8-2015

Assessment and Investigation of Electronic Aggression in the Romantic Relationships of Emerging Adults

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Assessment and Investigation of Electronic Aggression in the Romantic Relationships of Emerging Adults

A Dissertation Presented for the
Doctor of Philosophy
Degree
The University of Tennessee, Knoxville

Teresa Michelle Preddy
August 2015

DEDICATION

This work is dedicated to my loving parents, Bill and Janet Preddy, and my wonderful husband, Angelo DiBello. Without their support and encouragement, this work would not have been possible.

ACKNOWLEDGEMENTS

I would like to express my deepest thanks to my dissertation chair and advisor, Dr. Deborah Welsh, for the support and mentorship she provided throughout the development, execution, and completion of this project. I would also like to thank Dr. Derek Hopko who contributed his expertise and assistance in developing the scale and completing statistical analyses. Thank you to Dr. Jennifer Morrow who provided significant input and assistance with improving the scale and study design. Additionally, thanks to Dr. L. Chris Elledge for his thoughtful contributions related to measuring and understanding aggression and statistical techniques. Thanks to Dr. Greg Stuart who contributed his significant knowledge of partner aggression and study design and helped create a project that would meaningfully impact the field. I also wish to thank Dr. Paula Fite for her mentorship, willingness to contribute to this project, and for helping me to pursue my interests in aggression within close relationships. This work could not have been completed without grant support from the Department of Psychology at the University of Tennessee. Furthermore, I am very appreciative of the support I received related to the development of this project at the European Association for Research on Adolescence/Society for Research on Adolescence International Summer School. Finally, I would like to express my sincerest thanks and gratitude to my husband, Dr. Angelo DiBello, who provided his support throughout the entirety of this project. From helping me collect data at the University of Houston, lending his statistical expertise, and providing endless encouragement, your love and support made this project possible.

ABSTRACT

The current studies develop a psychometric scale capable of measuring electronic aggression and perpetration within emerging adult romantic couples: the Partner Electronic Aggression Questionnaire (PEAQ). The scale is based in the body of literature examining aggression within social relationships, particularly aggression and intimate partner violence (IPV) occurring within established romantic relationships. Moreover, the scale was designed with the rationale that developing a psychometrically sound measure of electronic aggression will allow researchers to examine how electronic aggression may be related to IPV and psychosocial functioning for both victims and perpetrators. The present studies suggested that the PEAQ is an internally consistent and reliable scale capable of differentiating electronic aggression perpetration and victimization. Additionally, the studies demonstrated that the PEAQ consists of two factors including public and private electronic aggression. Private electronic aggression perpetration demonstrated convergent validity with psychological aggression perpetration, and public and private perpetration demonstrated discriminant validity with self-reported openness and negotiation. Findings also support that although associated, public and private electronic aggression may be differentially related to other forms of traditional aggression and indicators of psychosocial functioning. Electronic aggression is discussed as a construct that needs further exploration to more fully understand the context of aggression within romantic relationships. These findings and their implications, as well as directions for future research are discussed.

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CHAPTER 1

INTRODUCTION AND GENERAL INFORMATION

Extensive research has suggested that aggression between romantic partners, or intimate partner violence (IPV), is a serious public health concern due to its prevalence, negative health consequences, and cost to society (Black et al., 2011; Halpern, Spriggs, Martin, & Kupper, 2009; Max, Rice, Finkelstein, Bardwell, & Leadbetter, 2004). Approximately 40% of individuals report experiencing physical or sexual aggression by young adulthood and half of all men and women report being victims of psychological aggression (Black et al., 2011). Negative health consequences associated with intimate partner victimization include poor physical and mental health, sleep disturbance, chronic pain, trauma symptoms, depression, and frequent headaches (Black et al., 2011; Centers for Disease Control and Prevention, 2012). In 2003, the financial burden associated with IPV against women (i.e., rape, physical assault, stalking, and murder) was estimated at over $8.3 billion in the United States (Max et al., 2004). However, it is likely that the cost associated with IPV may be much greater considering this estimate does not include costs associated with psychological aggression or IPV against men.

Although there is a plethora of research on the negative consequences of IPV in face-to-face interactions, little is known about how aggression between romantic partners may transpire through electronic communication technology, primarily through the use of cell phones and social media. Electronic communication technology has drastically increased in usage and has changed the ways in which people communicate with and aggress against their romantic partners (Melander, 2010). Electronic forms of communication provide quick and easy ways to aggress against one's partner, and also allows private conflicts to become public matters (Melander, 2010). Research has suggested that communication technologies provide a means for

perpetrating verbal aggression, intrusively monitoring a partner's behavior, and escalating arguments (Drauker & Martsolf, 2010). Understanding electronic aggression and its associated consequences is essential given the potential implications for mental health and potential face-to-face victimization; however, research has been limited by the lack of a validated scale that can be used to assess electronic aggression among romantic partners. Accordingly, the purpose of this study is to expand the literature on electronic aggression between emerging adult romantic partners through the validation of a scale measuring electronic aggression perpetration and victimization, the Partner Electronic Aggression Questionnaire (PEAQ). Furthermore, this study proposes to assess the percentage of individuals who report electronic aggression in a college sample, as well as the association between electronic aggression, IPV, and mental health.

Aggression and Intimate Partner Violence

Although intimate partner violence (IPV) research was initially focused on physical victimization, the definition and measurement of IPV has continued to evolve to include sexual and psychological/emotional abuse perpetrated by current or former intimate partners (Waltermaurer, 2005). Examples of physical violence include pushing, kicking, slapping, strangling, and punching (Garcia-Linares et al., 2005). Sexual abuse includes forced sexual contact, physical violence during intercourse, physical threats for rejecting sex, and unwanted exposure to pornography (Garcia-Linares et al., 2005). Examples of psychological abuse include verbal attacks (e.g., insults) and threats, blackmail, control and power (e.g., economic abandonment, isolation from social support network), and harassment (Garcia-Linares et al., 2005).

Aggression and intimate partner violence (IPV) are prevalent in romantic relationships, with approximately 40% of individuals reporting physical or sexual victimization by young

adulthood (Halpern et al., 2009). Results from a U.S. national survey of adult men and women (ages 18-65) estimates that approximately 29% of women and 23% of men have experienced physical, sexual, or psychological abuse during their lifetime (Coker et al., 2002). However, prevalence rates may be influenced by measurement, as some studies suggest much higher prevalence rates, with three-fourths of women reporting psychological victimization in the past six months (Neufeld, McNamara, & Ertl, 1999). When lifetime prevalence is considered, approximately 90% of individuals report experiencing some form of psychological victimization during their lifetime (Cercone, Beach, & Arias, 2005; Neufeld et al., 1999). Prevalence rates among college students are similar to young adult populations, with approximately 86% of college students reporting some form of IPV victimization (Próspero & Vohra-Gupta, 2008). Furthermore, a 2012 national survey conducted by the American College Health Association (2013) revealed that IPV was also present in college student romantic relationships in the past 12 months, with approximately 9.2% of college students reporting emotional abuse, 2.1% reporting physical abuse, and 1.7% reporting sexual abuse.

Much attention has been focused on male IPV perpetration (e.g., Cluss et al., 2006; Garcia-Linares et al., 2005; Logan, Walker, Cole, & Leukefeld, 2002); however, meta-analytic results suggest that women are slightly more likely than men to use physical aggression and women use such acts more frequently (Archer, 2000). Recently, research has emphasized the bidirectional nature of IPV, especially among college students (Cercone et al., 2005; Straus, 2008; Testa, Hoffman, & Leonard, 2011). This is congruent with a U.S. national sample demonstrating that most physical perpetration between romantic partners is reciprocal (Kessler, Molnar, Feurer, & Appelbaum, 2001). Specifically, an international survey of college students in 32 countries suggested that the most frequent pattern of physical violence is bidirectional,

followed by female only perpetration (Straus, 2008). Among undergraduates, women and men are equally likely to be perpetrators or victims of minor physical violence, minor psychological aggression, and severe psychological aggression (Cercone et al., 2005). Regarding severe physical assault, more women than men reported perpetration; however, this finding may be influenced by reporting effects, as an equal number of men and women reported severe physical victimization (Cercone et al., 2005). Bidirectional aggression between romantic partners has important implications for frequency and severity of violence, as results demonstrate that psychological and physical aggression are more frequent in bidirectional relationships, suggesting that reciprocity may contribute to escalation and maintenance of aggression (Testa et al., 2011). Furthermore, women in relationships where violence is bidirectional perpetrate more frequent physical aggression compared to women in relationships where the female is the sole perpetrator (Testa et al., 2011). Relationships in which one partner is dominant are associated with an increased probability of violence (Straus, 2008). However, the occurrence of relationships characterized by female-only aggression suggests that escalation of violence is not inevitable in college dating couples. Instead, physically aggressive acts may demonstrate developmental inexperience with conflict resolution, rather than a pattern of behavior (Testa et al., 2011).

Given the high prevalence and frequency with which IPV is perpetrated, it is important to consider the consequences of abusive behavior in romantic relationships. Although women are more likely than men to sustain a physical injury (Archer, 2000), there is evidence that men and women experience a similar number of mental health problems due to IPV victimization (Próspero, 2007). A national U.S. survey estimates that approximately 20% of male and 24% of female IPV victims experience moderate to severe PTSD symptoms (Coker, Weston, Creson,

Justice, & Blakeney, 2005). Previous research suggests that depression is associated with IPV victimization for both men and women (Coker et al., 2002). However, IPV is not homogenous and associated mental health outcomes depend on gender and type of victimization. Psychological victimization is associated with depression, hostility, anxiety, and somatization in both men and women (Próspero, 2007). There is also evidence that psychological abuse may be more emotionally devastating than physical abuse as it can have a negative impact on one's self-concept and sense of self (Murphy & Cascardi, 1999). Whereas physical victimization is associated with depression, hostility, anxiety, and somatization for women, physical victimization is associated with depression and somatization only for men (Próspero, 2007). Interestingly, research also suggests that neither depression, hostility, anxiety, nor somatization are associated with sexual victimization for women, but men who are sexually victimized experience symptoms of anxiety, depression, and somatization (Próspero, 2007). Furthermore, heavy alcohol use and drug use are associated with psychological and physical IPV (Coker et al., 2002). For both men and women, physical victimization is associated with an increased risk of being injured, developing a chronic illness, and having a history of mental illness (Coker et al., 2002). Intimate partner violence, whether physical, sexual, or psychological, has devastating consequences for its victims.

Numerous studies have been focused on examining risk factors related to IPV in dating and married couples (Shorey, Cornelius, & Bell, 2008). In a large U.S. study, demographic factors were associated with IPV victimization. Specifically, women were significantly more likely than men to experience physical violence or unwanted sex, and both men and women who completed high school or college were significantly less likely to experience IPV victimization than those who completed some college (Breiding, Black, & Ryan, 2008). Among women and

men, multiracial non-Hispanic individuals reported an elevated prevalence of IPV victimization (Breiding et al., 2008). Furthermore, compared with other men, black non-Hispanic men reported an elevated level of IPV victimization (Breiding et al., 2008).

Specific individual and partner characteristics have also been linked to intimate partner violence. According to an international sample of college students, dominance by either partner is a risk factor for violence (Straus, 2008). Violent family background and societal approval of violence are associated with IPV (Carlson, 1987). Furthermore, high levels of emotional investment and involvement, a presumed right to influence one's partner, spending large amounts of time together on a variety of activities, and sharing large amounts of personal information that leads to emotional vulnerability are associated with both dating and spousal aggression (Carlson, 1987). Alcohol use is also associated with IPV and meta-analytic results suggest there is a small effect size for the association between alcohol use/abuse and female perpetration, and a small to moderate effect size for the association between alcohol use/abuse and male perpetration (Foran & O'Leary, 2008). Meta-analytic results suggest that increases in drug use and drug-related problems are significantly associated with increases in aggression between romantic partners (d = .27), with cocaine having the strongest association with all forms of IPV perpetration (Moore et al., 2008). Marijuana use and partner marijuana use are significantly associated with perpetration of aggression (Moore et al., 2008; Testa et al., 2011). Furthermore, marijuana and hard drug use among women predicts experiencing future IPV in new relationships (Testa, Livingston, & Leonard, 2003). Stress, difficulties with emotion regulation, self-defense, and attempting to show feelings are cited by female perpetrators as reasons why they engage in IPV perpetration (Stuart, Moore, Gordon, Hellmuth, & Ramsey, 2006).

In addition, relationship processes are also associated with the experience of IPV. For example, IPV is associated with inferior communication skills, as individuals who perpetrate psychological abuse are more likely to use language that is nonfacilitative, and these individuals are less likely to use polite or facilitative language (Robertson & Murachver, 2006; Shorey et al., 2008). Negative communication styles also distinguish violent married couples from distressed nonviolent couples. Specifically, compared with nonviolent couples, violent couples exhibited a greater tendency to reciprocate negative behavior, and spouses were generally more aversive and less facilitative than nonviolent spouses (Cordova, Jacobson, Gottman, Rushe, & Cox, 1993). Unsurprisingly, previous work has demonstrated a significant negative relationship between relationship satisfaction and forms of IPV in a variety of samples including community samples and military families (Fonseca et al., 2006; Testa et al., 2003). Moreover, relationship factors may exert influences on behavior, as work by Testa and colleagues (2003) suggested that psychological aggression and minor violence negatively predicted concurrent relationship satisfaction, which was negatively associated with women's future heavy episodic drinking.

Despite the extensive focus on risk factors for IPV, little attention has been devoted to developing theoretical frameworks to explain dating violence and IPV (Shorey et al., 2008). Several theoretical perspectives have been proposed as frameworks that can be used to explain IPV; however, research supporting theoretical frameworks is relatively sparse and such frameworks may not fully explain behavior as complex as interpersonal violence. One potential theoretical model involves behavioral theories and contingencies. Specifically, Myers (1995) suggested that behavioral contingencies involving punishment and reward may explain IPV as it occurs in marriages. For example, punishing behaviors (i.e., IPV) can be used to control women's behavior, and violence may be reinforced if IPV acts are successful in increasing

desired responses (e.g, tending to the home, keeping children quiet, being sexually available; Myers, 1995). Social learning theory has also been proposed as a framework that can be used to understand IPV perpetration. According to social learning theory, individuals learn through observation that aggression is a behavior that can be used to obtain a desired goal (Bandura, 1973). Social learning theory is the basis for the intergenerational transmission of violence hypothesis, which posits that individuals learn aversive and coercive interpersonal behaviors from violent interactions that occur in one's family of origin (O'Leary, 1988; Shorey et al., 2008). Feminist theory and attachment theory have also been used to theoretically explain IPV, but more research is needed on the utility of these theories in explaining IPV, as neither fully accounts for the context of victimization (Shorey et al., 2008).

Electronic Aggression

Recently, much attention has been focused on aggression and bullying that is perpetrated through the use of electronic communication technologies. Given the increasing rates of electronic aggression and its negative impact on victims and the school environment, electronic aggression has been recognized as an emerging public health problem, particularly for adolescents (David-Ferdon & Hertz, 2007; Drauker & Martsolf, 2010). Although the focus on adolescent mental health is warranted, little research has examined how communication technologies may be used to perpetrate aggression among emerging adults (Melander, 2010). Understanding electronic aggression among emerging adults is essential to fully understanding the context and consequences of aggression and intimate partner violence during this developmental period.

Aggressive behaviors involving electronic forms of communication have been conceptualized in several ways, including cyberbullying (Berne et al., 2013), cyber dating abuse

(Zweig, Dank, Yahner, & Lachman, 2013), online harassment (Finn, 2004; Wolak, Mitchell, & Finkelhor, 2007), and cyberstalking (Alexy, Burgess, Baker, & Smoyak, 2005; Southworth, Finn, Dawson, Fraser, & Tucker, 2007). In this paper, the term electronic aggression will be used to describe the use of technology (i.e., computers and phones) to exclude, threaten, frighten, monitor, harass, embarrass, upset, or control other individuals that are known to the perpetrator.

Despite the paucity of research examining electronic aggression, initial studies suggest that electronic aggression is common among emerging adults. Approximately 92% of college students report being electronically victimized by their romantic partners or friends (Bennett, Guran, Ramos, & Margolin, 2011). When the prevalence of electronic aggression among romantic partners is considered, approximately 72 to 77% of emerging adults report electronic victimization, with more men reporting electronic victimization than women (Bennett et al., 2011; Kellerman, Margolin, Borofsky, Baucom, & Iturralde, 2013).

Research involving college students has demonstrated that electronic aggression includes many types of aggressive behaviors. According to work by Bennett and colleagues (2011), electronic exclusion, or blocking an individual from social media, a messaging program (e.g., Google, AIM), or an online top friend list, may be the most common type of electronic aggression. Other common types of electronic aggression involve electronic intrusiveness, electronic hostility, and electronic humiliation (Bennett et al., 2011). Melander (2010) utilized focus groups to further understand the role of electronic aggression in college romantic relationships. Results of the focus groups suggested that communication technologies are used to monitor romantic partners' whereabouts and to exert control over others by constantly communicating with one's partner. Furthermore, communication technology can also be used to perpetrate forms of psychological aggression including sending harassing messages and posting

incriminating or embarrassing photos or videos of one's partner online (Melander, 2010). According to Melander's (2010) work, college students also view electronic aggression as unique in comparison to face-to-face aggression because communication technology allows for quick aggressive responses since individuals do not have to wait to meet in person. Aggression through electronic means also allows individuals to quickly strike back in ways that they may be unlikely to do in person. Moreover, private matters can easily be publicized through social media, leading to public embarrassment or the involvement of others outside the relationship (Melander, 2010).

Men and women are similar in their reported motivations for electronic aggression, with both men and women reporting that feeling insecure and jealous is the most common motivation for electronic aggression perpetration (Kellerman et al., 2013). Other commonly cited motivations for women include experiencing negative emotions, retaliation, self-protection, and privacy. For men, motivations include attempts to be humorous, experiencing negative emotions, and retaliation (Kellerman et al., 2013).

A few studies have identified risk factors for electronic aggression perpetration and victimization. Specifically, the perpetration of electronic aggression against romantic partners is negatively associated with emotion regulation and support from friends (Kellerman et al., 2013). Additionally, family risk (i.e., verbal and physical aggression among family members, household chaos, family substance abuse) is positively correlated with perpetrating electronic aggression against romantic partners (Kellerman et al., 2013). There is also evidence that use of electronic aggression is related to other forms of aggression within relationships. For instance, individuals who report high levels of electronic aggression victimization in their friendships and romantic relationships also report high levels of traditional victimization (i.e., psychological, physical,

coerced intimacy) in those same relationships (Bennett et al., 2011). Within a college sample of heterosexual couples, men's perpetration of electronic aggression and relationship length predicted men's perpetration of psychological IPV (Schnurr, Mahatmya, & Basche III, 2013). Moreover, women's electronic aggression perpetration and mental health were significant predictors of women's perpetration of physical IPV (Schnurr et al., 2013). Furthermore, there appear to be reciprocal effects regarding romantic partner aggression. For example, women's use of psychological and physical IPV increases as their partner's use of electronic aggression increases. Similarly, men's use of psychological aggression increases as their partner's use of electronic aggression increases (Schnurr et al., 2013).

Finally, Bennett and colleagues (2011) have examined psychosocial consequences of electronic aggression. Women's electronic aggression victimization by romantic partners is associated with women's alcohol use, substance use, risky sex, and perpetration of aggression. Moreover, women's electronic victimization by friends is also associated with alcohol use, substance use, and perpetration of aggression (Bennett et al., 2011). In contrast, there were no associations between men's electronic victimization by romantic partners and risky behaviors. Men's electronic victimization by friends was associated with perpetration of aggression only (Bennett et al., 2011). Women also rate electronic aggression victimization as more upsetting than men, although both genders report that victimization from a dating partner is more upsetting than being victimized by a friend. Interestingly, individuals with more experience with electronic victimization report lower levels of anticipated distress with regard to victimization (Bennett et al., 2011).

Electronic Aggression and its Relation to Overt and Relational Aggression

Although electronic aggression is a relatively new construct that has arisen with advances in technology, it shares overlap with traditional forms of victimization, including overt and relational aggression. Specifically, overt aggression includes acts aimed at harming others through verbal threats or physical means. Examples of overt aggression include pushing, hitting, destroying another's property, insulting an individual, or threatening to hurt another individual (Crick, 1996; Crick, Casas, & Mosher, 1997; Crick & Grotpeter, 1995). In contrast, relational aggression involves purposeful manipulation aimed at either damaging or threatening to damage an individual's reputation, social status, or relationships. Relational aggression includes acts such as spreading rumors, ignoring an individual, or excluding an individual from a group (Crick, 1996; Crick & Grotpeter, 1995). While specific forms of overt aggression, including hitting or damaging property, cannot be perpetrated through electronic means, electronic aggression can include aspects of overt aggression that involve threats (e.g., threatening bodily harm or threatening property damage) or insults. Additionally, acts of relational aggression can be easily perpetrated through electronic technology, potentially leading to a substantial overlap in electronic aggression and relational aggression. For example, individuals can be ignored through text messaging or social media postings. Further, individuals can publically be excluded from groups or events displayed on social media sites. Electronic aggression also allows for rumors or embarrassing photos to be spread through messaging or social media, which can potentially damage relationships or one's reputation.

While overlap clearly exists between electronic aggression and relational and overt aggression, it is still uncertain as to how electronic aggression and traditional forms of aggression are related or distinct (Law, Shapka, Hymel, Olson, & Waterhouse, 2012). However,

initial research suggests that observers may view electronic aggression differently than traditional forms of aggression. In a study by Law and colleagues (2012) examining electronic aggression in adolescents, adolescent observers did not make distinctions between bullies and victims, but instead made distinctions between the types of electronic aggression that were utilized (e.g., posting embarrassing photos versus sending cruel messages). Similarly, those involved in acts of electronic aggression did not identify themselves as playing a particular role in aggression (i.e., perpetrator or victim), but instead identified themselves by the type of electronic aggression they participated in (e.g., posting an embarrassing photo of a peer). This is in contrast to the traditional peer aggression/victimization literature, in which both teachers and peers have been used as reliable informants regarding aggression perpetration and victimization (Crick, 1997; Crick & Dodge, 1996; Poulin & Boivin, 2000). This distinction may be due to the speed and ease with which electronic aggression can occur, potentially blurring the role of aggressor and victim, and allowing victims to more readily retaliate (Law et al., 2012). Additionally, electronic aggression may lead to unique consequences, as perpetrators, victims, and observers are able to re-read or re-view the aggressive acts in a way that is not possible in many forms of traditional victimization (Law et al., 2012). Further research is necessary to better understand the overlap and distinctions that exist between electronic and traditional forms of aggression.

Intimate Partner Violence and Personality

Previous work has suggested that aspects of personality may be useful in studying and understanding aggressive behavior, particularly the conceptualization of the Big Five (Bettencourt, Talley, Benjamin, & Valentine, 2006; Hines & Saudino, 2008). The Big Five refers to five broad domains of personality in adults, and includes neuroticism, extraversion,

openness to experience, agreeableness, and conscientiousness (Weiner & Greene, 2008). Of these dimensions, neuroticism and agreeableness have most commonly been linked with aggressive behavior (Bettencourt et al., 2006; Hines & Saudino, 2008). Individuals high on neuroticism often lack coping skills and have a propensity to experience psychological distress and negative affect (Hines & Saudino, 2008). Moreover, neuroticism includes facets such as anxiety, depression, self-consciousness, and angry hostility, which can lead individuals to be less emotionally stable (Bettencourt et al., 2006). Low levels of agreeableness are also related to aggressive behavior, as those low in agreeableness tend to be hostile, irritable, and distrustful of others (Costa, McCrae, & Dembroski, 1989; Hines & Saudino, 2008). Additionally, those low in agreeableness may lack emotional expression and act in ways that actively exclude others (Costa et al., 1989; Hines & Saudino, 2008).

Similar patterns are suggested in studies examining aggression and IPV behavior between partners and former partners. In a study by Hines and Saudino (2008), neuroticism was related to perpetration of psychological aggression for women and perpetration of both psychological and physical aggression for men. Neuroticism has also been linked with sexual coercion (Menard, Shoss, & Pincus, 2010). Research also suggests that married couples higher on neuroticism engage in higher rates of IPV on average; however, contextual factors may moderate this association (Hellmuth & McNulty, 2008). Specifically, couples with lower levels of stress and more effective problem-solving skills were less likely to engage in IPV, despite high levels of neuroticism (Hellmuth & McNulty, 2008). Thus, contextual factors may be important considerations when examining the connection between personality and IPV.

Although the relationship between neuroticism and IPV is relatively well established, there is evidence that gender may play a role in the link between IPV and other facets of

personality. Work by Hines and Saudino (2008) suggests that personality may be more strongly associated with use of aggression for women when compared to men. For women, all Big Five dimensions except openness to experience (i.e., high neuroticism, extraversion and conscientiousness, and low agreeableness) were associated with perpetration of psychological aggression. This is in contrast to men, for whom only neuroticism was associated with any form of aggression. Moreover, for women only, low agreeableness was associated with physical aggression perpetration. Although this suggests that low agreeableness may be most significant for women, other work suggests that low agreeableness is related to other aspects of IPV for both genders including sexual coercion and stalking (Kamphuis, Emmelkamp, & de Vries, 2004; Menard et al., 2010).

The association between IPV and the facets of extraversion and conscientiousness are less clear. Results from a Dutch community sample suggested that the second most common profile for post-intimate stalkers included individuals low on agreeableness and high on extraversion (Kamphuis et al., 2004), suggesting that high extraversion may be linked with stalking behavior. Additionally, extraversion has been found to be positively associated for sexual aggression among women only (Hines & Saudino, 2008), but negatively associated with sexual coercion (Menard et al., 2010). The relationship between conscientiousness and IPV is also unclear, as it has been positively linked with use of sexual aggression among females only (Hines & Saudino, 2008), but negatively associated with sexual coercion (Menard et al., 2010). Additional research is needed to further clarify the link between extraversion and conscientiousness and aggression between partners.

In contrast to the other aspects of the Big Five, current research suggests that openness to experience is not related to IPV or aggressive behaviors including physical aggression,

psychological aggression, sexual aggression, stalking behavior, or sexual coercion (Hines & Saudino, 2008; Kamphuis et al., 2004; Menard et al., 2010). Thus, openness to experience may not be informative in understanding how personality may be associated with aggression within romantic relationships.

Consequences Specific for College Students: Academic Functioning

Although the literature suggests that exposure to domestic violence in childhood is associated with negative academic outcomes including poor academic performance, lower reading and phonological awareness test scores, and delayed cognitive development (Blackburn, 2008; Margolin & Gordis, 2000), little to no research has examined the relation between involvement in IPV and academic functioning among college students. However, academic functioning has been examined among children and adolescents who are aggressive or victims of aggressive behavior. Specifically, frequent victimization by peers has been shown to be associated with lower grade point averages (GPAs) and achievement test scores (Schwartz, Gorman, Nakamoto, & Toblin, 2005). Aggressive behavior has also been linked with academic functioning, and increases in aggressive behavior have been linked with decreases in GPA (Schwartz, Gorman, Nakamoto, & McKay, 2006). However, the association between aggressive behavior and academic functioning may depend on the form of aggression utilized. Although a majority of research has demonstrated a negative relationship between overt aggression and poor academic achievement, school commitment, and academic competence (Barriga et al., 2002; Campbell, Spieker, Burchinal, & Poe, 2006; Herrenkohl, Catalano, Hemphill, & Toumbourou, 2009; Putallaz et al., 2007), the link between relational aggression and academic performance is less clear. Whereas one study found relational bullying was associated with average to above average academic achievement on national standardized test scores among British children

(Woods & Wolke, 2004), other studies have suggested either no relationship between relational aggression and academic competence (Putallaz et al., 2007), or a negative relationship between relational aggression and academic performance (Preddy & Fite, 2012). Given the inconsistent findings regarding the link between perpetration and academic functioning, as well as the lack of research examining academic functioning among college students involved in IPV, further research is necessary to elucidate the relationship between relationship violence and academic performance. Further, the current study advances the literature by examining the association between academic functioning and electronic aggression, which has yet to be explored.

Developmental Considerations of Emerging Adulthood

Examining electronic aggression and intimate partner violence during emerging adulthood is essential given the developmental significance of romantic relationships during this period. Although many individuals engage in casual sexual relationships or brief romantic relationships, overall, romantic relationships increase in duration and degree of seriousness during emerging adulthood (Arnett, 2000). In comparison to adolescence, more emphasis is often placed on emotional and sexual intimacy in emerging adult romantic relationships (Arnett, 2000). Further, commitment level is often more serious in comparison to adolescent romantic relationships, as many emerging adults seek long-term romantic relationships or cohabitate with partners (Arnett, 2000, 2004). Since increasing numbers of individuals are delaying marriage until the late twenties or earlier thirties, a chief developmental task of emerging adulthood involves determining what characteristics and values are important in a marriage or long-term partner (Arnett, 2000, 2004).

As romantic relationships increase in commitment and importance, emerging adults are often faced with new challenges in relationships. Specifically, developing communication and

decision-making skills, dealing with disappointment, and meeting another's needs are inherent challenges in long-term relationships. Thus, as emerging adults are developing their own career paths and life plans, they must also work to integrate their personal plans with those of a romantic partner (Arnett, 2000; Shulman & Connolly, 2013). Negotiating relationship tasks is challenging, and it is no coincidence that reported rates of IPV are highest during emerging adulthood. Rates of IPV increase from age 15 to approximately age 25, after which rates decline throughout the lifespan (Halpern et al., 2009; O'Leary, 1999). This period also coincides with the highest rates of alcohol use disorder (ages 18-29; American Psychiatric Association, 2013). Furthermore, communication problems are rated as the second most common relationship problem by individuals in premarital relationships, and the intensity of communication problems increases after marriage through the early parenting years (Storaasli & Markman, 1990). Given that communication conflict and substance use are linked with IPV, it is likely that these factors contribute to the high prevalence of IPV during emerging adulthood (Foran & O'Leary, 2008; Moore et al., 2008; O'Leary, 1999).

Due to the prevalence of IPV as well as high usage rates of communication technology, it is likely that electronic aggression is also prevalent among college students. Thus, examining electronic aggression and its association with IPV during this developmental period is essential to understanding the function of aggression and the psychosocial consequences associated with victimization and perpetration. Furthermore, since researchers have suggested that premarital relationships are the context in which individuals are socialized into their marital roles (Makepeace, 1981), it is speculated that a pattern of marital violence could be established during dating relationships in emerging adulthood (Shorey et al., 2008). Therefore, it is critical to examine aggression during emerging adulthood, as this could inform interventions that could be

conducted before patterns of violence are firmly established. Finally, as emerging adulthood is largely understood as a time of transition regarding identity, career, and romantic relationships (Arnett, 2000; Shulman & Connolly, 2013), and previous intervention work suggests that individuals and families are more open to interventions and changes during developmental periods of transition (Conduct Problems Research Group, 1992), it is possible that emerging adulthood may be an ideal time for interventions regarding IPV and electronic aggression. Furthermore, emerging adults' associations with institutions including universities, community colleges, trade schools, community groups, and workplaces may make reaching emerging adults in need of intervention possible.

Overview of Aims

Despite the importance of romantic relationships during the developmental period of emerging adulthood and the negative consequences associated with aggression in intimate relationships, the literature is currently limited by the lack of a validated scale that can assess electronic aggression in romantic relationships. Accordingly, the purpose of these studies was to validate a scale that can reliably measure electronic aggression perpetration and victimization in emerging adult romantic relationships and examine psychosocial correlates of electronic aggression. Study 1 focused on scale development and determining internal consistency reliability. The purpose of Study 2 was two-fold. First, I examined the psychometric properties of the Partner Electronic Aggression Questionnaire (see Appendix C) including convergent validity, discriminant validity, and internal consistency. I also examined the psychosocial correlates of electronic aggression perpetration and victimization.

CHAPTER 2

STUDY 1: SCALE DEVELOPMENT AND RELIABILITY

Current Aims

Study 1 was designed to establish a validated scale capable of measuring electronic aggression in emerging adult romantic relationships, the Partner Electronic Aggression Questionnaire. Accordingly, Study 1 develops, analyzes, reduces, and refines items from the PEAQ and examines internal consistency reliability. Internal consistency reliability is necessary, though not sufficient, for establishing scale validity (Nunnally, 1978).

Furthermore, to ensure that the PEAQ is useful in distinguishing perpetration and victimization, rather than an overall relationship level of electronic aggression, victimization and perpetration subscales were created. Item selection followed methods established in previous work using perpetration and victimization subscales (Straus, Hamby, Boney-McCoy, & Sugarman, 1996). Specifically, items were kept when both items (i.e., the perpetration and victimization counterparts) strongly loaded onto a factor that was maintained as part of the final scale.

Method

Participants

To produce a reliable factor analytic solution in psychometric research, an adequate sample size is essential (Beavers et al., 2013). To ensure the sample size was adequate for examining the PEAQ, criteria recommended by Pett, Lackey, & Sullivan (2003) were applied including: a subject-to-item ratio of at least 10:1 (Kline, 2010; Pett et al., 2003; Nunnally, 1978), a minimum of 300 subjects (Tabachnick & Fidell, 2001), and a sample size that fits within the very good ($N = 500$) to excellent ($N = 1000+$) sample size ranges described by Comrey and Lee

(1992). Prior to examining demographics, two participants were deleted due to reporting that their current relationship length was less than three months. Given that there were 58 items on the initial PEAQ, the total sample for Study 1 (n = 692) meets the recommended sample size requirements.

Participants (n = 692) were recruited through their psychology courses at a large public Southeastern university and a large public Southwestern university. The sample averaged 21.66 years of age (SD = 2.48) and was 86.6% female and 13.2% male. Although the sample was predominantly comprised of heterosexual individuals (93.5%), a minority described their orientation as either gay/lesbian (1.9%), bisexual (3.5%), asexual (0.3%), or other/prefer not to answer (0.7%). The sample was racially/ethnically diverse with a majority of participants identifying as Caucasian (53.5%), and a smaller percentage identifying as Asian (14.7%), African-American (10.3%), Native Hawaiian/Pacific Islander (0.4%), Native American/American Indian (1.0%), multi-ethnic (4.0%), or other (12.3%). Additionally, 33.5% of participants identified as Hispanic/Latino. In describing their relationship status, 74.3% of participants reported that they were exclusively dating, while a smaller percentage reported that they were engaged (10.1%), married/with a life partner (6.9%), casually dating (7.1%), or in an open relationship (0.6%). Average length of relationship was approximately two years and six months (SD = 25.88 months). Educational attainment for the sample was as follows: first year (15.8%), second year (14.9%), third year (25.3%), fourth year (25.0%), 5 or more years (19.0%). 16.9% of the students were from the University of Tennessee and 83.1% were from the University of Houston.

Independent-samples t-tests were conducted to examine whether the sample from the University of Tennessee (UT) differed significantly from the University of Houston (UH) sample

with regard to demographics. Results indicated that participants from UH (M = 22.10; SD = 2.37) were significantly older than those from UT (M = 19.44; SD = 1.72; $t(690) = 11.53$, $p < .001$). There was a significant gender difference between the two samples, $t(688) = 9.77$, $p < .001$, and the UH sample (M = 1.92; SD = 0.27) included a significantly higher proportion of female students than the UT sample (M = 1.61; SD = 0.49. The UH sample included a significantly greater proportion of students identifying as Hispanic (M = 1.60; SD = 0.49) in comparison to the UT sample (M = 2.08; SD = 0.33; $t(684) = -9.98$, $p < .001$). There was also a significant difference in the proportion of racial minority participants between UH (M = 2.90; SD = 2.23) and UT (M = 1.51; SD = 1.52), with the UH sample containing significantly more minority participants, $t(681) = 6.44$, $p < .001$. Further, there was a significant difference in relationship length between UH (M = 32.23; SD = 26.75) and UT (M = 19.47; SD = 17.75), with UH participants reporting longer relationships, $t(687) = 4.94$, $p < .001$. There was a significant difference in relationship status between UH (M = 3.19; SD = 0.70) and UT (M = 3.10; SD = 0.70), with UH students reporting relationships higher in commitment level, $t(686) = 12.35$, $p < .001$. There were no significant differences between the campuses with regard to sexual orientation (see Table 1). All tables are located in Appendix A.

Procedures

During scale development, and prior to writing items, a literature review was conducted to gain an understanding of the context of aggression in romantic relationships and how electronic aggression is currently studied in emerging adulthood. Furthermore, commonly used measures of aggression were examined to understand how romantic partner aggression is commonly measured and what aggressive acts are common among emerging adults. Items from the Self-Report of Aggression & Social Behavior Measure (SRASBM; Morales & Crick, 1998)

and the Couples Relational Aggression and Victimization Scale (CRAViS; Nelson & Carroll, 2006) were adapted to measure relational aggression, and physical threats/intimidation that may occur between romantic partners through communication technology. After initial items were developed, the scale was reviewed by a team of graduate and undergraduate students and an expert in developmental psychology to develop items examining further forms of aggression that occur through social media and communication technology. This version of the scale was presented to a committee of experts in developmental psychology who provided feedback regarding the items and intended goals of the study. The final draft of the scale was reviewed by then reviewed by six experts in clinical and educational psychology who were experienced in either research on aggression and intimate partner violence or psychometric scale development. This review process helped determine the final items to be included in the measure and also helped to clarify item wording and rating scale to be used in the measure. The rating scale was changed to estimate the number of times a particular aggressive behavior has occurred, making the scale more directly comparable to frequently used measures of IPV (i.e., Conflict Tactics Scales 2; Straus, Hamby, Boney-McCoy, & Sugarman, 1996). At this stage, the questionnaire was also compared to other current measures of electronic aggression, and items were adapted from an unvalidated measure of electronic victimization scale (Bennett et al., 2011), and a recently validated scale examining cyber abuse, the Cyber Psychological Abuse Scale (CPA; Leisring & Giumetti, 2014). The final scale was reviewed to ensure that the items were written to be inclusive of future forms of communication that may be developed and to exclude forms of communication that are typically no longer relevant but are included on other measures (e.g., AOL instant messaging, MySpace).

Survey data was collected online using Qualtrics, and participants were routed to the survey through their university SONA research participation system server. Participants received course credit through SONA after their survey results were collected. Participant names were not collected for this study; however, participation was linked to SONA accounts so that course credit could be awarded. Study 1 participants were excluded from participation in Study 2. The Institutional Review Boards at the University of Tennessee and the University of Houston approved this study.

Measures

Partner Electronic Aggression Questionnaire (PEAQ). The PEAQ was used to measure electronic aggression perpetration and victimization within romantic relationships. The initial PEAQ included 29 perpetration-victimization item pairs for a total of 58 items. The measure asks individuals to rate how often the participant and his/her partner have engaged in a series of aggressive behaviors involving social media and electronic communication during the past six months. Items are rated on a 7-point Likert scale (0 = Never, 1 = Once, 2 = Twice, 3 = 3 to 5 times, 4 = 6 to 10 times, 5 = 11 to 20 times, 6 = More than 20 times). Sample items include "I change my relationship status online to upset my partner" and "My partner sends me picture messages to make me jealous".

Demographics. Participants completed a demographics questionnaire designed for this study including items assessing: age, year in college, sex, race/ethnicity, relationship status, sexual orientation, and length of relationship.

Hypotheses

Hypothesis 1. The aim of Study 1 was to reduce, analyze, and refine the items comprising the PEAQ and to examine internal consistency and reliability of the measure while

maintaining subscales corresponding to perpetration and victimization. I hypothesized that the PEAQ perpetration and PEAQ victimization subscales would be developed into internally consistent subscales and that the overall PEAQ scale would also be internally consistent and reliable. Since electronic aggression is a relatively new construct and the scale development was intended to be exploratory, no a priori hypotheses were made regarding the underlying factor structure.

Data Analytic Plan

Descriptive statistics were first examined to characterize the sample in terms of age, racial/ethnic background, level of educational attainment, relationship length, relationship status (i.e., in an open relationship, dating casually, dating exclusively, engaged, or married), and campus affiliation (i.e., UT or UH). Next, a series of tests were conducted to assess the psychometric properties of the proposed measure: (1) As the aim of this project was to eliminate items, create a measure, and examine the psychometric properties of this measure, there were no a priori hypotheses regarding the underlying factor structure. Thus, a series of principal components analyses (PCA) were conducted. The PCAs were conducted in SAS version 9.3 to examine underlying dimensions of the Partner Electronic Aggression Questionnaire. (2) Cronbach's alpha was used to document internal consistency of any identified factor items and total PEAQ items.

Reliability analyses were conducted to determine the internal consistency of the perpetration and victimization subscales, any additional identified factors, and the total PEAQ scale. Commonly utilized coefficient alpha levels (Cronbach's alpha α) were applied to examine whether internal consistency was acceptable. These levels are as follows: excellent ($\alpha \geq .9$), good

(.9> $\alpha \geq$ .8), and acceptable (.8 > $\alpha \geq$ .7; George & Mallery, 2008; Kline, 1999). Furthermore, the average inter-item correlation was required to be at least 0.3 (Kline, 1999).

Results

Principal Components Analyses

To identify the underlying factor structure of the PEAQ, a principal components analysis (PCA) was performed on the 58 items. PCA was selected as an extraction method as the objective was to reduce the items into a smaller set of important composite variables that would effectively summarize components of electronic aggression (Pett et al., 2003; Tabachnick & Fidell, 2001). Promax rotation (a non-orthogonal rotation method) was used. The promax rotation method was selected since this method is utilized with correlated factors and it was expected that the underlying factors of electronic aggression would be correlated (Field, 2009).

Prior to conducting the PCA, missing data for the PEAQ was estimated at 0.74% (298 cases were missing) and 11.7% of the protocols exhibited missing data. List-wise deletion of these incomplete protocols resulted in a final sample of n = 614, which meets criteria recommended by Pett and colleagues (2003) including a subject-to-item ratio of at least 10:1 (Kline, 2010; Pett et al., 2003; Nunnally, 1978), a minimum of 300 subjects (Tabachnick & Fidell, 2001), and a sample size that fits within the very good (N= 500) to excellent (N= 1000+) sample size ranges described by Comrey and Lee (1992). Additionally, measures of sampling adequacy were conducted and no issues with the factorability of the correlation matrix were evident. Bartlett's test of sphericity was significant, $\chi^2(1650)= 46231.11$, $p < .001$. The Kaiser-Meyer-Olkin measure of sampling adequacy was .94, which is considered excellent (Pett et al., 2003).

In order to identify how many factors would be extracted, the scree plot of the eigenvalues was examined. The first PCA results suggested an 8-factor solution best fit the data. Factor loadings and factor eigenvalues were then assessed with parallel analysis procedures (Hayton, Allen, & Scarpello, 2004; Watkins, 2000) to determine the optional factor structure of the PEAQ. Results of the parallel analysis procedure (variables = 58, participants = 614, replications = 1000) confirmed the 8-factor solution suggested by the scree plot analysis. However, factors 3-8 either consisted of complex loading items (i.e., those that loaded on more than one factor with loadings of .4 or higher, had 3 items or fewer on their respective factor with no substantive meaning as it related to electronic aggression, or the items had communality values of .4 or less. Items were retained when the item loaded on a factor at .4 or higher and also loaded at less than half of that loading on any other factors. Additionally, both items were deleted when corresponding pairs of items loaded on different factors (i.e., the perpetration item loaded on a different factor than the corresponding victimization item). These procedures resulted in eliminating 32 items. A second PCA was run on the remaining 26 items. The results of scree plot analysis and parallel analysis (variables = 26, participants = 614, replications = 1000) suggested a 3-factor solution. However, the third factor contained items that consisted of only complex loading items (i.e., loadings of .4 or higher) on multiple factors. The complex loading items were eliminated, this resulted in eliminating another 10 items. A final PCA was conducted on the remaining 16 items. Scree plot analysis and parallel analysis procedures (variables = 16, participants = 614, replications = 1000) suggested a 2-factor solution. These two factors had eigenvalues of 8.44 and 3.58 respectively and combined to account for 75% of the variance. Interestingly, the 2-factor solution suggested that factor one consisted of items that would be considered public use of electronic aggression (e.g., “I post comments online in which

I threaten to physically harm my partner" and "My partner posts comments online in which he/she threatens to physically harm me"). Conversely, factor two consisted of items representing private use of electronic aggression (e.g., "I message my partner to make him/her feel bad about something" and "My partner messages me to make me feel bad about something").

The final 16 items and their respective standardized factor loadings are shown in Table 2. Items with standardized factor loadings above .4 were retained (thus we retained all items) and there were no complex loading items. The two subscales were significantly correlated with each other ($r = .40$, $p < .001$), lending further support to the non-orthogonal rotation method (Pett et al., 2003; Field, 2009).

Internal Consistency Reliability

Cronbach's alpha was used to assess internal consistency for the PEAQ total score and two factor subscale scores. Results revealed excellent internal consistency for the items comprising the overall PEAQ ($\alpha = .94$), PEAQ Factor 1 (public electronic aggression; $\alpha = .97$), and PEAQ Factor 2 (private electronic aggression; $\alpha = .93$).

Brief Discussion

The purpose of Study 1 was to develop a scale capable of measuring electronic aggression in emerging adult romantic couples through creating items and subsequently analyzing, reducing, and refining the items to be included in the final measure. Additionally, Study 1 was designed to examine whether the PEAQ and any subsequent subscales demonstrated adequate internal consistency reliability. Results from Study 1 indicate that the final version of the PEAQ includes 16 items and two underlying factors. Specifically, results of PCA revealed two 8-item factors corresponding to public electronic aggression and private electronic aggression. Each factor included a 4-item perpetration and a 4-item victimization subscale.

Results also demonstrate high internal consistency for each factor and the overall PEAQ, suggesting that all items are measuring a similar construct. Although this study finalized the items to be included on the PEAQ and demonstrated adequate internal consistency, a second study was necessary to examine the psychometric properties and validity of the PEAQ.

CHAPTER 3

STUDY 2: PSYCHOMETRIC PROPERTIES AND VALIDITY

Current Aims

Study 1 procedures developed a reliable and internally consistent PEAQ scale consisting of 16 items and two factors (i.e., public electronic aggression and private electronic aggression). Furthermore, each factor consisted of a perpetration and victimization subscale. Study 2 was focused on determining the psychometric properties of the scale and assessed which psychosocial variables were associated with electronic aggression. Accordingly, Study 2 had five primary aims: 1) to confirm the factor structure of the revised Partner Electronic Aggression Questionnaire through Confirmatory Factor Analysis (CFA); 2) to establish the psychometric properties of the PEAQ including convergent validity, discriminant validity, subscale internal consistency reliability, and partial correlations with forms of IPV; 3) to determine the percentage of emerging adults who report experiencing electronic aggression perpetration or victimization in romantic relationships; 4) to determine the association between the subtypes of electronic aggression and participants' reports of romantic aggression (i.e., relational aggression, physical victimization); and 5) to establish concurrent validity by examining the association between electronic aggression perpetration and victimization in relation to indicators of psychosocial functioning: relationship satisfaction, substance use, alcohol problems, depression, and academic functioning.

Methods

Participants

To ensure that Study 2 produced a reliable factor analytic solution, the criteria recommended by Pett and colleagues (2003) were again utilized. Specifically, the Study 2

sample size of n = 513 met the following criteria: a subject-to-item ratio of at least 10:1 (Kline, 2010; Pett et al., 2003; Nunnally, 1978), a minimum of 300 subjects (Tabachnick & Fidell, 2001), and a sample size that fits within the very good (n = 500) to excellent (N = 1000+) sample size ranges described by Comrey and Lee (1992). Given that the revised form of the PEAQ includes 16 items, a minimum of 160 items were needed to meet the recommended criterion of a 10:1 subject to item ratio (Kline, 2010; Pett et al., 2003; Nunnally, 1978).

Participants were recruited through their introduction to psychology course at a large public Southeastern university. Participants who had participated in Study 1 were excluded from participation in the current study to ensure the population was independent. As with Study 1, participation was limited to individuals between the ages of 18 to 30 who had been in a romantic relationship for at least three months. The average age of the sample was 18.82 years (SD = 1.62) and the sample was 36.6% male and 63.4% female. The sample was predominantly heterosexual (95.1%), with a minority of the sample describing their orientation as either gay/lesbian (1.4%), bisexual (2.3%), asexual (0.4%), or other/prefer not to answer (0.8%). A majority of the sample was Caucasian (86.4%), with a smaller percentage identifying as Black/African American (5.1%), Biracial/Multiracial (3.3%), Asian/Asian American (2.7%), Native American/American Indian (0.6%), or other/prefer not to answer (1.9%). Additionally, 2.7% of participants identified as Hispanic/Latino. Regarding relationship status, 91.4% of participants reported that they were exclusively dating, while a smaller percentage reported that they were engaged (1.8%), married/with life partner (1.2%), or casually dating (5.6%). Average length of relationship was approximately one year and eight months (SD = 15.89 months). A majority of students were first year students (75.8%), with a smaller percentage reporting that they were in the midst of their second year (14.4%), third year (6.0%), fourth year (2.3%), or

fifth year (1.4%). Mother's educational status was varied with students reporting that a majority of their mothers had completed a bachelor's degree (40.7%) and smaller percentages reporting that their mothers earned a master's degree (15.6%), earned a doctoral degree (1.2%), obtained a professional degree (MD, JD; 3.1%), completed an associate's degree (8.8%), completed high school/GED (14.8%), had some college experience (14.8%), or had less than a high school diploma (1.0%). Regarding father's educational status, participants reported that a majority of their fathers had completed a bachelor's degree (35.1%) and smaller percentages reported that their fathers had earned a master's degree (16.2%), earned a doctoral degree (3.3%), obtained a professional degree (MD, JD; 6.8%), completed an associate's degree (6.4%), completed high school/GED (16.6%), had some college experience (12.3%), or had less than a high school diploma (3.3%).

Procedures

As with Study 1, survey data was collected online using Qualtrics, and participants were routed to the survey through the University of Tennessee SONA research participation system server. Participants received course credit through SONA after their survey results were collected. Participant names were not collected for this study; however, participation was linked to SONA accounts via an ID number so that course credit could be awarded. The Institutional Review Board at the University of Tennessee approved this study.

Measures

Partner Electronic Aggression Questionnaire (PEAQ). Study 1 was used to reduce, analyze, and refine the initial items of the PEAQ and determine internal consistency reliability of the finalized measure. The finalized PEAQ was administered to assess scale validity and associated psychosocial correlates. The PEAQ includes eight perpetration-victimization item

pairs for a total of 16 items. Analyses from Study 1 suggested a two-factor solution, indicating four subscales including public electronic aggression perpetration, public electronic aggression victimization, private electronic aggression perpetration, and private electronic aggression victimization. Participants were asked to rate how often the participant and his/her partner have engaged in a series of aggressive behaviors involving social media and electronic communication during the past six months. Items were rated on a 7-point Likert scale (0 = Never, 1 = Once, 2 = Twice, 3 = 3 to 5 times, 4 = 6 to 10 times, 5 = 11 to 20 times, 6 = More than 20 times). Sample items from the final measure included "I post comments online in which I threaten to physically harm my partner" (public electronic aggression perpetration) and "My partner sends me messages to make me feel bad about something" (private electronic aggression victimization). A behavior frequency method of scoring was used for the PEAQ in which subscale scores are calculated by summing the frequency of the behaviors reported during the previous six months. Since each point on the Likert scale represents a range of scores, the midpoint for each category was calculated to represent behavioral frequency. This procedure results in a potential score range of 0 to 25 for each item and is consistent with the recommended frequency method used for scoring the CTS2 (Straus et al., 1996). Internal consistency for each subscale was good with public perpetration $\alpha = .89$, public victimization $\alpha = .88$, private perpetration $\alpha = .81$, and private victimization $\alpha = .81$.

Use of Communication Technology Items. The Use of Communication Technology Items involve two items designed for this study that measure participants' use of communication technologies. Participants were asked to indicate how frequently they use forms of social media (e.g., Facebook, Twitter, Instagram, blogs, message boards, or others) and communication technology messaging services (e.g., text messaging, iMessaging, SnapChat, Facebook Chat, G

Chat, or others) using an 11-point Likert scale (0 = Never, 1 = Less than 1 time per month, 2 = One time per month, 3 = A few times per month, 4 = Less than 1 time per week, 5 = 1 time per week, 6 = 1 time every few days, 7 = 1 time per day, 8 = More than 1 time per day, 9 = More than 5 times per day, 10 = More than 10 times per day).

Conflict Tactics Scales Short Form (CTS2S). The CTS2S was used to measure intimate partner violence (Straus & Douglas, 2004). The CTS2S is a 20-item self-report measure designed to assess the behaviors used within romantic relationships during conflicts. The CTS2S assesses behaviors the respondent has engaged in (perpetration) as well as behaviors the partner has engaged in (victimization) over the past six months. As with the original measure, the CTS2S is composed of five subscales including negotiation, psychological aggression, physical assault, injury, and sexual coercion (Straus & Douglas, 2004; Straus et al., 1996). Items on the CTS2 were rated on an 8-point Likert scale (0 = This has never happened, 1 = Once in the past six months, 2 = Twice in the past six months, 3 = 3 to 5 times in the last six months, 4 = 6 to 10 times in the past six months, 5 = 11 to 20 times in the past six months, 6 = More than 20 times in the past six months, 7 = Behavior has happened, but not in the last six months). Sample items included "I explained my side or suggested a compromise for a disagreement with my partner" (negotiation), "I insulted or swore or shouted or yelled at my partner" (psychological aggression), "I pushed, shoved, or slapped my partner" (physical assault), "I went to see a doctor (M.D.) or needed to see a doctor because of a fight with my partner" (injury), and "I insisted on sex when my partner did not want to or insisted on sex without a condom (but did not use physical force)" (sexual coercion). Each item is listed twice, with the first asking about the respondent's behavior and the second asking about the partner's behavior. Together, the CTS2S

provides perpetration and victimization information on 10 subscales that are each comprised of two items.

The CTS2 and CTS2S were validated in a college sample and are appropriate for emerging adulthood. Moreover, the instrument was designed to be utilized with college students given the high prevalence of IPV in this population (Straus et al., 1996). Previous work has demonstrated that the CTS2S scales exhibit good concurrent validity with the CTS2 and good construct validity (Straus & Douglas, 2004). Previous research on the CTS2 also demonstrates good psychometric properties and that the measure has adequate internal reliability (α = .79 to .95 for all subscales) and moderate to high test-retest reliability (0.49-0.86; Vega & O'Leary, 2007). Examination of convergent validity has suggested that subscales of the CTS2 (full measure) that are theoretically linked (e.g., physical assault and injury, psychological aggression and physical assault) are moderately to strongly correlated. Further, subscales that are not theoretically linked (negotiation and sexual coercion, negotiation and injury) are either nonsignificant or weakly correlated, suggesting evidence for discriminant validity. For this study, the behavior frequency method of scoring was utilized in which subscale scores are calculated by summing the frequency of the behaviors reported on a given subscale during the past six months. As is standard with the frequency method of scoring, the Likert scale was recoded to reflect the midpoint score for the selected range of values, resulting in a range of 0 to 25 for each item (Shorey, Brasfield, Febres, & Stuart, 2011; Straus & Douglas, 2004; Straus et al., 1996). For the purpose of this study, the scale point "This has happened, but not in the past six months" was coded as zero. Internal consistency was not calculated for the subscales given that it is not appropriate to do so when subscales are comprised of two items (Straus & Douglas, 2004).

Self-Report of Aggression and Social Behavior Measure (SRASBM). The SRASBM was used to assess romantic partner physical and relational aggression (Morales & Crick, 1998). The SRASBM is a 56-item measure that was developed to measure aggressive and social behaviors in peer and romantic relationships. The measure includes a romantic partner relational aggression perpetration subscale (5 items), a romantic partner relational aggression victimization scale (5 items), and a romantic partner physical aggression victimization subscale (3 items). Items were rated on a 7-point Likert scale (1 = Not true at all to 7 = Very true). Sample items included "I have threatened to break up with my romantic partner in order to get him/her to do what I wanted." (relational aggression perpetration), "My partner tries to make me feel jealous as a way of getting back at me." (relational aggression victimization), and "My romantic partner has pushed or shoved me in order to get me to do what he/she wants." (physical victimization). The SRASBM has been used in emerging adult samples and the romantic relational aggression and romantic relational victimization subscales have demonstrated adequate internal consistency (α = .66 to .80) in previous work (Goldstein, Chesir-Teran, & McFaul, 2008; Linder, Crick, & Collins, 2002; Murray-Close, Ostrov, Nelson, Crick, & Coccaro, 2010). Additionally, test-retest reliability has been estimated at .88 for the romantic relational aggression subscale (Murray-Close et al., 2010). Scores for each subscale were computed by calculating the mean of the items that comprise the subscale. For the current study, internal consistency of the subscales was good to excellent, with relational aggression perpetration α =.74, relational aggression victimization α =.87, and physical aggression victimization α =.94.

Big Five Inventory (BFI). The Big Five Inventory (Benet-Martinez & John, 1998) is a 44-item measure that was used to assess personality dimensions among the participants. Specifically, the BFI measures levels of extraversion, agreeableness, conscientiousness,

neuroticism, and openness. Eight items each are used to assess extraversion and neuroticism, while nine items each measure agreeableness and conscientiousness. A total of ten items assess openness. Each item is a different characteristic and participants rated each item on a 5-point Likert scale to indicate the degree to which each characteristic described them (1 = Disagree strongly to 5 = Agree strongly). Example items included "I see myself as someone who is talkative" (extraversion), "I see myself as someone who has an active imagination" (openness), "I see myself as someone who does a thorough job" (conscientiousness), "I see myself as someone who likes to cooperate with others" (agreeableness), and "I see myself as someone who gets nervous easily" (neuroticism). The BFI demonstrates good psychometric properties as its internal consistency typically ranges from .75 to .90, and previous work has suggested a 3-month test-retest reliability ranging from .80 to .90 (Benet-Martinez & John, 1998). Moreover, the BFI is appropriate for assessing dimensions of personality in emerging adulthood as it has been used among university students in the U.S. and internationally (Benet-Martinez & John, 1998). To determine a participant's personality dimensions, mean scores were computed for each of the five personality dimensions. For the current study, internal consistency for the extraversion (α = .85), agreeableness (α = .83), conscientiousness (α = .76), neuroticism (α = .82), and openness (α = .78) subscales was good.

Center for Epidemiological Studies Depression Scale (CES-D). The CES-D was used to measure self-reported symptoms of depression (Radloff, 1977). The CES-D was developed to assess levels of depression in the general population and was designed for use in epidemiological studies rather than as a diagnostic or evaluation tool. The inventory contains 20 items, and individuals rated the extent to which they have experienced each item over the past week. Items were rated on a 4-point Likert scale ranging from 0 (rarely or none of the time; less than 1 day)

to 3 (most of or all of the time; 5-7 days). Sample items included "I felt like everything I did was an effort" and "I did not feel like eating; my appetite was poor." The CES-D is appropriate for emerging adults and previous work has found it to be acceptable and reliable for adolescents, college students, and adults (Radloff, 1977). The CES-D demonstrates adequate psychometric properties as its internal consistency for adolescents, college students, and adults is good (α = .84 to .87), and the measure demonstrates moderate test-retest reliability over a two-week interval (Radloff, 1977, 1991). Scores on the CES-D were calculated as the sum of all responses to the items, and the range of possible scores is zero to 60. For the current study, internal consistency was excellent, α = .90.

Rutgers Alcohol Problems Index (RAPI). A modified version of the RAPI was used to assess self-reported drinking problems (White & Labouvie, 1989). The RAPI is a 23-item measure used to examine alcohol-related problems that have occurred over the past six months. The modified version of the RAPI includes an additional scale point allowing for greater differentiation among higher levels of alcohol problems. Items are rated on a 4-point Likert scale (0 = Never, 1 = 1 to 2 times, 2 = 3 to 5 times, 3 = 6 to 10 times, 4 = More than 10 times). Sample items include "Kept drinking when you promised yourself not to" and "Got into fights with other people." The RAPI is an appropriate measure of drinking problems in adolescent and young adult samples (White & Labouvie, 1989). Psychometric properties of the RAPI are strong, with one-month test-retest reliability estimated at .78 to .83 and high internal consistency (α = .87 to .91; Miller et al., 2002; White & Labouvie, 1989). Scores on the RAPI are the sum of all responses. For the current study, internal consistency was excellent, α = .94.

Drug Use Disorders Identification Test (DUDIT). The DUDIT was used to measure self-reported drug abuse (Stuart, Moore, Kahler, & Ramsey, 2003; Stuart, Moore, Ramsey, &

Kahler, 2004). The DUDIT is a 14-item measure that assesses the frequency and consequences of drug use with within the past six months. Seven items assess the frequency of drug use among specific classes of drugs including cannabis, cocaine, nonprescribed stimulants, nonprescribed opiates, nonprescribed sedatives/hypnotics/anxiolytics, hallucinogens/PCP, and "other" substances (Stuart et al., 2003). Use of these substances is rated on a 7-point Likert scale ranging from 0 (Never) to 6 (4 or more times per week). Seven additional items assess negative consequences of drug use and symptoms that may be indicative of dependence or tolerance. Five of these items are rated on a 5-point Likert scale (0 = Never, 4 = Daily or almost daily) and two items are rated on a 3-point Likert scale (0 = No, 2 = Yes, but not in the last six months, 4 = Yes, during the last six months; Shorey, Anderson, & Stuart, 2014; Stuart et al., 2003). Sample items include "About how often did you use cocaine (for example, intranasal, IV, crack, freebase, "speedball", or other)?" and "How often during the past six months have you had a feeling of guilt or remorse after using drugs?". The DUDIT is appropriate for use in emerging adults as it has previously been used to assess drug use within male and female populations over 18 years of age (Stuart et al., 2003). Previous research has demonstrated a high internal consistency (α = .83 to .90; Stuart et al., 2003; Stuart et al., 2004). Scores on the DUDIT are the sum of all responses and the possible range is zero to 70. For the current study, internal consistency was α = .83.

Daily Drinking Questionnaire (DDQ). The DDQ (Collins, Parks, & Marlatt, 1985) was used to assess the quantity and frequency of participant alcohol use. The measure asked participants to fill an estimate of the average number of drinks consumed on each day of the week for the past six months. The DDQ has frequently been used as a measure of drinking quantity and frequency among college students and emerging adults, and previous studies have demonstrated adequate internal consistency (Geisner, Larimer, & Neighbors, 2004; Larimer,

Turner, Mallett, & Geisner, 2004). Average weekly baseline level of drinking was calculated as the sum of the total number of drinks endorsed. For the current study, internal consistency was good, $\alpha = .78$.

Rusbult Investment Model Scale. Self-reported measures of relationship satisfaction were measured with the relationship satisfaction subscale of the 22-item Rusbult Investment Model Scale (Rusbult, Martz, & Agnew, 1998). The Rusbult Investment Model was developed to assess commitment, relationship satisfaction, the quality of relationship alternatives, and relationship investment within a romantic relationship. The relationship satisfaction subscale includes five items, which measure global relationship satisfaction. Relationship satisfaction items were rated on a 9-point Likert scale ranging from 1 = Do not agree at all to 9 = Completely agree. Sample items included "My relationship is much better than others' relationships" and "My relationship is close to ideal." The Rusbult Investment Model has been utilized in college samples and is developmentally appropriate for use with emerging adults (Rusbult et al., 1998). The Rusbult Investment Model subscales have demonstrated good internal consistency ($\alpha = .82$ to .95). Furthermore, the measure also suggests convergent and discriminant validity, as Investment Model subscales were moderately to strongly associated with indices of superior functioning within couples, and Investment Model subscales were weakly associated with personal disposition variables (Rusbult et al., 1998). Scores on this subscale was the mean of the five items. For the current study, internal consistency was excellent, $\alpha = .94$.

Academic Functioning. Academic functioning was assessed by having participants provide their current grade point average (GPA). Since it was predicted that numerous participants may be in their first semester of college and may not have established a GPA, participants were asked to indicate whether they knew their current GPA. All participants were

also asked to rate how they felt they were currently performing in college using a 3-point Likert scale (1 = Below the average student, 2 = Average, 3 = Better than the average student).

Demographics. Participants completed a demographics questionnaire designed for this study including items assessing: age, year in college, sex, race/ethnicity, relationship status, sexual orientation, length of relationship, and parental education status.

Hypotheses

Hypothesis 1: Confirmatory Factor Analysis. Consistent with Aim 1, which sought to establish construct validity through confirming the factor structure of the revised PEAQ through CFA, it was hypothesized that the PEAQ factor structure identified in Study 1 would be confirmed in a second independent sample. Accordingly, the 16 items were expected to load onto two factors consisting of public electronic aggression and private electronic aggression. Additionally, each of these factors was expected to be comprised of a perpetration (4 items) and a victimization (4 items) subscale.

Hypothesis 2a: Internal Consistency Reliability. Hypotheses 2a-c address the second aim of establishing the psychometric properties of the PEAQ. I predicted that the four PEAQ subscales, public electronic aggression perpetration, public electronic aggression victimization, private electronic aggression perpetration, and private electronic aggression victimization, would demonstrate adequate internal consistency reliability. To be considered reliable, each subscale had to demonstrate a Chronbach's alpha (α) of at least 0.7. Furthermore, the average inter-item correlation was required to be at least 0.3 for each factor (Kline, 1999).

Hypothesis 2b: Convergent construct validity. Since previous research has suggested that personality aspects may be useful in studying and understanding aggressive behavior (Bettencourt et al., 2006; Hines & Saudino, 2008), the Big Five dimensions of personality were

examined as constructs demonstrating convergent and discriminant construct validity. Of the dimensions measured by the Big Five Inventory (i.e., neuroticism, agreeableness, openness to experience, conscientiousness, extroversion), neuroticism and agreeableness have most commonly been linked with aggressive behavior (Bettencourt et al., 2006; Hines & Saudino, 2008). Previous research has shown that couples higher in neuroticism engage in higher rates of IPV on average (Hellmuth & McNulty, 2008). Additionally, research also suggests that low levels of agreeableness may be associated with aspects of IPV, including perpetration of physical aggression for women and perpetration of sexual coercion and stalking for both genders (Hines & Saudino, 2008; Kamphuis, Emmelkamp, & de Vries, 2004; Menard et al., 2010). Accordingly, in evaluating convergent validity, I predicted that electronic aggression perpetration (i.e., both public and private) would be positively correlated with neuroticism, and negatively associated with agreeableness.

Additionally, since previous work (Schnurr et al., 2013) has suggested that electronic aggression may be associated with physical and psychological forms of IPV, psychological aggression and physical assault were examined as constructs demonstrating convergent validity with electronic aggression. I predicted that electronic aggression perpetration would be associated with perpetration of physical and psychological aggression perpetration.

It should be noted that for these analyses, moderate correlations greater than $r = 0.4$ and a statistically significant alpha value of $p < .05$ were the criteria set to demonstrate convergent validity (Kline, 1999).

Hypothesis 2c: Discriminant construct validity. In addition, prior work on aspects of personality and aggression suggests that openness to experience is not associated with IPV or aggressive behavior (Hines & Saudino, 2008; Kamphuis et al., 2004; Menard et al., 2010). Thus,

in evaluating discriminant validity, I predicted that the electronic aggression subscales would be weakly associated with openness to experience and would demonstrate discriminant validity. Furthermore, negotiation is a positive relationship process that is not associated with couple conflict (Straus & Douglas, 2004), negotiation was also predicted to exhibit discriminant validity with the electronic aggression subscales. To demonstrate discriminant validity, correlations should demonstrate that the constructs are weakly related; thus, a weak correlation ($r < 0.4$) with a statistically significant alpha value of $p < .05$ or a nonsignificant alpha value were the criteria set to demonstrate discriminant validity (Kline, 1999; Straus et al., 1996).

Due to the lack of previous research in this area, particularly with regard to the new constructs of public and private electronic aggression, several exploratory analyses were performed after examining convergent and divergent validity. Specifically, partial correlations between the four electronic aggression subscales and the five dimensions of personality (as measured by the BFI) were computed. Moreover, partial correlations were conducted between electronic aggression subscales and the forms of IPV perpetration and victimization as measured by the CTS2S.

Hypothesis 2d: Associations Between PEAQ Subscales. Given that types of aggression (i.e., physical and psychological) within romantic relationships are often correlated (Testa et al., 2011), and the most common pattern of aggression within couples is bidirectional (Kessler, Molnar, Feurer, & Appelbaum, 2001; Straus, 2008), I predicted that the four PEAQ subscales would be moderately to strongly positively correlated.

Hypothesis 3: Experience with Electronic Aggression. The third aim was to determine the percentage of the sample that reported use of electronic aggression in their current relationship (i.e., either perpetration or victimization). I predicted that the percentage of

participants that would endorse electronic aggression in their current relationship would be similar to rates reported in previous studies (approximately 70-80% of emerging adults; Bennett et al., 2011; Kellerman et al., 2013).

Hypothesis 4: Electronic Aggression and Relational and Physical Aggression. The fourth aim was to assess whether electronic aggression was associated with other measurements of aggression including relational aggression perpetration, relational aggression victimization, and physical aggression victimization. Since there is likely to be overlap between electronic aggression and relational and physical forms of aggression, and since romantic partner aggression is commonly bidirectional (Kessler, Molnar, Feurer, & Appelbaum, 2001; Straus, 2008), I predicted that the four subtypes of electronic aggression would be associated with relational aggression perpetration, relational aggression victimization, and physical victimization. This was assessed through bivariate correlation analyses. Additionally, multiple regression procedures were utilized to determine how relational aggression, and physical victimization were uniquely related to electronic aggression. Specifically, the three subtypes of aggression (i.e., relational aggression perpetration, relational aggression victimization, and physical aggression victimization) were simultaneously regressed on the electronic aggression subscales and demographic variables. Given the potential overlap between the constructs of private electronic aggression and relational aggression, I predicted that private electronic aggression perpetration would be uniquely related to relational aggression perpetration and that private electronic aggression victimization would be uniquely related to relational aggression victimization. Since it is uncertain as to how physical victimization may be related to forms of electronic aggression, this was evaluated as an exploratory analysis.

Hypothesis 5: Electronic Aggression and Concurrent Psychosocial Functioning. To address Aim 5 and establish concurrent validity, the association between the electronic aggression subtypes and psychosocial functioning was evaluated. To date, few studies have examined the link between electronic aggression and psychosocial adjustment. However, work by Bennett and colleagues (2011) suggests that electronic aggression victimization by a romantic partner is associated with alcohol use, substance use, and perpetration of aggression, at least for women. Accordingly, this study expanded current research by examining the link between electronic aggression and five indicators of psychosocial functioning— alcohol problems, drug use, depression, relationship satisfaction, and academic functioning. Since previous research has suggested that alcohol and drug use are both associated with IPV victimization and perpetration (Coker et al., 2002; Foran & O'Leary, 2008; Moore et al., 2008), I hypothesized that electronic aggression perpetration and victimization would be positively associated with alcohol problems and drug use. Additionally, since previous work has demonstrated that depression is associated with IPV victimization (Coker et al., 2002), I predicted that electronic aggression victimization would be positively associated with depression. Further, research by Testa and colleagues (2003) has suggested that aggression in romantic relationships is negatively associated with concurrent relationship satisfaction. Accordingly, I expect that electronic aggression perpetration and victimization will be negatively associated with relationship satisfaction. Although no known studies have examined the link between electronic aggression and academic functioning, I predicted that the association between electronic aggression perpetration and academic functioning would be consistent with prior research demonstrating a negative association between overt and relational aggression and academic functioning (Barriga et al., 2002; Campbell et al., 2006; Herrenkohl et al., 2009; Preddy & Fite, 2012; Putallaz et al., 2007).

Thus, it was expected that electronic aggression perpetration would be negatively associated with participants' reports of their academic functioning as measured by either their current GPA or their indication of current academic functioning. It should be noted that given that no a priori hypotheses were made regarding the number of factors comprising the PEAQ and that public and private electronic aggression are new constructs, no a priori hypotheses were developed with regard to how public and private electronic aggression may be related to psychosocial functioning. However, these constructs were simultaneously examined with electronic aggression perpetration and electronic aggression victimization to determine which subtypes of electronic aggression (i.e., public electronic aggression perpetration, public electronic aggression victimization, private electronic aggression perpetration, private electronic aggression victimization) were uniquely related to indicators of psychosocial functioning. Thus, it was predicted that the above hypotheses would hold even when accounting for the variance associated with the public and private forms of electronic aggression.

Data Analytic Plan

Descriptive statistics were first examined to characterize the sample in terms of age, racial/ethnic background, level of educational attainment, relationship length, relationship status (i.e., dating casually, dating exclusively, engaged, or married), and parental education status. Bivariate correlations, means, and standard deviations of the electronic aggression subscales and participant characteristics were computed.

To address Hypothesis 1, a Confirmatory Factor Analysis (CFA) was conducted to examine the factor structure of the PEAQ in an independent sample. This process was confirmed through bootstrapping procedures. Next, the psychometric properties of the scale were evaluated. Internal consistency reliability was calculated for each subscale (Hypothesis 2a). To

examine convergent and discriminant validity of public electronic aggression perpetration and private electronic aggression, partial correlations were conducted with variables expected to demonstrate validity. In these analyses, electronic aggression factors were controlled (i.e., public perpetration partial correlations controlled for private perpetration and private victimization and private partial correlations controlled for public perpetration and public victimization; Hypotheses 2b and 2c). Partial correlations between the electronic aggression subscales, personality dimensions, and forms of IPV were evaluated as exploratory analyses. Correlations between the four electronic aggression subscales were then evaluated to determine the association between the four types of behaviors (Hypothesis 2d). Subsequently, the percentage of the sample endorsing experience with the four subscales of electronic aggression was calculated (Hypothesis 3). Next, the relationship between the electronic aggression subscales and relational aggression perpetration, relational aggression victimization, and physical aggression victimization was evaluated through bivariate correlations and regression analyses (Hypothesis 4). To examine unique associations, the three outcome variables (i.e., relational aggression perpetration, relational aggression victimization, and physical aggression victimization) were simultaneously regressed on the electronic aggression subscales (i.e., public perpetration, public victimization, private perpetration, and private victimization). Age, sex, race, sexual orientation, relationship length, messaging use, and social media use were initially considered as covariates in the model. However, only race and sex were maintained in the analyses because age, sexual orientation, relationship length, messaging use, and social media use were not significantly related to outcome variables. Finally, to examine the link between psychosocial functioning and electronic aggression, drug use, alcohol problems, depressive symptoms, relationship satisfaction, self-reported academic performance, and cumulative GPA

were regressed first on public electronic aggression perpetration and private electronic aggression perpetration, and then on public electronic aggression victimization and private electronic aggression victimization. Age, sex, race, sexual orientation, and relationship length were included as covariates in the models because these were the only demographic characteristics significantly related to study outcomes. Number of drinks per week (as measured by the DDQ) was included as a covariate in the regressions evaluating the link between alcohol problems and aggression.

Results

Preliminary Procedures

Prior to conducting analyses, the data was preliminarily screened. No out-of-range values were identified. In examining the PEAQ, 11 item responses (.16%) of the data were missing and no more than three cases were missing for any item. A full PEAQ protocol was available for 97.9% of participants (*N*= 502). List-wise deletion was utilized for handling missing data.

Descriptive Statistics

Correlations, means, and standard deviations for the four subtypes of electronic aggression and demographic variables were calculated (see Table 3 for all means and standard deviations for Study 2; for correlations with demographic variables, see Table 4). Age, sex, sexual orientation, ethnicity, relationship status, class standing, mother's educational attainment, and father's educational attainment were not significantly correlated with the four electronic aggression subscales (i.e., public perpetration, public victimization, private perpetration, or private victimization. Race was positively and significantly correlated with public perpetration, private perpetration, and private victimization, suggesting that racial minorities reported higher

levels of these forms of electronic aggression. The correlation between race and public victimization was not significant. Private victimization was significantly positively correlated with relationship length ($r = .11$, $p = .02$), suggesting that individuals in longer relationships reported higher levels of private victimization. The other electronic aggression subscales were not significantly associated with relationship length.

Hypothesis 1: Confirmatory Factor Analysis. First, a Confirmatory Factor Analysis (CFA) was conducted using AMOS 22 to assess the adequacy of the two-factor model established in Study 1. Maximum likelihood was employed as the estimation method and indicators loaded on their underlying factors and inter-factor correlations were allowed. Their corresponding measurement errors were also estimated. With respect to model fit, several tests were used to evaluate the models. First, the overall model χ^2 (e.g., Bollen, 1989) was used. Generally, a non-significant chi-square test, leading to non-rejection of the model, would suggest a relatively good approximation of the data. However, the χ^2 test is sensitive to sample size (Bollen, 1989); thus, the chi-square degrees of freedom ratio (χ^2 / *df*) was also examined, in which a ratio of less than 3.0 is considered acceptable and a ratio of less than five being permissible (Hu & Bentler, 1999; Kline, 2011). Further, the model was evaluated using the Root Mean Square Error of Approximation (RMSEA; Browne & Cudeck, 1993), in which RMSEA were identified as follows: RMSEA < .05 = good, RMSEA .05-.08 = reasonable or acceptable, RMSEA .08-.10 = mediocre, and RMSEA ≥ .10 = poor (Browne & Cudeck, 1993; MacCallum, Browne, & Sugawara, 1996). The Comparative Fit Index (CFI) criterion was set at CFI ≥ .95 (Bentler, 1990; Hu & Bentler, 1999), and the Tucker-Lewis Index (TLI) cutoff was set at TLI ≥ .95 (Bentler & Bonett, 1980; Hu & Bentler, 1999). These indices were selected to provide a

comprehensive examination of the models and were evaluated together as they provide a conservative and reliable evaluation of the tested models (Jaccard & Wan, 1996).

In conducting the CFA, each factor extracted in Study 1 (public electronic aggression and private electronic aggression) was entered as a latent variable with corresponding scale items entered as observed variables. A single two-factor model was fit to the data. Please see Figure 1 in Appendix B. The model was statistically significant χ^2 (52, n = 513) = 170.01, $p < .01$, with a chi-square degrees of freedom ratio of 3.26, which is within the acceptable range (Hu & Bentler, 1999; Kline, 2011). Overall, the results suggest acceptable model fit (RMSEA =.06, $CI_{90\%}$ = .05-.07; CFI = .98; TLI = .96). A replication of this CFA model was computed utilizing bootstrapping procedures (*N*boot = 2000). Missing data was deleted using list-wise deletion resulting in a final sample of N = 502. All individual items significantly loaded on their underlying factor. Accordingly, results establish construct validity for the PEAQ and support the hypothesis that the PEAQ factor structure identified in Study 1 would be confirmed in a second independent sample.

Hypothesis 2a: Internal Consistency Reliability. Given that the two-factor model of the16-item PEAQ fit the data, internal consistency reliability was computed for each subscale. The following criteria for coefficient alpha (Cronbach's alpha α) were applied to examine whether internal consistency was acceptable. These levels are as follows: excellent ($\alpha \geq .9$), good ($.9 > \alpha \geq .8$), and acceptable ($.8 > \alpha \geq .7$; George & Mallery, 2008; Kline, 1999). Furthermore, the average inter-item correlation for each factor was required to be at least 0.3 (Kline, 1999). Internal consistency for each subscale was good with public electronic aggression perpetration α = .89, public electronic aggression victimization α = .88, private electronic aggression perpetration α = .81, and private electronic aggression victimization α = .81. Internal

consistency for the overall scale was good, $\alpha = .87$. Furthermore, inter-item correlations were adequate with $r > 0.55$ for the public electronic aggression factor and $r > 0.31$ for the private electronic aggression factor. Therefore, results suggest that Hypothesis 2a is supported since the scale demonstrated adequate internal consistency reliability for each subscale and factor inter-item correlations of $r > 0.3$.

Hypothesis 2b: Convergent construct validity. In establishing convergent validity, I predicted that electronic aggression perpetration (i.e., both public and private) would be positively correlated with neuroticism, and negatively associated with agreeableness. Moreover, I predicted that electronic aggression perpetration would be associated with perpetration of physical assault and psychological aggression. For these analyses, moderate correlations greater than $r = 0.4$ and a statistically significant alpha value of $p < .05$ were the criteria set to demonstrate convergent validity (Kline, 1999). Bivariate and partial correlations for these hypotheses are presented in Table 5.

In examining the association between public electronic aggression perpetration and agreeableness, neuroticism, physical assault perpetration, and psychological aggression perpetration, partial correlations controlling for private perpetration and private victimization were conducted. Although partial correlations between public perpetration and agreeableness ($r = -.14$, $p < .01$), physical assault perpetration ($r = .25$, $p < .001$), and psychological aggression perpetration ($r = .10$, $p < .05$) were significant and in the expected directions, these correlations did not meet criteria for convergent validity given that they were less than $r = .40$. Unexpectedly, neuroticism was not associated with public electronic aggression perpetration. Partial correlations were also conducted between private electronic aggression perpetration and agreeableness ($r = -.14$, $p < .01$), neuroticism ($r = .12$, $p < .01$), physical assault perpetration ($r =$

.24, $p < .001$), and psychological aggression perpetration ($r = .44$, $p < .001$), and these associations were also in the expected directions. However, only psychological aggression perpetration met criteria for convergent validity with private perpetration of electronic aggression. Accordingly, Hypothesis 2b was only partially supported.

Hypothesis 2c: Discriminant construct validity. In addition, prior work on aspects of personality and aggression suggests that openness to experience is not associated with IPV or aggressive behavior (Hines & Saudino, 2008; Kamphuis et al., 2004; Menard et al., 2010). Thus, in evaluating discriminant validity, I predicted that the electronic aggression perpetration subscales would be either weakly associated or not significantly associated with openness to experience and would demonstrate discriminant validity. Moreover, since negotiation is a positive relationship quality that is not associated with couple conflict (Straus & Douglas, 2004), negotiation was also predicted to exhibit discriminant validity with the electronic aggression perpetration subscales. To demonstrate discriminant validity, correlations should demonstrate that the constructs are weakly related; thus, a weak correlation ($r < 0.4$) and a statistically significant alpha value of $p < .05$ or presence of a nonsignificant correlation were the criteria set to demonstrate discriminant validity (Kline, 1999; Straus et al., 1996). Bivariate and partial correlations for these hypotheses are presented in Table 6.

In examining the association between public electronic aggression perpetration and openness, negotiation suggested by participant, and negotiation suggested by partner, partial correlations controlling for private perpetration and private victimization were conducted. Partial correlations suggested that negotiation suggested by the participant was weakly and negatively associated with public perpetration of electronic aggression ($r = -.11$, $p < .01$), and met criteria for discriminant validity. There was a negative marginal trend between negotiation

suggested by the partner and public perpetration of aggression (r = -.09, p = .53) and openness was not related to public perpetration of electronic aggression. Thus, these constructs also met criteria for discriminant validity with public perpetration of electronic aggression. In contrast, negotiation suggested by the participant (r = .18, p < .001) and negotiation suggested by the partner (r = .13, p < .01) were positively and significantly associated with private perpetration of electronic aggression, suggesting divergent validity with these constructs. Interestingly, it should be noted that the direction of the association differed between negotiation and the subtypes of perpetration (i.e., public versus private). Additionally, openness was not weakly correlated with private perpetration of electronic aggression, suggesting that Hypothesis 2c was supported.

Since this is the first study to examine the forms of electronic aggression assessed by the PEAQ, exploratory analyses involving partial correlations between the electronic aggression subtypes and dimensions of personality were conducted. In these analyses, the electronic aggression factor not being evaluated was controlled for (i.e., public analyses controlled for private aggression and private analyses controlled for public aggression). Public electronic aggression perpetration was significantly and negatively correlated with extraversion (r = -.10, p < .05), agreeableness (r = -.14, p < .01), and conscientiousness (r = -.14, p < .01). Public electronic aggression victimization was negatively associated with agreeableness (r = -.14, p < .01) and conscientiousness (r = -.12, p < .01). Private perpetration of aggression was negatively associated with agreeableness (r = -.15, p < .01) and conscientiousness (r = -.15, p < .01), but positively associated with neuroticism (r = .14, p < .01). Moreover, private victimization was negatively associated with agreeableness (r = -.12, p < .01) and conscientiousness (r = -.16, p < .01). There was a marginal trend for a positive association between private electronic aggression

victimization and neuroticism. Bivariate and partial correlations for these hypotheses are presented in Table 7.

Additionally, exploratory analyses involving partial correlations between the electronic aggression subtypes and subscales from the CTS2S were evaluated to assess the link between electronic aggression and aspects of IPV and conflict tactics. When computing partial correlations for public forms of aggression, private perpetration and private victimization were controlled. Likewise, the public forms of aggression were controlled when computing partial correlations with the private electronic aggression subscales. Results suggested that public perpetration of electronic aggression was significantly and positively correlated with psychological aggression victimization ($r = .10$, $p < .05$), physical assault perpetration ($r = .09$, $p < .05$), physical assault victimization ($r = .23$, $p < .001$), sexual coercion perpetration ($r = .13$, $p < .01$), sexual coercion victimization ($r = .10$, $p < .05$), injury perpetration ($r = .28$, $p < .001$), and injury victimization ($r = .26$, $p < .001$). Public electronic aggression victimization was positively associated with physical assault victimization ($r = .21$, $p < .001$), sexual coercion perpetration ($r = .16$, $p < .001$), sexual coercion victimization ($r = .12$, $p < .05$), injury perpetration, ($r = .30$, $p < .001$), and injury victimization ($r = .28$, $p < .001$). Neither public perpetration nor public victimization was associated with negotiation suggested by the participant, negotiation suggested by the partner, or psychological aggression perpetration. Additionally, public victimization was not associated with psychological aggression perpetration.

In contrast, private electronic aggression perpetration was positively associated with negotiation suggested by the participant ($r = .16$, $p < .001$), negotiation suggested by the partner ($r = .11$, $p < .05$), psychological aggression perpetration ($r = .44$, $p < .001$), psychological aggression victimization ($r = .34$, $p < .001$), and physical assault perpetration ($r = .25$, $p < .001$).

Private electronic aggression victimization was positively correlated with negotiation suggested by the participant ($r = .16$, $p < .01$), negotiation suggested by the partner ($r = .12$, $p < .01$), psychological aggression perpetration ($r = .41$, $p < .001$), psychological aggression victimization ($r = .34$, $p < .001$), and physical assault perpetration ($r = .22$, $p < .001$). Neither private perpetration nor private victimization was associated with physical assault victimization, sexual coercion perpetration, sexual coercion victimization, injury perpetration, or injury victimization. These results are presented in Table 8.

Hypothesis 2d: Associations Between PEAQ Subscales. In accord with previous research on the association between aggression subtypes (Kessler et al., 2001; Preddy & Fite, 2012; Testa et al., 2011), I predicted that the four PEAQ subscales would be moderately to strongly positively correlated. Results partially support Hypothesis 2d in that perpetration and victimization within each electronic aggression factor were strongly correlated. Public electronic aggression perpetration and public electronic aggression victimization were strongly positively correlated ($r = .91$, $p < .001$), and private electronic aggression perpetration and private electronic aggression victimization were strongly positively correlated ($r = .82$, $p < .001$). Interestingly, public electronic aggression perpetration was weakly and positively correlated with private electronic aggression perpetration ($r = .21$, $p < .001$) and private electronic aggression victimization ($r = .17$, $p < .001$). Public electronic aggression victimization was also weakly positively correlated with private electronic aggression perpetration ($r = .15$, $p < .01$) and private electronic aggression victimization ($r = .13$, $p < .01$). Thus, Hypothesis 2d was partially supported (see Table 9).

Hypothesis 3: Experience with Electronic Aggression. The third aim was to determine the percentage of the sample that reported use of electronic aggression in their current

relationship within the past six months (i.e., either perpetration or victimization). I expected that the percentage of participants that would endorse at least one act of electronic aggression in their current relationship would be similar to rates reported in previous studies (approximately 70-80% of emerging adults; Bennett et al., 2011; Kellerman et al., 2013). To calculate the percentage of participants who reported experience with electronic aggression in the previous six months, scores on the PEAQ were converted to a prevalence score in which no experience was coded as 0 and any experience was coded as 1. Percentages were then calculated to determine the percentage of participants who endorsed experiencing electronic aggression. Results suggested that approximately 53.4% (n = 268) of participants had experienced some form of electronic aggression in their romantic relationship during the previous six months. More specifically, 4.1% (n = 20) of participants reported perpetrating public electronic aggression against their partner, while 5.9% (n = 30) of participants reported that they had been victims of public electronic aggression. Private electronic aggression was more common, with 51.6% (n = 263) of participants endorsing perpetration and 50.6% (n = 256) of participants endorsing victimization. Accordingly, Hypothesis 3 was not supported because the percentage of participants endorsing experience with electronic aggression was approximately 53.4%, as opposed to the estimates of 70-80% of emerging adults reported in previous work (Bennett et al., 2011; Kellerman et al., 2013).

Hypothesis 4: Electronic Aggression and Relational and Physical Aggression. The fourth aim was to assess whether electronic aggression was associated with other measurements of traditional aggression including relational aggression perpetration, relational aggression victimization, and physical aggression victimization. Since there is likely to be overlap between electronic aggression and relational and physical forms of aggression, and that romantic partner

aggression is commonly bidirectional (Kessler, Molnar, Feurer, & Appelbaum, 2001; Straus, 2008), I predicted that the four subtypes of electronic aggression would be associated with relational aggression perpetration, relational aggression victimization, and physical victimization through bivariate correlations. Additionally, I predicted that public electronic aggression perpetration would be uniquely related to relational aggression perpetration. I also hypothesized that public electronic aggression victimization would be uniquely related to relational aggression victimization. Since previous work has not demonstrated evidence for how physical victimization may be related to forms of electronic aggression, this was evaluated as an exploratory analysis.

First, bivariate correlations between demographic variables, the electronic aggression subscales, and the subtypes of aggression (i.e., relational aggression perpetration, relational aggression victimization, and physical aggression victimization) were evaluated (see Table 10). Results suggested that age was positively correlated with physical aggression victimization (r = .10, p < .05). Sex was negatively correlated with relational aggression victimization (r = -.16, p < .001) and physical aggression victimization (r = -.09, p < .05), suggesting that men are more likely to report relational and physical aggression victimization. Race was positively associated with public perpetration of electronic aggression (r = .09, p < .05), private perpetration of electronic aggression (r = .18, p < .001), private electronic aggression victimization (r = .11, p < .05), relational aggression perpetration (r = .17, p < .001), relational aggression victimization (r = .10, p < .05), and physical aggression victimization (r = .15, p < .001), such that minority participants were more likely to report experiencing these aggression constructs. Sexual orientation was positively correlated with physical aggression victimization (r = .10, p < .05), suggesting that sexual minorities reported higher levels of physical aggression victimization.

Relationship length was significantly correlated with private electronic aggression victimization ($r = .11$, $p < .05$), suggesting that participants in longer relationships reported more incidents of private electronic aggression victimization in the past six months. Interestingly, social media use was negatively associated with public electronic aggression victimization ($r = -.09$, $p < .05$) and positively associated with private electronic aggression victimization ($r = .10$, $p < .05$). Ethnicity, use of electronic messaging, and relationship status were not significantly associated with any of the aggression variables.

Bivariate correlations between the electronic aggression subscales and relational aggression perpetration, relational aggression victimization, and physical aggression victimization are presented in Table 11. Examination of bivariate correlations suggested that public electronic aggression perpetration was positively and weakly correlated with relational aggression perpetration ($r = .18$, $p < .001$) and relational aggression victimization ($r = .18$, $p < .001$). Public electronic aggression victimization was positively and weakly associated with relational aggression perpetration ($r = .17$, $p < .001$) and relational aggression victimization ($r = .19$, $p < .001$). Private electronic aggression perpetration was positively and moderately associated with relational aggression perpetration ($r = .47$, $p < .001$) and relational aggression victimization ($r = .46$, $p < .001$). Private electronic aggression victimization was also moderately and positively associated with relational aggression perpetration ($r = .37$, $p < .001$) and relational aggression victimization ($r = .39$, $p < .001$). In examining the association between electronic aggression and physical aggression victimization, public electronic aggression perpetration was moderately and positively associated with physical aggression victimization ($r = .35$, $p < .001$). Public electronic victimization was weakly and positively associated with physical aggression victimization ($r = .29$, $p < .001$). Furthermore, there were weak and positive correlations

between physical aggression victimization and private electronic aggression perpetration (r = .21, $p < .001$) and private electronic aggression victimization (r = .18, $p < .001$).

Next, to examine unique associations, the three outcome variables (i.e., relational aggression perpetration, relational aggression victimization, and physical aggression victimization) were simultaneously regressed on the electronic aggression subscales (i.e., public perpetration, public victimization, private perpetration, and private victimization). Age, sex, race, sexual orientation, relationship length, and social media use were initially considered as covariates in the model. However, since age, sexual orientation, relationship length, and social media use were not significantly related to study outcomes, only sex and race were included in subsequent analyses in order to reduce the number of parameters included in the models (see Table 12).

Interestingly and counter to expectations, private electronic aggression perpetration was uniquely and positively associated with relational aggression perpetration, suggesting that high levels of private electronic aggression perpetration are associated with high levels of relational aggression perpetration. Race was positively associated with relational aggression perpetration, such that minority participants exhibited higher levels of relational aggression perpetration than Caucasian participants. There was a positive marginal trend for the association between sex and relational aggression perpetration.

In contrast to Hypothesis 4, private electronic aggression perpetration was also uniquely and positively associated with relational aggression victimization, suggesting that high levels of private electronic aggression perpetration are associated with high levels of relational aggression victimization. Sex was negatively associated with relational aggression victimization, such that men exhibited higher levels of relational aggression victimization than women.

Finally, an exploratory analysis was conducted to examine the association between physical aggression victimization and the electronic aggression subscales. Interestingly, both public electronic aggression perpetration and private electronic aggression perpetration were uniquely and positively associated with physical aggression victimization, suggesting that high levels of public and private electronic aggression perpetration are associated with high levels of physical aggression victimization. Race was positively associated with physical aggression victimization, such that racial minorities reported higher levels of physical aggression victimization in their relationships. There was a negative marginal trend for the association between sex and relational aggression perpetration.

Hypothesis 5: Electronic Aggression and Concurrent Psychosocial Functioning. The final hypothesis addressed the fifth aim which was to examine concurrent validity through evaluating the link between electronic aggression victimization and perpetration and five indicators of psychosocial functioning— alcohol problems, drug use, depressive symptoms, relationship satisfaction, and academic functioning. Given the link between IPV perpetration and victimization and drug and alcohol use found in previous research (Coker et al., 2002; Moore et al., 2008; Testa et al., 2011), I hypothesized that electronic aggression perpetration and victimization would be positively associated with alcohol problems and drug use. Additionally, since previous work has demonstrated a significant association between IPV victimization and depression (Coker et al., 2002; Próspero, 2007), I predicted that electronic aggression victimization would be positively associated with depressive symptoms. Furthermore, I hypothesized that electronic aggression perpetration and victimization would be negatively associated with relationship satisfaction. This hypothesis was based on previous work demonstrating a negative relationship between IPV and reported relationship satisfaction

(Fonseca et al., 2006; Testa et al., 2003). I also predicted that the association between electronic aggression perpetration and academic functioning would be consistent with prior research demonstrating a negative association between aggression perpetration (i.e., overt and relational aggression) and academic functioning (Barriga et al., 2002; Campbell et al., 2006; Herrenkohl et al., 2009; Preddy & Fite, 2012; Putallaz et al., 2007). Thus, it was expected that electronic aggression perpetration would be negatively associated with participants' reports of their academic functioning as measured by either their current GPA or their self-reported current academic functioning. As noted above, since no a priori hypotheses were made regarding the number of factors comprising the PEAQ and because public and private electronic aggression are new constructs, no a priori hypotheses were developed with regard to how public and private electronic aggression may be related to psychosocial functioning. These associations were evaluated as exploratory analyses.

To test Hypothesis 5, the five outcome variables (i.e., drinking problems, drug use, depression, relationship satisfaction, and academic performance) were simultaneously regressed first on the electronic aggression perpetration subscales (i.e., public perpetration and private perpetration) and then on the electronic aggression victimization subscales (public victimization and private victimization). It should be noted that observed variables, rather than latent variables, were used to test Hypothesis 5. Age, sex, race, sexual orientation, relationship length, messaging use, and social media use were initially considered as covariates in the model. However, since messaging use and social media use were not significantly related to study outcomes, only age, sex, race, sexual orientation, and relationship length were included in subsequent analyses in order to reduce the number of parameters included in the models (see Tables 13-16). It should be noted that the Daily Drinking Questionnaire (DDQ) was added to the

model evaluating alcohol problems as a way to control for reported average number of drinks per week (Collins, Parks, & Marlatt, 1985).

Consistent with expectations, public electronic aggression perpetration and private electronic aggression perpetration were uniquely and positively related to drug use (see Table 13). Additionally, sex was negatively related to drug use such that men reported higher levels of drug use than women. Relationship length was also significantly and negatively associated with drug use, suggesting that individuals in longer relationships endorsed lower levels of drug use.

As predicted, public electronic aggression victimization and private electronic aggression victimization were uniquely and positively associated with drug use (see Table 14). Sex was significantly and negatively associated with drug use such that men reported higher levels of drug use. Moreover, relationship length was significantly negatively associated with drug use such that individuals in longer relationships reported lower levels of drug use. Accordingly, the hypotheses regarding electronic aggression and drug use were supported.

The hypothesis that perpetration and victimization would be positively and significantly related to alcohol problems was fully supported. Specifically, public and private electronic aggression perpetration were uniquely and positively associated with drinking problems (see Table 13). Additionally, sexual orientation was positively associated with drinking problems, such that sexual minorities reported higher levels of drinking problems. Drinks per week was also positively significantly associated with alcohol problems and participants who reported higher numbers of drinks per week also reported higher levels of alcohol problems.

Consistent with expectations, public electronic aggression victimization and private electronic aggression victimization were positively associated with alcohol problems (see Table 14). In this model, sexual orientation was positively associated with alcohol problems, with

sexual minorities reporting higher levels of alcohol problems. Furthermore, drinks per week was positively associated with alcohol problems and participants who reported higher numbers of drinks per week also reported higher levels of alcohol problems.

Unexpectedly, public and private electronic aggression perpetration were positively associated with depressive symptoms, suggesting that individuals who endorsed higher levels of either public or private perpetration also reported higher levels of depressive symptoms (see Table 13). Sexual orientation and sex were positively correlated with depressive symptoms, with sexual minorities and women reporting higher levels of depressive symptoms.

As expected, public and private electronic aggression victimization were significantly and positively related to depressive symptoms (see Table 14). Sex and sexual orientation were also positively associated with depressive symptoms, such that women and sexual minorities reported higher levels of depressive symptoms.

Interestingly, private electronic aggression perpetration, but not public electronic aggression perpetration, was significantly and negatively associated with relationship satisfaction (see Table 15). Sexual orientation and age were negatively associated with relationship satisfaction. Accordingly, sexual minorities and older participants reported lower levels of relationship satisfaction. Further, sex was positively associated with relationship satisfaction, with women reporting higher levels of relationship satisfaction than men.

Furthermore, private electronic aggression victimization, but not public electronic aggression victimization, was uniquely and negatively associated with relationship satisfaction (see Table 16). Sexual orientation and age were negatively associated with relationship satisfaction, with sexual minorities and older participants reported lower levels of relationship satisfaction. Taken together, the results regarding relationship satisfaction and perpetration and

victimization were supported. However, public electronic aggression did not demonstrate a negative association with relationship satisfaction.

It was hypothesized that electronic aggression perpetration would be negatively associated with self-reported academic functioning and cumulative GPA (n = 153). This hypothesis was partially supported (see Table 15). Specifically, private electronic aggression perpetration was negatively associated with academic functioning; however, the association between public perpetration and academic functioning was not significant. Furthermore, sex and race were negatively associated with academic functioning such that women and racial minorities reported lower levels of academic functioning. It should be noted that the regression model examining the association between cumulative GPA and electronic aggression perpetration was not significant. Values for this regression are included in Table 15.

In contrast to expectations, private electronic aggression victimization was also negatively associated with academic functioning (see Table 16). The link between public electronic aggression victimization was not significant. Additionally, sex and race were significantly negatively associated with academic functioning and women and racial minorities reported lower levels of academic functioning. In examining the association between victimization and cumulative GPA, private, but not public, electronic aggression victimization was significantly and negatively associated with cumulative GPA. Age was also negatively associated with cumulative GPA, with older participants reporting lower cumulative GPAs.

Brief Discussion

The aim of Study 2 was to confirm the factor structure of the PEAQ and to examine the psychometric properties of the scale. Specifically, Study 2 was designed to assess convergent validity, discriminant validity, and subscale internal consistency reliability. Additionally, Study

2 examined the percentage of emerging adults who endorsed experiencing electronic aggression perpetration or victimization in the previous six months. Study 2 also examined how the electronic aggression subscales were related to other forms of aggression within the romantic relationship including relational aggression, physical aggression, and forms of IPV. Finally, this study examined concurrent validity with five indicators of psychosocial functioning including drug use, alcohol problems, depressive symptoms, relationship satisfaction, and academic functioning.

Results from Study 2 suggest that the PEAQ factor structure derived in Study 1 was confirmed in an independent sample of emerging adults. Furthermore, the PEAQ demonstrated adequate internal consistency for each subscale. Regarding predictions for convergent validity with the PEAQ, only psychological aggression perpetration met criteria for convergent validity with private perpetration of electronic aggression. As expected, openness and negotiation demonstrated discriminant validity with the PEAQ subscales. In examining the relationship between PEAQ subscales, public perpetration and victimization was strongly positively correlated, as was private perpetration and victimization. However, public and private subscales were positively and weakly correlated with each other. Results also suggested that approximately 53.4% of participants had experience with electronic aggression in the previous six months.

Exploratory analyses also examined partial correlations between the electronic aggression subscales and forms of IPV victimization and perpetration. Interestingly, Public electronic aggression perpetration was significantly and positively associated with psychological aggression victimization, physical assault perpetration and victimization, and sexual coercion victimization and perpetration. Public electronic aggression victimization was significantly and

positively associated with physical assault victimization and sexual coercion perpetration and victimization. In contrast, both private perpetration and victimization were positively associated with negotiation suggested by the participant, negotiation suggested by the partner, psychological aggression perpetration and victimization, and physical assault perpetration.

Regression analyses also demonstrated some significant associations between electronic aggression and other forms of aggression. Specifically, private electronic aggression perpetration was positively associated with relational aggression perpetration and victimization. Additionally, public electronic aggression perpetration and private electronic aggression perpetration were positively associated with physical aggression victimization.

Finally, results examining concurrent validity of electronic aggression with psychosocial functioning suggested that public and private electronic aggression perpetration, as well as public and private electronic aggression victimization were positively associated with drug use, alcohol problems, and depressive symptoms. Private electronic aggression perpetration and victimization were negatively associated with relationship satisfaction. Moreover, private electronic aggression perpetration was negatively associated with self-reported academic functioning, and private electronic aggression victimization was negatively associated with self-reported academic functioning and cumulative GPA.

CHAPTER 4

DISCUSSION

The purpose of the present studies was to develop and validate a scale that could reliably measure electronic aggression perpetration and victimization in emerging adult romantic relationships (i.e., the Partner Electronic Aggression Questionnaire). Furthermore, these studies were designed to examine the psychometric properties of the PEAQ including convergent validity, discriminant validity, internal consistency reliability, and concurrent validity with psychosocial functioning. This was accomplished by conducting two studies utilizing independent samples.

Study 1

The aim of Study 1 was to analyze, reduce, and refine items in order to develop a scale capable of measuring electronic aggression among emerging adult romantic couples. The items that were developed and analyzed were designed to capture the full range of aggressive behaviors that could potentially occur between romantic partners via electronic means. Since previous work (Melander, 2010) suggests that college students view electronic aggression as unique in comparison to face-to-face aggression, this approach was preferable to attempting to create a scale that would simply measure psychological or relational aggression that occurs through communication technology.

Although no a priori hypotheses were made regarding the underlying factor structure of the PEAQ, the scale was designed so that participants would report on both perpetration and victimization within their current relationship. Accordingly, during PCA analytic procedures, items were maintained when perpetration and victimization items loaded on the same factor. Results provided support for a 16-item scale consisting of two underlying factors, public

electronic aggression and private electronic aggression. Each factor consisted of a 4-item subscale for perpetration and a 4-item subscale for victimization. Moreover, results demonstrated high internal consistency for each factor and the overall PEAQ, suggesting that all items are measuring a similar construct. Notably, the PEAQ factor structure is unique in comparison to other recently developed scales (e.g., Leisring & Giumetti, 2014), as the PEAQ is the first scale to allow for a comparison between electronic aggression that occurs in public forums (e.g., Facebook, Instagram, and Twitter) and electronic aggression that may occur privately between partners. Therefore, this factor structure may allow researchers to better differentiate between types of electronically aggressive behaviors and their associated outcomes.

Furthermore, although the sample consisted entirely of college students, the scale was developed using a sample from two large public universities in different regions of the US. Additionally, the sample from Study 1 was diverse with regard to racial background, ethnicity, relationship status, and relationship length. A wider variety of ages were represented in comparison to many samples involving traditionally aged college students. Therefore, the diversity of the sample used for scale development is a strength for the given study.

Study 2

Study 2 was designed to confirm the factor structure of the PEAQ in an independent sample and to determine the psychological properties of the scale. Furthermore, another purpose of Study 2 was to be the first study using the PEAQ and to: estimate the percentage of participants reporting experience with electronic aggression, examine how the PEAQ subscales were related to other aggression constructs, and to assess concurrent validity with indicators of psychosocial functioning. These aims, study findings, and implications are discussed below. It

should be noted since the sample of the current study is relatively homogeneous, caution should be used when interpreting findings related to demographic characteristics.

PEAQ Factor Structure and Psychometric Properties. The factor structure of the PEAQ estimated in Study 1 was confirmed through CFA in an independent sample. This provides further support for the factor structure of the PEAQ identified in Study 1. Additionally, the CFA demonstrated further support for the factors of public and private aggression. Internal consistency reliability analyses demonstrated that the reliability for each subscale and the overall scale were good, and the inter-item correlations within each factor was adequate. Accordingly, results support the 16-item PEAQ with four 4-item subscales (public perpetration, public victimization, private perpetration, and private victimization.

Unfortunately, no aspects of personality, IPV, or conflict tactics demonstrated convergent validity with the public perpetration or public victimization subscales. Although this study was unable to establish convergent validity with public electronic aggression, it should be noted that the association between public perpetration and agreeableness, physical assault perpetration, and psychological aggression perpetration were significant and in the expected directions. Thus, although public electronic aggression is negatively associated with agreeableness and positively associated with physical and psychological aggression perpetration, current results suggest there is not sufficient overlap between these constructs to demonstrate convergent validity. Therefore, further research will be necessary to identify what constructs are adequately similar to the public electronic aggression subscales (e.g., social sabotage or venting, see below). This potentially suggests that public electronic aggression may be unique in comparison to traditional forms of aggression. Furthermore, out of all of the aggression constructs examined, public electronic aggression had the lowest means for reported perpetration and victimization, further suggesting

that public electronic aggression may be unique and less common with respect to other forms of aggressive behavior within couples. Since the public aggression construct involves items where partners either reveal/threaten to reveal personal information about their partner online or directly threaten their partner online, this construct may be related to other aggression constructs directly involving social support networks, such as social sabotage (Carroll et al., 2010).

As expected, psychological aggression perpetration demonstrated convergent validity with private electronic aggression perpetration. This suggests that electronic aggression occurring through messaging services between romantic partners is adequately similar to the perpetration of face-to-face psychological aggression. In contrast, although private perpetration was significantly and positively related to physical assault perpetration, physical assault did not demonstrate convergent validity. Accordingly, although these constructs may be related, there is not sufficient overlap to demonstrate convergent validity. Additionally, despite the link between personality and aggression that has been demonstrated in previous research (Bettencourt et al., 2006; Hines & Saudino, 2008), agreeableness and neuroticism did not demonstrate convergent validity with private electronic aggression perpetration. However, private perpetration was negatively correlated with agreeableness and positively correlated with neuroticism; thus, associations were in the expected directions. It may be beneficial to also examine whether private aggression demonstrates convergent validity with other aggression constructs.

With regard to discriminant validity, all predicted variables demonstrated discriminant validity with public and private perpetration. As expected, openness to experience was not related to public or private perpetration. Therefore, the lack of an association between openness and electronic aggression is consistent with previous research (Hines & Saudino, 2008; Kamphuis et al., 2004; Menard et al., 2010) suggesting that openness is not related to traditional

forms of aggression perpetration. Moreover, negotiation demonstrated discriminant validity with public and private perpetration, suggesting that there is minimal overlap between the process of negotiation and electronic aggression perpetration.

Bivariate correlation analyses also suggested that consistent with other types of aggression (Cercone et al., 2005; Straus, 2008; Testa, Hoffman, & Leonard, 2011), perpetration and victimization are exceptionally highly correlated. Moreover, although analyses are cross-sectional and correlational, this also suggests that electronic perpetration and victimization may be bidirectional within relationships. Specifically, there were strong positive significant correlations between public perpetration and public victimization, as well as private perpetration and private victimization. Although a potential argument is that the public perpetration and public victimization subscales are nearly measuring the same construct, it is recommended that these subscales continue to be examined separately due to their differential associations with some demographic characteristics, personality facets, and types of aggression.

In contrast, the correlation between the public subscales and private subscales were weakly correlated, suggesting that these forms of electronic aggression may share less overlap than what has been demonstrated among other forms of aggression, for example relational and overt aggression (Cillessen & Mayeux, 2004; Crick & Grotpeter, 1995; Tomada & Schneider, 1997). Given that correlational analyses suggest that public and private electronic aggression share less overlap than other forms of aggression, it is important for research to examine whether the forms of electronic aggression have varying psychosocial consequences, rather than viewing electronic aggression as one construct.

To further understand the PEAQ and the prevalence of electronic aggression endorsed by the sample, the percentage of participants reporting any type of electronic aggression was

calculated. Although it was predicted that the percent of participants who reported experience with electronic aggression would be in line with previous research (approximately 70-80% of emerging adults; Bennett et al., 2011; Kellerman et al., 2013), only 53.4% of the sample reported experiencing some form of electronic aggression (i.e., either perpetration or victimization). However, it should be noted that this may be due to the time period analyzed in the current study. Whereas the current study asked participants to report on electronically aggressive behaviors that had occurred in the previous six months, the timeframe analyzed in previous research is one year. Given the difference in timeframe, it is possible that the findings from the current study are relatively consistent with prior research. Additionally, results suggested that private electronic aggression is quite common, with 51.6% of participants endorsing perpetration and 50.6% of participants endorsing victimization. Given the prevalence of private electronic aggression, it is essential to understand how these behaviors may be related to traditional victimization and psychosocial adjustment. Furthermore, the current study suggests that public electronic aggression is relatively uncommon, with 4.1% of participants reporting perpetration and 5.9% of participants reporting victimization. Despite the low base rate of public electronic aggression in the current sample, it is possible that public electronic aggression may be a significant issue for individuals who utilize this behavior. This possibility is explored below.

Exploratory Analyses involving Electronic Aggression, Personality, and IPV. In addition to examining convergent and discriminant validity, partial correlations were conducted between the electronic aggression subscales and personality facets and forms of IPV and conflict tactics. These exploratory analyses were conducted to provide further information about how

electronic aggression as measured by the PEAQ relates to well-established personality and aggression constructs.

Unsurprisingly, openness was not significantly related to any of the electronic aggression subscales. This is consistent with previous work demonstrating that openness is not related to IPV or aggressive behaviors including physical aggression, psychological aggression, sexual aggression, stalking behavior, or sexual coercion (Hines & Saudino, 2008; Kamphuis et al., 2004; Menard et al., 2010).

Interestingly, extraversion was negatively associated with public perpetration of aggression, suggesting that individuals who tend to be introverted, shy, or reserved report higher levels of public electronic aggression perpetration. Since shy individuals spend more time on social media sites such as Facebook and report more favorable attitudes toward Facebook than non-shy individuals (Orr et al., 2009), those who are introverted or shy may find aggressing on social networking sites preferable or more comfortable compared to aggressing against a partner in person. Moreover, introverted individuals may also find seeking support regarding romantic conflict more comfortable on social media sites in comparison to seeking out face-to-face conversations with friends. Given the instantaneous way with which dozens of individuals can see and respond to posts, social media may provide introverted individuals with a way to receive support or attention when experiencing romantic conflict. Further research is needed to explore these possibilities regarding how extraversion may be related to public perpetration.

Agreeableness was significantly and negatively associated with each subtype of electronic aggression. This suggests that the link between agreeableness is similar to the association previously found between agreeableness and other forms of aggression including sexual coercion, stalking, and physical perpetration of aggression (Kamphuis et al., 2004;

Menard et al., 2010). Moreover, it suggests that low levels of agreeableness are associated with both higher levels of perpetration and victimization. Therefore, not only do individuals low in agreeableness report higher levels of perpetration, but they also may be more likely to be victimized by their partner. A similar association existed for conscientiousness, as conscientiousness was significantly and negatively associated with each of the electronic aggression subtypes. Accordingly, low levels of conscientiousness may put an individual at risk for both engaging in higher levels of electronic aggression perpetration and being electronically victimized. Although research regarding aggressive behavior and conscientiousness has been inconsistent (Hines & Saudino, 2008; Menard et al., 2010), EEG research suggests that conscientiousness moderates the link between anger and aggression. Specifically, individuals high in conscientiousness may be better able to control their behavior when frustrated in comparison to those low in conscientiousness (Jensen-Campbell, Knack, Waldrip, & Campbell, 2007). Those low in conscientiousness may be less able to control their angry and aggressive behavior, which may lead to patterns of electronic aggression perpetration and victimization.

Neuroticism has previously been linked to IPV perpetration (Hellmuth & McNulty, 2008; Hines & Saudino, 2008; Menard et al., 2010), and the current study suggests that private electronic aggression perpetration is also positively associated with neuroticism. Public perpetration was not associated with neuroticism. Additional research is needed to further understand the factors that differentiate public perpetration from private perpetration as well as the association between private perpetration and neuroticism.

Partial correlations assessing the link between electronic aggression and IPV and conflict tactics suggested an interesting pattern of associations. Public electronic aggression perpetration was significantly and positively associated with aspects of IPV involving physical or sexual

victimization. Specifically, public perpetration was positively correlated with physical assault perpetration and victimization, sexual coercion perpetration and victimization, and injury perpetration and victimization. Additionally, public perpetration was positively associated with psychological aggression. With regard to public electronic aggression victimization, there was a positive correlation with physical assault victimization, sexual coercion perpetration, sexual coercion victimization, injury perpetration, and injury victimization. Neither subscale of public electronic aggression was associated with negotiation or psychological aggression. Accordingly, findings suggest that public electronic aggression may be associated with maladaptive conflict tactics and perhaps inferior communication skills as evidenced by the association with sexual coercion and injury, and the lack of association with negotiation. This is consistent with previous work demonstrating that compared with nonviolent couples, violent couples use communication that is less facilitative and these couples are more likely to reciprocate negative behavior (Cordova et al., 1993). Thus, public electronic aggression may be associated with particularly detrimental communication issues and violent behavior within relationships.

In contrast, the private electronic aggression subscales did not demonstrate an association with injury perpetration or victimization, sexual coercion perpetration or victimization, or physical assault victimization. This finding lends further support to the hypothesis that public electronic aggression, but not private electronic aggression, may be a correlate of injury and sexual coercion in relationships. Private perpetration and victimization, however, were associated with psychological aggression perpetration and victimization, as well as physical assault perpetration. Since there was no significant correlation with injury, it may be the case that couples exhibiting private electronic aggression engage in less severe forms of physical assault. Further research is necessary to examine this possibility. Additionally, private

electronic aggression was positively associated with negotiation, suggesting that despite the correlation with psychological and physical aggression, couples exhibiting higher levels of private electronic aggression may also utilize some positive communication skills, particularly in comparison to couples that use public electronic aggression. It should be noted that the current study did not differentiate between couples that use private electronic aggression only, public aggression only, or both forms of aggression; therefore, further research is necessary to understand the way in which these types of couples may differ in their patterns of communication and aggressive behavior.

Electronic Aggression and its Associations with Relational and Physical Aggression. Another aim of the current study was to evaluate the extent to which the electronic aggression subscales were related to relational and physical aggression as measured by a scale commonly used to assess aggressive behavior within emerging adult couples (SRASBM; Morales & Crick, 1998). Although all forms of electronic aggression and relational and physical aggression were positively and weakly associated in correlational analyses, only private electronic aggression perpetration and race were significantly and positively associated with relational aggression perpetration. Thus, those endorsing higher levels of private electronic perpetration reported higher levels of relational aggression perpetration, and racial minorities reported higher levels of relational aggression perpetration. Relational aggression victimization was positively associated with private electronic aggression and negatively associated with sex. Men and individuals reporting higher levels of private electronic aggression perpetration reported experiencing higher levels of relational aggression victimization.

Since relational aggression involves purposeful manipulation aimed at either damaging or threatening to damage an individual's reputation, social status, or relationships (Crick, 1996;

Crick & Grotpeter, 1995), it was expected that public electronic aggression, which involves sharing negative information about one's partner, would be more closely related to relational aggression than private electronic aggression. Although the lack of an association may be attributable to the low base rate of public electronic aggression within the current sample, this finding may also suggest that relational aggression shares less of an overlap with public electronic aggression in comparison to private electronic aggression. Accordingly, whereas individuals reporting private electronic aggression perpetration report higher levels of relational aggression perpetration and victimization, those who are publically electronically aggressive may be characteristically different in the behaviors they utilize and their personality. For instance, publically aggressive individuals may exhibit different motives for their aggressive behavior than those who utilize relational aggression or private electronic aggression. Furthermore, since the current study also suggests that public electronic aggression is associated with low levels of extraversion, agreeableness, and conscientiousness, it may be the case that those engaging in public electronic aggression are less socially adept than individuals who are able to manipulate social networks through relational aggression. Since low levels of conscientiousness are associated with higher levels of anger (Jensen-Campbell et al., 2007), it may be that these individuals are shy, less likely to inhibit anger, and more disagreeable, leading them to perpetrate through public rather than private means. Moreover, it may be the case that public perpetration is more closely associated with anger control and venting, rather than calculated manipulation and relational aggression. Further research is certainly necessary, however, to explore and potentially support this hypothesis.

Physical victimization was uniquely and positively associated with race and public and private electronic aggression perpetration. Thus, racial minorities and those perpetrating

electronic aggression experience higher levels of physical aggression victimization. Although the relationship between electronic aggression perpetration and physical victimization is likely bidirectional (Cercone et al., 2005; Straus, 2008; Testa, Hoffman, & Leonard, 2011), electronic aggression perpetration can be understood as a risk factor for being physically victimized by one's partner. Additional research is needed to help identify who is likely to use electronic aggression so that interventions can conducted for those at-risk before aggressive behavioral patterns are firmly established.

Electronic Aggression and Psychosocial Adjustment. Overall, findings suggest that electronic aggression is concurrently associated with similar psychosocial adjustment problems compared to traditional aggression and IPV. Consistent with previous research on electronic aggression and associations demonstrated between IPV and psychosocial adjustment (Bennett et al., 2011; Coker et al., 2002; Foran & O'Leary, 2008; Moore et al., 2008), all four electronic aggression subscales (i.e., public perpetration, public victimization, private perpetration, private victimization) were associated with drug use and alcohol problems. Additionally, men were significantly more likely than women to report drug use, and individuals in longer relationships were significantly less likely to report drug use. Sexual minorities were significantly more likely than heterosexuals to report alcohol problems.

Although temporal associations cannot be inferred, this suggests that previous work identifying alcohol problems and drug use as being related to IPV perpetration and victimization (Coker et al., 2002; Foran & O'Leary, 2008; Moore et al., 2008; Testa et al., 2011) may be applicable to electronic aggression. Additional research is necessary to more fully understand the relationship between electronic aggression and alcohol and drug use; however, the current study suggests that electronic aggression is associated with substance use problems and

electronic aggression within relationships may be a risk factor for concurrent problems with alcohol and drugs.

All four electronic aggression subscales were also positively associated with self-reported depressive symptoms, suggesting further associations with psychosocial maladjustment. Sexual minorities and women also reported significantly higher levels of depressive symptoms compared with heterosexuals and men, respectively. In these analyses, both victimization and perpetration were associated with depressive symptoms. This suggests that the relationship between electronic aggression victimization and depressive symptoms is similar to the association found between physical and psychological IPV victimization and depressive symptoms demonstrated in previous research (Coker et al., 2002; Próspero, 2007). Interestingly, current results indicate that those who perpetrate higher levels of electronic aggression also experience higher levels of depressive symptoms. Although this may speak to the potential bidirectional relationship between electronic aggression perpetration and victimization, and aggressive behavior more generally, this also suggests that perpetrators are not immune to internalizing problems. Since previous work has suggested a negative relationship between perpetration of electronic aggression and emotion regulation and support from friends (Kellerman et al., 2013), those who perpetrate electronic aggression may do so in part because they have difficulty regulating emotions. Furthermore, since individuals without friends or with low quality friendships may be more vulnerable to adjustment problems (Bagwell et al., 2005), and electronic aggression perpetration is negatively associated with support from friends (Kellerman et al., 2013), current results may be part of a context in which individuals lack support, have difficulty with emotion regulation or communication, and may struggle with adjustment problems. Longitudinal research is necessary to more fully examine the temporal

relationship between these variables and to assess whether depressive symptoms are a correlate of electronic aggression perpetration, or whether maladjustment may lead to electronically aggressive behavior.

Private electronic aggression perpetration and victimization, but not public electronic aggression, was negatively associated with relationship satisfaction. Of note, younger individuals, women, and heterosexuals reported significantly higher levels of relationship satisfaction in the model assessing electronic aggression perpetration compared with older participants, men, and sexual minorities, respectively. In the model assessing electronic aggression victimization and relationship satisfaction, younger individuals and heterosexual individuals reported significantly higher levels of relationship satisfaction compared with older individuals and sexual minorities.

Results demonstrate that individuals who reported higher levels of private electronic aggression reported lower levels of relationship satisfaction. This is consistent with prior work demonstrating that aggression in relationships is negatively associated with relationship satisfaction (Testa et al., 2003). Although private electronic aggression is associated with negotiation in the current study, the use of electronic aggression suggests that these couples may struggle with communication periodically. This hypothesis is supported by the finding that IPV is generally associated with inferior communication skills, and the use of nonfacilitative language (Robertson & Murachver, 2006; Shorey et al., 2008). Future research should seek to clarify whether the association between private electronic aggression and negative relationship satisfaction may be related to negative communication styles.

Unexpectedly, there was no association between public electronic aggression and relationship satisfaction. Further research is necessary to determine whether this lack of an

association may be due to the low base rate of public electronic aggression in the current sample. Alternatively, it may be that relationship processes involved with public aggression are characteristically different than the processes involved with private electronic aggression, and public electronic aggression may not be related to relationship functioning in the same way as private electronic aggression. Moreover, it may be that private electronic aggression occurs more quickly and with a higher incidence compared to public electronic aggression, which may lead to greater impacts on relationship functioning. To elucidate the relationship between electronic aggression and relationship satisfaction, it would be helpful to examine how both forms of electronic aggression are related to communication and problem solving in relationships.

Finally, private electronic aggression perpetration, sex, and race were negatively related to self-reported academic functioning, indicating that those reporting higher levels of private perpetration, women, and racial minorities reported significantly lower levels of academic functioning compared men, Caucasians and those reporting lower levels of private perpetration. In the model examining electronic perpetration and cumulative GPA, age was negatively associated with cumulative GPA. In examining electronic aggression victimization, private victimization, race, and sex were negatively associated with both academic functioning. As such, racial minorities and women reported lower levels of academic functioning. In examining the link between electronic aggression victimization and cumulative GPA, private electronic aggression and age were negatively associated with GPA.

Since perpetration and victimization are likely bidirectional within relationships, private electronic aggression may be associated with lower levels of academic functioning for several reasons. First, it may be that private electronic aggression occurs with frequency, causing

relationship problems and other potential contextual variables (e.g., arguments, negative coping styles, and emotional distress) to interfere with academic functioning. Furthermore, individuals experiencing private electronic aggression in their relationship may spend a significant amount of time ruminating about problems within their relationship and conversations. Since dysphoric rumination can impair concentration during academic tasks (Lyubomirsky, Kasri & Zehm, 2003), rumination may contribute to the negative association between private electronic aggression and academic performance. Further research is necessary to more fully understand why private electronic aggression, but not public electronic aggression is negatively associated with academic performance.

Limitations

Although study findings are largely consistent with previous work examining the negative psychosocial consequences of IPV and electronic aggression (Bennett et al., 2011; Coker et al., 2002; Drauker & Martsolf, 2010; Melander, 2010, Straus, 2008), several limitations should be considered. First, due to the cross-sectional nature of both studies, conclusions cannot be made regarding causal direction of effects. Future research using the PEAQ should incorporate a longitudinal design so that the prediction of psychosocial outcomes from the electronic aggression subscales could be evaluated. Furthermore, a longitudinal design could elucidate the temporal relationship between IPV and electronic aggression perpetration and victimization.

Another limitation is that the Study 2 sample was relatively homogenous and drawn from one Southeastern University. Whereas a strength of Study 1 included its diversity with regard to participants, the sample collected for Study 2 consisted primarily of heterosexual Caucasian students who were in their first year of college and described their relationship status as

"exclusively dating." It would be beneficial for future studies to utilize samples that include greater levels of diversity with regard to race/ethnicity, age, sexual orientation, and relationship status.

Moreover, given that the PEAQ was developed for use in emerging adulthood, future research should also incorporate non-college bound youth. The use of college samples in the current studies is a limitation given that it is uncertain as to how the results may or may not generalize to emerging adults who do not attend college. The lack of inclusion of non-college bound youth is an unfortunate and common problem in emerging adult research literature, primarily because non-college bound emerging adults are not easily accessible and are often costly to recruit (Arnett, 2000). However, given that aggression between romantic partners is a serious public health concern and involves significant consequences for individuals, families, and society (Black et al., 2011; Halpern et al., 2009; Max et al., 2004), it is essential that future research include diverse samples of both college bound and non-college bound youth. This is especially important for the development of a comprehensive understanding of the context in which aggression occurs. Since non-college bound individuals may marry earlier, experience different challenges than college students (e.g., finding a job, being financially independent), and may exhibit characteristics that differ from college students, it is uncertain as to whether non-college bound emerging adults may utilize similar aggressive behavioral patterns or may experience varying outcomes with regard to psychosocial functioning.

Additionally, in evaluating the link between electronic aggression and academic functioning, only a small portion of the sample knew their GPA or had a cumulative GPA (n = 153). Thus, the ability to examine the link between academic functioning and aggression with a concrete measure of academic functioning was limited. Although students provided a self-

reported assessment of their academic functioning in comparison to other students, these reports may be biased, particularly if students do not actively track their grades or are unaware of how other students may be performing. Future research would benefit from including a concrete measure of academic functioning that is not subject to bias, such as academic records.

Despite these limitations, the current studies exhibit several strengths. First, both studies included relatively large samples that met the criteria recommended by Pett, Lackey, & Sullivan (2003) for psychometric scale development. Specifically, the samples fit within the very good (N = 500) to excellent (N = 1000+) sample size ranges described by Comrey and Lee (1992) and met Tabachnick and Fidell's (2001) recommendation that the sample should include a minimum of 300 subjects to conduct scale development procedures. The samples also met the criteria of having a subject-to-item ratio of at least 10:1 (Kline, 2010; Pett et al., 2003; Nunnally, 1978). Moreover, although Sample 2 was relatively homogenous, Sample 1 included participants from two universities and examination of the demographics suggested that this sample may be more diverse with regard to racial background, ethnicity, age, and relationship status than is typically found in traditional college samples. Given that the factor structure was confirmed in an independent sample that differed with regard to diversity, this provides further evidence that the factor structure of the scale may be generalizable to other samples. Finally, this study expands previous work on electronic aggression by developing a new validated scale that also broadens the framework by which electronic aggression can be assessed and studied. In particular, the PEAQ will allow future researchers to distinguish between electronic aggression that occurs through public means or privately between partners. This can facilitate a deeper understanding of the context in which aggression between romantic partners occurs.

Directions for Future Research

There are several promising directions for future research that can increase the usefulness of the PEAQ and can contribute to the fields of IPV and electronic aggression. First, it would be beneficial to further examine the scale in a sample that includes non-college bound youth. This could serve to further confirm the factor structure of the PEAQ in a sample that generalizes beyond the college setting. Additionally, further examination of potential convergent validity constructs, including measures of electronic aggression from other scales, would help clarify the properties of the scale. Moreover, future research could incorporate a second measurement time point so that test-retest reliability could be established.

Furthermore, it would be beneficial to examine whether the PEAQ demonstrates adequate incremental validity with respect to other recently developed scales, including the Cyber Psychological Abuse (CPA) scale developed by Leisring & Giumetti (2014). Whereas the PEAQ was developed to examine any form of electronic aggression that occurs at any time in a relationship, the CPA was designed to specifically measure psychological abuse that occurs during arguments between romantic partners using social networking sites, computers, cell phones, and email (Leisring & Giumetti, 2014). Analysis of the CPA demonstrated support for two factors including a minor cyber abuse scale and a severe cyber abuse scale (Leisring & Giumetti, 2014). Accordingly, a benefit of the CPA is that the scale is able to distinguish the severity of the type of psychological aggression. In contrast, the PEAQ assesses the type of electronic aggression and is useful in determining whether the type of electronic aggression occurs between partners or whether the aggression involves some form of social media sharing. Although both scales offer strengths for varying research purposes (e.g., to assess aggression during arguments, to assess aggression occurring in different forms), it would be helpful for

future research to clarify the strengths and weaknesses of the scales, as well as whether the PEAQ provides incremental validity to the CPA.

Another direction for future research involves establishing ecological validity of the PEAQ. Specifically, it would be beneficial for future research to utilize ecological momentary assessment (EMA) in which participants report on behaviors represented on the PEAQ as they occur. This could allow investigators to more fully assess and account for the context in which electronic aggression occurs (e.g., the precipitating event, concurrent emotional experience). Furthermore, EMA data could be compared to participants' reports of electronic aggression in their relationship. Such data would allow researchers to assess the accuracy with which participants report on electronic aggression.

Future research should utilize a longitudinal study design so that both face-to-face and electronic aggression can be monitored over time. In particular, it would be beneficial to longitudinally examine the association between electronic aggression and IPV, as there is preliminary evidence that there may be reciprocal effects regarding the use of electronic aggression and IPV (Schnurr et al., 2013). This would provide further information as to whether electronic aggression may increase the risk for IPV, and what the impact may be on couples if both are used concurrently. Further, since work by Melander (2010) suggests that electronic aggression allows individuals to quickly aggress against their partner in a way that they may be unlikely to do in person, it will be important to assess whether electronic aggression may intensify arguments and lead to worse outcomes when partners meet in person. It is possible that electronic aggression may serve to intensify arguments and make interactions more volatile when partners rejoin. Longitudinal research would also be helpful in that it would allow researchers to examine the interactive effects of electronic aggression and IPV and how the varying types of

aggression may be related to psychosocial outcomes. Developing a fuller understanding of the context of electronic aggression and IPV will allow researchers to better understand how these behaviors are used and what negative outcomes are related to perpetration and victimization. This information could be used to better identify and target couples for intervention that are at risk for using aggressive strategies within their relationships. Moreover, this information would allow researchers and clinicians to understand the consequences that are associated with electronic aggression perpetration and victimization.

Finally, although the target population for the current study was emerging adulthood, the PEAQ would likely be appropriate for use in adolescent or adult relationships. It would be helpful for further research to clarify whether the PEAQ is appropriate for use in research examining other populations and developmental periods. This would allow researcher to explore whether the consequences of electronic aggression perpetration and victimization are consistent for all developmental periods.

Conclusions

While there are limitations to the current studies, the studies also expanded the current literature on electronic aggression and IPV through the development of a reliable and valid scale assessing electronic aggression within emerging adult couples, the PEAQ. The PEAQ is a 16-item measure that demonstrates strong internal consistency reliability and is capable of assessing perpetration and victimization involving two types of electronic aggression, public and private. The two-factor structure was confirmed in an independent sample and the private electronic aggression perpetration subscale demonstrated adequate convergent validity with psychological aggression perpetration. Moreover, public and private electronic aggression perpetration demonstrated discriminant validity with openness and negotiation. Perpetration and

victimization subscales within each factor were highly related, but public and private electronic aggression were only weakly correlated. Although the current studies provide a great basis for understanding the PEAQ and electronic aggression, future research examining further psychometric properties of the scale would be beneficial.

The studies also suggested that private electronic aggression is much more common than public electronic aggression, and behavioral and psychosocial correlates of electronic aggression may depend on the form of aggression utilized. For example, Study 2 provides some evidence that public electronic aggression may be associated with more severe forms of IPV including sexual coercion and injury. In contrast, private electronic aggression may be related to negotiation, psychological aggression, and relational aggression. Interestingly, there is evidence that both forms of electronic aggression may be related to physical assault perpetration and physical victimization. Replication and further research is necessary to understand these associations.

The current line of research also suggests that electronic aggression may be important to consider in the context of research involving IPV and romantic relationships. As with IPV, electronic aggression perpetration and victimization is associated with poor psychosocial adjustment including drug use, alcohol problems, and depressive symptoms. As with other types of aggression (e.g., relational and overt, physical and psychological IPV), the current studies also suggest that electronic aggression is not unidimensional. Private electronic aggression, but not public electronic aggression is uniquely related to problems with relationship satisfaction and academic functioning. Accordingly, further research should seek to identify how the different forms of electronic aggression are related to changes in adjustment over time.

In sum, this study provided the first step in preparing the PEAQ to be a useful tool in further understanding the impact of electronic aggression on romantic relationships and relationship processes. Furthermore, it expands the current understanding of electronically aggressive behaviors by allowing researchers to differentiate between public and private acts of electronic aggression. This scale has the ability to play a valuable role in further understanding the vulnerabilities that may lead to electronic aggression, as well as the psychosocial consequences of using electronic aggression or being victimized through electronic means. Further research in this area can help identify couples at-risk for using electronic aggression with the hope that this information can inform targeted interventions that could not only decrease electronic aggression, but also decrease IPV and negative communication patterns.

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APPENDICES

Appendix A: Tables

Table 1

Study 1 Means and Standard Deviations of Demographic Characteristics

	University of Houston Mean (*SD*)	University of Tennessee Mean (*SD*)
Age	22.10 (2.37)	19.44 (1.72)***
Sex	1.92 (.27)	1.61 (.49)***
Sexual Orientation	7.14 (.59)	7.10 (.50)
Racial Background	2.90 (2.23)	1.51 (1.52)***
Ethnic Background	1.60 (.49)	2.08 (.33)***
Class Standing	3.65 (1.53)	1.74 (1.26)**
Relationship Status	3.19 (.70)	3.10 (.70)***
Relationship Length (months)	32.23 (26.75)	19.47 (17.75)***

Note. *$p < .05$, **$p < .01$, ***$p < .001$; sex (1=male, 2=female); sexual orientation (1=heterosexual, 2=gay/lesbian, 3=bisexual, 4=asexual, 5=other); racial background (1=Caucasian, 2=Native American/American Indian, 3=Black/African American, 4=Asian/Asian American, 5=Native Hawaiian/Pacific Islander, 6=multi-ethnic, 7=other); ethnic background (1=Hispanic/Latino, 2=non-Hispanic); class standing (1=first year, 2=sophomore, 3=junior, 4=senior); relationship status (1=single, 2=casually dating, 3=exclusively dating, 4=engaged, 5=married/life partner)

Table 2

Study 1 Standardized Factor Loadings for the Partner Electronic Aggression Questionnaire

Item	Respective Factor	Public Aggression β	Private Aggression β
I post photos of my partner that damage his/her reputation.	Pub	.92	.02
My partner posts photos of me that damage my reputation.	Pub	.86	.03
I post comments online in which I threaten to physically harm my partner.	Pub	.87	.00
My partner posts comments online in which he/she threatens to physically harm me.	Pub	.89	-.01
I share private information about my partner online to upset him/her.	Pub	.92	-.01
My partner shares private information about me online to upset me.	Pub	.91	-.01
I send messages to my partner threatening to reveal his/her personal information to others.	Pub	.95	-.01
My partner sends messages to me threatening to reveal my personal information.	Pub	.91	.06
I message my partner even when he/she does not want me to message him/her.	Priv	.07	.75
My partner messages me even when I do not want him/her to message me.	Priv	.05	.71
I message my partner to make him/her feel bad about something.	Priv	-.04	.86
My partner messages me to make me feel bad about something.	Priv	.01	.83
I intrusively message my partner when I am mad at him/her.	Priv	-.06	.89
My partner intrusively messages me when he/she is mad at me.	Priv	0	.86
I use messaging to start arguments with my partner.	Priv	-.02	.83
My partner uses messaging to start arguments with me.	Priv	.08	.77

Note. Pub = Public Electronic Aggression; Priv = Private Electronic Aggression

Table 3

Study 2 Means and Standard Deviations

	Mean	Standard Deviation	*N*
Age	18.82	1.62	513
Relationship Length (months)	19.75	15.89	512
Electronic Messaging Use	10.80	0.82	513
Social Media Use	9.90	1.76	513
Public EA Perpetration (PEAQ)	0.23	1.85	512
Public EA Victimization (PEAQ)	0.24	1.62	511
Private EA Perpetration (PEAQ)	4.74	10.67	510
Private EA Victimization (PEAQ)	4.93	11.05	506
Extraversion (BFI)	3.47	0.81	513
Openness (BFI)	3.55	0.63	513
Conscientiousness (BFI)	3.64	0.61	513
Agreeableness (BFI)	3.89	0.67	513
Neuroticism (BFI)	2.84	0.78	513
Relational Aggression Perpetration (SRASBM)	2.81	0.95	511
Relational Aggression Victimization (SRASBM)	1.80	1.18	509
Physical Aggression Victimization (SRASBM)	1.14	0.61	512
Negotiation (suggested by participant; CTS2S)	20.09	15.05	513
Negotiation (suggested by partner; CTS2S)	19.96	14.69	509
Psychological Aggression Perpetration (CTS2S)	4.06	7.00	510

Table 3 Continued

Study 2 Means and Standard Deviations

	Mean	Standard Deviation	*N*
Psychological Aggression Victimization (CTS2S)	3.73	6.35	508
Physical Assault Perpetration (CTS2S)	1.17	4.70	510
Physical Assault Victimization (CTS2S)	1.03	4.31	510
Injury Perpetration (CTS2S)	0.83	3.61	511
Injury Victimization (CTS2S)	0.69	3.07	511
Sexual Coercion Perpetration (CTS2S)	0.81	3.52	512
Sexual Coercion Victimization (CTS2S)	1.07	4.08	513
Alcohol Problems (RAPI)	4.84	9.08	489
Drug Use (DUDIT)	2.13	5.00	504
Daily Drinking Questionnaire (DDQ; drinks/week)	6.11	9.37	483
Depressive Symptoms (CES-D)	13.32	9.83	490
Relationship Satisfaction (Rusbult)	7.72	1.61	511
Academic Performance (self-report)	2.24	0.59	513
Cumulative GPA	3.38	0.45	156

Note. sex (1=male, 2=female); sexual orientation (1=heterosexual, 2=sexual minority); racial background (Caucasian=1, racial minority=2); ethnic background (1=Hispanic/Latino, 2=non-Hispanic, 3=prefer not to answer); class standing (1=first year, 2=sophomore, 3=junior, 4=senior); relationship status (1=single, 2=casually dating, 3=exclusively dating, 4=engaged, 5=married/life partner); electronic messaging/social media use (0=Never, 1=Less than 1 time per month, 2=One time per month, 3=A few times per month, 4=Less than 1 time per week, 5=1 time per week, 6=1 time every few days, 7=1 time per day, 8=More than 1 time per day, 9=More than 5 times per day, 10=More than 10 times per day); PEAQ possible scale range = 0-25; BFI possible scale range = 1-5; SRASBM possible scale range = 1-7; CTS2S possible scale range = 0-25; RAPI possible range = 0-4; DUDIT possible scale range = 0-6; CES-D possible scale range = 0-3; Rusbult possible scale range = 1-9; Academic performance possible scale range = 1-3.

Table 4

Study 2 Correlations Between Electronic Aggression Subtypes and Demographic Variables

	Public Perpetration	Public Victimization	Private Perpetration	Private Victimization
Age	.04	.00	-.03	.04
Sex	-.04	-.01	.05	-.04
Racial Background	.09*	.02	.18**	.11*
Ethnicity	.03	.01	.04	-.01
Class Standing	.05	-.02	-.01	.02
Sexual Orientation	-.01	.-.03	.01	-.03
Relationship Status	-.01	.02	-.01	-.01
Relationship Length	-.03	-.03	.05	.11*
Mother's Education	-.04	-.08	-.02	-.04
Father's Education	.01	-.05	-.08	-.07

Note. *$p < .05$, **$p < .01$, ***$p < .001$; race (1=Caucasian, 2=racial minority)

Table 5

Bivariate and Partial Correlations Between Electronic Aggression Subscales and Measures of Convergent Validity

	Public Perpetration		Private Perpetration	
	Bivariate	Partial	Bivariate	Partial
Agreeableness	-.18***	-.14**	-.17***	-.14**
Neuroticism	.05	.01	.12***	.12**
Physical Assault Perpetration	.29***	.25***	.27***	.24***
Psychological Aggression Perpetration	.17***	.10*	.43***	.44***

Note. Public perpetration partial correlations control for private subtypes of electronic aggression; Private perpetration partial correlations control for public subtypes of electronic aggression; *$p < .05$, **$p < .01$, ***$p < .001$

Table 6

Bivariate and Partial Correlations Between Electronic Aggression Subscales and Measures of Discriminant Validity

	Public Perpetration		Private Perpetration	
	Bivariate	Partial	Bivariate	Partial
Openness	-.08	-.07	-.04	-.03
Negotiation (suggested by participant)	-.07	-.11*	.16***	18***
Negotiation (suggested by partner)	-.07	-.09†	.11*	.13**

Note. Public perpetration partial correlations control for private subtypes of electronic aggression; Private perpetration partial correlations control for public subtypes of electronic aggression; †$p = .053$, *$p < .05$, **$p < .01$, ***$p < .001$

Table 7

Partial Correlations Between Electronic Aggression Subscales and the Big Five Inventory

	Public Perpetration	Public Victimization	Private Perpetration	Private Victimization
Openness	-.07(-.08)	-.06(-.08)	-.04(-.04)	-.02(-.03)
Extraversion	-.10*(-.07)	-.08(-.08)	.01(-.02)	.02(.02)
Agreeableness	-.14**(-.18***)	-.14**(-.17***)	-.15**(-.17***)	-.12**(-.14**)
Conscientiousness	-.14**(-.14**)	-.12**(-.15**)	-.15**(-.15**)	-.16***(-.18***)
Neuroticism	.03(.05)	.01(.04)	.14**(.12**)	.09†(.09*)

Note. Public perpetration partial correlations control for private subtypes of electronic aggression; Private perpetration partial correlations control for public subtypes of electronic aggression; Bivariate correlations are in parentheses; $^{\dagger}p = .053$, $*p < .05$, $**p < .01$, $***p < .00$

Table 8

Partial Correlations Between Electronic Aggression Subscales and the CTS2S Subscales

	Public Perpetration	Public Victimization	Private Perpetration	Private Victimization
Negotiation (by participant)	-.07(-.07)	-.06(-.04)	.16***(.16***)	.16**(.15**)
Negotiation (by partner)	-.07(-.07)	-.06(-.05)	.11*(.11*)	.12**(.11*)
Psychological Aggression Perp.	.04(.17***)	.02(.08)	.44***(.43***)	.41***(.40***)
Psychological Aggression Vic.	.10*(.09*)	.08(-.13**)	.34***(.33***)	.34***(.34***)
Physical Assault Perpetration	.09*(.29***)	.08(.11*)	.25***(.27***)	.22***(.25***)
Physical Assault Victimization	.23***(.34***)	.21***(.18***)	.06(.10*)	.05(.08)
Sexual Coercion Perpetration	.13**(.50***)	.16***(.16***)	.09(.17***)	.04(.12**)
Sexual Coercion Victimization	.10*(.15**)	.12*(.11*)	.05(.07)	.03(.05)
Injury Perpetration	.28***(.31***)	.30***(.28***)	-.02(.05)	-.01(.05)
Injury Victimization	.26***(.32***)	.28***(.27***)	-.02(.06)	-.01(.05)

Note. CTS2S= Conflict Tactics Scale 2 Short Form; Public perpetration partial correlations control for private subtypes of electronic aggression; Private perpetration partial correlations control for public subtypes of electronic aggression; Bivariate correlations are in parentheses; *$p < .05$, **$p < .01$, ***$p < .00$

Table 9

Correlations Between Electronic Aggression Subscales

	Public Perpetration	Public Victimization	Private Perpetration	Private Victimization
Public Perpetration	-			
Public Victimization	.91***	-		
Private Perpetration	.21***	.15**	-	
Private Victimization	.17***	.13**	.82***	-

Note. *$p < .05$, **$p < .01$, ***$p < .001$; PEAQ possible scale range = 0-25

Table 10

Correlations Between Electronic Aggression Subscales, Subtypes of Aggression, and Demographic Variables

	Age	Sex	Race	Sexual Orientation	Relation. Length	Social Media Use
Public EA Perpetration	.04	-.04	.09*	-.01	-.03	-.03
Public EA Victimization	.00	-.01	.05	-.03	-.03	-.09*
Private EA Perpetration	-.03	.05	.18***	-.00	.05	.10*
Private EA Victimization	.04	-.04	.11*	-.03	.11*	.07
Relational Agg. Perpetration	-.02	.09	.17***	-.02	.05	.09
Relational Agg. Victimization	-.03	-.16***	.10*	.01	-.03	.07
Physical Agg. Victimization	.10*	-.09*	.15**	.10*	-.01	-.02

Note. Sex (1=male, 2=female); sexual orientation (0=heterosexual, 1=sexual minority); racial background (1=Caucasian, 2=racial minority); ethnicity, use of electronic messaging, and relationship status were not correlated with any aggression variables *$p < .05$, **$p < .01$, ***$p < .001$

Table 11

Correlations Between Electronic Aggression and the SRASBM Subtypes of Aggression

	Relational Aggression Perpetration	Relational Aggression Victimization	Physical Aggression Victimization
Public EA Perpetration	.18***	.18***	.35***
Public EA Victimization	.17***	.19***	.29***
Private EA Perpetration	.47***	.46***	.21***
Private EA Victimization	.37***	.39***	.18***

Note. *$p < .05$, **$p < .01$, ***$p < .001$; SRASBM possible scale range = 1-7

Table 12

Unique Associations of Electronic Aggression with Relational Aggression Perpetration, Relational Aggression Victimization, and Physical Aggression Victimization

	Relational Aggression Perpetration		Relational Aggression Victimization		Physical Aggression Victimization	
	R^2 = .23***		R^2 = .23***		R^2 = .13*	
	ß (SE)	*t*	ß (SE)	*t*	ß (SE)	*t*
Race	.08(.11)*	2.03	.03(.14)	0.84	.11(.07)**	2.62
Sex	.07(.08)	1.84	-.16(.10)***	-4.11	-.08(.05)	-1.87
Public EA Perp.	.08(.07)	0.75	.08(.09)	0.78	.37(.05)**	3.47
Public EA Vic.	.01(.06)	0.12	.03(.07)	0.34	-.11(.04)	-1.00
Private EA Perp.	.44(.01)***	6.15	.36(.01)***	5.15	.15(.00)*	1.99
Private EA Vic.	-.01(.01)	-0.20	.08(.01)	1.14	.00(.00)	0.04

Note. ß = Standardized Regression Coefficient; SE = Standard Error; *$p < .05$, **$p < .01$, ***$p < .001$

Table 13

Unique Associations of Electronic Aggression Perpetration with Drug Use, Alcohol Problems, and Depressive Symptoms

	Drug Use		Alcohol Problems		Depressive Symptoms	
	R^2 = .15***		R^2 = .31***		R^2 = .16***	
	ß (SE)	*t*	ß (SE)	*t*	ß (SE)	*t*
Public EA Perpetration	.30(.12)***	7.11	.22(.19)***	5.55	.12(.22)**	2.76
Private EA Perpetration	.13(.02)**	3.01	.17(.04)***	4.06	.30(.04)***	6.87
Age	.04(.14)	0.84	.01(.26)	0.17	.06(.27)	1.27
Sex	-.10(.45)*	-2.36	.03(.76)	0.80	.11(.88)**	2.62
Race	-.01(.62)	-0.33	.07(1.08)	1.78	-.01(1.25)	-0.11
Sexual Orientation	-.03(1.02)	-0.63	.08(1.71)*	2.14	.15(2.08)***	3.64
Relationship Length	-.11(.01)*	-2.47	-.05(.03)	-1.10	-.05(.03)	-1.06
Weekly Drinks (DDQ)	-	-	.42(.04)***	10.34	-	-

Note. ß = Standardized Regression Coefficient; SE = Standard Error; *$p < .05$, **$p < .01$, ***$p < .001$; Sex (1=male, 2=female); racial background (1=Caucasian, 2=racial minority); sexual orientation (0=heterosexual, 1=sexual minority)

Table 14

Unique Associations of Electronic Aggression Victimization with Drug Use, Alcohol Problems, and Depressive Symptoms

	Drug Use		Alcohol Problems		Depressive Symptoms	
	R^2 = .10***		R^2 = .25***		R^2 = .15***	
	ß (SE)	*t*	ß (SE)	*t*	ß (SE)	*t*
Public EA Victimization	.23(.13)***	5.31	.09(.22)*	2.26	.15(.26)***	3.52
Private EA Victimization	.11(.02)*	2.47	.14(.03)**	3.37	.27(.04)***	6.15
Age	.03(.14)	0.72	-.01(.26)	-0.17	.04(.27)	0.92
Sex	-.10(.45)*	-2.18	.06(.77)	1.33	.13(.89)**	3.03
Race	-.01(.63)	-0.23	.08(1.09)	1.89	.02(1.26)	0.36
Sexual Orientation	-.02(1.03)	-0.41	.09(1.72)*	2.30	.17(2.10)***	3.85
Relationship Length	-.11(.01)*	-2.46	-.05(.03)	-1.26	-.05(.03)	-1.16
Weekly Drinks (DDQ)	-	-	.45(.04)***	10.68	-	-

Note. ß = Standardized Regression Coefficient; SE = Standard Error; *$p < .05$, **$p < .01$, ***$p < .001$; Sex (1=male, 2=female); racial background (1=Caucasian, 2=racial minority); sexual orientation (0=heterosexual, 1=sexual minority)

Table 15

Unique Associations of Electronic Aggression Perpetration with Relationship Satisfaction, Academic Functioning, and Cumulative GPA

	Relationship Satisfaction		Academic Functioning		Cumulative GPA	
	R^2 = .12***		R^2 = .05***		R^2 = .08†	
	ß (SE)	*t*	ß (SE)	*t*	ß (SE)	*t*
Public EA Perpetration	-.06(.04)	-1.32	-.08(.01)	-1.79	-.02(.03)	-0.24
Private EA Perpetration	-.28(.01)***	-6.31	-.11(.00)*	-2.43	-.16(.00)	-1.87
Age	-.16(.04)**	-3.44	-.01(.02)	-0.10	-.18(.02)*	-2.03
Sex	.09(.14)*	2.02	-.09(.06)*	-1.97	.04(.07)	0.45
Race	.04(.20)	0.83	-.10(.08)*	-2.22	-.06(.10)	-0.74
Sexual Orientation	-.10(.32)*	-2.36	-.05(.13)	-1.10	-.14(.15)	-1.67
Relationship Length	.05(.00)	1.05	.08(.00)	1.73	.10(.00)	1.11

Note. ß = Standardized Regression Coefficient; SE = Standard Error; *$p < .05$, **$p < .01$, ***$p < .001$; Sex (1=male, 2=female); racial background (1=Caucasian, 2=racial minority); sexual orientation (0=heterosexual, 1=sexual minority)

Table 16

Unique Associations of Electronic Aggression Victimization with Relationship Satisfaction, Academic Functioning, and Cumulative GPA

	Relationship Satisfaction		Academic Functioning		Cumulative GPA	
	R^2 = .09***		R^2 = .05**		R^2 = .11*	
	ß (SE)	*t*	ß (SE)	*t*	ß (SE)	*t*
Public EA Victimization	-.03(.04)	-0.67	-.05(.02)	-1.09	-.04(.03)	-0.55
Private EA Victimization	-.23(.01)***	-5.28	-.14(.00)**	-3.01	-.22(.00)**	-2.66
Age	-.14(.05)**	-3.11	-.00(.02)	0.09	-.19(.02)*	-2.17
Sex	.07(.15)	1.54	-.10(.06)*	-2.23	.01(.08)	0.08
Race	.02(.20)	0.52	-.09(.08)*	-2.02	-.07(.09)	-0.84
Sexual Orientation	-.11(.33)*	-2.52	-.05(.12)	-1.20	-.14(.15)	-1.80
Relationship Length	.05(.01)	1.12	.09(.00)	1.91	.12(.00)	1.30

Note. ß = Standardized Regression Coefficient; SE = Standard Error; *p < .05, **p < .01, ***p < .001; Sex (1=male, 2=female); racial background (1=Caucasian, 2=racial minority); sexual orientation (0=heterosexual, 1=sexual minority)

Appendix B: Figures

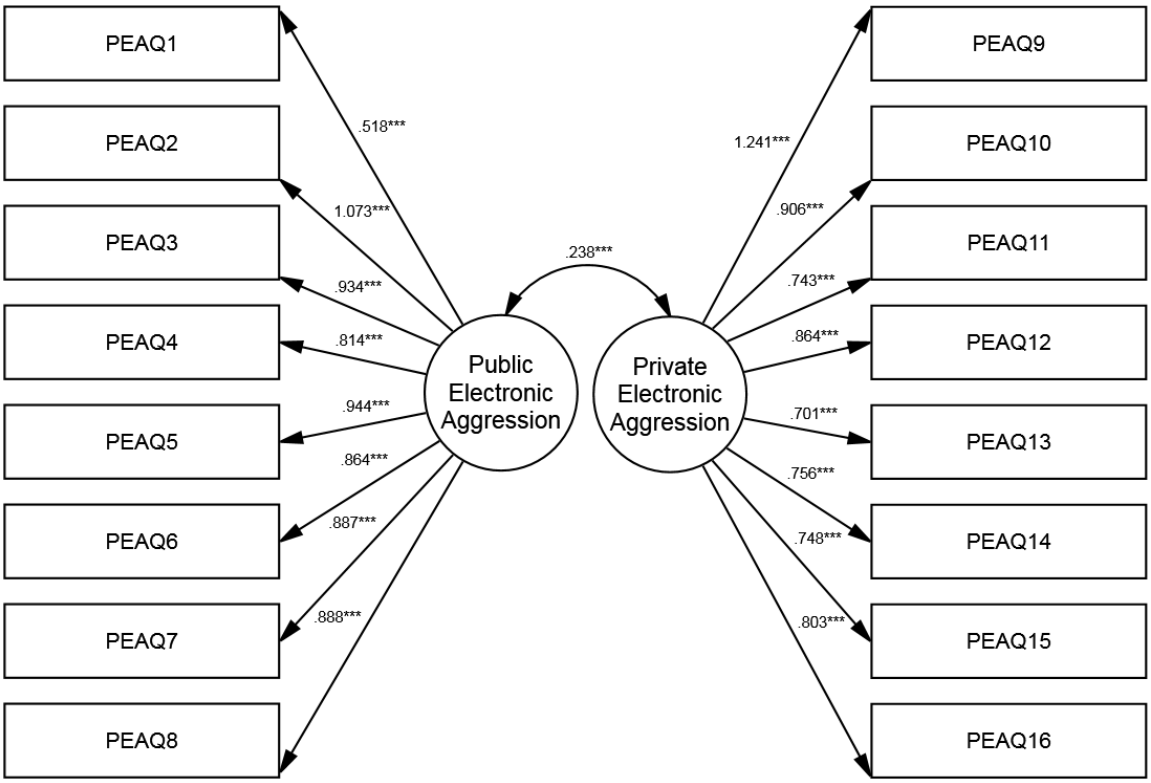

Figure 1. Confirmatory Factor Analysis of Partner Electronic Aggression Questionnaire Items

Note. *$p < .05$, **$p < .01$, ***$p < .001$

Appendix C: Original PEAQ Items

Partner Electronic Aggression Scale

People often use social media (e.g., Facebook, Twitter, personal blogs, message boards) and communication technology (e.g., text messaging, iMessaging, Snapchat) within romantic relationships. The following questions ask about how frequently you and your current romantic partner intentionally use these communication strategies and for what purpose(s).

Please use the following scale to answer the questions below:

0 = Never
1 = Once
2 = Twice
3 = 3-5 Times
4 = 6-10 Times
5 = 11-20 Times
6 = More than 20 Times

Please indicate how often each happened in your current relationship during the PAST 6 MONTHS.

1. I change my relationship status online to upset my partner.
2. My partner changes his/her relationship status online to upset me.
3. I post comments online that will upset or annoy my partner.
4. My partner posts comments online that will upset or annoy me.
5. I post comments online insulting my partner.
6. My partner posts comments online insulting me.
7. I post comments online that make my partner look bad.
8. My partner posts comments online that make me look bad.
9. I threaten to break up with my partner publicly through social media
10. My partner threatens to break up with me publicly through social media.
11. I post comments online where I threaten to destroy my partner's property.
12. My partner posts comments online where he/she threatens to destroy my property.
13. I post comments online that embarrass my partner.
14. My partner posts comments online that embarrass me.
15. I post comments online that make my partner uncomfortable.
16. My partner posts comments online that make me uncomfortable.
17. I post comments online that make my partner jealous.
18. My partner posts comments online that make me jealous.
19. I post photos online that upset or annoy my partner.
20. My partner posts photos online that upset or annoy me.
21. I send my partner insulting messages.
22. My partner sends me insulting messages.
23. I post photos online that embarrass my partner.
24. My partner posts photos online that embarrass me.
25. I post photos of my partner that damage his/her reputation.

26. My partner posts photos of me that damage my reputation.
27. I post comments online in which I threaten to physically harm my partner.
28. My partner posts comments online in which he/she threatens to physically harm me.
29. I post photos of myself that make my partner jealous.
30. My partner posts photos of him/herself that make me jealous.
31. I share private information about my partner online to upset him/her.
32. My partner shares private information about me online to upset me.
33. I send messages to my partner in which I threaten to destroy his/her property.
34. My partner sends messages to me in which he/she threatens to destroy my property.
35. I threaten to break up with my partner through messaging.
36. My partner threatens to break up with me through messaging.
37. I send messages about my partner to others to intentionally damage my partner's reputation.
38. My partner sends messages about me to others to intentionally damage my reputation.
39. I send messages in which I threaten to physically harm my partner.
40. My partner sends messages in which he/she threatens to physically harm me.
41. I send messages to my partner threatening to reveal his/her personal information to others.
42. My partner sends messages to me threatening to reveal my personal information.
43. I send my partner picture messages to make him/her jealous.
44. My partner sends me picture messages to make me jealous.
45. I send my partner picture messages to make him/her upset or annoyed.
46. My partner sends me picture messages to make me upset or annoyed.
47. I monitor where my partner is and who he/she is with through messaging.
48. My partner monitors where I am and who I am with through messaging.
49. I use messaging to forbid my partner from hanging out with certain people.
50. My partner uses messaging to forbid me from hanging out with certain people.
51. I message my partner even when he/she does not want me to message him/her.
52. My partner messages me even when I do not want him/her to message me.
53. I message my partner to make him/her feel bad about something.
54. My partner messages me to make me feel bad about something.
55. I intrusively message my partner when I am mad at him/her.
56. My partner intrusively messages me when he/she is mad at me.
57. I use messaging to start arguments with my partner.
58. My partner uses messaging to start arguments with me.

VITA

Teresa (Teri) Michelle Preddy was born in Richmond, Virginia in 1985. She attended high school and college in Virginia, earning her B.S. in Psychology from the College of William and Mary in 2007. In 2010, she earned an M.A. in Psychology from the University of Richmond. Her work at the University of Richmond was focused on co-rumination in emerging adult same-sex friendships and how co-rumination relates to mental health functioning and friendship quality. In the fall of 2010, Teri entered the doctoral program in clinical psychology at the University of Tennessee and was a recipient of the J. Wallace & Katie Dean Multi-Year Fellowship. From 2010 to 2015, she worked as a graduate student under the supervision of Drs. Paula Fite and Deborah Welsh studying aggressive behavior in peer and romantic relationships and the association between aggressive behaviors and psychosocial functioning. She also worked part time as a graduate student clinician and researcher with Dr. Derek R. Hopko, studying the effectiveness of brief mindfulness-based therapy and behavioral activation therapy for college students with depression. Teri worked as a graduate student clinician at the University of Tennessee Psychological Clinic from 2011-2014, as well as at the East Tennessee Children's Hospital from 2012-2014. Teri was also an instructor for PSYC 110: Introduction to Psychology at the University of Tennessee from 2013-2014. During the 2014-2015 academic year, she completed her predoctoral clinical psychology internship at the Emory University School of Medicine. In the fall of 2015, Teri will begin a postdoctoral fellowship at the Alpert Medical School of Brown University where her work will be focused on providing clinical services and conducting research through the child and adolescent intensive services programs.