxiety. Attachment anxiety was measured using all six items from the anxiety subscale of the ECR-12, a short form of the Experiences in Close Relationships Questionnaire (Lafontaine et al., 2016). This subscale had good internal consistency, with α=0.78-0.87 for various languages and community and clinical samples (Lafontaine et al., 2016). Additionally, it correlated highly with the original Experiences in Close Relationships Questionnaire (Brennan et al., 1998), with r=0.89-0.95 (Lafontaine et al., 2016). Convergent and predictive validity were established previously (Lafontaine et al., 2016). Examples of items are: "I worry a fair amount about losing my partner," and, "I worry about being abandoned." Responses were measured using a seven-point scale from 1="disagree strongly" to 7="agree strongly." Items were averaged to create a scale score, with higher scores indicating greater attachment anxiety.

Attachment Avoidance. Attachment avoidance was measured using all six items from the avoidance subscale of the ECR-12 (Lafontaine et al., 2016). This subscale had good internal consistency, with α=0.74-0.83 for various languages and community and clinical samples (Lafontaine et al., 2016). It correlated highly with the original

Experiences in Close Relationships Questionnaire (Brennan et al., 1998), with r=0.84-0.92 (Lafontaine et al., 2016). Convergent and predictive validity were established previously (Lafontaine et al., 2016). Examples of items are: " I feel comfortable sharing my private thoughts and feelings with my partner," and, "I usually discuss my problems and concerns with my partner." Responses were measured using a seven-point scale from 1="disagree strongly" to 7="agree strongly." Positively worded items were reverse coded (e.g., 1 became 7) so that higher scores indicated greater attachment avoidance. Items were averaged to create a scale score.

Social Support. Social support was measured using the family, friends, and special person (originally called "significant other") subscales (four items each) of the Multidimensional Scale of Perceived Social Support (Zimet et al., 1988). The subscales had good internal consistency among college students (family α=0.87, friends α=0.85, and special person α=0.91; Zimet et al., 1988). Construct validity was established previously (Zimet et al., 1988). Examples of items are: "I can count on my friends when things go wrong," "I can talk about my problems with my family," and, "There is a special person who is around when I am in need." Responses were measured using a seven-point scale from 1="very strongly disagree" to 7="very strongly agree." Items were averaged to create a scale score, with higher scores indicating greater social support.

Dependent Variables

Depressive Symptoms. Depressive symptoms were measured using all 10 items from the CESD-10, a short form of the Center for Epidemiologic Studies Depression

Scale (Andresen et al., 1994). The overall test-retest correlation was r=0.71 among older adults (Andresen et al., 1994). The scale had good internal consistency among college students, with α=0.72 (Oppong Asante & Andoh-Arthur, 2015). Examples of items are: "During the past week…I felt depressed," and, "I was bothered by things that usually don't bother me." Responses were measured using a four-point scale from 0="rarely or none of the time (less than 1 day)" to 3="most or all of the time (5-7 days)." Positively worded items were reverse coded (e.g., 0 became 3), and all items were summed to create a total scale score ranging from 0-30. The final variable was coded as 0="no depressive symptoms" (score of 0-9) and 1="depressive symptoms" (score ≥ 10) utilizing the cut score recommended by Andresen et al. (1994).

Emotional Responses. If participants responded at least "1 time" to any IPC victimization behavior, they were asked to indicate how that particular behavior made them feel. Seven possible emotions were provided: "I felt…flattered," "loved," "angry," "afraid," "threatened," "harassed," and "distressed." If they responded at least "1 time" to any IPC perpetration behavior, they were asked how they wanted their partner to feel as a result of that particular behavior. The same emotions were provided for perpetration behaviors, such as, "I wanted my partner to feel…afraid." Responses were measured using a five-point scale from 0="not at all" to 4="extremely." These responses were dichotomized to create a binary variable, with 0="no" (including "not at all") and 1= "yes" (including "a little bit" to "extremely").

Social Isolation. Social isolation was measured using all six items from the

Friendship Scale (Hawthorne, 2006). Among older adults, the scale had good internal consistency, with α=0.83 (Hawthorne, 2006). Examples of items are: "During the past four weeks…I felt isolated from other people," and, "I felt alone and friendless." Responses were measured using a five-point scale from 0="not at all" to 4="almost always." Positively worded items were reverse coded (e.g., 0 became 4) so that higher scores indicated greater social isolation. A total scale score was calculated by summing all items. Scores ranged from 0-24.

Control Variables

Demographics. Age, gender, race, ethnicity, education level, income, relationship status, relationship length, sexual orientation, and hours per day spent in the virtual presence of others were measured. Variable groups and codes can be found in Chapters 3-5 (Manuscripts 1-3).

Q-Sort Study

Perceptions of Intimate Partner Cyberstalking Behaviors. Participants were asked, "Intimate partner cyberstalking involves the use of the internet and other information and communication technologies to repeatedly monitor, threaten, and/or harass a current, former, or potential romantic partner. Do you think any of the following behaviors are cyberstalking?" Twenty behaviors were provided, including 18 items from the CPI (Burke et al., 2011) and two items that were added to increase the scope of IPC behaviors measured (i.e., checking text message and internet search histories). The items from the CPI were depersonalized (e.g., "Using a webcam to monitor a partner's

activities"). Items that addressed Facebook were generalized to any social networking site. Responses included, 0="no" and 1="yes." The cyberstalking definition provided to participants did not include the victims' reactions to the behaviors because I wanted to focus purely on the occurrence and minimize any bias from the participants' emotions.

Independent Variable

Perceived Severity of Intimate Partner Cyberstalking. Using a Q-sort (Barbosa et al., 1998; Stephenson, 1935, 1953), participants categorized the same 20 behaviors into boxes according to their beliefs about the severity of the behaviors. Seven boxes were provided, ranging from "1-Most Mild" to "7-Most Severe." Weights for each behavior were calculated by averaging the Q-sort scores. Participants also provided open-ended responses regarding why they sorted particular behaviors as "1-Most Mild" and "7-Most Severe."

A Q-sort represents an individual's point of view, and there is no outside criterion to assess a participant's perception of how they sort statements (Brown, 1980). Validity is established when participants sufficiently represent their viewpoints using the items provided (Barbosa et al., 1998). After participants completed the Q-sort, they were asked to respond to the following question: "I have adequately sorted the behaviors according to my point of view." Five response options were available, ranging from 1="strongly disagree" to 5="strongly agree." The content and face validity of the statements were established by expert researchers in the field during the development of the Controlling Partners Inventory (Burke et al., 2011).

Additional Variables

Demographics. Age, gender, race, ethnicity, current grade level, employment status, annual income, parental/guardian income, sexual orientation, and relationship status were measured. Variable groups and codes can be found in Chapter 4 (Manuscript 2).

Pilot Testing

Technology-Use Survey

The technology-use survey was pilot tested with seven graduate students at a mid-Atlantic university for wording, comprehension, and ease of navigating through the online platform. Based on their feedback, the response options 5="I do not use this technology" and 6="My partner does not use this technology" were added to the IPC victimization and perpetration measures. Additionally, a question assessing relationship status was separated into two questions to assess marital status and current relationship status because these responses may not be mutually exclusive (i.e., someone may be divorced and currently dating). Additionally, the survey was pilot tested with 20 MTurk workers who met the same eligibility criteria required for full administration. No major changes were necessary based on their responses.

Q-Sort Study

The Q-sort survey was pilot tested with nine graduate students at a mid-Atlantic university for wording, comprehension, and feasibility of sorting the items online. Originally, the participants were asked to first sort the behaviors into two piles, "mild"

and “severe,” in order to help prime them for the next question, which involved sorting the items from 1=“Most mild” to 7= “Most severe.” First sorting the items into a smaller number of piles is a method that has been used in Q-methodology (Akhtar-Danesh et al., 2008; J. K. Roberts et al., 2015; Stainton Rogers, 1995). Some participants found this first question redundant and unhelpful, while others found this question helpful but extra burdensome because they had to sort the 20 items again in the next question. Therefore, this first question was removed. Additionally, the Q-sort survey was pilot tested with 10 undergraduate students who met the same eligibility criteria required for full administration. No major changes were necessary based on their responses.

Timeline

The timeline below includes the tasks that were completed.

Table 1: Timeline of Tasks

Remaining Tasks	Spring 2019	Summer 2019	Fall 2019	Winter 2020	Spring 2020
Propose to dissertation committee	X				
Submit an IRB application for the Q-sort study		X			
Receive IRB approval for the Q-sort study		X			
Pilot test Q-sort survey		X			
Administer the Q-sort to college students			X		
Analyze data from the technology-use survey and the Q-sort study		X	X	X	X
Draft, finalize, and submit Manuscript 1 to journal			X	X	
Draft and finalize Manuscript 2				X	X
Draft and finalize Manuscript 3					X
Complete and finalize dissertation document					X
Defend dissertation					X

Data Analyses

This section provides a general overview of the data analyses that were conducted for this dissertation. Additional details can be found in Chapters 3-5. Statistical Package for Social Sciences (SPSS) version 25 was used to conduct all analyses. Means and standard deviations were calculated for all continuous variables, and frequencies and percentages were calculated for all categorical variables. If any continuous variables had a skewed distribution, they were transformed or recoded as binary or other categorical variables. Bivariate analyses were conducted using chi-square tests and ANOVA when appropriate to assess associations between IPC and participant characteristics, depressive symptoms, social isolation, emotional responses, social support, and attachment dimensions. Using chi-square tests, independent t-tests, and ANOVA, relationships between demographic variables, social isolation, and depressive symptoms were assessed to determine control variables. Multiple imputation was used to handle nonresponse missing data that were assumed to be missing at random because the initial sample size can be maintained and this method takes into account the uncertainty of imputations, thereby reducing bias in the data. Patterns of missing data were examined based on demographics. The imputation model included all demographic variables because using an inclusive strategy can minimize the chances of excluding a variable that contributed to the non-response and reduce bias (L. M. Collins et al., 2001; Sterne et al., 2009). Forty imputations were used, as this amount retains power while producing unbiased estimates (Graham et al., 2007). The imputations were averaged to create the final imputed variable. Statistical significance was determined using $p<0.05$ and 95% confidence intervals of odds ratios not including 1. Bonferroni adjustment was applied when

conducting multiple tests (see Manuscripts 1 and 2 for adjusted p values).

Manuscript 1

The purpose of this manuscript was to investigate IPC among young adults and to test associations with psychological and social well-being. I used three definitions of IPC that are present in the literature in order to clarify how related measurement issues influence study findings. For all definitions, I defined IPC as the use of the internet and other information and communication technologies to repeatedly monitor, threaten, and/or harass a current or former romantic partner. The definitions varied in whether or not they incorporated the victim's negative reactions (i.e., 1. irrespective of reactions; 2. feeling afraid, threatened, harassed and/or distressed; or 3. feeling afraid). Four groups of IPC involvement were examined: victims only (victims), perpetrators only (perpetrators), both victims and perpetrators (victim/perpetrators), and neither victims nor perpetrators (neither). Demographic and relationship characteristics of each group were investigated for all IPC definitions.

Aim 1. Test the associations between IPC and depressive symptoms, social isolation, and emotional reactions (i.e., feeling flattered, loved, angry, afraid, threated, harassed, and/or distressed) for three definitions/measures of IPC.

Hypothesis 1. Victim/perpetrators, victims, and perpetrators are more likely to experience depressive symptoms and greater social isolation compared to those who reported neither victimization nor perpetration.

Hypothesis 2. Victim/perpetrators are more likely to experience depressive symptoms and greater social isolation compared to victims and perpetrators.

The following hypotheses were tested only when defining IPC irrespective of emotional responses:

Hypothesis 3. When experiencing victimization, victim/perpetrators are more likely to feel angry, afraid, threatened, harassed, and distressed and less likely to feel flattered and loved compared to victims.

Hypothesis 4. When engaging in perpetration, victim/perpetrators are more likely to intend for their partners to feel angry, afraid, threatened, harassed, and distressed and less likely to intend for them to feel flattered and loved compared to perpetrators.

Analysis. For Hypotheses 1-2, logistic regression was used to assess the association between IPC (categorical independent variable) and depressive symptoms (binary dependent variable), while controlling for demographic variables. Bonferroni adjustment was applied for multiple comparisons. Also, for Hypotheses 1-2, ANCOVA was used to assess the association between IPC (categorical independent variable) and social isolation (continuous dependent variable), while controlling for demographic variables. Post hoc tests included Bonferroni adjustment. Hypotheses 1-2 were tested for each IPC definition/measure. For Hypotheses 3-4, logistic regression was used to examine the associations between IPC-involved groups (i.e., victim/perpetrator vs. victim and victim/perpetrator vs. perpetrator; binary independent variables) and emotional responses (binary dependent variables). Separate models were analyzed for each emotional response (e.g., IPC vs. flattered and IPC vs. loved). Hypotheses 3-4 were tested using the

IPC definition/measure that did not include emotional responses. Prior to conducting the analyses, all assumptions for data characteristics were checked.

Manuscript 2

I defined IPC as the use of the internet and other information and communication technologies to repeatedly monitor, threaten, and/or harass a current or former romantic partner, causing them to feel afraid, threatened, harassed, and/or distressed. The study was conducted in two phases. In Phase 1, I examined young adults' perceptions of which technology-facilitated behaviors they considered to be IPC and the severity of these behaviors. A Q-sort was used to assess perceived severity. Although Q-methodology researchers traditionally conduct a by-person factor analysis to determine groups of individuals that sort items in particular ways (Barbosa et al., 1998; Watts & Stenner, 2005), this method of data analysis would not answer my research question of determining the perceived severity of various IPC behaviors. Instead, the behaviors were weighted based on the results of the Q-sort. The severity perceptions from Phase 1 were used to operationalize severity experienced in the next phase. In Phase 2, I investigated the association between perceived severity of behaviors and victimization frequency among young adults. Also, I examined severity of IPC victimization experienced and associations with depressive symptoms and social isolation.

Aim 2. Identify young adults' perceptions of which IPC behaviors they consider to be cyberstalking and the severity of these behaviors.

Aim 3. Test the association between perceived severity of IPC behaviors and victimization frequency among young adults.

Hypothesis 5. As perceived severity of IPC behaviors increases, the frequency of victimization decreases.

Aim 4. Test the associations between IPC severity experienced, depressive symptoms, and social isolation.

Hypothesis 6. Victims of severe IPC are more likely to experience depressive symptoms and greater social isolation compared to victims of mild and moderate IPC.

Hypothesis 7. Victims of moderate IPC are more likely to experience depressive symptoms and greater social isolation compared to victims of mild IPC.

Analysis. For Hypothesis 5, linear regression was used to test the association between IPC perceived severity weights (continuous independent variable) and victimization frequency (continuous dependent variable). For Hypotheses 6-7, logistic regression was used to assess the association between IPC severity experienced (categorical independent variable) and depressive symptoms (binary dependent variable), while controlling for demographics. Bonferroni adjustment was applied for multiple comparisons. Also, for Hypotheses 6-7, ANCOVA was used to test the association between IPC severity experienced (categorical independent variable) and social isolation (continuous dependent variable), while controlling for demographics. Post hoc tests included Bonferroni adjustment. Prior to conducting the analyses, all assumptions for data characteristics were checked. Qualitative responses regarding why participants

sorted behaviors as “1-Most Mild” and “7-Most Severe” were analyzed using thematic analysis.

Manuscript 3

I defined IPC as the use of the internet and other information and communication technologies to repeatedly monitor, threaten, and/or harass a current or former romantic partner, causing them to feel afraid, threatened, harassed, and/or distressed. The purpose of this study was to test the associations between attachment (anxiety and avoidance), social support (from family, friends, and a special person), and IPC (victimization and perpetration separately) reported by young adults.

Aim 5. Test the associations between attachment (anxiety and avoidance) and IPC (victimization and perpetration separately).

Hypothesis 8. As attachment anxiety increases among young adults, they are more likely to engage in IPC perpetration.

Hypothesis 9. As attachment avoidance increases among young adults, they are more likely to experience IPC victimization.

Aim 6. Test the associations between social support (from family, friends, and a special person) and IPC (victimization and perpetration separately).

Hypothesis 10. As social support from family, friends, and a special person increases among young adults, they are less likely to engage in IPC perpetration.

Hypothesis 11. As social support from family, friends, and a special person increases among young adults, they are less likely to experience IPC victimization.

Analysis. For Hypotheses 8-11, logistic regression was used to examine the associations between attachment (continuous independent variables) and IPC (binary dependent variables). Separate models were analyzed for each attachment dimension and each IPC role (i.e., anxiety vs. victimization, anxiety vs. perpetration, avoidance vs. victimization, and avoidance vs. perpetration). Also, for Hypotheses 8-11, logistic regression was used to examine the associations between social support (continuous independent variables) and IPC (binary dependent variables). Separate models were analyzed for each source of social support and each IPC role (i.e., family vs. victimization, family vs. perpetration, friends vs. victimization, friends vs. perpetration, special person vs. victimization, and special person vs. perpetration). All models controlled for demographic variables. Prior to conducting the analyses, all assumptions for data characteristics were checked.

Appendix B: Technology-Use Survey

The following questions are the items that were examined for this dissertation study. Questions that were included in the technology-use survey and were not analyzed for this dissertation are not provided.

Demographics

How would you describe yourself? (Gender)

- ○ Male
- ○ Female
- ○ Transgender- male to female
- ○ Transgender-female to male
- ○ Transgender-prefer not to provide further detail

What is your age?

_____

What is your race? Please select all that apply.

- ○ White/ Caucasian
- ○ Black/ African American
- ○ Asian/ Asian American
- ○ American Indian/ Alaska Native
- ○ Native Hawaiian/ Pacific Islander
- ○ Other _____

Are you Hispanic or Latino?

- ○ Yes
- ○ No

What is the highest level of education that you completed?

- ○ Did not graduate high school
- ○ High school diploma/ GED
- ○ Trade/ technical school
- ○ Some college (no degree)
- ○ Associate's degree
- ○ Bachelor's degree
- ○ Master's degree
- ○ Doctorate or professional degree

Are you currently attending school?

- ○ No
- ○ Yes, college part-time
- ○ Yes, college full-time
- ○ Yes, graduate or professional school part-time
- ○ Yes, graduate or professional school full-time
- ○ Other, part-time _____
- ○ Other, full-time _____

Other than MTurk and similar jobs, are you employed for pay?

- ○ Yes, full-time
- ○ Yes, part-time
- ○ No, I'm disabled
- ○ No, I'm looking for work
- ○ I'm a homemaker
- ○ No, MTurk or similar jobs are my only jobs
- ○ Other _____

What is your estimated annual income?

- ○ Less than $10,000
- ○ $10,000- $19,999
- ○ $20,000-$ 29,999
- ○ $30,000-$39,999
- ○ $40,000- $49,999
- ○ $50,000-$59,999
- ○ $60,000-$69,999
- ○ $70,000-$79,999
- ○ $80,000-$89,000
- ○ $90,000-$99,999
- ○ $100,000 or above

What is your sexual orientation?

- ○ Straight/ Heterosexual
- ○ Gay or Lesbian/ Homosexual
- ○ Bisexual
- ○ Unsure

Intimate Relationship Status

According to the Centers for Disease Control and Prevention (2015), "an intimate partner is a person with whom one has a close personal relationship that may be characterized by the partners' emotional connectedness, regular contact, ongoing physical contact and sexual behavior, identity as a couple, and familiarity and knowledge about each other's lives. ***The relationship need not involve all of these dimensions***." Examples of these relationships include spouses, boyfriends/girlfriends, dating partners, and ongoing sexual partners.

What is your marital status?

- ○ Never married
- ○ Married
- ○ Separated
- ○ Divorced
- ○ Widowed

Display the question below:

If What is your marital status? = Never married

Or What is your marital status? = Separated

Or What is your marital status? = Divorced

Or What is your marital status? = Widowed

What is your **current** relationship status?

- ○ Single (not currently dating)
- ○ Casually dating
- ○ Exclusively dating
- ○ Engaged

How long have you been in this relationship? Please indicate the number of years and/or months in the boxes below. Select "Number of years" and/or "Number of months" before typing your responses in the boxes.

- ○ Number of years _____
- ○ Number of months _____

Display the question below:

If What is your current relationship status? = Single (not currently dating)

When was your most recent intimate relationship (spouse, boyfriend/girlfriend, dating partner, ongoing sexual partner)?

- ○ I never had an intimate relationship
- ○ 1 month ago or less
- ○ Over 1 month ago - 3 months ago
- ○ Over 3 months ago - 6 months ago
- ○ Over 6 months ago - 9 months ago
- ○ Over 9 months ago - 12 months ago
- ○ Over 12 months ago

How long were you in this relationship? Please indicate the number of years and/or months in the boxes below. Select "Number of years" and/or "Number of months" before typing your responses in the boxes.

- ○ Number of years _____
- ○ Number of months _____

Intimate Relationships-Victimization

Think about your current (or most recent if currently single, divorced, or widowed) intimate relationship. Did your partner ever do any of the following to you?

	Never	1 time	2 times	3 times	4 + times	I do not use this technology	My partner does not use this technology
Partner checked my sent/received email history	○	○	○	○	○	○	○
Partner checked my cell phone call history	○	○	○	○	○	○	○

Partner checked my text message history	○	○	○	○	○	○	○
Partner checked my internet search history	○	○	○	○	○	○	○
Partner checked my cell phone bill	○	○	○	○	○	○	○
Partner used my password to check-up on me	○	○	○	○	○	○	○
Partner sent threatening emails to me	○	○	○	○	○	○	○
Partner made threatening cell phone calls to me	○	○	○	○	○	○	○
Partner sent threatening texts to me	○	○	○	○	○	○	○
Partner made an excessive number of cell phone calls to me	○	○	○	○	○	○	○
Partner sent an excessive number of texts to me	○	○	○	○	○	○	○
Partner sent an excessive number of emails to me	○	○	○	○	○	○	○

Partner checked my Facebook page to monitor me	○	○	○	○	○	○	○
Partner made embarrassing, insulting, or threatening Facebook posts about me	○	○	○	○	○	○	○
Partner threatened to post inappropriate photos of me on Facebook	○	○	○	○	○	○	○
Partner posted inappropriate photos of me on Facebook	○	○	○	○	○	○	○
Partner used GPS or social media "check-ins" to monitor my location	○	○	○	○	○	○	○
Partner used a webcam to monitor my activities	○	○	○	○	○	○	○
Partner used a hidden camera to monitor my activities	○	○	○	○	○	○	○
Partner used spyware to monitor my activities	○	○	○	○	○	○	○

Besides Facebook, did your partner check another social network page of yours to monitor you? Please indicate the social networking site in the box provided.

- ○ Never
- ○ 1 time. What social network?

  _____
- ○ 2 times. What social network?

  _____
- ○ 3 times. What social network?

  _____
- ○ 4 + times. What social network?

  _____
- ○ I do not use any social networking sites

Besides Facebook, did your partner make embarrassing, insulting, or threatening posts about you on another social networking site? Please indicate the social networking site in the box provided.

- ○ Never
- ○ 1 time. What social network?

  _____
- ○ 2 times. What social network?

  _____
- ○ 3 times. What social network?

  _____
- ○ 4 + times. What social network?

  _____
- ○ My partner does not use any social networking sites

Besides Facebook, did your partner threaten to post inappropriate photos of you on another social networking site? Please indicate the social networking site in the box provided.

- ○ Never
- ○ 1 time. What social network?

  _____

○ 2 times. What social network?

_____

○ 3 times. What social network?

_____

○ 4 + times. What social network?

_____

○ My partner does not use any social networking sites

Besides Facebook, did your partner post inappropriate photos of you on another social networking site? Please indicate the social networking site in the box provided.

○ Never

○ 1 time What social network?

_____

○ 2 times. What social network?

_____

○ 3 times. What social network?

_____

○ 4 + times. What social network?

_____

○ My partner does not use any social networking sites

Emotional Reactions-Victimization

You indicated that you experienced the following contact(s). How did this (these) contact(s) make you feel?

Note: Only one item is provided as an example. These questions were displayed if the individual selected at least "1 time" to any of the behaviors above.

Partner checked my sent/received email history.

I felt...

	Not at all	A little bit	Somewhat	Very	Extremely
Flattered	○	○	○	○	○

Loved	○	○	○	○	○
Angry	○	○	○	○	○
Afraid	○	○	○	○	○
Threatened	○	○	○	○	○
Harassed	○	○	○	○	○
Distressed	○	○	○	○	○

Intimate Relationships-Perpetration

Did you ever do any of the following to your partner?

	Never	1 time	2 times	3 times	4 + times	I do not use this technology	My partner does not use this technology
Checked my partner's sent/received email history	○	○	○	○	○	○	○
Checked my partner's cell phone call history	○	○	○	○	○	○	○
Checked my partner's text message history	○	○	○	○	○	○	○
Checked my partner's internet search history	○	○	○	○	○	○	○
Used my partner's	○	○	○	○	○	○	○

password to check-up on him/her							
Sent threatening emails to my partner	○	○	○	○	○	○	○
Made threatening cell phone calls to my partner	○	○	○	○	○	○	○
Sent threatening texts to my partner	○	○	○	○	○	○	○
Sent an excessive number of emails to my partner	○	○	○	○	○	○	○
Made an excessive number of cell phone calls to my partner	○	○	○	○	○	○	○
Sent an excessive number of texts to my partner	○	○	○	○	○	○	○
Checked my partner's Facebook page to monitor him/her	○	○	○	○	○	○	○
Checked my partner's cell phone bill	○	○	○	○	○	○	○

Made embarrassing, insulting, or threatening Facebook posts about my partner	○	○	○	○	○	○	○
Threatened to post inappropriate photos of my partner on Facebook	○	○	○	○	○	○	○
Posted inappropriate photos of my partner on Facebook	○	○	○	○	○	○	○
Used GPS or social media "check-ins" to monitor my partner's location	○	○	○	○	○	○	○
Used a webcam to monitor my partner's activities	○	○	○	○	○	○	○
Used a hidden camera to monitor my partner's activities	○	○	○	○	○	○	○
Used spyware to monitor my partner's activities	○	○	○	○	○	○	○

Besides Facebook, did you check another social network page belonging to your partner to monitor him/her? Please indicate the social networking site in the box provided.

- ○ Never
- ○ 1 time. What social network?

  _____
- ○ 2 times. What social network?

  _____
- ○ 3 times. What social network?

  _____
- ○ 4 + times. What social network?

  _____
- ○ My partner does not use any social networking sites

Besides Facebook, did you make embarrassing, insulting, or threatening posts about your partner on another social networking site? Please indicate the social networking site in the box provided.

- ○ Never
- ○ 1 time. What social network?

  _____
- ○ 2 times. What social network?

  _____
- ○ 3 times. What social network?

  _____
- ○ 4 + times. What social network?

  _____
- ○ I do not use any social networking sites

Besides Facebook, did you threaten to post inappropriate photos of your partner on another social networking site? Please indicate the social networking site in the box provided.

- ○ Never
- ○ 1 time. What social network?

  _____
- ○ 2 times. What social network?

  _____
- ○ 3 times. What social network?

  _____
- ○ 4 + times. What social network?

  _____
- ○ I do not use any social networking sites

Besides Facebook, did you post inappropriate photos of your partner on another social networking site? Please indicate the social networking site in the box provided.

- ○ Never
- ○ 1 time. What social network?

  _____
- ○ 2 times. What social network?

  _____
- ○ 3 times. What social network?

  _____
- ○ 4 + times. What social network?

  _____
- ○ I do not use any social networking sites

Emotional Reactions-Perpetration

You indicated the following contact(s). How did you **want your partner to feel** as a result of this (these) contact(s)?

Note: Only one item is provided as an example. These questions were displayed if the individual selected at least "1 time" to any of the behaviors above.

Checked my partner's sent/received email history

I wanted my partner to feel...

	Not at all	A little bit	Somewhat	Very	Extremely
Flattered	○	○	○	○	○
Loved	○	○	○	○	○
Angry	○	○	○	○	○
Afraid	○	○	○	○	○
Threatened	○	○	○	○	○
Harassed	○	○	○	○	○
Distressed	○	○	○	○	○

Romantic Relationship Attachment

The following statements concern how you feel in **romantic relationships**. We are interested in how you **generally experience relationships, not just what is happening in a current relationship**. Respond to each statement by indicating how much you agree or disagree with it.

	Disagree Strongly	Disagree	Disagree Slightly	Neutral	Agree Slightly	Agree	Agree Strongly
I worry about being abandoned.	○	○	○	○	○	○	○
I worry that romantic partners won't care about me as much as I care about them.	○	○	○	○	○	○	○
I worry a fair amount about losing my partner.	○	○	○	○	○	○	○
I don't feel comfortable opening up to romantic partners.	○	○	○	○	○	○	○
I worry about being alone.	○	○	○	○	○	○	○
I feel comfortable sharing my private thoughts and feelings with my partner.	○	○	○	○	○	○	○

I need a lot of reassurance that I am loved by my partner.	○	○	○	○	○	○	○
If I can't get my partner to show interest in me, I get upset or angry.	○	○	○	○	○	○	○
I tell my partner just about everything.	○	○	○	○	○	○	○
I usually discuss my problems and concerns with my partner.	○	○	○	○	○	○	○
I feel comfortable depending on romantic partners.	○	○	○	○	○	○	○
I don't mind asking romantic partners for comfort, advice, or help.	○	○	○	○	○	○	○

Depressive Symptoms

During the **past week**:

	Rarely or none of the time (less than 1 day)	Some or a little of the time (1-2 days)	Occasionally or a moderate amount of time (3-4 days)	Most or all of the time (5-7 days)
I was bothered by things that usually don't bother me.	○	○	○	○
I had trouble keeping my mind on what I was doing.	○	○	○	○
I felt depressed.	○	○	○	○
I felt like everything I did was an effort.	○	○	○	○
I felt hopeful about the future.	○	○	○	○
I felt fearful.	○	○	○	○
My sleep was restless.	○	○	○	○
I was happy.	○	○	○	○
I felt lonely.	○	○	○	○
I could not get "going."	○	○	○	○

Times Spent

In a typical 24-hour period on a **workday**, about how many **waking hours** do you spend in the **physical** presence of other people?

_____

In a typical 24-hour period on a **workday,** about how many **waking hours** do you spend in the **virtual** presence of other people (ex. texting, Facebook, etc.)?

_____

In a typical 24-hour period on a **workda**y, about how many **waking hours** do you spend **alone**?

_____

In a typical 24-hour period on a **non-workday**, about how many **waking hours** do you spend in the **physical** presence of other people?

_____

In a typical 24-hour period on a **non-workday**, about how many **waking hours** do you spend in the **virtual** presence of other people (ex. texting, Facebook, etc.)?

_____

In a typical 24-hour period on a **non-workday**, about how many **waking hours** do you spend **alone?**

_____

Social Isolation

During the past 4 weeks:

It has been easy to relate to others.

- ○ Almost always
- ○ Most of the time
- ○ About half the time
- ○ Occasionally
- ○ Not at all

I felt isolated from other people.

- ○ Almost always
- ○ Most of the time
- ○ About half the time
- ○ Occasionally
- ○ Not at all

I had someone to share my feelings with.

- ○ Almost always
- ○ Most of the time
- ○ About half the time
- ○ Occasionally
- ○ Not at all

I found it easy to get in touch with others when I needed to.

- ○ Almost always
- ○ Most of the time
- ○ About half the time
- ○ Occasionally
- ○ Not at all

When with other people, I felt separate from them.

- ○ Almost always
- ○ Most of the time
- ○ About half the time
- ○ Occasionally
- ○ Not at all

I felt alone and friendless.

- ○ Almost always
- ○ Most of the time
- ○ About half the time
- ○ Occasionally
- ○ Not at all

Social Support

Please indicate how you feel about the following statements.

There is a special person who is around when I am in need.

- ○ Very strongly disagree
- ○ Strongly disagree
- ○ Mildly disagree
- ○ Neutral
- ○ Mildly agree
- ○ Strongly agree
- ○ Very strongly agree

There is a special person with whom I can share my joys and sorrows.

- ○ Very strongly disagree
- ○ Strongly disagree
- ○ Mildly disagree
- ○ Neutral
- ○ Mildly agree
- ○ Strongly agree
- ○ Very strongly agree

My family really tries to help me.

- ○ Very strongly disagree
- ○ Strongly disagree
- ○ Mildly disagree
- ○ Neutral
- ○ Mildly agree
- ○ Strongly agree
- ○ Very strongly agree

I get the emotional help and support I need from my family.

- ○ Very strongly disagree
- ○ Strongly disagree
- ○ Mildly disagree
- ○ Neutral
- ○ Mildly agree
- ○ Strongly agree
- ○ Very strongly agree

I have a special person who is a real source of comfort to me.

- ○ Very strongly disagree
- ○ Strongly disagree
- ○ Mildly disagree
- ○ Neutral
- ○ Mildly agree
- ○ Strongly agree
- ○ Very strongly agree

My friends really try to help me.

- ○ Very strongly disagree
- ○ Strongly disagree
- ○ Mildly disagree
- ○ Neutral
- ○ Mildly agree
- ○ Strongly Agree
- ○ Very strongly agree

I can count on my friends when things go wrong.

- ○ Very strongly disagree
- ○ Strongly disagree
- ○ Mildly disagree
- ○ Neutral
- ○ Mildly agree
- ○ Strongly agree
- ○ Very strongly agree

I can talk about my problems with my family.

- ○ Very strongly disagree
- ○ Strongly disagree
- ○ Mildly disagree
- ○ Neutral
- ○ Mildly agree
- ○ Strongly agree
- ○ Very strongly agree

I have friends with whom I can share my joys and sorrows.

- ○ Very strongly disagree
- ○ Strongly disagree
- ○ Mildly disagree
- ○ Neutral
- ○ Mildly agree
- ○ Strongly agree
- ○ Very strongly agree

There is a special person in my life who cares about my feelings.

- ○ Very strongly disagree
- ○ Strongly disagree
- ○ Mildly disagree
- ○ Neutral
- ○ Mildly agree
- ○ Strongly agree
- ○ Very strongly agree

My family is willing to help me make decisions.

- ○ Very strongly disagree
- ○ Strongly disagree
- ○ Mildly disagree
- ○ Neutral
- ○ Mildly agree
- ○ Strongly agree
- ○ Very strongly agree

I can talk about my problems with my friends.

- ○ Very strongly disagree
- ○ Strongly disagree
- ○ Mildly disagree
- ○ Neutral
- ○ Mildly agree
- ○ Strongly agree
- ○ Very strongly agree

Appendix C: Q-Sort Survey

The following questions are the items that were examined for this dissertation study. Questions that were included in the Q-sort survey and were not analyzed for this dissertation are not provided.

Perceptions of Behaviors and Severity

Intimate partner cyberstalking involves the use of the internet and other information and communication technologies to repeatedly monitor, threaten, and/or harass a current, former, or potential romantic partner.

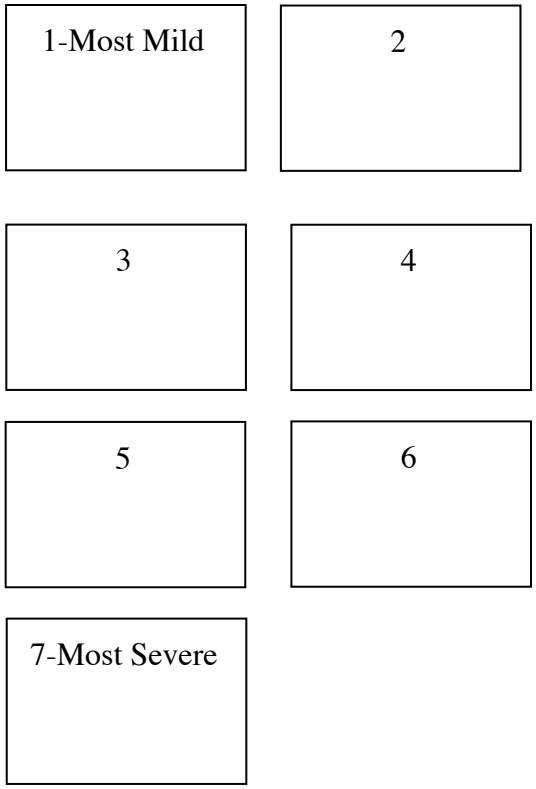
Do you think any of the following behaviors are cyberstalking?

	Yes	No
Checking a partner's sent/received email history	○	○
Checking a partner's sent/received cell phone call history	○	○
Checking a partner's sent/received text message history	○	○
Checking a partner's internet search history	○	○
Checking a partner's cell phone bill	○	○
Using a partner's password to check up on him/her	○	○
Sending threatening emails to a partner	○	○
Making threatening cell phone calls to a partner	○	○
Sending threatening texts to a partner	○	○
Making an excessive number of cell phone calls to a partner	○	○
Sending an excessive number of texts to a partner	○	○

Sending an excessive number of emails to a partner	○	○
Checking a partner's social network page to monitor him/her	○	○
Making embarrassing, insulting, or threatening social network posts about a partner	○	○
Threatening to post inappropriate photos of a partner on a social networking site	○	○
Posting inappropriate photos of a partner on a social networking site	○	○
Using GPS or social media "check-ins" to monitor a partner's location	○	○
Using a webcam to monitor a partner's activities	○	○
Using a hidden camera to monitor a partner's activities	○	○
Using spyware to monitor a partner's activities	○	○

We are interested in your beliefs about the severity of various cyberstalking behaviors among intimate partners. Please sort the following behaviors by dragging them into boxes from "1-Most Mild" to "7-Most Severe." Sort them regardless of whether you think they are cyberstalking or not.

- Checking a partner's sent/received email history
- Checking a partner's sent/received cell phone call history
- Checking a partner's sent/received text message history
- Checking a partner's internet search history
- Checking a partner's cell phone bill
- Using a partner's password to check up on him/her
- Sending threatening emails to a partner
- Making threatening cell phone calls to a partner
- Sending threatening texts to a partner
- Making an excessive number of cell phone calls to a partner
- Sending an excessive number of texts to a partner
- Sending an excessive number of emails to a partner
- Checking a partner's social network page to monitor him/her
- Making embarrassing, insulting, or threatening social network posts about a partner



Threatening to post inappropriate photos of a partner on a social networking site
Posting inappropriate photos of a partner on a social networking site
Using GPS or social media "check-ins" to monitor a partner’s location
Using a webcam to monitor a partner’s activities
Using a hidden camera to monitor a partner’s activities
Using spyware to monitor a partner’s activities

Qualitative Questions for Severity

Note: Only two items are provided as examples. These questions were displayed if the individual placed behaviors into boxes for “1-Most Mild” and “7-Most Severe.”

Please tell us why you selected the following item as "7 - Most Severe."

Checking a partner’s sent/received email history

_____

Please tell us why you selected the following item as "1 - Most Mild."

Checking a partner’s sent/received email history

_____

I have adequately sorted the behaviors according to my point of view.

- ○ Strongly agree
- ○ Somewhat agree
- ○ Neither agree nor disagree
- ○ Somewhat disagree
- ○ Strongly disagree

In order to demonstrate your attention, select "yes" for the following question regardless of your true response:

Did you eat breakfast this morning?

- ○ Yes
- ○ No

Demographics

What is your age?

▼ 18 ... 25

How would you describe yourself? (Gender)

- ○ Male
- ○ Female
- ○ Transgender- male to female
- ○ Transgender-female to male
- ○ Transgender-prefer not to provide further detail
- ○ Other _____

What is your race? Please select all that apply.

- ○ White/ Caucasian
- ○ Black/ African American
- ○ Asian/ Asian American
- ○ American Indian/ Alaska Native
- ○ Native Hawaiian/ Pacific Islander
- ○ Other _____

Are you Hispanic or Latino?

- ○ Yes
- ○ No

What is your current grade level?

- ○ Undergraduate freshman
- ○ Undergraduate sophomore
- ○ Undergraduate junior
- ○ Undergraduate senior
- ○ Master's student
- ○ Doctoral student/ candidate

Are you currently employed?

- ○ Yes, full-time
- ○ Yes, part-time
- ○ No, I'm disabled
- ○ No, I'm looking for work
- ○ No, I'm not looking for work
- ○ I'm a homemaker
- ○ Other _____

What is your estimated annual income?

- ○ Less than $10,000
- ○ $10,000 - $19,999
- ○ $20,000 - $29,999
- ○ $30,000 - $39,999
- ○ $40,000 - $49,999
- ○ $50,000 - $59,999
- ○ $60,000 - $69,999
- ○ $70,000 - $79,999
- ○ $80,000 - $89,999
- ○ $90,000 - $99,999
- ○ $100,000 or above

What is your parents'/guardians' combined estimated annual income?

- ○ Less than $10,000
- ○ $10,000 - $19,999
- ○ $20,000 - $29,999
- ○ $30,000 - $39,999
- ○ $40,000 - $49,999
- ○ $50,000 - $59,999
- ○ $60,000 - $69,999
- ○ $70,000 - $79,999
- ○ $80,000 - $89,999
- ○ $90,000 - $99,999
- ○ $100,000 or above

What is your sexual orientation?

- ○ Straight/ Heterosexual
- ○ Gay or Lesbian/ Homosexual
- ○ Bisexual
- ○ Unsure

What is your marital status?

- ○ Never married
- ○ Married
- ○ Separated
- ○ Divorced
- ○ Widowed

Skip To: End of Block If What is your marital status? = Married

What is your **current** relationship status?

- ○ Single (not currently dating)
- ○ Casually dating
- ○ Exclusively dating
- ○ Engaged

Appendix D: IRB Numbers and Project Titles

Technology-Use Survey

IRB # :1158182-4

Project Title: Use of Computer-based Technology in Young Adult Intimate Relationships

Q-Sort Survey

IRB # :1431820-3

Project Title: Young Adults' Perceptions of Intimate Partner Cyberstalking

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