

**Digital dating abuse:
Digital media as a gendered context for dating violence in the digital world**

by

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A dissertation submitted in partial fulfillment
of the requirements for the degree of
Doctor of Philosophy
(Social Work and Psychology)
in The University of Michigan
2015

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DEDICATION

I dedicate this dissertation to Dr. Robert Hymes for his years of mentorship and his role in starting me on my graduate school journey, to my sister Jessica Reed for her example of fierce womanhood and unconditional love, to my advisors L. Monique Ward and Richard Tolman for their unwavering support and guidance, and to the members of the Teen Voice Program at Safe House Center in Ann Arbor, MI for sharing the power, brilliance, and beauty of youth activism.

ACKNOWLEDGEMENTS

The first acknowledgement is to my advisors and co-chairs, Dr. Richard Tolman and Dr. L. Monique Ward. You both believed in me from the moment I started this program, despite my inexperience and scattered enthusiasm. You both have been shining examples of mentorship, spending untold amounts of time discussing my work and reading my drafts, and serving as examples of incredible teachers and scholars that also prioritize work-life balance and building caring relationships with their students. Thank you for embracing the “joint-ness” of our research together to collaborate on this dissertation project. I will miss meeting with you on a weekly basis, but I look forward to continuing to work together for years to come.

To my dissertation committee members Dr. Marc Zimmerman and Dr. Katie Richards-Schuster, thank you for serving on my committee and for lending your time and guidance in shaping this dissertation. Thank you also for inspiring me to pursue prevention research and youth participatory action research.

To the Joint Doctoral Program in Social Work and Social Sciences, Rackham Graduate School, and the Department of Psychology, I am grateful for the opportunity to pursue interdisciplinary research, practice, and teaching. Thank you for the generous support over the past six years. Thank you especially to Dr. Berit Ingersoll-Dayton, Todd Huynh, Laura Thomas, Brian Wallace, Diane Shute, Linda Anderson, Danielle Joannette, and Laurie Brannan for their support and helping me through every phase of the program. Thank you also to the faculty who offered encouragement and mentorship at different phases of the program including: Dr. Berit Ingersoll-Dayton, Dr. Joe Himle, Dr. Beth Reed, Dr. Mieko Yoshihama, Dr. Jorge Delva, and Dr. Mike Spencer.

Thank you to the three high schools for collaborating with me and hosting me for the past two years of this project. Thank you for prioritizing the issues of dating violence and sexual assault among your students, and working to prevent and intervene in violence. Thank you to all the teachers who supported this project and encouraged our students to get involved. A big thank you to the student members of the “Safe On-line and Off-line Spaces” group for all your hard work breaking new ground in dating violence and sexual assault awareness in your school community. We are grateful to the Arts of Citizenship program at Rackham for funding this project. Thank you especially to Maleeha Ayub for being a founding member and co-facilitating this group. I also want to thank everyone who helped with the data collection for this project, including Richard Tolman, L. Monique Ward, Jessica Reed, Julia Lippman, Soraya Giaccardi, Rita Seabrook, Paige Safyer, Lauren Tighe, and Alaina Moreno.

To the Media and Sexual Socialization (MASS) lab, thank you for providing valuable feedback on this research, for sharing your interesting and exciting research, and for years of wonderful friendships. I’m not sure how much of my dissertation actually got written in our writing groups, but I do remember a lot of laughter and conversations that made the process so much easier. A big thanks goes to Dr. Julia Lippman for helping with the SEM analysis for this dissertation, and to Rita Seabrook for answering my many statistics and analysis questions.

I want to thank both of my cohorts for being with me every step of the way, through classes, multiple prelims, teaching, and the job market. I am so proud and happy to have you all as life-long colleagues and friends.

I also want to acknowledge some people and things that were instrumental in the dissertation writing process. I would like to thank Sweetwaters Coffee & Tea on Washington and Ashley St. in Ann Arbor for becoming my second home the past year. Thanks for the big windows and endless pots of tea that kept me calm and awake. I am especially grateful to the friends who frequently kept me company during work sessions there - thanks Sarah Huff, Steve Tompson, Joe Bayer, Josh Wondra, Paige Safyer, Morgan Jerald, and Batia Snir. Thank you to Netflix for releasing the entire *Gilmore Girls* series to get me through my most stressful moments (and to Selin Gulgoz for sharing her account!). Finally, I owe so much to my grandparents Shirley and Joe Bonello for allowing me to stay at their home for a week to finish writing. I could not have imagined a more beautiful, peaceful, and loving setting to keep me motivated and productive. I am so grateful to have you be a part of this milestone in my life.

Thank you to my family for supporting me not only through this degree, but also through over two decades of education! Thank you to my mother for being an example of determination and endless nurturing and love, and for instilling in me the value of education, hard work, and independence. I feel so fortunate that my dream program was located so close to my family. Thank you for providing a loving space with delicious food, warmth, and laughter that I could come to when I needed a break. To my sister Jessica, who inspires me with her dedication to her work and serving her community, I am profoundly thankful. It has been my greatest joy these past six years to have seen you become so successful and accomplish your goals.

Finally, I want to thank the friends who made up my Ann Arbor family. I am overwhelmed by how lucky I am to have lived with and worked alongside such fun-loving, brilliant, and kind-hearted people. Thank you especially to Ally Bedoya-Skoog and Linda Hagan for six years of incredible love, friendship, and wine nights, to Sarah Huff and Steve Tompson for being the best travel buddies, roommates, and friends I could have asked for this past year, to Rand Kazanji for the inspirational talks and knowing me better than anyone, and to Paige Safyer for believing in me, co-authoring with me, and keeping me laughing.

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ABSTRACT

Across three studies, this dissertation investigated the topic of **digital dating abuse** in high school dating relationships. The central research question was, *How do digital media (cell phones and Internet) function as a gendered, co-constructed space for problematic dating behaviors and dating violence for high school students?* Digital media, including the use of social media, cell phones, and other Internet sites, have become important social relational contexts for adolescents. Although there are both positive and negative aspects of digital media use in dating relationships, its ubiquitous and public nature may increase vulnerability to several types of problematic dating behaviors and dating violence. “Digital dating abuse” (DDA) is a repeated pattern of behaviors to control, pressure, or threaten a dating partner through the use of the Internet and cell phones. These behaviors can include monitoring someone’s activities and whereabouts, controlling whom they talk to and are friends with, name-calling, threats and hostility, and pressuring for sexual behavior. DDA has been linked to off-line forms of dating violence, and preliminary evidence suggests that women and girls may be differentially impacted by DDA victimization. The three dissertation studies have further explored how digital media create an interactive space in which the motivation, experience, and consequences of digital dating abuse may differ for girls and boys. A survey study of 703 high school students with dating experience was conducted. **Study 1** utilized novel DDA measurement methods to assess gender differences in DDA victimization, finding that girls experienced more distress and negative emotional and behavioral consequences from all types of DDA. **Study 2** examined the association between attachment insecurity and DDA perpetration, finding a link between attachment anxiety and digital monitoring/control for both girls and boys. **Study 3** investigated the association between endorsement of gender/relationship beliefs and DDA perpetration, finding that gender beliefs were associated with different patterns of perpetration for girls and boys. In these studies, the dissertation explored multiple ways that gender functions to shape and impact DDA victimization and perpetration in adolescent relationships.

CHAPTER 1

Introduction

“When my most recent dating partner and I were together, he would pressure me about sending photos and then call me names when I wouldn’t. He would threaten to tell everyone about our sexual experiences if I did not send him photos.”

-14 year old high school girl

This three-paper dissertation arose from my practice experience with adult survivors of intimate partner violence and teen members of local dating violence prevention programs. In the lives of teens I have worked with, hostile messages sent on Twitter, nude photos taken and/or distributed without permission, and pressure to “defriend” and “unfollow” members of the opposite sex were common and upsetting aspects of their dating experiences. In early dating relationships without much experience to draw from, it is persuasive to be told that these behaviors are signs of love rather than control. It is easy to shrug off abuse that is not physical or sexual like they have often seen on television. It is scary to speak up on social media when someone makes a sexist or violent joke about women. This dissertation sought to measure teens’ varied experiences with digital media in their dating relationships, focusing on the role of gender in the motivation, experience, and consequences of digital dating abuse.

This dissertation addressed the central question: *How do digital media (cell phones and Internet) function as a gendered, co-constructed space for problematic dating behaviors and dating violence for high school students?* Across three studies, I have explored the topic of digital dating abuse (DDA), which is defined as “when someone repeatedly controls, pressures, or threatens someone they are seeing or dating through the use of the Internet and cell phones” (Futures without Violence, 2009; Reed, Tolman, & Ward, in press). Although the three papers stand alone as independent manuscripts, they all focus on gender and contexts surrounding the experience of digital dating abuse victimization or perpetration among a large sample of

adolescents. As digital media have increasingly become an important social relational context for adolescents, they have also raised concerns about how media are implicated in dating violence. The small but emerging literature on digital dating abuse has found that problematic digital dating behaviors are common among adolescents and are strongly associated with other forms of physical, sexual, and psychological abuse (e.g., Bennett, Guran, Ramos, & Margolin, 2011; Borrajo, Gámez-Guadix, & Calvete, 2015; Reed, Tolman, & Ward, in press, Zweig, Dank, Yahner, & Lachman, 2013).

Data collection

Data for these studies were collected in a large local high school campus from December 2013 to March 2014, and were the product of a multi-year collaboration between myself and the administrators, teachers, and students of these schools. With the guidance of my advisors L. Monique Ward and Richard Tolman and with consultation from school administrators, I designed and distributed an online survey to almost 1,000 students in 9th to 12th grades. The final sample was comprised of 703 students with dating experience. After data collection, I used the results from the survey study to inform my facilitation of a year-long youth participatory action project at these schools that involved peer education about dating violence, sexual assault, and digital dating abuse. Although this participatory action research is not included in the dissertation, the use of survey results to inform action in the school was envisioned from the onset of the project. For more details about our collaboration and the data collection process, see Appendix A.

Gaps addressed in the digital dating abuse literature

These papers are a conceptual and methodological step forward from previous literature, incorporating novel quantitative measures developed for this study. Study 1 advanced the current

literature by asking participants to report on DDA in their current or most recent relationship only, asked follow-up questions about the experience and consequences of DDA victimization (e.g., how upsetting were these behaviors), and used a measure of DDA that assessed frequency of three types of DDA: digital direct aggression, digital sexual coercion, and digital monitoring/control. Much of the current DDA literature focuses on the prevalence of DDA and correlates of DDA victimization. Studies 2 and 3 expanded on current literature by investigating possible individual differences in DDA perpetration. Study 2 replicated previous work with college students to assess the contribution of attachment anxiety to frequency of digital monitoring/control behaviors. Study 3 used structural equation modeling to examine the contribution of several types of stereotypical gender and relationship belief endorsement on all three types of DDA perpetration. To my knowledge, this is the first study of DDA to use this method, and to connect gender beliefs with DDA experience.

Theoretical foundation of dissertation studies

This dissertation is grounded in several interdisciplinary theories from developmental psychology, social work, and communications studies. Studies 1 and 3 draw primarily from feminist theoretical approaches to dating violence, which posit that dating violence occurs in a larger cultural context that socializes women and men to conform to rigid gender roles that perpetrate men's control of women in relationships (e.g., Prospero, 2007; Sears, Byers, & Price, 2007). With this perspective, I investigated whether digital dating abuse is a form of gendered violence that may differentially impact girls, and may be influenced by an individuals' endorsement of dominant cultural ideas about gender and dating. Study 2 draws from attachment theory as a framework to explain possible individual differences in the perpetration of digital monitoring/control behaviors. I suggest in this study, and in our previous work with college

students, that an individual's universal orientation towards relationships influences the interpretation of dating partners' digital behaviors, the individual's response to the influx of digital information available about their dating partner, and the motivation to engage in digital monitoring/control in an attempt to regulate their emotions (Reed, Tolman, & Safyer, 2015).

All three studies, and Study 2 in particular, also draw from communications theories that describe how the characteristics of social media have impacted the nature of communication in dating relationships. Media theorists have characterized these changes in terms of greater visibility of information, persistence of content once it is posted or sent, and connectivity to partners at any time and from any location (Fox, Osborn, & Warber, 2014; Treem & Leonardi, 2012). Finally, this dissertation evaluated theory that conceptualizes DDA as a form of dating violence rather than a separate phenomenon (see Stonard, Bowen, Lawrence, & Price, 2014 for a review on this topic), and as a form of gendered violence that is uniquely experienced in the developmental context of adolescence. In this context, the term "co-constructed" from my central research question refers to the nature of digital media use among today's youth, as a space in which media are simultaneously consumed, shared, *and* created by youth (Subrahmanyam & Šmahel, 2011; Subrahmanyam, Šmahel, & Greenfield, 2006).

Dating violence and debates about gender "symmetry"

This dissertation work on digital dating abuse is also grounded in the debates and gaps in the broader dating violence literature. Dating violence has been defined as actual or threatened physical, sexual, psychological, or emotional abuse of a current or former dating partner, including stalking, and can take place in person or electronically (Centers for Disease Control, 2012). Although estimates vary widely, recent national data report that 9.8% of high school aged adolescents experienced physical abuse from a dating partner in the past year (Centers for

Disease Control, 2009), and that 30% of youth ages 12-21 and 20% of youth in same-sex relationships report psychological abuse from a partner in the past 18 months (Halpern, Oslak, Young, Martin, & Kupper, 2001). A recent study of 1,162 high school students stated that verbal emotional abuse was the most common form of dating violence reported; 73% of girls and 66% of boys reported victimization of this type of abuse (Espelage, Low, Anderson, & De La Rue, 2014). About half of these students (35% of girls and 36% of boys) reported physical abuse, and 23% of girls and 13% of boys reported sexual coercion victimization (Espelage et al., 2014). Variation in prevalence estimates is largely due to differences in definition and methodology; studies that only include reports of physical violence result in more conservative estimations of prevalence, whereas other research that includes psychological abuse finds much higher rates.

Despite these discrepancies in reporting, dating violence continues to be a pressing social issue for today's youth. Decades of research have shown that experiencing abuse in early romantic relationships are associated with detriments to physical and mental health, and abuse at a young age has been linked with experiencing further relationship abuse across the lifespan (see Shorey, Cornelius, & Bell, 2008, for a review). However, as most research has focused on the impacts and risk factors of dating violence, there has been much less work developing theoretical models to explain causes and mechanisms of dating violence (Shorey et al., 2008). The literature on dating violence, and emerging research on digital forms of dating violence, is also difficult to interpret due to inconsistent use of terms, definitions, and measurement of relationship abuse among young people (Shorey et al., 2008).

Debates about gender differences in the perpetration of intimate partner violence have been ardently argued since the 1960s (Foshee, 1996). The findings across the literature are inconsistent. Some research finds that women perpetrate abuse more often than men, some find

equal rates of perpetration, and others find that men are the primary perpetrators (see Archer, 2000 and Kimmel, 2002 for review of adult literature). These findings often vary by definition of abuse, method, and sample studied. A recent review concluded that most research finds that intimate partner violence is more often perpetrated by men than women, including studies of arrest reports, homicide data, self-report from large nationally representative surveys of crime victimization and child maltreatment, and self-report survey data that includes sexual violence (Hamby, 2014b). The only source that finds equal rates of physical violence perpetration by women and men are self-report surveys that use “partner-specific behavioral checklists” (Hamby, 2014b).

Evidence for gender differences in teen dating violence, similar to the adult literature, varies by type of abuse, severity of abuse, and research methods employed. Many studies report that dating violence is equally perpetrated by teenage boys and girls (Archer, 2000; Halpern et al., 2001; White, 2009), but other research reports higher overall rates of female victimization (Forke, Myers, Catalozzi, & Schwarz, 2008), with boys perpetrating more sexual abuse and girls perpetrating more physical abuse. However, girls have been found to be more likely to experience severe dating violence, suffer injuries as a result of dating violence, and experience greater psychological distress resulting from victimization (Arriaga & Foshee, 2004; Foshee, Bauman, Linder, Rice, & Wilcher, 2007; Molidor & Tolman, 1998), indicating that the gendered nature of dating violence may be more complicated than prevalence rates suggest (White, 2009). A recent report on dating violence across middle school and high school youth showed results that are representative of general trends in the literature (Espelage et al., 2014). Researchers found that, using a “behavioral checklist” method of measurement, high school boys reported

more sexual harassment and sexual dating violence perpetration, but girls reported more verbal, emotional, and physical dating violence perpetration (Espelage et al., 2014).

Why has this debate persisted despite decades of research and discussion? Although the limitations in theoretical development, survey methodology, and sampling are well known, it seems that the major political and social implications of these research findings fuel the fire for continued disagreement. It is also difficult to resolve this debate when the different camps fail to agree on the underlying causes and motivations for dating violence. Feminist perspectives on dating violence emphasize the influence of dominant cultural beliefs about masculinity and femininity as setting the stage for and shaping the ways in which dating violence occurs (Black & Weisz, 2003; Feldman & Gowen, 1998). Others point to individual factors and sociocognitive modeling of violent behavior as the causes of intimate partner violence (e.g., Pepler, 2012; Straus, 2011).

Although the literature continues to debate the underlying causes of dating violence, largely maintained by de-contextualized self-report rates of various types of abuse, the feminist approach maintains that there are important differences between the experiences of dating violence among girls and boys that prevent this violence from being “symmetrical and bidirectional.” Dating violence occurs in a gendered sociocultural context that ascribes strict hierarchical roles for girls and boys (Prospero, 2007). Girls are expected to prioritize being in a dating relationship more than boys, and relationship jealousy and possessiveness is normalized as a reasonable response to the assumption that men will be untrustworthy at best and sexual predators at worst (Sears, Byers, & Price, 2007; Tolman, Spencer, Rosen-Reynoso, & Porche, 2003). Boys, operating with the same socialized script about their masculinity, may respond with begrudging acceptance to this possessiveness (Tolman, et al., 2003). Another aspect of the

dominant cultural script for heterosexual dating is the expectation that girls are valued primarily as sexual objects in relationships, and that boys have a preoccupation with sex (Kim, Sorsoli, Collins, Zylbergold, Schooler, & Tolman, 2007). This script may contribute to higher rates of sexual coercion and sexual abuse perpetrated among boys, as they feel that they are entitled by this script to have sexual power over girls.

Narratives of “mean girls” and female aggression have proliferated in popular culture and academic literature, as attempts are made to explain the “high” reports of violence perpetrated by girls. Are girls really just as violent as boys? Are girls and boys aggressive in the same ways? Some empirical findings suggest that girls are more likely than boys to engage in emotional manipulation or “relational aggression” than boys (Foshee, 1996; Ringrose, 2008), aligning with the “mean girl” stereotype. Ringrose (2008; 2010) made a compelling case that gender socialization and norms may contribute to girls’ use of emotional aggression because girls are rewarded for being passive and “nice” and punished for being overtly aggressive. The expectation that girls should bury their desires and needs for the sake of being “nice” may reinforce for girls that the only socially acceptable way to challenge power structures or get control in their relationships is through passive, emotional forms of aggression (Letendre, 2007). Boys, conversely, are encouraged to and rewarded for showing overt physical aggression. Tolman et al. (2003) argued that socialization of gendered “scripts” in early adolescent dating relationships might normalize boys’ aggressive behaviors towards girls and girls’ responses to this normative aggression. These gendered expectations shape the motivations and aggressive tactics used in dating relationships.

A primary reason for the gender debate in intimate partner violence research is continued reliance on “behavioral checklists” of frequency of abuse (Hamby, 2014a). Recent research has

demonstrated that gender differences in rates of intimate partner violence can be manipulated by altering the wording of items in self-report survey research (Hamby, 2014a). When survey items are worded to exclude reports of behaviors done in a playful or joking manner or that emphasized intention to harm, gender “symmetry” in intimate partner violence reports disappeared. The dissertation studies have built upon this work by developing measurement for digital dating abuse that looked beyond checklists of frequency and assessed gender differences in distress, emotional and behavioral consequences, and individual difference factors in perpetration.

Aims of dissertation studies

In these three papers, I sought to focus on the role of gender in the motivation, experience, and consequences of digital dating abuse victimization and perpetration. I conceptualized gender as both the gender identification of victims and perpetrators of DDA, and the influence of gender socialization in shaping adolescents’ dating relationships and digital media experiences. This focus was in response to gaps in the existing literature on dating violence and digital dating abuse. To date, the literature has been inconsistent in its reporting of the prevalence of DDA victimization and perpetration among girls and boys – due in part to a lack of agreement about conceptualization and measurement of DDA. These inconsistencies lead to questions about whether DDA is a *gendered* form of abuse that differentially impacts girls and women, mirroring debates about the gendered nature of dating violence and intimate partner violence more broadly. Often, these debates rely on a comparison of the percentages of girls and boys in a sample that report experiencing a checklist of abusive dating behaviors. These percentages are devoid of contextual information about the emotional and physical consequences of the abuse, the motivation for the abuse, and the meanings that girls and boys make from these

experiences. For example, the quote at the beginning of this introduction (drawn from an open-ended question in the dissertation survey) highlighted some ways in which digital media could be used to pressure and sexually coerce a dating partner by manipulating a girl to protect her reputation by sending sexual photos to a dating partner. The threat of sharing a girl's sexual experiences may only be effective because the relationship exists within a strictly policed gender environment that often judges girls harshly for engaging in sexual behavior. Boys, not having this social pressure, may experience this same behavior quite differently.

Taken together, the three papers in this dissertation move beyond comparing gender differences in rates of victimization and perpetration. Instead, Study 1 examined the emotional experiences and behavioral consequences of DDA victimization, and Studies 2 and 3 explored possible individual factors that might influence the likelihood to engage in various DDA behaviors.

The aims of the three dissertation papers were the following:

1. Improve on previous measures to assess frequency of three types of digital dating abuse victimization (Study 1) and perpetration (Studies 2 and 3): digital sexual coercion, digital direct aggression, and digital monitoring/control.
2. Explore gender differences in the emotional experience of DDA victimization (do adolescent girls and boys find these experience to be upsetting?), and the emotional and behavioral responses to DDA victimization (Study 1).
3. Examine two possible contextual factors that may contribute to individual differences in DDA perpetration: adolescents' attachment insecurity (anxiety and avoidance) (Study 2) and endorsement of stereotypical gender and dating beliefs (Study 3).

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CHAPTER 2

Gender matters: Experiences and consequences of digital dating abuse victimization in adolescent dating relationships

Dating violence continues to be a pressing social issue for today's youth. Dating violence has been defined as actual or threatened physical, sexual, psychological, or emotional abuse of a current or former dating partner, including stalking, and can take place in person or electronically (Centers for Disease Control, 2012). Although estimates vary widely, recent national data report that 9.8% of high school aged adolescents experienced physical abuse from a dating partner in the past year (Centers for Disease Control, 2009). A recent study of 1,162 high school students stated that verbal emotional abuse was the most common form of dating violence reported; 73% of girls and 66% of boys reported victimization of this type of abuse (Espelage, Low, Anderson, & De La Rue, 2014). As digital media use, or the use of the Internet and cell phones for social networking, becomes increasingly widespread among youth, its role as a context and tool for unhealthy and abusive dating behaviors is being explored (Borrajo, Gámez-Guadix, & Calvete, 2015; Borrajo, Gamez-Guadix, Pereda, & Calvete, 2015; Bennett, Guran, Ramos, & Margolin, 2011; Burke, Wallen, Vail-Smith, & Knox, 2011; Cutbush, Williams, Miller, Gibbs, & Clinton-Sherrod, 2012; Finn, 2004; Melander, 2010; Reed, Tolman, & Ward, in press; Zweig, Dank, Yahner, J., & Lachman, 2013). The current study will expand on previous research to investigate digital dating abuse experiences among a sample of 703 girls and boys, focusing on possible gender differences in the experience and consequences of these behaviors.

Decades of research have shown that experiencing abuse in early romantic relationships is associated with detriments to physical and mental health, and abuse at a young age has been linked with experiencing further relationship abuse across the lifespan (see Shorey, Cornelius, & Bell, 2008; Zimmer-Gembeck, 2002 for reviews). Exploring romantic intimacy and sexuality are

key developmental milestones of adolescence (e.g., Brown, Feiring, & Furman, 1999), and most young people have their first date before the age of 18 (Zimmer-Gembeck, 2002). Therefore, we are interested in studying teens' digital dating to inform intervention and prevention efforts for teens negotiating these influential early relationships in a media-saturated environment.

The role of gender in dating violence

The current study is situated within a larger ongoing debate about gender differences in dating violence, and intimate partner violence more broadly, that has been ardently argued since the 1960s (Foshee, 1996). There are inconsistent findings across the literature, with some research finding that women perpetrate more violence and abuse against their partners, some finding equal rates of perpetration, and others finding that men are the primary perpetrators (see Archer, 2000; Kimmel, 2002 for reviews of adult literature). A recent review concluded that most research finds that intimate partner violence is more often perpetrated by men than women, including studies of arrest reports, homicide data, self-report from large nationally representative surveys of crime victimization and child maltreatment, and self-report survey data that includes sexual violence (Hamby, 2014b). The only source that finds equal rates of physical violence perpetration by women and men are self-report surveys that use “partner-specific behavioral checklists” (Hamby, 2014b).

Evidence for gender differences in teen dating violence, like in the adult literature, varies by type of abuse, severity of abuse, and research methods used to measure dating violence and its consequences. Many studies report that dating violence is equally perpetrated by teenage boys and girls (Archer, 2000; Halpern, Oslak, Young, Martin, & Kupper, 2001; White, 2009), but other research reports higher overall rates of female victimization (Forke, Myers, Catalozzi, & Schwarz, 2008), with boys perpetrating more sexual abuse and girls perpetrating more physical

abuse. However, girls have been found to be more likely to experience severe dating violence, suffer injuries as a result of dating violence, and experience greater psychological distress resulting from victimization (Arriaga & Foshee, 2004; Foshee, Bauman, Linder, Rice, & Wilcher, 2007; Molidor & Tolman, 1998), indicating gender differences in dating violence are more complex than they appear (White, 2009). A recent report on dating violence across middle school and high school youth showed results that are representative of general trends in the literature (Espelage et al., 2014). Researchers found that, using a “checklist” method of measurement, high school boys reported more sexual harassment and sexual dating violence perpetration, but girls reported more verbal, emotional, and physical dating violence perpetration (Espelage et al., 2014).

Recent research has demonstrated that gender differences in rates of intimate partner violence can be manipulated by altering the wording of items in self-report survey research (Hamby, 2014a). When survey items are worded to exclude reports of behaviors done in a playful or joking manner or that emphasized intention to harm, gender “symmetry” in intimate partner violence reports disappeared. In this study, we sought to build upon this work by developing measurement for digital dating abuse that, instead of a behavioral checklist of only frequency, assessed distress experienced from DDA victimization and emotional and behavioral responses to DDA behaviors. This additional information may illuminate how the experiences and consequences of DDA may differ for girls and boys, regardless of reports of frequency.

Digital media and dating relationships

Digital media use in adolescence and young adulthood is frequent, varied, and integrated into daily life and relationships. Most (77%) of adolescents have a cell phone, and almost all (95%) of teens ages 12-17 are on the Internet (Lenhart, 2012). Teens are also avid users of social

media. Most (80%) of teens ages 12-17 have a social networking profile (e.g., Twitter) (Lenhart, 2010).

Digital media have both positive and negative impacts on young people's social relationships. The benefits of digital media include the facilitation of relationship strengthening and maintenance, widening of social circles, and connecting with on-line communities (e.g., for sexual minority and/or racial minority youth) (McEwan, 2013; Valenzuela, Park, & Kee, 2008; Zhao, Grasmuck & Martin, 2008). However, digital media can also be a form of stress and conflict in youth's relationships. A focus group study on adult Facebook use found that stressors associated with the social networking site included five major themes: managing annoying or inappropriate content, being tethered, lack of privacy and control, social comparison and jealousy, and relationship tension and conflict (Fox & Moreland, 2015).

Similarly, the unique characteristics of digital media have changed communication in dating relationships in ways that may put youth at risk for problematic dating experiences. Digital media have moved previously private dating interactions into public spaces, giving dating partners constant access to each other, providing the ability to monitor their partners' activities, and spreading information instantly to entire social networks (Draucker & Martsolf, 2010; Melander, 2010; Tokunaga, 2010). As a result, research has shown that mobile phones may create pressure to be "perpetually connected" and make it difficult for partners to manage communication rules and boundaries (Duran, Kelly, & Rotaru, 2011). The additional exposure of private interactions that are broadcast publically to social networks may put dating partners at risk of public embarrassment and harassment (Melander, 2010), and in severe cases may assist abusive partners in attempts to gain and maintain power and control over their dating partner.

Research studies examining the role of digital media in dating relationships have generally focused only on a single platform within each study (e.g. texting, Facebook). Although this research gives attention to nuances of various mediums of digital communication, platforms are rapidly changing, and patterns of use are evolving. It is therefore premature to characterize the impact of any particular platform in terms of its association with relationship behavior and satisfaction.

The role of gender in digital dating

Although both girls and boys must navigate digital boundaries in dating relationships, preliminary evidence suggests that there are gender differences in the ways that the digital media environment is experienced (e.g., Kimbrough, Guadagno, Muscanell, & Dill, 2013; Muscanell, Guadagno, Rice, & Murphy, 2013). Several studies have found that women and girls are more frequent users of digital media than men and boys (e.g., Kimbrough et al., 2013; Marshall, Bejanyan, Di Castro, & Lee, 2013). Muscanell and Guadagno (2012) found that motivations for using social media differ for women and men; women tend to use these technologies to maintain social relationships, whereas men often use social media to build new relationships and for career purposes. Blais, Craig, Pepler, and Connolly (2008) propose what they characterize as a “rich get richer” hypothesis, suggesting that because girls report higher levels of relationship quality off-line than boys, the use of digital media allows them to expand their tools of reinforcing off-line friendships (Blais et al., 2008).

Research has also shown that women may experience more jealousy and distress from relationship issues on social media. In an experimental study with 266 college students, women reported more jealousy than men when imagining a hypothetical situation of viewing pictures of their partner with another person on social media (Muscanell et al., 2013). Another study found

that even though men spent more time than women looking at their partner's Facebook profiles, women reported higher levels of jealousy about things they viewed on Facebook (Marshall, 2013). These findings support the notion that girls and boys may experience digital media differently in dating relationships.

Digital media as a context for dating violence

Although there are both positive and negative uses of digital media in dating relationships, the ubiquitous and public nature of digital media use in dating relationships puts youth at risk for several types of problematic digital dating behaviors. These behaviors, which have been called “digital dating abuse” (Picard, 2007; Reed, Tolman, & Ward, in press; Weathers & Hopson, 2014), “electronic aggression” (Bennett et al., 2011; David-Ferdon & Hertz, 2007), “cyber dating abuse” (Borrajo et al., 2015; Zweig et al., 2013a; 2013b), “technology-based interpersonal victimization” (Korchmaros, Ybarra, Langhinrichsen-Rohling, Boyd, & Lenhart, 2013), “technology-delivered dating aggression” (Epstein-Ngo, Roche, Walton, Zimmerman, Chermack, & Cunningham, 2014), and “socially interactive technology abuse” (Lucero, Weisz, Smith-Darden, & Lucero, 2014) can include monitoring someone's activities and whereabouts, controlling who they talk to and are friends with, threats and hostility, spreading embarrassing and sexual photos with others, and pressuring for sexual behavior using the Internet or cell phones.

Drawing from the scant existing literature, we chose to call these behaviors “digital dating abuse” or DDA (Futures without Violence, 2009; Picard, 2007; Reed, Tolman, & Ward, in press; Weathers & Hopson, 2014). The term has three elements: “digital,” which in our conceptualization includes cell phones, computers, and Internet communication rather than face-to-face interaction; “dating,” which refers to current or former adolescent and young adult

romantic relationships; and “abuse,” which implies a *pattern* of behavior that controls, pressures, harasses, threatens, or otherwise harms a dating partner. We emphasized a pattern of behaviors to differentiate abuse from isolated negative relationship behaviors, but recognizing that some behaviors can be harmful and abusive if they happen only once (e.g., pressure to engage in sexual activity, threats of physical harm through digital messages). Despite the similarity between DDA and cyberbullying, the online romantic relationship context warrants special consideration because digital behaviors within a dating relationship can become part of a constellation of tactics for dating violence. Intent to harm is an important element of abuse, but behaviors occurring outside of the conscious or explicit intent to harm might also be abusive.

Although literature on this topic is newly emerging, we know that digital dating abuse is pervasive among adolescents and college students and encompasses many different behaviors. Among younger populations, 1 in 4 high school students reported being a victim of digital dating abuse, and sexual minority youth are at a greater risk for victimization than heterosexual youth (Zweig et al., 2013a). One report found that 25% of teens ages 13-18 were called names, harassed, or put down by a dating partner via texting or a cell phone; 22% were asked to do something sexually that they did not want to do; 18% were put down or called names by their partner using digital media; 19% had a dating partner spread rumors about them using digital media; 17% were afraid of their partners’ response if they did not respond to a digital media message; and 10% were physically threatened using digital media (Picard, 2007). More than half of teens in one sample (57%) had been asked to send a “sext” message, and most were bothered by this request (Temple, Paul, van den Berg, Le, McElhany, & Temple, 2012).

The current study focuses on digital dating abuse among high school students, but much of the emerging literature on digital dating abuse has studied digital dating among college

students. These studies have informed the current research. Among college students, our previous study found that 68.8% reported at least one DDA victimization behavior, and 62.6% reported one or more perpetration behaviors in the past year (Reed, Tolman, & Ward, in press). Bennett et al. (2011) found that 73.5% of their sample of 437 college students experienced electronic intrusiveness (e.g., intrusively calling or messaging) in the past year from a dating partner, 72.3% reported electronic hostility (e.g., a hurtful text message), 73.2% reported electronic humiliation (e.g., posting an embarrassing photo online), and 42.6% experienced electronic exclusion (e.g., blocking from a social media site). A study of 788 young adults (ages 18-30) found that 10% of participants experienced direct aggression (act of aggression with intent to harm), and over 70% of participants experienced monitoring/control (Borrajo et al., 2015b).

Therefore, monitoring and intruding into the privacy of dating partners via digital media seem to be especially common digital dating behaviors among college students (Bennett et al., 2011; Reed, Tolman, & Ward, in press). College students in one study reported that intrusiveness was less potentially distressing than other types of electronic victimization including hostility and humiliation, but women reported intrusiveness as more hypothetically distressing than men (Bennett et al., 2011). Overall, participants reported that experiencing DDA behaviors from a dating partner would be more distressing than experiencing them from a friend, warranting special attention to the dating relationships (Bennett et al., 2011).

Gender and digital dating abuse

When digital media enter the conversation, the gender dynamics of dating violence become further muddled. Most, but not all, of the emerging literature on digital dating abuse has discussed whether the occurrence of DDA differs for girls and boys and for women and men.

However, findings on whether girls or boys are more often victims or perpetrators of DDA are mixed. Furthermore, little is known about gendered experience of DDA beyond frequency of behaviors reported. The current study centers the gendered experience of DDA, seeking to explore whether girls and boys are experiencing and ascribing meaning to DDA victimization in the same way.

There is preliminary evidence to support that experiences of digital dating abuse are gendered. Reed, Tolman, & Ward (in press) found significant gender differences for specific DDA behaviors among college students. In our study, men were more likely than women to report threatening to distribute embarrassing information about their dating partner(s) using the Internet or a cell phone and were more likely to report pressuring their dating partner(s) to take a sexually suggestive/nude photo or video using a computer or cell phone. In a study of digital dating abuse among teens, Zweig et al. (2013a) found that boys were more likely than girls to perpetrate sexual DDA behaviors (e.g., pressure to send sexual photos). These findings suggest that men and boys may be more likely to engage in threatening and pressuring behaviors, especially involving sex, whereas other research suggests that girls may use monitoring and possessive behaviors more frequently (e.g., Lucero et al., 2014).

Girls and boys may also respond differently to DDA victimization. In a study by Bennett et al., (2011), men reported more overall DDA victimization than women; however, men reported lower levels of anticipated distress from experiencing intrusive behaviors from their dating partners than women. The emotional experience of these behaviors is relevant because although men may experience these behaviors more often than women, if they do not find them distressing, experiencing these behaviors may be less cause for concern for men. Reed, Tolman, and Ward (in press) did not find significant gender differences in rates of DDA victimization or

perpetration, but found that women and men differed significantly on their emotional experiences of sending/ receiving sexual photo messages to or from a dating partner. Men reported that they would feel more positive emotional responses to these behaviors, such as “excited” and “happy,” whereas women reported more negative emotional responses such as “embarrassed” and “scared.” In a focus group study of 23 teens, girls tended to normalize frequent monitoring behavior of their dating partners, whereas boys frequently discussed their frustration with their girlfriends’ monitoring behaviors towards them. Girls discussed password sharing as a sign of trust, albeit with some potential consequences, whereas boys talked about password sharing with more trepidation (Lucero et al., 2014).

Looking broadly at the overall number of DDA behaviors reported or lifetime experience of DDA, it appeared that boys and girls perpetrate DDA at similar rates or that girls perpetrate DDA more often (Bennett et al., 2011; Reed, Tolman, & Ward, in press). However, examining the context and experience of DDA yields a different perspective on gendered dynamics. Research that asks questions about the negative emotional consequences of DDA, the anticipated distress resulting from DDA, perceptions and criticisms of victims, or sexually coercive types of DDA illuminates that although both girls and boys perpetrate DDA, girls fare far worse from these experiences (Bennett et al., 2011; Lippman & Campbell, 2014; Reed, Tolman, & Ward, in press; Zweig et al., 2013a).

How might digital media impact the experience of digital dating abuse differently for girls and boys? Some have posited that digital media could “level the playing field” in terms of gender, creating a more gender-neutral space where all voices can be heard and differences in physical size and corresponding physical threat are minimized (Sears, Byers, & Price, 2007). Digital media may indeed be a place where girls feel they can more safely challenge unequal

power dynamics in their relationships and gain control over their dating partners without detection or immediate threat of physical violence (e.g., ensuring fidelity by “checking up on” their partner or sharing online passwords). Conversely, others have suggested that gender norms and stereotypes are reproduced in digital interactions, creating a different experience of the same behaviors for girls and boys. For example, a recent qualitative study of 43 adolescents by Lippman and Campbell (2014) found that although girls and boys reported equal likelihood to “sex” (send sexually suggestive or nude photos or videos), girls were more likely to be pressured to engage in this behavior. Moreover, girls received harsh criticism whether they sexted or not, being called things like “slut” or “prude,” respectively (Lippman & Campbell, 2014). Boys did not receive such criticism. Other research has emphasized that sexting is not associated with sexual risk behavior or psychological well-being (Gordon-Messer, Bauermeister, Grodzinski, & Zimmerman, 2012). Therefore, it is not sexting in itself, but pressure and coercion (most often experienced by girls) that raise our concerns about these messages. These findings illustrate how societal gender inequities, such as the sexual double standard, are perpetuated publicly via digital media to differentially impact girls, despite girls’ and boys’ “equal” rates of reporting digital dating behaviors.

Association between on-line and off-line dating abuse

Studies have also shown that digital dating abuse and unhealthy online dating behaviors are associated with and predict off-line psychological and physical abuse. Among college students, Reed, Tolman, and Ward (in press) found a strong positive association between digital dating abuse victimization and perpetration and physical violence victimization, psychological abuse, and sexual coercion among college students. Cutbush and colleagues (2012) found the same results in a large sample of adolescents. A recent study of 177 college students by Brem,

Spiller, and Vandehey (2014) found that Facebook jealousy and surveillance (monitoring your partner's social media activity) predicted off-line psychological and physical aggression. Among adolescents, Zweig and colleagues (2013a) found that in a large sample of middle and high school students, online sexual cyber dating abuse victimization was associated with off-line sexual coercion victimization, and that online sexual cyber dating abuse perpetrators were 17 times more likely than others to have perpetrated off-line sexual coercion. Epstein-Ngo and colleagues (2014) also found that among a smaller sample of urban youth, those who reported digital dating abuse were more likely to report physical abuse. These studies show that online dating behaviors have real consequences for the experience of the dating relationship both on-line and off-line, and that digital media are an important context for dating violence.

Contextual factors in digital dating abuse

Whereas it is important to recognize that digital dating abuse often occurs within a constellation of other forms of abuse, the unique characteristics of digital media communication are also likely to influence the experience and consequences of DDA behaviors. The ease and pervasiveness of sharing and searching for personal information online, coupled with the growing social expectation of immediate and constant communication access via digital media contribute to a blurring of “digital boundaries” between dating partners. Individual DDA behaviors are likely to be experienced on a continuum and within a constellation of other relationship behaviors, and the severity and context of the behavior is central to understanding whether the behavior is harmful. It is difficult to label some behaviors as categorically “abusive” and others as “harmless” without knowing more information. Therefore, some dating partners in some relationship situations may interpret a digital dating behavior as affectionate, “normative” behavior. Alternatively, this same behavior could be experienced as distressing, possessive, or

threatening if motivated by a desire for power and control over a partner, or if it occurs as part of a pattern of abusive on-line and off-line behaviors. When interpreting findings about DDA, context matters.

To date, contextual factors that increase or decrease the likelihood of DDA involvement have not been heavily studied. A few studies have looked at correlates of experiencing DDA, finding that being female, prior experience with delinquent and problem behavior, history of DDA victimization, experience with sexual activity, depression, anxiety and hostility, and having a negative parent-child relationship is each associated with experiencing DDA (Korchmaros et al., 2013; Zweig et al., 2013b). Among college students, Borrajo, Gámez-Guadix, and Calvete (2015) found that DDA is most likely to be motivated by jealousy. Most survey research on DDA and dating violence utilized a “checklist” or “acts-based” approach, asking participants to report all the behaviors they have experienced within a given time frame. There have been many critiques of this method, including those who caution that “acts scales” and “behavioral checklists” are too simplistic to capture the complexities of partner violence, excluding context, consequences, and the meaning attached to behaviors (e.g., Foshee et al., 2007; Hamby, 2014a; 2014b). To address this lack of understanding of contextual factors associated with DDA, the current study will expand on existing literature by examining not only whether DDA behaviors have occurred, but also by assessing how upsetting the behaviors were and how participants emotionally and behaviorally responded to DDA behaviors.

Research Questions and Hypotheses

Digital dating abuse, or dating violence in the digital media context, is a common and harmful occurrence in today’s digital world. There is preliminary evidence that the use of digital media and the experience of digital dating abuse may differ significantly by gender. However,

existing findings about these gendered patterns are mixed and offer little insight into the context of these experiences. Indeed, several limitations of this literature have been identified, and include: 1) Asking participants to report any DDA behaviors they have ever experienced, or have experienced in the past year (e.g., Bennett et al., 2011; Reed, Tolman, & Ward, in press). With this method, it is not known whether these behaviors happened in one relationship or spread across several, and do not know when these behaviors occurred. 2) Asking participants only to report *if* and *how often* DDA behaviors occurred, without inquiring about how participants *felt about* or interpreted these behaviors. 3) Making claims of gender differences based on these frequency reports alone.

The current study will address these limitations by examining the experience and consequences of DDA victimization in high school dating relationships. We asked participants to think only about their “current or most recent dating partner” when responding to items. Asking questions in this way allowed participants to focus on a single relationship that is most recent in their memory, hopefully, increasing accuracy of responses. This method was adapted from research by Zweig and colleagues (2013a; 2013b). Furthermore, we asked participants several follow-up questions for each DDA behavior reported, inquiring about how participants *felt about* and *responded* to the most recent incident of each DDA behavior (see Molidor & Tolman, 1998 for a similar method). To our knowledge, this is the only study of digital dating abuse to do so. We believed this innovation would be an important step to help the field move beyond studying dating violence via a “checklist” of behaviors devoid of the experience and consequences for the victim. This method will also allow us to make claims about the impact of DDA behaviors, rather than assuming that all participants experience DDA in the same way.

As this study was largely exploratory, our hypotheses were limited. Our research questions and hypotheses were as follows:

1) How often are girls and boys experiencing DDA in their relationships? We predicted that monitoring and controlling behaviors would be especially common in our sample. Also, we expected that boys would perpetrate sexually coercive DDA behaviors more frequently than girls, and girls would report more frequent victimization of sexually coercive DDA behaviors.

2) Are there gender differences in distress resulting from DDA victimization? Building from the finding in Bennett et al. (2011) that girls reported more anticipated hypothetical distress from DDA, we anticipated that girls in the current would report more actual distress from all types of DDA victimization.

3) Is the frequency of DDA victimization associated with reported distress for girls and boys? As this is the first study to assess distress experienced from DDA victimization, this research question was exploratory. We hypothesized that DDA victimization frequency would be positively associated with distress for girls and boys. Although Bennett et al. (2011) found that for their sample of college students, the frequency of DDA victimization was negatively associated with level of anticipated hypothetical distress from experiencing DDA, this finding may have been heavily influenced by the hypothetical nature of their research question.

4) How are girls and boys responding to DDA behaviors in their relationships? Based on findings from Reed, Tolman, and Ward (in press) concerning the digital media context and findings of Molidor and Tolman (1998) concerning the off-line context, we also predicted that girls would be more likely to report negative emotional responses to DDA victimization (e.g., crying, being sad/upset) and boys would be more likely to report dismissive emotional

responses (e.g., laughing, ignoring it). We also assessed active and passive behavioral responses, and explored gender differences in these responses.

Method

Design

We conducted a self-report cross-sectional survey study of 9th-12th grade students at a large suburban high school campus in Michigan. This was a convenience sample, with effort taken to get a representative sample of students in various grade levels and enrolled in both required core curriculum courses and elective courses.

Procedure

Data were collected between December 2013 and March 2014. We recruited participants using convenience sampling among teachers. If teachers agreed to have their classes participate, we visited their classrooms prior to data collection to distribute paper and pencil parent/guardian consent forms. Students were instructed to bring forms home to their parent/guardian and returned a signed form before the day of participation. The parent/guardian consent form included a web address to access a copy of the student survey for their review. Parent/guardian consent (if participants were under the age of 18) and student assent were required for participation.

On the day of data collection, students met for class in a library media center. The principal investigator for this project was present for every day of data collection. Each student was seated at her/his own computer to receive study instructions, complete student assent forms, and take the computer-based online survey. Students who did not receive parent/guardian consent and/or chose not to participate were given another activity and seated separately from the study participants. The principal investigator introduced the study procedures, passed our student

assent forms, and was present throughout the session to answer questions. After completion, students were given a debriefing form that included information about the study, contact information for the research team, and contact information for local and national resources for dating and sexual violence. The study took one day of class time (approximately 50 minutes). Students spent between 21 minutes to 50 minutes filling out the survey. Our recruitment efforts yielded a 67.28% response rate. Participation was voluntary and anonymous, and students received a \$5 gift card as compensation for their participation.

Sample

The sample included 947 valid completed surveys. A pilot study was first conducted with 54 students, and because only minor changes were made to the survey after piloting, these students were included in the final sample. There was a 93% completion rate for the survey, and participants who submitted partial surveys were included in the final sample. There were seven additional cases that were deemed invalid and removed. Exclusion criteria included students who experienced technical difficulties and began a new survey with a new ID number (so the first ID case was removed), and students who mistakenly began taking the survey for a second time.

Participants ranged in age from 13-19, with 91.6% of participants ages 14-17. The majority of participants identified as young women (56%) and reported their race/ethnicity as White (72.2%). Others identified as Black (7%), Asian (6.7%), Middle Eastern (4.7%), Latino/a (1.7%), and Multi-racial (5.6%). The sample included students from all grade levels with an underrepresentation of sophomore and juniors, as it was comprised of 29.3% Freshmen, 12.8% Sophomores, 20.1% Juniors, and 29.2% Seniors.

Some participants (12.7%) reported participation in a free or reduced lunch program. Almost all participants (96.2%) own a cell phone, 90.7% of cell phone users have a

“smartphone,” and all have access to a home computer. Three quarters (74.2%) reported that they have had at least one dating partner, and 27.1% were currently in a dating relationship at the time of the survey. Two participants identify as transgender or gender queer, and 4.7% of girls and 2.2% of boys are in a relationship with or had their most recent relationship with a same-sex partner.

Measures

Demographics. Students were asked to report their age, gender identification, race/ethnicity, parents’ marital status, religiosity, whether they participate in a free or reduced lunch program (as a proxy for socioeconomic status), and whether they have access to digital media devices.

Digital Media Use. The survey included several measures of cell phone and Internet use, focusing on social media use.

Cell phone use and texting. Access to cell phones was assessed using two items. Participants were asked, “Do you have your own cell phone?” with response options “Yes” and “No.” If participants answered, “Yes,” they were then asked, “Does your cell phone have access to the Internet? (a ‘smartphone?’)” with the response options “Yes” and “No.”

Frequency of text messaging was assessed through three items created for this study. Participants were asked, “On an average day, would you say you send or receive...” with a 7-point response scale ranging from “No text messages” and “1 to 10 text messages” to “More than 300 text messages.” There is also a response for “I don’t know.” Participants with dating experience responded to, “How often do you/did you text message with your current/most recent dating partner on a typical day?” with a 6-point response scale ranging from “Never” to “Several times an hour.”

Internet and social media use. We assessed access to computers with the item, “Do you have access to a computer at home?” with response options “Yes” and “No.” If participants responded, “Yes,” they were also asked, “Do you have your own laptop/tablet?” with response options “Yes” and “No.” We assessed general Internet use with three items. First, participants were given the prompt, “How often do you use the Internet? (on both computers and cell phones).” The prompt was followed by an item asking, “How many hours on a typical weekday do you spend social networking?” with response options ranging from “0” to “10+.” We asked participants to respond to two additional items inquiring about their social networking use on a typical Saturday and on a typical Sunday. Responses about weekday use were multiplied by five, and added to responses about weekend use to create a variable of “hours spent per week social networking.”

Participants responded to several items assessing their preferences and use of various social media. First, participants were asked, “How often do you use each of the following social media? (including logging on to check updates, posting, reading your feed, etc.).” Several popular social media sites were listed, including Facebook, Twitter, Snapchat, and Instagram. For each site, participants could select an option on an 8-point scale from “Never” to “Several times a day.”

Dating experience. We assessed participants’ dating experience using 12 items related to dating and sexual behaviors and sexual attraction. Dating partner was defined in this survey as “...ANY of the following: a boyfriend or girlfriend, someone you are a “thing” with, someone you have dated or are currently dating (e.g., going out with without being supervised), someone who you like or love **and** spend time with, or a relationship that might involve sex.” We first asked, “Have you ever had a dating partner?” with response options “Yes” and “No.” If

participants responded, “Yes,” they were given additional items asking about their dating experience. We asked, “Are you CURRENTLY in a dating relationship?” with response options “Yes” and “No.” If participants answered, “Yes,” we also asked, “How long have you been in this relationship?” with a 5-point response scale ranging from “Less than a month” to “More than a year.”

We also asked participants who were NOT currently in a dating relationship the following two questions: “When did your last relationship end?” with a 6-point response scale ranging from “Less than a month ago” to “More than two years ago” and “How long was your last relationship?” with a 5-point response scale ranging from “Less than a month” to “More than a year.” Participants were asked to report, “What is the gender of your current/most recent dating partner?” with response options, “Woman,” “Man,” and “Transgender/gender queer.”

Digital dating abuse. Digital dating abuse (DDA) was measured by a 36-item measure created for use in this study, modified from our previous DDA measure (Reed, Tolman, & Ward, in press). Participants responded to 18 victimization items and 18 perpetration items asking about parallel DDA behaviors. This study will focus on the experience of DDA victimization, but for completeness, we will describe the measure in its entirety. The modified measure included slightly modified behavioral items, a different set of response options, and asks participants to report on their experiences in their *current or most recent dating relationship only*. These modifications and conceptualization of subscales were drawn from our own survey and focus group research, national surveys (e.g., Picard, 2007; The National Campaign to Prevent Teen and Unplanned Pregnancy and Cosmogirl.com, 2008; Tolman, 1999), and related measures (Barrajo et al., 2015; Bennett et al., 2011; Zweig et al., 2013a; 2013b).

For each of the 18 DDA victimization items, participants were given the following prompt: “USING THE INTERNET OR A CELL PHONE, MY CURRENT/MOST RECENT DATING PARTNER...,” and example items included, “Pressured me to sext (sending a sexual or naked photo of myself)” and “Looked at my private information (text messages, emails, etc.) to check up on me without my permission.” Response options were a 4-point Likert scale from “Never” to “Very often.” For the perpetration portion, we gave participants the prompt: “Using the INTERNET OR A CELL PHONE, I...” and example items included, “Pressured my partner to have sex or do other sexual activities” and “Monitored my partners’ whereabouts and activities.” The victimization and perpetration items referred to the same behaviors, with the items re-worded to be appropriate for asking about victimization or perpetration.

Three conceptual subscales were created from the digital dating abuse measure (see Table 1 to view all items). Direct digital aggression victimization ($\alpha = .81$) and Direct digital aggression perpetration ($\alpha = .81$) each include 8 items assessing the experience of intentional digital behaviors meant to hurt, humiliate, or threaten a dating partner using the Internet or a cell phone. Example items include, “Sent me a threatening message” and “Posted a mean or hurtful PUBLIC message about my partner that others could see (such as a group text, Facebook wall post, subtweet, etc.).” Monitoring/Control Victimization ($\alpha = .83$) and Monitoring/Control Perpetration ($\alpha = .76$) include 6 items assessing the use of the Internet or cell phones to keep track of, intrude on the privacy of, and control the activities and relationships of a dating partner. Example items include, “Monitored my whereabouts and activities” and “Looked at my partners’ private information (text messages, emails, etc.) to check up on them without their permission.” Sexual Coercion Victimization ($\alpha = .70$), and Sexual Coercion Perpetration ($\alpha = .67$) are each comprised of 4 items involving pressuring a dating partner for on-line or off-line sexual behavior

and engagement in unwanted distribution of sexual images. Example items included “Pressured me to sext (sending a sexual or naked photo of myself)” and “Sent a sexual or naked photo or video of my partner to others without their permission.” These subscales were developed based on the validation of a measure of digital dating abuse behaviors created by Borrajo et al. (2015b) and our previous digital dating abuse measure (Reed, Tolman, & Ward, in press). The measure by Borrajo et al. (2015b) included only two subscales, direct aggression and monitoring/control. The items in these subscales are conceptually similar to our subscales of the same name, although we created our DDA measure before the Borrajo et al. (2015b) measure was published. Our previous work with college students indicated that sexual DDA behaviors were common among young adults, were associated with negative emotions for young women, and were associated with off-line physical, sexual, and psychological dating violence (Reed, Tolman, & Ward, in press). Therefore, we also included a subscale of digital sexual coercion.

The primary innovation of the DDA measure in the current study is the addition of follow-up questions based on responses to the 18 DDA victimization items. For each DDA behavior reported, participants were asked “Thinking about the LAST TIME this happened, when did this happen?” with response options “In the last month,” “More than a month ago but less than 6 months ago,” “More than 6 months but less than a year ago,” and “More than a year ago.” We then asked participants, “Thinking about the LAST TIME this happened, how much did this upset you?” with response items “not at all,” “a little,” “some,” and “a lot.” This item became the measure of *Digital dating abuse victimization distress*. We also asked participants “How did you respond? (check all that apply)” for each behavior, with a list of 15 possible emotional and behavioral responses including “I laughed,” “I cried,” “I ignored it,” “I was sad or

upset,” and “I yelled at them or argued with them.” Participants could also fill in their own response that was not listed.

Results

Preliminary Analyses

Because we are interested in studying digital dating behaviors, all analyses were conducted only with those participants that have had dating experience. Participants who responded “yes” to the item, “Have you ever had a dating partner?” were therefore included in our final sample of 703 participants (382 girls, 314 boys, 6 identifying with another gender expression).

Of the 703 participants with dating experience, 36.4% were in a dating relationship at the time of the survey. We asked participants to focus on their current or most recent relationship for most items on the survey. The length of these dating relationships varied; those currently in a dating relationship reported relationship lengths ranging from less than a month (18.4%), 1-3 months (19.9%), 3-6 months (13.3%), 6-12 months (17.6%), and more than a year (30.9%). Those reporting on a former dating partner reported that this relationship ended less than a month ago (13.5%), 1-3 months ago (14.6%), 3-6 month ago (16%), 6-12 months ago (21.4%), 1-2 years ago (25.7%), and more than two years ago (7.9%). These past relationships also varied in length from less than a month (16.7%), 1-3 months ago (36%), 3-6 months ago (20.9%), 6-12 months ago (14.6%), and more than a year ago (10.8%).

Participants were frequent users of a variety of digital media. Of the sample of 703 participants with dating experience, 96.2% own a cell phone and 97.4% have access to a computer at home. Participants reported sending and receiving an average of 51-100 text messages per day, and spent an average of 22.4 hours per week using social media. Most

participants reported that they text/texted their current or most recent dating partner frequently; 18.5% text daily, 26.1% text several times a day, and 40.2% text several times an hour. There were no gender differences in reported frequency of texting, but girls spent more time ($M = 19.44$ hours, $SD = 19.44$) per week on social media than boys ($M = 16.72$ hours, $SD = 16.72$), $t(689) = 7.39, p < .000$.

How often are girls and boys experiencing DDA in their relationships?

Zero order correlations were conducted between all DDA variables and several demographic variables including age, race/ethnicity, religiosity, participation in a free or reduced lunch program, sexual orientation, and grade point average. After correcting for multiple tests, no demographic variables were significantly correlated with the DDA variables.

Table 1 shows all DDA items listed by subscale with rates of reporting of each item. The table includes the percentage of the sample that reported experiencing each behavior in their current or most recent relationship (Total Victimization) and rates of victimization and perpetration by gender. The table also includes total victimization rates and rates by gender for each overall subscale. The most commonly reported victimization behaviors were digital monitoring/control, as 53.8% of participants reported one or more of these behaviors. The most common monitoring/control behaviors included “Pressured to respond quickly to calls, texts, and other messages” (31.0%) and “Monitored who I talk to and are friends with” (32.6%). The frequency of reporting for the other DDA subscales are still notable, as 46.3% of participants reported one or more experiences of direct aggression and 32.2% reported sexual coercion. Common victimization items from other subscales include “Sent a mean or hurtful PRIVATE message” (23.9%) and “Pressured to ‘sext’ (21.9%).”

To test gender differences in DDA victimization, we conducted independent samples t-tests on the three DDA victimization subscales by gender. Figure 1 shows the mean frequency scores for the DDA victimization types for girls and boys. For both girls ($M = .39, SD = .56$) and boys ($M = .41, SD = .59$), digital monitoring/control was the most frequently reported type of DDA victimization. Digital direct aggression was the least frequently reported types of DDA victimization for girls ($M = .19, SD = .33$), whereas digital sexual coercion was the least frequently reported DDA victimization type for boys ($M = .19, SD = .39$). There was a significant difference in the mean frequency score for digital sexual coercion victimization, such that girls ($M = .26, SD = .46$) were more likely than boys ($M = .19, SD = .39$) to report digital sexual coercion victimization from their current or most recent partner, $t(684) = 2.07, p = .039$. There were no significant gender differences in girls' and boys' reports of digital direct aggression, $t(685) = -.95, p = .345$, or digital monitoring/control, $t(683) = -.26, p = .797$.

We also conducted independent samples t-tests on DDA perpetration variables to investigate gender differences in mean frequency scores for perpetration (See Figure 2). Digital monitoring/control was the most frequently reported DDA perpetration type for both girls ($M = .31, SD = .44$) and boys ($M = .24, SD = .42$). Digital sexual coercion was the least frequently reported DDA perpetration type for girls ($M = .09, SD = .23$) whereas digital direct aggression was the least commonly reported type of behavior among boys ($M = .15, SD = .21$). There were significant gender differences in frequency of reporting digital sexual coercion and digital monitoring/control perpetration in participants' current or most recent dating relationships. Boys ($M = .22, SD = .43$) were more likely than girls ($M = .09, SD = .23$) to perpetrate digital sexual coercion against their current or most recent partner, $t(679) = -5.21, p < .000$. Girls ($M = .31, SD = .44$) were more likely to report perpetrating digital monitoring/control than boys ($M = .24, SD$

= .42), $t(678) = 2.14, p = .033$. There was no gender difference in frequency of perpetrating digital direct aggression, $t(678) = -.53, p = .595$.

Are there gender differences in distress resulting from DDA victimization?

This study expanded on previous work by not only asking participants if they experienced DDA victimization behaviors in their current or most recent relationship, but also by asking whether the most recent incident of each behavior *upset them* to assess the consequences of these behaviors. Distress from DDA victimization was assessed in a follow-up question that was provided to participants for each DDA victimization behavior reported. Participants were asked, “How much did this upset you?” with response options ranging from “not at all” (scored as 0) to “a lot” (scored as 3). The most upsetting behaviors among participants in this sample were “Pressured me to have sex or do other sexual activities” ($M = 1.65, SD = 1.18$) and “Sent me a mean or hurtful PRIVATE message” ($M = 1.77, SD = 1.13$). For girls, the most upsetting behavior was “Pressured me to have sex or do other sexual activities” ($M = 2.16, SD = 1.03$) and the most upsetting behavior for boys was “Looked at my private digital information to check up on me without permission” ($M = 1.48, SD = 1.16$).

We conducted t-tests to investigate gender differences in distress reported for DDA victimization types (see Figure 3). Girls ($M = 1.03, SD = .98$) found digital monitoring/control to be the least upsetting type of DDA, and boys ($M = .53, SD = .79$) found digital sexual coercion to be the least upsetting type of DDA. As predicted, there were significant gender differences in reported distress for all three types of DDA victimization, such that girls reported being more upset than boys by direct aggression, monitoring/control, and sexual coercion (see Figure 3).

Is the frequency of DDA victimization associated with reported distress for girls and boys?

We also conducted zero order correlations between reported distress from DDA victimization types and the reported frequency of these types of behaviors for girls and boys. Only the associations between corresponding DDA victimization frequency and DDA victimization distress are explored here. Girls' reports of DDA frequency were positively associated with distress for direct aggression, $r(207) = .16, p = .024$, and monitoring/control, $r(205) = .38, p < .000$. This indicates that for girls, more frequent experiences of digital direct aggression and of digital monitoring/control in their current or most recent relationship were associated with being more upset by these behaviors.

For boys, the relationship between DDA frequency and distress was different. Frequency of sexual coercion was associated with greater distress, $r(88) = .22, p = .041$, and frequency of monitoring/control was associated with greater distress, $r(147) = .29, p < .000$. Among boys, greater frequency of digital sexual coercion and monitoring/control in their relationships was each associated with higher reports of distress from the most recent incident of that type of behavior. Therefore, consistent with our hypothesis, there were positive associations between frequency of some types of DDA behaviors and distress for both girls and boys. For girls, more frequent direct aggression and monitoring/control was associated with reporting greater distress, and for boys this relationship existed for sexual coercion and monitoring/control.

How are girls and boys responding to DDA behaviors in their relationships?

We also asked participants to report their emotional and behavioral responses to the most recent incident of each DDA victimization behavior reported. Based on previous research, we predicted that girls would report more negative responses than boys, whereas boys would be more dismissive of DDA behaviors. Therefore, we grouped the list of possible emotional and behavioral responses into four conceptual categories including two emotional categories and two

behavioral categories: Dismissive (emotional), Upset (emotional), Blocking access (behavioral), and Engagement (behavioral). Table 2 shows the responses that are included in each category.

For each of the four categories, we calculated how many girls and boys reported one or more responses in that category (See Table 3). It should be noted that participants could select multiple responses, and that possible responses for each item varied slightly. Cross tab analysis was conducted to assess sex differences in reporting each type of response, and significant gender differences are indicated with asterisks in Table 3, with asterisks placed next to the higher percentage where sex differences are present. More boys than girls had dismissive responses to the behaviors “Used information from social networking sites to tease me or put me down,” $\chi^2(1, N = 81) = 5.06, p = .024$, and “Sent a mean or hurtful PRIVATE message,” $\chi^2(1, N = 158) = 4.24, p = .039$.

Girls reported more upset responses for several DDA behaviors across the sexual coercion and direct aggression subscales. More girls than boys were upset by the following behaviors: “Pressured me to sext,” $\chi^2(1, N = 134) = 8.40, p = .004$, “Sent a sexual or naked photo of himself/herself that I did not want,” $\chi^2(1, N = 73) = 4.84, p = .028$, “Pressured me to have sex or do other sexual activities,” $\chi^2(1, N = 115) = 6.04, p = .014$, “Sent me a mean or hurtful PRIVATE message,” $\chi^2(1, N = 141) = 7.46, p = .006$, “Spread a rumor about me,” $\chi^2(1, N = 78) = 5.54, p = .019$, “Sent me a threatening message,” $\chi^2(1, N = 43) = 7.34, p = .007$, “Shared an embarrassing photo or video of me with others without my permission,” $\chi^2(1, N = 131) = 4.72, p = .030$, and “Used information from my social networking site to tease me or put me down,” $\chi^2(1, N = 72) = 4.68, p = .031$.

Girls were more likely to engage in behaviors to block their partner’s access to them in response to the DDA direct aggression behaviors “Sent me a mean or hurtful PRIVATE

message,” $\chi^2(1, N = 158) = 12.43, p < .000$, and “Sent me a threatening message,” $\chi^2(1, N = 47) = 4.06, p = .044$. Boys blocked their partner’s access to them more often than girls in response to the monitoring/control behavior “Looked at my private information to check up on me without permission,” $\chi^2(1, N = 109) = 6.93, p = .008$.

Girls were also more likely than boys to report engagement responses, either with their partner or to tell someone else what happened, after experiencing the DDA behaviors “Pressured me to sext,” $\chi^2(1, N = 142) = 11.00, p = .001$, “Posted a mean or hurtful PUBLIC message about me that others can see using social media,” $\chi^2(1, N = 68) = 3.88, p = .049$, “Sent so many messages that it made me feel uncomfortable,” $\chi^2(1, N = 125) = 3.84, p = .050$, and “Monitored who I talk to/are friends with,” $\chi^2(1, N = 197) = 5.66, p = .017$. These behaviors spanned across all three subscales.

Overall, girls were more likely to report negative emotional and active/protective behavioral responses to DDA victimization across all three subscales. Although there were few gender differences in the frequency of DDA behaviors reported in this sample, these data show many gender differences in girls’ and boys’ responses to experiencing the same DDA behaviors. Boys were more likely to be dismissive of DDA victimization than girls after experiencing DDA direct aggression. Girls reported being more upset from experiencing DDA sexual coercion and direct aggression. Girls were more likely to block their partner’s access to communication after experiencing direct aggression, whereas boys more often responded with these blocking behaviors to DDA monitoring/control. Finally, girls were more likely to engage with their partner (either to reconcile or in conflict) or to tell someone else about the DDA experience after all three types of DDA victimization.

Discussion

This study contributes to the emerging literature on digital dating abuse by assessing high school girls and boys' experiences with and consequences of three types of DDA behaviors: direct aggression, monitoring/control, and sexual coercion. We sought to address inconsistencies in the emerging digital dating abuse literature by measuring DDA in high school student relationships in several new ways: capturing frequency of DDA behaviors within a current or recent relationship, assessing how upset participants were by these DDA behaviors, and investigating how participants responded (emotionally and behaviorally) to the most recent incident of DDA. In this way, the current study took a novel approach to measuring the *experience* and *consequences* of girls' and boys' DDA victimization. As we expected, girls reported being more upset than boys from experiencing all three types of DDA in their current or most recent relationships.

As in previous literature, DDA was found to be prevalent in our sample of 703 high school students with dating experience. In our sample, 32.2% reported any sexual coercion, 46.3% reported any direct aggression, and 53.8% reported any monitoring/control in their current or most recent relationship. Although there were few gender differences in the frequency of DDA behaviors in participants' current or most recent relationship, our follow-up questions about distress and responses to DDA revealed differences in the experience and consequences of DDA behaviors. These differences suggest that although girls and boys are both experiencing DDA in their relationships, girls report more harmful emotional consequences and impact of victimization than boys.

DDA frequency and distress experienced by girls and boys

Consistent with previous literature, monitoring/control was the most frequently reported type of DDA in our sample (e.g., Bennett et al., 2011; Borrajo et al., 2015b; Reed, Tolman, & Ward, in press). The current study found no significant differences in the frequency of direct aggression and monitoring/control, but girls reported more frequent sexual coercion victimization. Gender differences were also found for DDA perpetration, such that girls reported more frequent monitoring/control perpetration and boys reported more frequent sexual coercion perpetration.

It should also be noted that although most participants reported some DDA behaviors in their current or most recent relationship, the frequency of these behaviors in these relationships was relatively low (as seen in Figure 1), ranging from .19 to .41 on a 0-3 scale. This is, to some extent, to be expected. We would anticipate that the majority of high school dating relationships would include isolated incidents of DDA behaviors, whereas a relatively small percentage would be experiencing a repeated pattern of DDA behaviors indicative of an abusive relationship.

The difficulty in understanding DDA experiences using only frequency information is that some DDA behaviors may be harmful and distressing to victims if only experienced once, whereas other behaviors may only be harmful if it occurs in a repeated pattern. It is therefore difficult to compare the impact of the three types of DDA based on the frequency data alone. Our data on the distress experienced from the most recent incident of each DDA behavior allowed us to evaluate the relationship between frequency and distress for the three different types of DDA victimization.

For girls and boys, greater frequency of monitoring/control was associated with greater distress, suggesting that a repeated pattern is perhaps more problematic than isolated incidents of

invasions of privacy. However, these behaviors are distressing to some adolescents (particularly among girls) and should not necessarily be dismissed as “normative” digital dating behaviors. There was no association for girls between frequency of sexual coercion behaviors and distress, which could suggest that digital sexual coercion -- even when it occurs once -- can have significant emotional consequences for girls. For boys, findings suggest that a pattern of sexual coercion may be more upsetting than an isolated incident. As girls are experiencing digital sexual coercion at higher rates than boys, sexual coercion and its negative impacts on girls are of particular concern. Bennett et al. (2011) speculated that as participants in their sample of college students experience more DDA, cognitive dissonance causes them to anticipate DDA behaviors to be increasingly less distressing. Our findings concerning actual distress experienced from DDA victimization among high school students did not support this explanation. One possible reason that our results differed from those in Bennett et al. (2011) is that their participants’ response may have been heavily influenced by the hypothetical nature of their distress items, whereas our items asked about actual distress from the most recent incident of each type of behavior.

Girls’ and boys’ responses to DDA behaviors

In addition to examining the level of distress for each DDA behavior, we also asked participants to report how they emotionally and behaviorally responded to the most recent incident of each DDA behavior reported. We found that, consistent with our predictions, boys were more dismissive of DDA direct aggression victimization and girls were more likely than boys to be upset after experiencing DDA sexual coercion and direct aggression. These gender differences indicate that the emotional experience of DDA is different for girls and boys, with girls suffering worse emotional consequences from some digital dating abuse behaviors. These

results are consistent with studies of off-line dating violence that found that girls respond to dating violence victimization with emotional distress (e.g., crying) whereas boys are more likely to laugh or walk away from instances of abuse (Molidor & Tolman, 1998).

We also asked about behavioral responses to DDA behaviors, and to our knowledge, this is the first study to explore on-line and off-line behaviors in response to digital dating abuse victimization. Girls were more likely to respond to DDA direct aggression by doing things to block their partner from communicating with them, and boys were more likely to block their partner after experiencing monitoring/control behaviors. Girls reported more engagement behaviors after all three types of DDA victimization. The results for blocking behaviors seem to fall along gendered lines. Blocking communication could mean many things; participants could be simply annoyed by the DDA behaviors and wish to cut off contact, or the DDA behaviors may be making them feel uncomfortable or afraid. Based on our results showing that girls are more distressed by DDA victimization than boys, perhaps girls are more likely to block communication due to fear or discomfort. It is therefore fitting that they are more likely to engage in blocking after experiencing direct aggression, to prevent further hostility. Boys, conversely, may be annoyed by their partners' attempt to monitor their online activities and snoop into their privacy and respond with blocking behaviors. As socialized gender scripts dictate that girls will be possessive and jealous in dating relationships, high school boys may be particularly sensitive to this type of control from female partners.

These findings support the notion that digital dating is a gendered interaction, one in which girls are more likely to experience emotional consequences and change their behavior after experiences of digital forms of controlling, hurtful, and coercive behavior. It is therefore difficult to conclude that DDA is the same experience for boys and girls; instead, DDA behaviors

appear take on a different meaning in girls' and boys' lives. Also, these results show that girls and boys are responding to various types of DDA behaviors differently. For example, boys seem to be particularly reactive to DDA monitoring/control, and more dismissive of DDA direct aggression from their dating partners.

Implications of findings for broader gender debates

Taken together, the findings on girls' distress from DDA, and girls' and boys' emotional and behavioral responses to DDA add to broader debates on the gendered nature of dating violence. Researchers have speculated that digital media may give girls and boys a space where power differences are minimized without the dynamics of in-person physical size differences, whereas others have posited that digital media may reproduce off-line gender stereotypes and rigid gender norms in a new public space. The contextual, gendered perspective in the current study suggests that rather than equalizing power dynamics, digital media may reproduce and promote gender stereotypes and inequality during a period when peer acceptance and the importance of dating relationships is at its peak.

Similar to past literature on DDA and off-line dating violence, we found few gender differences in the prevalence and frequency of DDA (with the exception of sexual coercion). However, mirroring off-line dating violence research, we found gender differences in the experience and consequences of DDA victimization. Girls were more likely to report sexual coercion victimization, reported higher distress from recent incidents of all three types of DDA, and reported more negative emotional and behavioral responses to DDA victimization. These findings suggest that whereas both girls and boys engage in DDA behaviors at similar rates, girls experience these behaviors more negatively and may suffer worse emotional consequences from victimization. Therefore, the current study found that the importance of examining context of

behaviors, rather than prevalence and frequency, extends from the off-line context to the digital dating world.

How might we explain these gender differences in light of the role of gender in dating violence more broadly? Despite mixed research on gender differences in the broader dating violence literature, there are important differences in the experience of dating violence among girls and boys that prevent this violence from being symmetrical even when prevalence rates are equal. Dating violence occurs in a gendered sociocultural context that ascribes strict hierarchical roles for girls and boys (Prospero, 2007). Girls are expected to prioritize being in a dating relationship more than boys, to be more focused on their sexual appeal and appearance, to be sexually passive and restrictive, and are expected to be more possessive and jealous in relationships as a result. Girls' relationship jealousy and possessiveness is often normalized as a reasonable response to the assumption that men are untrustworthy at best, and sexual predators at worst (Sears, Byers, & Price, 2007; Tolman, Spencer, Rosen-Reynoso, & Porche, 2003). Lucero et al. (2014) posited that girls may therefore be motivated to engage in monitoring behaviors to ensure male partners' fidelity. Boys, conversely, are expected to prioritize sex over relationships, to be assertive in dating interactions, and to see women as sexual objects (Kim, Sorsoli, Collins, Zylbergold, Schooler, & Tolman, 2007). With endorsement of these gender stereotypes, boys may respond with begrudging acceptance of girls' possessiveness in dating relationships (Lucero et al., 2014; Tolman, et al., 2003).

The current study supports that these socialized gender roles also impact digital dating abuse. For example, boys' assumption that girls will be controlling and possessive in relationships may lead boys to dismiss digital monitoring/control behaviors, as these digital behaviors may be seen "normal" dating behavior for girls (Lucero et al., 2014). Additionally, the

expectation that boys should treat girls as sexual objects may contribute to higher rates of digital sexual coercion, as boys may feel entitled to have sexual power over girls. Future research should test the relationship between gender beliefs and digital dating abuse behaviors, to investigate whether these beliefs indeed shape the differential DDA experiences for girls and boys. If this association were indeed found, it would have great implications for targeting rigid ideas about women and men in relationships as a means of digital dating abuse prevention.

Limitations and Future Directions

Although the current study makes several significant contributions to the emerging literature on digital dating abuse, there are also limitations that should be considered when interpreting these results. The study utilized self-report and a correlational design. Steps were taken in the procedure to ensure anonymity and confidentiality of responses. However, the self-report nature of the research may include bias from social desirability or shared method variance. Future research could address these potential limitations by gathering DDA experience data from multiple sources including peers, parents, and school staff, using alternative methods such as qualitative interviews. Future research could also control for social desirability. Additionally, the DDA measure included only one item to assess distress from the most recent incident of each DDA behavior reported. Future research could include additional items or open-ended responses to gain a richer view of how various DDA behaviors were experienced, including modeling how distress from DDA victimization might change over the course of the relationship or in varying circumstances. However, it helps strengthen our conclusions to have the additional data on emotional and behavioral responses to DDA victimization that support the results from the distress item.

DDA behaviors occur within a complex relationship dynamic, and as previous research has asserted, are also associated with off-line abuse and risk behaviors (e.g., Cutbush et al., 2012; Reed, Tolman, Ward, in press; Zweig et al., 2013a). Future research should continue to examine contexts around the experience of DDA and broader experiences of victimization and perpetration in youth's lives in order to guide the development of dating violence intervention and prevention efforts that should include digital forms of abuse. Possible contextual influences could include developmental factors such as age, romantic attachment insecurity, and beliefs about gender and dating relationships. For example, Reed, Tolman, and Safyer (2015) found that higher levels of romantic attachment anxiety were associated with perpetrating digital monitoring/control among college women and men.

It would also be helpful to examine the relationship in which these behaviors occur, as information about the off-line quality and characteristics of the relationship may lend insight into when and how DDA is used and when DDA behaviors are most harmful. This study included almost exclusively heterosexual teenagers, and as research has shown that sexual minority youth are more at risk for dating violence than heterosexual youth, sampling efforts should be taken to study DDA victimization experiences among sexual minority youth. Research should continue to illuminate the socialized beliefs and developmental factors that teens carry with them into dating relationships, and should reduce its reliance on measures of DDA prevalence and frequency to draw conclusions about gender dynamics in dating violence. Finally, because our sample was mostly white, heterosexual high school students from a suburban area of Southeast Michigan, we cannot generalize to other populations.

Conclusion

If a DDA behavior is upsetting, causes a negative emotional response, and/or alters your behavior, it is of concern to those interested in the intervention in and prevention of dating violence. Research that solely reports the prevalence and frequency of DDA behaviors therefore gives an incomplete picture of DDA experience among high school students. The meaning and significance of DDA is more than frequency rates; researchers, practitioners, and school staff should ask questions about the impact of these behaviors in their assessments.

These findings make an important conceptual contribution to the literature on digital abuse by providing evidence about *which* DDA behaviors are harmful for *which* high school students. With widespread use of daily digital media among U.S. teens, one might ask whether DDA behaviors are benign modern dating interactions in most circumstances. Supporting this question, a focus group study of teenagers' experiences with and perceptions of DDA found that most teens considered DDA to be a "normal" part of dating relationships (Lucero, et al., 2014). This conclusion raises several conceptual questions about the sociocultural context of digital dating, the shifting expectations of privacy in relationships, the erosion of boundaries, and the line between "normative" digital communication and abuse. Do high school students feel the need to have digital boundaries in their relationships? In the midst of so much daily digital media use, what is the real impact of a mean, hurtful, or coercive message?

The current study aimed to begin addressing these questions by not only asking participants whether they experienced various DDA behaviors, devoid of context, but also how they emotionally interpreted these behaviors. Although mean distress scores were low overall, indicating that most participants were not upset by the majority of DDA victimization experiences, there was enough variation to illuminate gender differences in distress for all three

types of DDA measured. Some participants did experience distress from all three types of DDA behaviors. This finding suggests that although most high school students might see DDA as a normal part of digital dating, other participants (and in particular, girls) are finding various types of DDA to be distressful and may be experiencing DDA as a part of an abusive relationship. Our results suggest that although girls and boys both experience digital forms of abuse in their dating relationships, girls may be suffering more severe emotional consequences and off-line behavioral impacts, particularly when experiencing digital sexual coercion. We suggest that the experience and consequences of the DDA behaviors, rather than the frequency alone, warrant attention for dating violence prevention efforts.

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Table II.1. *Percentage of digital dating abuse behavior reporting by subscale and gender*

Using the Internet or a cell phone, my current/most recent partner...	Girls (N=382)			Boys (N=314)	
	TOTAL Victimization	Victimization	Perpetration	Victimization	Perpetration
Digital Sexual Coercion (victimization: $\alpha = .70$, perpetration: $\alpha = .67$)					
Pressured to “sext”	21.9%	25.1%	6.3%	17.8%	22.3%
Sent a sexual/naked photo that the partner did not want/ask for	12.1%	12.3%	9.2%	11.5%	8%
Sent a sexual or naked photo/video to others without permission	3.7%	2.1%	3.7%	5.4%	8%
Pressured to have sex or do other sexual activities	19.9%	23.8%	5.2%	15%	18.8%
Overall Digital Sexual Coercion	32.2%	34.3%	16.9%	29.6%	34%
Digital Direct Aggression (victimization: $\alpha = .81$, perpetration: $\alpha = .73$)					
Shared an embarrassing photo or video with others without permission	20.9%	20.9%	24.3%	21%	24.8%
Sent a mean or hurtful PRIVATE message	23.9%	25.7%	25.9%	21.7%	16.2%
Posted a mean or hurtful PUBLIC message	10.8%	9.2%	6.8%	13.1%	6.4%
Spread a rumor	13.8%	12.6%	5.8%	15.6%	6.7%
Sent a threatening message	7.1%	6.5%	2.6%	8%	3.8%
Threatened to physically harm	5%	4.2%	1%	6.1%	2.2%
Used cell phone or online account to pretend to be me/my partner	9.4%	8.1%	2.4%	10.8%	5.4%
Used information from a social networking site to tease or put down	12.4%	12.8%	7.9%	12.1%	7.6%
Overall Digital Direct Aggression	46.3%	48%	45%	44.2%	37.1%
Digital Monitoring/Control (victimization: $\alpha = .83$, perpetration: $\alpha = .76$)					
Pressured to respond quickly to calls, texts, or other messages	31%	29.8%	27.5%	32.2%	20.1%
Monitored whereabouts and activities	27.6%	28.8%	33%	26.1%	22.3%
Sent so many messages that I/my partner felt uncomfortable	19.5%	18.8%	5.2%	20.7%	9.9%
Pressured for passwords to access cell phone or online accounts	11.9%	11%	6.8%	13.1%	5.1%
Looked at private information to check up on me/my partner without permission	17.4%	17.5%	16.5%	17.2%	12.4%
Monitored who I/my partner talks to/is friends with	32.6%	33.8%	33.2%	31.2%	24.2%
Overall Digital Monitoring/Control	53.8%	54.9%	51.3%	52.6%	40.7%

Table II.2. *Description of four categories of emotional and behavioral DDA responses*

Emotional Response Categories	Possible Response Items
Dismissive	I laughed. I ignored it.
Upset	I cried. I worried for my safety. I was sad or upset. I was angry. I was embarrassed.
Behavioral Response Categories	
Engagement	I yelled at them or argued with them. I tried to talk to them about the incident. I “got them back” by doing something mean to them using the Internet or a cell phone. I threatened to break up with them. I told someone about what happened. I told them “No”
Blocking Access	I blocked them on a social networking site. I deleted or blocked their number on my cell phone. I avoided them in person.

Table II.3. *Girls' and boys' emotional and behavioral responses to most recent incident of DDA*

	Emotional- Dismissive		Emotional- Upset		Behavioral- Blocking Access		Behavioral- Engagement	
	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys
Digital sexual coercion								
Pressured me to “sext”	57.6%	60.4%	40.7%**	17%	18.9%	13.5%	40%**	13.5%
Sent a sexual/naked photo that I did not want/ask for	75.6%	75.8%	30%*	9.1%	20%	9.1%	28.9%	30.3%
Sent a sexual or naked photo/video to others without permission	71.4%	53.3%	14.3%	46.7%	28.6%	7.1%	42.9%	21.4%
Pressured me to have sex or do other sexual activities	37.5%	35.7%	35.6%*	14.3%	8%	7.7%	27.6%	20.5%
Digital direct aggression								
Shared an embarrassing photo or video of me with others without permission	78.2%	89.1%	44.8%*	26.6%	7.8%	12.5%	28.6%	20.6%
Sent me a mean or hurtful PRIVATE message	26.3%	42.6%*	78.8%**	57.4%	36.8%***	11.5%	60.9%	45%
Posted a mean or hurtful PUBLIC message	34.3%	54.3%	62.5%	48.6%	37.1%	20%	60.6%*	33.3%
Spread a rumor about me	42.1%	45.2%	69.4%*	42.9%	42.1%	37.5%	59.5%	46.2%
Sent me a threatening message	28%	43.5%	80%**	39.1%	50%*	21.7%	66.7%	52.2%
Threatened to physically harm me	23.1%	57.1%	66.7%	42.9%	46.2%	25%	54.5%	27.3%
Used cell phone or online account to pretend to be me	54.8%	66.7%	30.8%	30%	0%	3.4%	36.7%	24.1%
Used information from a social networking site to tease or put me down	56.3%	81.3%*	50%*	25%	11.6%	10.3%	34.9%	17.2%
Digital monitoring/control								
Pressured me to respond quickly to calls, texts, or other messages	75%	66.7%	22.8%	23.3%	10.3%	4.6%	29.9%	28.7%
Monitored my whereabouts and activities	61.2%	61.5%	33.7%	29.2%	6.9%	14.1%	34.3%	26.6%
Sent so many messages that I felt uncomfortable	70.1%	68.4%	13.1%	22.8%	23.9%	15.8%	40.3%*	24.6%
Pressured me for passwords to access my cell phone or online accounts	67.5%	60.6%	28.1%	21.2%	0%	3.2%	22.2%	25.8%
Looked at my private information to check up on me without permission	38.5%	44.7%	48.9%	46.8%	1.6%	14.9%**	51.6%	37%
Monitored who I talk to/are friends with	48.7%	50.6%	41%	29.6%	9.3%	10%	50%*	32.5%

Note. Percentages are calculated from number of participants who reported each DDA behavior and received this follow-up item. Asterisks and bolding indicate significant sex differences, with asterisk placed by higher percentage. * $p < .05$, ** $p < .01$, *** $p < .000$.

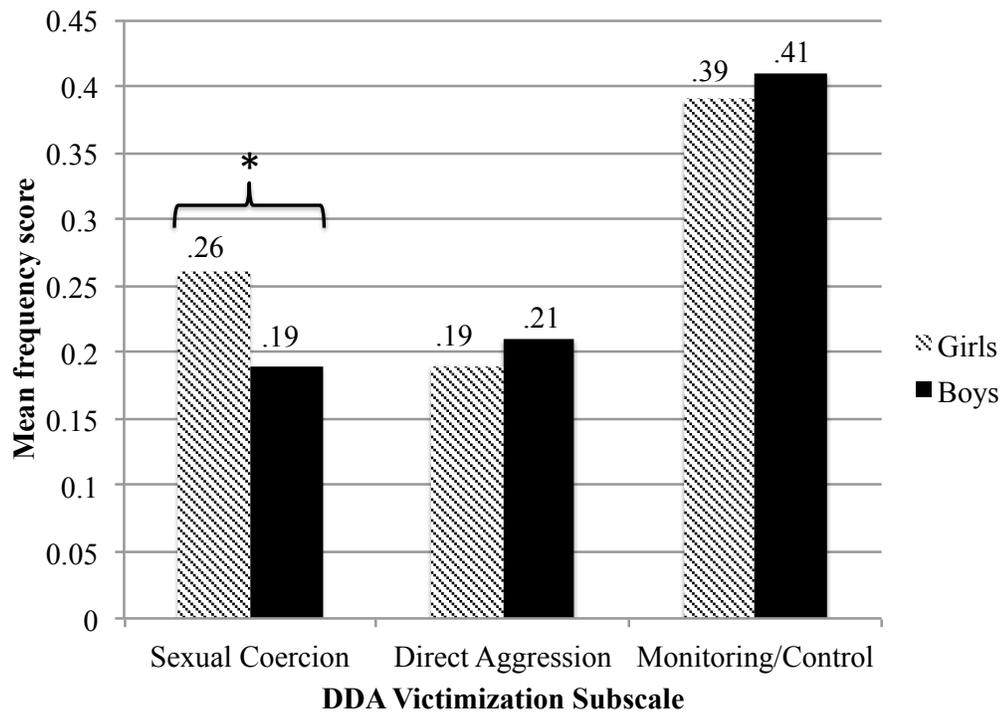


Figure II.1. Frequency of DDA Victimization among girls and boys

Note. * $p < .05$

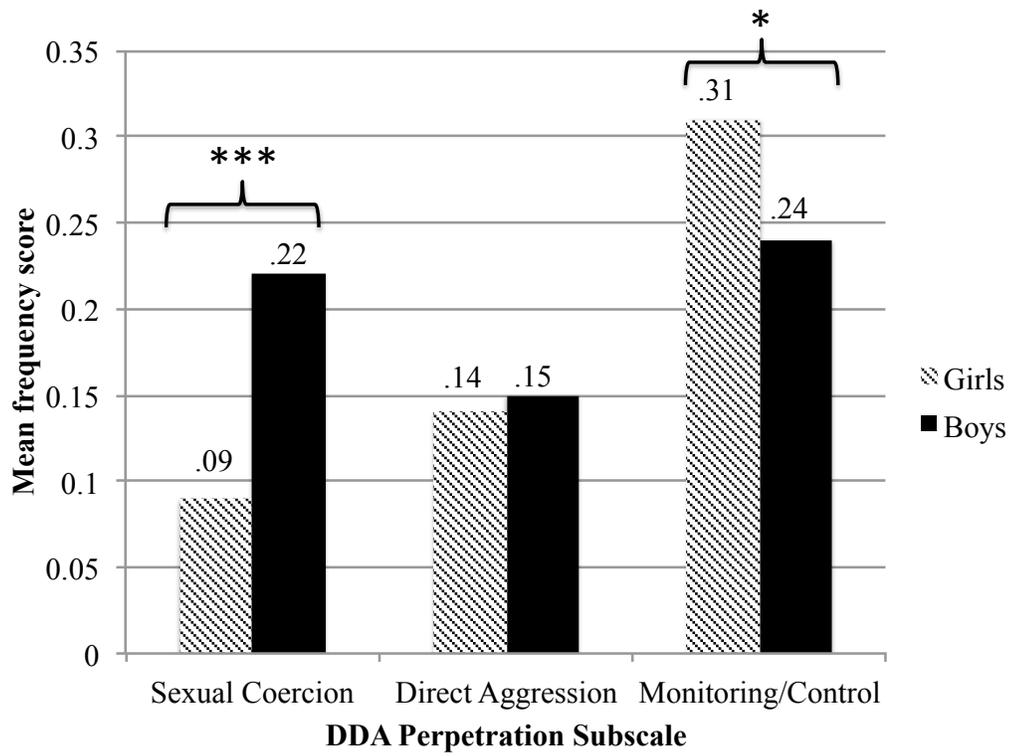


Figure II.2. Frequency of DDA Perpetration among girls and boys

Note. * $p < .05$, *** $p < .000$

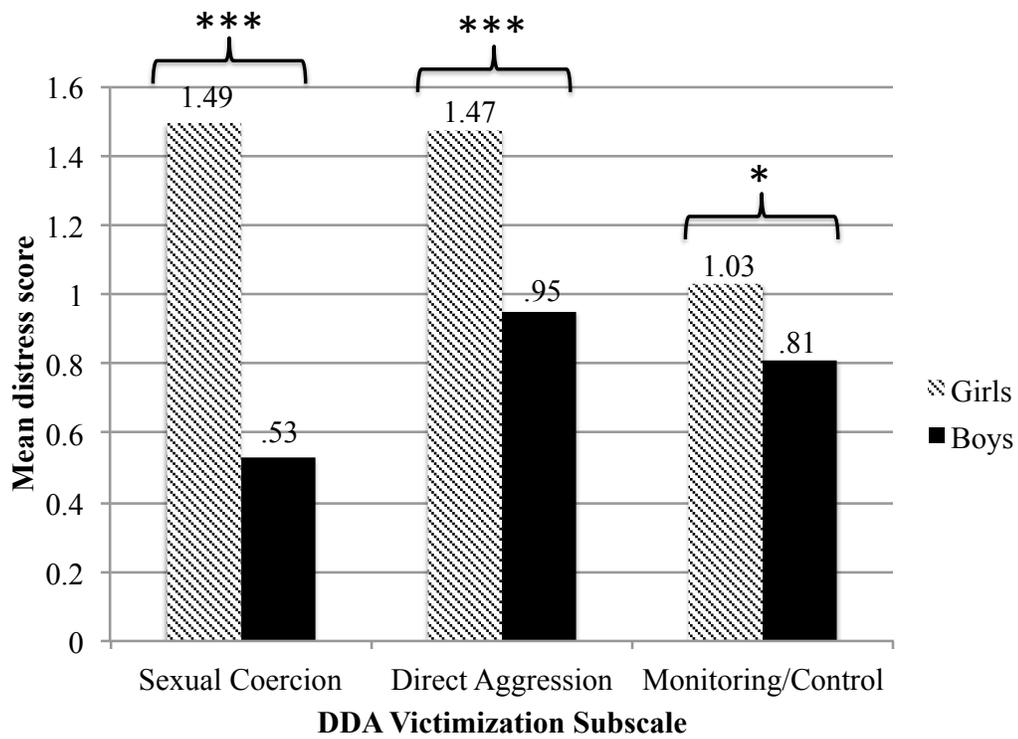


Figure II.3. Mean level of distress from DDA Victimization among girls and boys

Note. * $p < .05$, ** $p < .01$, *** $p < .000$, $t(220) = 7.59$, $p < .000$, $t(362) = 5.01$, $p < .000$, $t(338) = 2.42$, $p = .016$

CHAPTER III

Keeping tabs? Attachment insecurity and electronic intrusion in high school dating relationships

Digital media use among adolescents is frequent, varied, and integrated into their daily life and relationships. For U.S. young adults and adults, Facebook remains the dominant social media platform, as 71% of all online American adults and 84% of young adults (ages 18-29) are Facebook users (Duggan & Smith, 2013). Most (77%) of adolescents have a cell phone, and almost all (95%) of teens ages 12-17 are on the Internet (Lenhart, 2012). Teens are also avid users of social media, with data indicating that 80% of teens aged 12-17 have a profile on a social networking site (e.g., Twitter) (Lenhart, 2010). Forty percent of Facebook users visit the site several times a day (Duggan & Smith, 2013), and most adolescents report using social media daily (Lenhart, 2010).

These media are particularly relevant as a social relational context in a developmental period in which emotional regulation is maturing and capacity for romantic intimacy is a primary concern (Collins, Welsh, & Furman, 2009; Furman & Buhrmester, 2009). We posit that attachment orientation, an underlying and universal developmental system of emotional regulation and orientation towards intimacy, may influence the experience and interpretation of digital dating behaviors among high school students. Studying the association between attachment insecurity and dating relationships may be particularly relevant to digital media because these media could serve as triggers for jealousy and anxiety *and* opportunities and tools for surveillance (Marshall et al., 2013; Reed, Tolman, & Safyer, 2015).

In our previous study, we found that college women and men reporting higher levels of attachment anxiety were more likely to engage in electronic intrusion (EI) in their dating relationships, and college women reporting higher levels of avoidance were less likely to engage in EI (Reed, Tolman, & Safyer, 2015). Electronic intrusion is a term for digital dating behaviors meant to monitor or invade the privacy of dating partners using digital media. We sought to expand on this previous work by investigating whether these patterns are also found in high school dating relationships. Are levels of attachment anxiety or avoidance associated with frequency of perpetrating electronic intrusion in adolescent dating relationships?

Attachment orientation as a developmental factor in dating relationships

One important developmental factor that may contribute to the likelihood to engage in electronic intrusion behaviors is romantic attachment orientation. Attachment theory provides a useful theoretical framework for understanding the relationship templates adolescents might carry into their dating relationships that influence the way they interact with and experience on-line and off-line romantic experiences. Along with gender, attachment orientation may be a useful developmental lens for exploring the context and meaning ascribed to digital dating behaviors.

Attachment theory is a framework for the development of relational patterns across the lifespan (Bowlby, 1969). Based on the qualities of the caregiver-infant relationship, distinct attachment classifications emerge that shape the infant's expectations of close relationships (Ainsworth, Blehar, Waters, & Wall, 1978). Inconsistent or unavailable caregivers may cause infants to utilize dysfunctional regulation schemas in an attempt to reduce their anxiety, developing anxious or avoidant

attachments (Izard & Kobak, 1991). Varying experiences with primary caregivers during infancy lead to the creation of internal working models, which become the way in which an individual cognitively interprets intimacy throughout the lifespan (Bowlby, 1979; 1980).

Hazan and Shaver (1987) conceptualized adult romantic attachment through the use of a self-report questionnaire to measure individual's attachment insecurity on two dimensions: anxiety and avoidance. Hazan and Shaver (1987) characterized individuals with an anxious attachment style as quick to fall in love but constantly worrying that their partner does not feel the same. In contrast, in their conceptualization, avoidant adults distanced themselves from potential partners in an attempt to soothe their apprehension about depending on another person.

Research on adult attachment among adolescents finds that attachment anxiety and avoidance influence the characteristics and quality of romantic relationships. Adolescents with insecure attachment often seek out dating relationships, but once they are in a relationship, tend to experience emotional distress from struggling to trust their partner or see themselves as worthy of love (Davila, Steingberg, Kachadourian, Cobb, & Fincham 2004). Shorey, Cornelius, and Bell (2008) further posit that individuals with insecure attachment orientation are especially at risk for dating violence, because their relationship templates often include dominance, control, and jealousy.

Attachment theory does not predict differences in attachment orientation based solely on gender, and research often finds no significant gender differences in attachment orientation (Hazan & Shaver, 1987; Rothbard & Shaver, 1994; Van IJzendoorn & Bakermans-Kranenburg, 2008). However, some evidence supports that the quality of

women's sexual relationships are more strongly associated with attachment anxiety, whereas the experience of men's sexual relationships is associated with their reported level of attachment avoidance (Cooper, Pioli, Levitt, Talley, Micheas, & Collins, 2006; Del Giudice, 2009). Research has also found links between attachment anxiety and avoidance and aspects of femininity and masculinity, respectively (Collins & Read, 1990; Shaver, Collins, & Clark, 1996; Shaver, Papalia, Clark, Koski, Tidwell, & Nalbonem, 1996).

Among adolescents and young adults, insecure attachment styles tend to be associated with negative relationship characteristics and lower satisfaction with relationships (Bartholomew & Horowitz, 1991; Mikulincer & Erev, 1991). Theoretically, anxious individuals, who are accustomed to inconsistent caregiving, will engage in behaviors to seek intimacy and will be preoccupied with ensuring fidelity and closeness with their partner. In addition, anxiously attached adolescents may be especially prone to distress from rejection, escalate conflict, perceive conflict to be more severe, be more distressed by relationship conflict, and experience jealousy in their relationships (Campbell, Simpson, Boldry & Kashy, 2005; Downey, Bonica, & Rincon, 1999; Hazan & Shaver, 1987). Avoidant individuals may attempt to alleviate anxiety about intimacy in relationships by engaging in behaviors that create distance and avoid closeness, have been found to provide less emotional support to partners, and respond to jealousy with fear and sadness (Buunk, 1997; Collins & Feeney, 2000; Feeney & Collins, 2001; Gentzler & Kerns, 2004; Hazan & Shaver, 1987; Sharpsteen & Kirkpatrick, 1997). This body of research indicates that insecure attachment styles are associated with negative relationship characteristics that are likely to also arise in the course of digital dating.

Digital media use in dating relationships

With their widespread daily use, digital media have become a significant context for dating relationships (e.g., Carpenter & Spottswood, 2013; Fox, Osborn, & Warber, 2014; Fox, Warber, & Makstaller, 2013; Trepte & Reincke, 2013). Digital media are influential for initiating new relationships, promoting communication and closeness between dating partners, terminating romantic relationships, and integrating partners' social lives (Caughlin & Sharabi, 2013; Fox, Osborn, & Warber, 2014; Pascoe, 2011). Digital media allow dating partners to instantly and irreversibly communicate with their partners' social network and gain greater access to information about their dating partners' whereabouts and activities. Previously private dating interactions are now moved into public spaces. Media theorists discuss these digital media characteristics in terms of greater visibility of information, persistence of content once it is posted or sent, and connectivity to partners at any time and from any location (Fox, Osborn, & Warber, 2014; Treem & Leonardi, 2012).

Research has found both positive and negative effects of digital media on dating relationships, and has often restricted these analyses to examining a single media platform. Instant messaging and texting have been associated with positive relationship quality and closeness among both adolescents and college students (Blais, Craig, Pepler, & Connolly, 2008; Morey, Gentzler, Creasey, Oberhauser, & Westerman, 2013; Pettigrew, 2009). However, online gaming or using the Internet for entertainment has been shown to have a negative effect on relationship quality with romantic relationships (Blais, et al., 2008). Because media platforms are rapidly changing, and patterns of use are evolving, it may be premature to characterize the impact of any particular platform in

terms of its association with relationship behavior and satisfaction. The current study, therefore, used an inclusive definition of digital media to study digital dating behaviors.

Electronic intrusion and related digital dating experiences

The connectivity, visibility, and persistence of digital media communication also put adolescents at risk for several types of negative digital dating experiences (Bennett, Guran, Ramos, & Margolin, 2011; Borrajo, Gamez-Guadix, & Calvete, 2015; Borrajo, Gamez-Guadix, Pereda, & Calvete, 2015; Burke, Wallen, Vail-Smith, & Knox, 2011; Draucker & Martsolf, 2010; Finn, 2004; Melander, 2010; Reed, Tolman, & Ward, in press; Tokunaga, 2010). Adolescents may feel pressure to be “perpetually connected” to dating partners via digital media, making it difficult to maintain boundaries and independence (Duran, Kelly, & Rotaru, 2011; Fox, Osborn, & Warber, 2014). Public exposure of previously private dating interactions may cause embarrassment or humiliation, and digital media can act as both the trigger for and the context in which dating conflicts occur (Fox, Osborn, & Warber, 2014; Melander, 2010). Research has also shown that digital media (in particular, Facebook) contribute to relationship jealousy (Muise, Christofides, & Desmarais, 2009).

One of the most common problematic uses of digital media in relationships is to monitor a dating partner’s activities and whereabouts and to use digital media to invade a partner’s privacy (e.g., Bennett et al. 2011; Borrajo, Gamez-Guadix, & Calvete, 2015; Reed, Tolman, & Ward, in press). Research on this topic uses terms such as interpersonal electronic surveillance (Fox & Warber, 2014; Tokunaga, 2010), electronic intrusiveness (Bennett et al., 2011), online obsessive relational intrusion (Chaulk & Jones, 2011), cyberstalking (e.g., Southworth, Finn, Dawson, Fraser, & Tucker, 2007; Spitzberg &

Cupach, 2007), and electronic intrusion (Reed, Tolman, & Safyer, 2015). A study of DDA among adolescents found that 17% of teens were afraid of their partners' response if they did not respond to a digital media message (Picard, 2007). Among college students, Bennett et al. (2011) found that 73.5% of their sample of 437 college students experienced electronic intrusiveness (e.g., intrusively calling or messaging) in the past year from a dating partner; Borrajo et al. (2015) found that 38.6% of participants experienced controlling behaviors; and Burke et al., (2011) found that 50% of their sample of 804 college students engaged in control behaviors using digital media. Reed, Tolman, and Ward (in press) also found that monitoring and snooping behaviors were the most common form of digital dating abuse among their sample of 365 college students.

In the current study, we will use the term “electronic intrusion” to describe a set of digital dating behaviors aimed at monitoring a partner’s digital media activity and invading a partner’s digital privacy (Reed, Tolman, & Safyer, 2015). These behaviors include monitoring a partner’s whereabouts and activities, monitoring a partner’s social relationships, looking at private digital information without permission, sending so many messages that a partner feels uncomfortable, pressuring a partner to respond quickly to calls and messages, and pressuring a partner for access to passwords to their phone or online accounts.

Gender and digital media use in dating relationships

Although both girls and boys must navigate digital boundaries in dating relationships, preliminary evidence suggests that there are gender differences in the way that the digital media environment is experienced (Kimbrough, Guadagno, Muscanell, & Dill, 2013; Muscanell, Guadagno, Rice, & Murphy, 2013). Several studies have found

that women and girls are more frequent users of digital media than men and boys (e.g., Kimbrough et al., 2013; Marshall, Bejanyan, Di Castro, & Lee, 2013). Muscanell and Guadagno (2012) found that motivations for using social media differ for women and men, as women tend to use these technologies to maintain social relationships, whereas men often use social media to build new relationships and for career purposes. Blais et al. (2008) proposed a “rich get richer” hypothesis, suggesting that because girls report higher levels of relationship quality off-line than boys, the use of digital media allows them to expand their tools of reinforcing off-line friendships.

Research also indicates that women may experience more jealousy and distress from relationship issues on social media (Marshall et al., 2013; Muscanell, et al., 2013). One study found that even though men spent more time than women looking at their partner’s Facebook profiles, women reported higher levels of jealousy about things they viewed on Facebook (Marshall et al., 2013). A qualitative study with teens with dating experience found that girls and boys conceptualized digital monitoring differently. Young women discussed digital monitoring, surveillance, and sharing passwords as acceptable relationship behaviors that were warranted by the need to protect and maintain a dating relationship. They acknowledged, however, that these behaviors are more acceptable with a partner’s permission. Young men did not discuss their own monitoring behaviors, but rather discussed how frequently they are monitored by their female partners (Lucero, Weisz, Smith-Darden, & Lucero, 2014). This literature supports that girls and boys may experience digital dating, and digital monitoring, differently in their relationships. We will therefore explore the association between attachment insecurity and electronic intrusion separately by sex.

Romantic attachment insecurity and digital media use

With the heightened connectivity, visibility, and persistence of digital dating communication, adolescents with higher levels of attachment anxiety and avoidance may struggle with coping with dating in the digital world. Research on digital dating communication and attachment insecurity have found that anxiously attached college students experienced social media use as increasing closeness and intimacy in dating relationships, whereas avoidant individuals were less likely to use more “intimate” digital media platforms in their relationships such as cell phones and texting (Morey et al., 2013).

Research on attachment insecurity and digital dating has focused on relationship jealousy, digital partner surveillance, and electronic intrusion as outcomes. Marshall et al. (2013) demonstrated that among adults, attachment anxiety was associated with more Facebook relationship jealousy, and with monitoring a partners’ Facebook profile. Avoidant attachment was associated with less Facebook jealousy and less frequent monitoring of a partners’ profile. Research has found that anxiously attached partners may respond to jealousy by engaging in surveillance behaviors (Guerrero, 1998; Guerrero & Afifi, 1998). Surveillance behaviors could include spying on, following, checking up on the activities and whereabouts of their partner, and looking through their belongings (Guerrero, Andersen, Jorgensen, Spitzberg, & Eloy, 1995). A study of 328 college students found that attachment insecurity was associated with greater Facebook surveillance of their dating partner (Fox & Warber, 2014).

In our previous study (Reed, Tolman, & Safyer, 2015), we expanded on the “feedback loop” of Facebook jealousy proposed by Muise et al. (2009) by adding an

attachment framework. Our “cycle of anxiety” posits that an anxiously attached individual is more likely to experience digital interactions with a dating partner as a trigger for anxiety, and then to alleviate their anxiety they may engage in electronic intrusion to monitor their partner, ensure fidelity, and maintain feelings of intimacy. However, these electronic intrusion behaviors may yield additional anxiety triggers that perpetuate the cycle.

Relationship characteristics and electronic intrusion

This study also built upon our previous work on attachment insecurity and electronic intrusion by considering additional factors that might contribute to individuals’ perpetration of electronic intrusion in high school dating relationships. Previous work on problematic digital dating behaviors often asks participants to report on incidents that have occurred in their relationship over the past year, or ever in the past (e.g., Bennett et al., 2011; Reed, Tolman, & Ward, in press). These behaviors are therefore devoid of a relationship context; they could have occurred in one or multiple relationships.

We propose that the relationship context could impact the likelihood for problematic relationship behaviors to occur. For example, relational uncertainty has been linked to social media surveillance in dating relationships (Fox & Warber, 2014). Relational uncertainty may occur for several reasons. A partner could be uncertain about a new relationship before a commitment has been formally made, or a partner could also be uncertain after a break up about whether the relationship will continue. Therefore, whether participants are reporting about EI behaviors that occurred in their current or former relationship could be relevant to EI frequency. The length of the relationship could also be relevant, as newer relationships may be more uncertain, but longer

relationships provide more time for partners to engage in problematic behaviors. Finally, electronic intrusion may be especially relevant as a means of fidelity assurance and relationship maintenance in circumstances where a significant power dynamic difference exists between two partners. To assess one possible type of power difference, we will be examining the age difference between high school dating partners as a potential factor in frequency of electronic intrusion.

The Current Study

The current study sought to explore individual differences in perpetrating electronic intrusion. With all high school students using digital media, and many of them dating, what factors contribute to some engaging in electronic intrusion? Does the “cycle of anxiety” also occur for high school students with higher levels of attachment anxiety? Our previous research showed that college students’ attachment insecurity was associated with likelihood to engage in intrusive digital dating behaviors (Reed, Tolman, & Safyer, 2015). Attachment anxiety, in particular, was associated with electronic intrusion perpetration for both young women and men (Reed, Tolman, & Safyer, 2015).

In the current study, we sought to build on past work in a large sample of high school students, investigating an expanded list of electronic intrusion behaviors occurring in participants’ current or most recent dating relationship. As much of the literature on attachment insecurity and digital dating has been conducted among college students, the current study makes an important developmental contribution. Patterns of attachment and digital dating may differ in a younger developmental period in which adolescents are having their first dating experiences in a digital media-saturated social environment.

The primary research question for the current study was: Is attachment insecurity (anxiety or avoidance) associated with the frequency of electronic intrusion perpetration among high school girls and boys? We predicted that 1) girls would report more EI perpetration than boys, 2) attachment anxiety would be positively associated with electronic intrusion perpetration frequency for both girls and boys, and 3) attachment avoidance would be negatively associated with EI. Based on our findings with a college sample, we expected that there would be a stronger association between attachment anxiety and EI than avoidance and EI.

Method

Design

We conducted a self-report cross-sectional survey study of 9th-12th grade students at a large Michigan suburban high school campus. This was a convenience sample, with effort taken to get a representative sample of students across all grade levels and who were enrolled in both required core curriculum courses and elective courses.

Procedure

Data were collected between December 2013 and March 2014. We recruited participants using convenience sampling among teachers. If teachers agreed to have their classes participate, we visited their classrooms prior to data collection to distribute paper and pencil parent/guardian consent forms. Students were instructed to bring forms home to their parent/guardian and returned a signed form before the day of participation. The parent/guardian consent form included a web address to access a copy of the student survey for their review. Parent/guardian consent (if participants were under the age of 18) and student assent were required for participation.

On the day of data collection, students met for class in a library media center. The principal investigator for this project was present for every day of data collection. Each student was seated at her/his own computer to receive study instructions, complete student assent forms, and take the computer-based online survey. Students who did not receive parent/guardian consent and/or chose not to participate were given another activity and seated separately from the study participants. The principal investigator introduced the study procedures, passed our student assent forms, and was present throughout the session to answer questions. After completing the survey, students were given a debriefing form that included information about the study, contact information for the research team, and contact information for local and national resources for dating and sexual violence. The study took one day of class time (approximately 50 minutes). Students spent between 21 minutes to 50 minutes filling out the survey. Our recruitment efforts yielded a 67.28% response rate. Participation was voluntary and anonymous, and students received a \$5 gift card as compensation for their participation.

Sample

The sample included 947 valid completed surveys. A pilot study was first conducted with 54 students, and because only minor changes were made to the survey after piloting, these students were included in the final sample. There was a 93% completion rate for the survey, and participants who submitted partial surveys were included in the final sample. There were seven additional cases that were deemed invalid and removed. Exclusion criteria included students who experienced technical difficulties and began a new survey with a new ID number (so the first ID case was removed), and students who mistakenly began taking the survey for a second time.

Participants ranged in age from 13-19, with 91.6% of participants age 14-17. The majority of participants identified as young women (56%) and reported their race/ethnicity as White (72.2%). Others identified as Black (7%), Asian (6.7%), Middle Eastern (4.7%), Latino/a (1.7%), and Multi-racial (5.6%). The sample included students from all grade levels with an underrepresentation of sophomore and juniors, as it was comprised of 29.3% freshmen, 12.8% sophomores, 20.1% juniors, and 29.2% seniors.

Some participants (12.7%) reported participation in a free or reduced lunch program. Almost all participants (96.2%) own a cell phone, 90.7% of cell phone users have a “smartphone,” and all have access to a home computer. Three quarters (74.2%) reported that they have had at least one dating partner, and 27.1% were currently in a dating relationship at the time of the survey. Two participants identify as transgender or gender queer, and 4.7% of girls and 2.2% of boys are in a relationship with or had their most recent relationship with a same-sex partner.

Measures

Demographics. Students were asked to report their age, gender identification, race/ethnicity, religiosity, whether they participate in a free or reduced lunch program (as a proxy for socioeconomic status), and whether they have access to digital media devices.

Digital Media Use. The survey included several measures of cell phone and Internet use, focusing on social media use.

Cell phone use and texting. Access to cell phones was assessed using two items. Participants were asked, “Do you have your own cell phone?” with response options “Yes” and “No.” If participants answered, “Yes,” they were then asked, “Does your cell

phone have access to the Internet? (a 'smartphone')" with the response options "Yes" and "No."

Frequency of text messaging was assessed through three items created for this study. Participants were asked, "On an average day, would you say you send or receive..." with a 7-point response scale ranging from "No text messages" and "1 to 10 text messages" to "More than 300 text messages." There was also the option of "I don't know." Participants with dating experience responded to, "How often do you/did you text message with your current/most recent dating partner on a typical day?" with a 6-point response scale ranging from "Never" to "Several times an hour."

Internet and social media use. We examined access to computers with the item, "Do you have access to a computer at home?" with response options "Yes" and "No." If participants responded, "Yes," they were also asked, "Do you have your own laptop/tablet?" with response options "Yes" and "No." We assessed general Internet use with three items. First, participants were given the prompt, "How often do you use the Internet? (on both computers and cell phones)." The prompt was followed by an item asking, "How many hours on a typical weekday do you spend social networking?" with response options ranging from "0" to "10+." We asked participants to respond to two additional items inquiring about their social networking use on a typical Saturday and on a typical Sunday. Responses about weekday use were multiplied by five, and added to responses about weekend use to create a variable of "hours spent per week social networking."

Participants responded to several items assessing their preferences and use of various social media. First, participants were asked, "How often do you use each of the

following social media? (including logging on to check updates, posting, reading your feed, etc.).” Several popular social media sites were listed, including Facebook, Twitter, Snapchat, and Instagram. For each site, participants could select an option on an 8-point scale from “Never” to “Several times a day.”

Dating experience. Dating partner was defined in this survey as “...ANY of the following: a boyfriend or girlfriend, someone you are a ‘thing’ with, someone you have dated or are currently dating (e.g., going out with without being supervised), someone who you like or love **and** spend time with, or a relationship that might involve sex.” After presenting this definition, participants were first asked, “Have you ever had a dating partner?” with response options “Yes” and “No.” If participants responded “No,” they were not given additional questions about dating and electronic intrusion experience, and were excluded from analysis in the current study. If participants responded, “Yes,” they were given additional items asking about their dating experience. We asked, “Are you CURRENTLY in a dating relationship?” with response options “Yes” and “No.” The response to this item was recoded into the dummy variable **current relationship status**, with “0” indicating that participants are not currently in a relationship, and “1” indicating that participants are currently in a relationship.

If participants reported dating experience, they were asked follow-up questions about their current or most recent relationship. Participants in relationships at the time of the survey were asked, “How long have you been in this relationship?” with a 5-point response scale ranging from “Less than a month” to “More than a year.” We also asked participants who were NOT currently in a dating relationship the following two questions: “When did your last relationship end?” with a 6-point response scale ranging

from “Less than a month ago” to “More than two years ago,” and “How long was your last relationship?” with a 5-point response scale ranging from “Less than a month” to “More than a year.” The two items “How long have you been in this relationship?” and “How long was your last relationship?” were recoded to create a variable **relationship length** that described how long participants have been/were in their current or most recent relationships.

We also asked participants, “How old is your current/most recent partner?” with a 5-point response scale of “-2” meaning “more than a year younger than me,” “-1” meaning “one year younger than me,” “0” meaning “same age as me,” “1” meaning “one year older than me,” and “2” meaning “more than a year older than me.” The response to this item created the variable **relative age of partner**. Finally, participants were asked to report, “What is the gender of your current/most recent dating partner?” with response options, “Young woman,” “Young man,” and “Transgender/gender queer.”

Romantic attachment insecurity. Romantic attachment insecurity was measured using the Experiences in Close Relationships scale-Short Form (ECR-S; Wei, Russell, Mallinckrodt, & Vogel, 2007). This measure, adapted from the original version by Brennan, Clark, and Shaver (1998), is widely used in research with high school and college students to yield continuous attachment anxiety and avoidance scores rather than attachment style categories.

This 11-item measure was used to compute scores on two dimensions of attachment insecurity: **attachment anxiety** and **attachment avoidance**. The avoidance dimension refers to how much a person distances himself/herself from relationship partners, lacks trust for relationship partners, and attempts to maintain emotional distance

from others (Shaver & Fraley, 2008). The anxiety dimension reflects the extent of dependency on relationship partners, and anxiety about separation from and availability of a relationship partner (Shaver & Fraley, 2008). Response options range from 1 meaning “Strongly disagree” to 7 meaning “Strongly agree.” An example item for avoidance is “I need a lot of reassurance that I am loved by my partner,” and an example of the anxiety subscale is “I try to avoid getting too close to my partner.” See Table 2 for Chronbach’s alphas of all scales used. To account for missing data in the attachment anxiety and attachment avoidance subscales, mean scores were imputed for those participants that responded to more than half of the items in each subscale.

Electronic intrusion. The current study utilized the 6-item electronic intrusion (EI) electronic intrusion perpetration subscale ($\alpha = .76$) and the 6-item electronic intrusion victimization subscale ($\alpha = .83$) from a longer 36-item measure assessing digital dating abuse victimization and perpetration, modified from Reed, Tolman, & Ward (in press) and the electronic intrusion measure used in Reed, Tolman, & Safyer (2015). The electronic intrusion measure is comprised of the same items from the digital monitoring/control subscale in Chapter 1. To stay consistent with our previous study, the term electronic intrusion will be used here (Reed, Tolman, & Safyer, 2015). Participants were asked to respond to electronic intrusion items to indicate how frequently each behavior occurred in their current or most recent dating relationship. The four-point scale ranged from “0” meaning “Never” to “3” meaning “Very often.” Means of responses to the six perpetration items and six victimization items were computed to create two EI mean scores. See Table 1 to view the EI perpetration items. The victimization subscale was comprised of the same behaviors worded differently to reflect victimization.

Results

Preliminary Analyses

All analyses were conducted only with those participants that have had dating experience. Participants who responded, “yes” to the item, “Have you ever had a dating partner?” were therefore included in our final sample of 703 participants (54.3% girls, *Mean age* = 16.40, 75.6% White). The distribution of participants in each grade level in this smaller sample mirrored the larger sample: 27.6% freshmen, 11.9% sophomores, 20.5% juniors, and 30.3% seniors. We then conducted preliminary analyses on the dating experiences and digital media use of these participants.

Of the 703 participants with dating experience, 36.4% were in a dating relationship at the time of the survey. Most participants reported heterosexual dating behavior, with 7.2% of girls and 5.2% of boys reporting that they have typically engaged in same-sex dating behavior. We asked participants to focus on their current or most recent relationship for most items on the survey. The length of these dating relationships varied; those currently in a dating relationship reported relationship lengths ranging from less than a month (18.4%), 1-3 months (19.9%), 3-6 months (13.3%), 6-12 months (17.6%), and more than a year (30.9%). Those reporting on a former dating partner reported that this relationship ended less than a month ago (13.5%), 1-3 months ago (14.6%), 3-6 month ago (16%), 6-12 months ago (21.4%), 1-2 years ago (25.7%), and more than two years ago (7.9%). These past relationships also varied in length from less than a month (16.7%), 1-3 months ago (36%), 3-6 months ago (20.9%), 6-12 months ago (14.6%), and more than a year ago (10.8%).

Participants were frequent users of a variety of digital media. Of the sample of 703 participants with dating experience, 96.2% own a cell phone and 97.4% have access to a computer at home. Participants reported sending and receiving an average of 51-100 text messages per day, and spent an average of 22.4 hours per week using social media. Most participants reported that they text/texted their current or most recent dating partner frequently; 18.5% text daily, 26.1% text several times a day, and 40.2% text several times an hour. There were no gender differences in reported frequency of texting, but girls spent more time ($M = 19.44$ hours, $SD = 19.44$) per week on social media than boys ($M = 16.72$ hours, $SD = 16.72$), $t(689) = 7.39, p < .000$.

As shown in Table 1, electronic intrusion perpetration was common in this sample for both girls and boys. Monitoring a partner's whereabouts and activities using social media, monitoring who a partner is friends with/talks to, and pressuring a partner to respond quickly to calls and messages were the most common EI behaviors. We conducted crosstab analysis on these six items, and there were no significant sex differences in reporting perpetration of any of the EI behaviors within a current or most recent relationship.

Sex differences and inter-correlations in variables of interest

See Table 2 for the zero-order correlations between the continuous variables of interest, both for the overall sample and for girls and boys separately. To investigate sex differences for each variable of interest, we also performed independent sample t-tests (see Table 3). Significant sex differences were found for attachment anxiety, such that girls reported higher levels of anxiety than boys. Girls also reported more frequent electronic intrusion perpetration and hours spent social networking than boys. For

relationship characteristics variables, girls were more likely to have a current or most recent dating partner that was older than them, and boys were more likely to be currently in a relationship at the time of taking the survey.

Zero-order correlations were also conducted between the variables of interest and demographic variables including age, same-sex dating behavior, participation in free/reduced lunch program (proxy for socioeconomic status), racial/ethnic identification, grade point average, and religiosity. These tests were conducted to assess whether demographic variables were significantly associated with variables of interest and should be included into regression models as covariates. To account for multiple comparisons, significant tests were restricted to $p < .01$. For girls, age was positively associated with electronic intrusion perpetration, $r(375) = .14, p = .009$. Girls were more likely to report EI perpetration as they got older in high school. For boys, identifying same-sex dating behavior was positively associated with attachment anxiety mean scores, $r(304) = .18, p = .002$. Boys who have engaged in same-sex dating behavior were more likely to report higher attachment anxiety scores. Therefore, “age” and “same-sex dating” were added to regression models as demographic correlates.

Regression analyses predicting electronic intrusion perpetration

To examine the contribution of attachment anxiety and attachment avoidance to the perpetration of EI behaviors, hierarchical multiple regressions were performed for girls and boys. Prior to conducting the hierarchical multiple regressions, the variables were tested for normality, and the independent variables were tested for collinearity. The inter-correlations between the independent variables were at an acceptable level. Results

of the variation inflation factor (all less than 1.361), and collinearity tolerance (all greater than .735) suggest that there are not significant issues with collinearity in this model.

We chose to perform separate analyses for women and men rather than examining sex as a moderator because previous research has showed sex differences in digital communication and in the impact of EI behaviors (Bennett et al., 2011; Blais, Craig, Pepler, & Connolly, 2008; Kimbrough et al, 2013; Muscanell & Guadagno, 2012; Reed, Tolman, & Ward, in press). In our previous study, there were different patterns of association between attachment insecurity and EI perpetration for college women and men, and we sought to explore whether we could replicate these results in a high school sample. Because the experience of EI perpetration, and digital dating more broadly, may be qualitatively different for women and men, analyses were run separately rather than including gender as a moderator in a single model.

We entered variables into the two regression models in four steps. In step 1, we entered the demographic correlates “age” and “same-sex dating behavior.” In step 2, we entered the relationship characteristics variables “relationship length,” “relative age of partner,” and “current relationship status.” In step 3, “hours spent per week social networking” and frequency of EI victimization were added as controls. Finally, in step 4, the mean scores for attachment anxiety and attachment avoidance were entered as our independent variables. The regression results are provided in Table 4.

In the girls’ model, age was a significant predictor of EI perpetration in step 1. In step 2, the relationship characteristic correlates relationship length and relative age of partner were significant predictors of EI perpetration. In step 3, these relationship characteristics remained significant in the model and EI victimization was also a

signification predictor of EI perpetration. In the final step, the significant predictors of EI perpetration were relationship length, current relationship status, frequency of EI victimization, and attachment anxiety. Therefore, higher levels of attachment anxiety were associated with greater frequency of EI perpetration among girls in our sample, even when controlling for relationship characteristics and EI victimization.

The boys' regression model results were similar to the girls' model. Neither of the demographic correlates were significant predictors of EI perpetration in step 1. In step 2, relationship length and relative age of partner were both significant predictors of EI perpetration. In step 3, relative age of partner remained significant in the model, and EI victimization also emerged as a significant predictor of EI perpetration for boys. In the final step, relative age of partner, EI victimization, and attachment anxiety were significant predictors of EI perpetration frequency. Therefore, as with the girls in our sample, higher levels of attachment anxiety were associated with greater frequency of EI perpetration among boys, even when controlling for relationship characteristics and EI victimization. Attachment avoidance was not significantly associated with EI perpetration for girls or boys.

Discussion

In this study, we sought to further investigate individual factors that are associated with perpetrating electronic intrusion (EI) behaviors in dating relationships, which involve monitoring and controlling a dating partner using the Internet and cell phone technologies. This study proposed that, as in our previous work on electronic intrusion among college students, attachment insecurity would be a significant factor in whether high school students engage in EI digital dating behaviors (Reed, Tolman, & Safyer,

2015). This study built upon our previous work by surveying a large sample of high school students, by asking participants to report on digital dating behaviors that occurred only in their current or most recent relationship, by utilizing a revised and expanded measure of electronic intrusion, and by controlling for relationship characteristics in the models for girls and boys.

Results largely supported our hypotheses. Consistent with our hypothesis, high school girls reported more EI perpetration than boys. Regression analyses revealed that attachment anxiety was associated with frequency of electronic intrusion perpetration for both girls and boys. Attachment anxiety was a significant predictor of EI even after controlling for demographic variables, relationship characteristics, hours spent social networking, and frequency of electronic intrusion victimization. Attachment avoidance was not a significant predictor of EI perpetration in the girls' or boy's models.

In our previous work with college students, we proposed that digital dating communication creates a “cycle of anxiety” for anxiously attached individuals (Reed, Tolman, & Safyer, 2015). The cycle includes three phases: A social media trigger, anxiety, and electronic intrusion to attempt to relieve anxiety. The cycle begins with a social media trigger. This trigger could be a range of social media information or behaviors including delayed responses to text messages, pictures on Facebook of their partner at a party, or public messages from others posting or “tweeting” on their partner's social media profile. This trigger causes anxiety, possibly leading to the college student's wondering if their partner is cheating on them, or wondering if their partner has romantic feelings for other people. This individual may then engage in electronic intrusion to attempt to calm this anxiety. For example, they may send their partner repeated messages

asking where they are and who they are with, or may look at their partner's text messages from the night before without permission. Due to relational schemas associated with attachment anxiety, this new knowledge gained through monitoring and looking at private information is more likely to be interpreted in a way that perpetuates more relationship anxiety instead of providing relief or soothing the individual. Therefore, this new information is instead another social media trigger that perpetuates the cycle.

As we have replicated our previous findings among high school students, the cycle of anxiety can be applied across adolescent *and* young adult dating relationships. Digital media have many positive impacts on dating relationship quality and closeness, but for anxiously attached individuals, access to digital information about a dating partner coupled with the capability for constant contact may make it difficult to negotiate digital boundaries. Although anxious teens may not be intending to harm their partner with their EI tactics, EI behaviors may negatively impact both partners' mental health and feelings of security in their relationship. If these behaviors occur as a pattern or within a constellation of other on-line or off-line tactics to exert control over a partner (e.g., pressure for sexual behavior, hostility or aggression) then concern is raised for these behaviors to escalate to emotional abuse and dating violence.

Although not all EI tactics may be intended to harm or exert pervasive control, anxious attachment may interact with other factors (e.g., gender beliefs, history of abuse or witnessing abuse) to produce such a pattern (e.g., Sousa, Herrenkohl, Moylan, Tajima, Klika, Herrenkohl, & Russo, 2011). Indeed, research has supported the link between childhood exposure to intimate partner violence, childhood maltreatment, and insecure attachment (Morton & Browne, 1998; Rikyhe, Tyrka, Kelly, Gagne, Mello, & Mello,

2008). Research has also suggested that insecure attachment is associated with perpetration of violence, bullying, and other anti-social behaviors in adolescence (Catalano & Hawkins, 1996; Egeland, Yates, Appleyard, & van Dulman, 2002; Maas, Herrenkohl, & Sousa, 2008). Therefore, the current study may be particularly relevant for those anxiously attached adolescents with abuse or trauma histories. These adolescents are especially at risk for repeating patterns of coercive control through their use of digital media in relationships.

Although we predicted that attachment avoidance would be negatively associated with EI perpetration, levels of avoidance were not significantly associated with EI perpetration. However, we did predict, based on our previous study, that there would be a stronger association between EI perpetration and anxiety than EI and avoidance. We have now seen that across high school and college samples, there are few associations between attachment avoidance and EI perpetration. Further research is needed on how avoidant individuals negotiate digital dating, as digital media increase connectivity between dating partners through frequent technology-mediated contact. However, digital media also provide a means of less intimate communication behind a cell phone or computer screen.

At least one of the relationship characteristics variables -- relationship length, relative age, and current relationship status -- was significantly associated with EI perpetration in the final models for girls and boys. This pattern indicates that the relationship context is indeed important to consider when investigating factors that influence the frequency to engage in EI behaviors. For girls, being currently in a relationship at the time of survey and relationship length were positively associated with EI perpetration in the final step of the regression model. For boys, relative partner age

was negatively associated with EI perpetration in the final step, meaning that when their relationship partners were younger than them, they reported more frequent EI perpetration.

These differing patterns for girls and boys suggest EI perpetration may serve varying functions for high school girls and boys. Qualitative research on problematic digital dating behaviors demonstrated that teens, especially girls, often do not view violations of digital boundaries (e.g., password sharing) to be problematic (Lucero et al., 2014). Rather, girls seemed to view behaviors related to EI as necessary and adaptive components to relationship maintenance. Boys in the study, however, did not view their female partners' monitoring/control behaviors as favorably and found these behaviors to be largely annoying but benign. We found that girls were more likely to report EI perpetration when currently in longer relationships. Therefore, EI may function as a relationship maintenance tactic as Lucero et al. (2014) suggest. Boys, who are more likely to perpetrate EI when their partner is younger than them, may be using EI to maintain control from a relative position of power in their dating relationships. Girls, conversely, could be using EI as a reaction to feeling out of control in their relationships.

As in our study with college students, EI victimization was also a strong predictor of EI perpetration, indicating that EI victimization and perpetration co-occur in high school dating relationships. Recent research on sex differences in the experience of EI behaviors found that teen girls and boys experience EI at similar rates, but girls were more upset by these behaviors than boys (See Chapter 1). Boys were also more likely to respond to EI victimization by blocking their partner on social media or avoiding their partner. Conversely, girls were more likely to respond to EI by engaging with their

partner in communication or conflict, or telling someone about the EI they experienced. These findings support conclusions that boys are more annoyed by EI victimization, whereas girls view EI as either threatening or an opportunity for engagement with their partner (Lucero et al., 2014). Therefore, although EI victimization and perpetration are strongly correlated, victimization and perpetration may not mean the same thing for girls and boys. Because teen girls and boys may interpret, experience, and label EI victimization and perpetration experiences differently, further research is needed to elucidate the dynamics of the presumed “co-occurrence” of EI victimization and perpetration.

Although this study makes an empirical and theoretical contribution to the study of digital media use in adolescent dating relationships, there are study limitations that should be considered. This study relies on self-report of both romantic attachment insecurity and electronic intrusion perpetration, and could therefore be susceptible to bias and social desirability factors. Collecting data from other sources including dating partner reports, peer reports, or interviews could address this issue. Future research could also control for social desirability bias. The reliability statistics for the attachment avoidance and anxiety measures are below expectations, raising some concern about the use of this measure for high school students. The measure prompt tells participants, “We are interested in how you generally experience relationships, not just in what is happening in a current relationship... If you have never had a romantic relationship, answer how you think you might feel if you were in a relationship.” High school students having their first dating experiences have less relationship experience to draw from when responding to these items. However, this measure is widely used with adolescents and young adults.

Finally, because our sample was mostly white, heterosexual high school students from a suburban area of Southeast Michigan, we cannot generalize to other populations.

Taken together, the findings from the regression models predicting girls' and boys' perpetration of electronic intrusion support the importance of considering the circumstances in which EI behaviors are interpreted as problematic, and the role that attachment anxiety may play in these interpretations and in the likelihood to engage in EI behaviors in the future. In this study, we have identified two significant individual factors that influence EI perpetration: gender and attachment anxiety. These factors are likely to interact in high school dating relationships. For example, higher levels of attachment anxiety could lead to girls' use of EI perpetration for relationship maintenance and distress from EI victimization. Both gender and attachment anxiety should be considered when assessing the motivation and experience of EI in dating relationships, and in examining the dynamics of digital dating in teen and young adults' relationships. Anxiously attached girls and boys could be more at risk for experiencing distress and anxiety as a result of digital dating communication, and could especially benefit from interventions aimed at improving partner communication about negotiating digital boundaries and online conflict management.

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Table III.1. *Electronic intrusion items and percent of girls and boys reporting each behavior*

	Girls mean frequency score (N=375)	Boys mean frequency score (N=301)
1. Sent so many messages (like texts, e-mails, chats) that it made my partner feel uncomfortable.	5.3%	10.3%
2. Pressured my partner for a password to access their phone or online account(s).	7.0%	5.4%
3. Pressured my partner to respond quickly to calls, texts, or other messages.	28.2%	21.4%
4. Monitored my partner's whereabouts and activities.	33.7%	23.3%
5. Monitored who my partner talks to and is/was friends with.	33.7%	25.3%
6. Looked at my partner's private information (text messages, emails, etc.) to check up on them without their permission.	16.9%	13.0%

Table III.2. Zero-order correlations between variables of interest with descriptive statistics.

	1	2	3	4	5	6	7	8	α
1. Attachment Anxiety Scale									.684
Girls									.714
Boys									.643
2. Attachment Avoidance Scale	-.04								.641
Girls	.04								.665
Boys	-.14*								.643
3. Electronic Intrusion Victimization	.13**	.01							.827
Girls	.10	.04							.817
Boys	.17**	-.05							.839
4. Electronic Intrusion Perpetration	.28***	-.03	.51***						.762
Girls	.30***	-.05	.50***						.752
Boys	.24***	-.01	.51***						.776
5. Length of Relationship	-.02	-.20***	.23***	.23***					N/A
Girls	-.05	-.26***	.27***	.28***					
Boys	.00	-.12*	.18**	.16**					
6. Relative Age of Partner	.04	-.03	.02	.10**	.10**				N/A
Girls	.04	-.05	.11*	.16**	.15***				
Boys	-.06	.03	-.13*	-.11*	.03				
7. Current Relationship Status	-.08*	-.29***	.04	.10*	.20***	.09			N/A
Girls	-.10*	-.29***	.08	.12*	.20***	.09			
Boys	-.04	-.31***	.00	.07	.21***	.00			
8. Hours per week spent social networking	.13**	-.08*	.06	.08*	-.01	.14**	.06		N/A
Girls	.10	-.08	.06	.05	.01	.10	.05		
Boys	.14*	-.08	.06	.08	-.05	-.03	-.01		

Note. * $p < .05$, ** $p < .01$, *** $p < .000$

Table III.3. *Sex differences in variables of interest.*

	Girls mean	Boys mean	T-test
Attachment anxiety	22.47 (6.71)	21.42 (5.69)	2.19*
Attachment avoidance	14.74 (5.09)	14.98 (4.84)	-.615
Electronic intrusion perpetration	.31 (.44)	.24 (.42)	2.14*
Electronic intrusion victimization	.39 (.56)	.41 (.59)	-.26
Length of Relationship	2.89 (1.38)	2.85 (1.36)	.30
Relative age of partner	.48 (.87)	-.08 (.57)	9.79***
Current relationship status	.41 (.49)	.49 (.46)	2.84**
Hours spent social networking	27.16 (19.44)	16.85 (16.72)	7.39***

Note. Note. * $p < .05$, ** $p < .01$, *** $p < .000$

Table III.4. Hierarchical multiple regression predicting frequency of electronic intrusion perpetration for girls and boys

	Girls (N=356)				Boys (N=288)			
	Step 1 β	Step 2 β	Step 3 β	Step 4 β	Step 1 β	Step 2 β	Step 3 β	Step 4 β
Age	.13*	.01	.00	.00	-.01	-.03	-.03	-.03
Same-sex dating behavior	-.03	-.04	-.04	-.05	.06	.10	.09	.06
Length of relationship		.25***	.14**	.16**		.14*	.05	.05
Relative age of partner		.13*	.10*	.08		-.19**	-.13*	-.12*
Current relationship		.05	.07	.09*		.06	.07	.10
Hours SN			.02	-.01			.05	.04
EIV			.43***	.41***			.50***	.47***
Anxiety				.23***				.18**
Avoidance				-.01				.04
<i>Adj. R2</i>	.01	.10	.27	.35	-.00	.05	.29	.31
<i>F Change</i>	3.21*	11.03***	44.45***	20.62***	.53	6.10***	48.84***	6.00**

Note. Hours SN= hours spent per week social networking, EIV= Frequency of electronic intrusion victimization, Anxiety= Attachment anxiety mean score, Avoidance= attachment avoidance mean score

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

CHAPTER IV

Gendered digital dating: Are stereotypical gender beliefs associated with digital dating abuse perpetration among adolescents?

Adolescent digital media use is frequent, varied, and integrated into their daily lives and relationships. Most (77%) of adolescents have a cell phone, and almost all (95%) of teens age 12-17 are on the Internet (Lenhart, 2012). Teens are also avid users of social media; data indicate that 80% of teens aged 12-17 have an account on a social networking site (e.g., Twitter) (Lenhart, 2010). There is also widespread daily use of digital media. Forty percent of Facebook users visit the site several times a day (Duggan & Smith, 2013), and most adolescents report using social media daily (Lenhart, 2010).

As digital media use has increased, so have concerns that they provide a context and tool for the perpetration of problematic dating behaviors and dating violence. Digital media can have positive influences on relationships, but the ubiquitous and public nature of digital media may increase vulnerability to problematic dating behaviors. This study explores individual differences in endorsement of stereotypical gender and relationship beliefs as a possible predictor for perpetrating different types of digital dating abuse (DDA). Does holding more stereotypical gender and relationship beliefs make girls and boys more likely to perpetrate DDA? Do these beliefs predict different types of DDA perpetration for girls and boys?

Digital media use in dating relationships

With their widespread daily use, digital media have become a significant context for dating relationships (e.g., Carpenter & Spottswood, 2013; Fox, Osborn, & Warber, 2014; Fox, Warber, & Makstaller, 2013; Trepte & Reincke, 2013). Digital media are influential for initiating new relationships, promoting communication and closeness

between dating partners, terminating romantic relationships, and integrating the social lives of two dating partners together (Caughlin & Sharabi, 2013; Fox, Osborn, & Warber, 2014; Pascoe, 2011). Adolescents use digital media to practice self-disclosure, a key facet of intimacy, and exercise self-expression through self-presentations on social media (Subrahmanyam & Greenfield, 2008). Manago, Graham, Greenfield, and Salimkhan (2008) further stated, “As the Internet becomes increasingly integrated into the socialization contexts of youth, salient developmental tasks such as identity and sexual development are projected, literally and metaphorically, onto computer screens” (p. 2). The importance placed on dating relationships during adolescence, coupled with widespread digital media use, means that digital dating is a significant aspect of teens’ social development.

Digital media are not only an important context for adolescents’ dating relationships, but the nature of digital media has changed the ways that partners communicate. Digital media allow dating partners to instantly and irreversibly communicate with their partners’ social network, and to have greater access to information about their dating partners’ whereabouts and activities. Digital media have moved previously private dating interactions into public spaces (Fox, Osborn, & Warber, 2014). Research on digital dating finds that digital media have both positive and negative impacts on dating relationships. Instant messaging and texting have been associated with positive relationship quality and closeness in both adolescents and college students (Blais, Craig, Pepler, & Connolly, 2008; Morey, Gentzler, Creasey, Oberhauser, & Westerman, 2013; Pettigrew, 2009). However, online gaming and using the Internet for

entertainment have been shown to have negative effects on relationship quality with romantic relationships (Blais, et al., 2008).

Digital media as a context and tool for dating violence

The ubiquitous and public nature of digital media use in dating relationships puts adolescents at risk for several types of problematic digital dating behaviors. These behaviors, which have been called “digital dating abuse” (Picard, 2007; Reed et al., in press; Weathers & Hopson, 2014), “electronic aggression” (Bennett, Guran, Ramos, & Margolin, 2011; David-Ferdon & Hertz, 2007), “cyber dating abuse” (Borrajo, Gámez-Guadix, & Calvete, 2015; Borrajo, Gámez-Guadix, Pereda, & Calvete, 2015; Zweig, Dank, Yahner, & Lachman, 2013; Zweig, Lachman, Yahner, & Dank, 2013), “technology-based interpersonal victimization” (Korchmaros, Ybarra, Langhinrichsen-Rohling, Boyd, & Lenhart, 2013), “technology-delivered dating aggression” (Epstein-Ngo, Roche, Walton, Zimmerman, Chermack, & Cunningham, 2014), and “socially interactive technology abuse” (Lucero, Weisz, Smith-Darden, & Lucero, 2014) can include monitoring someone’s activities and whereabouts, controlling who they talk to and are friends with, threats and hostility, spreading embarrassing and sexual photos with others, and pressuring for sexual behavior using the Internet or cell phones.

We use the term “digital dating abuse” (DDA) to emphasize the dating relationship context, the potential for these behaviors to occur in a constellation of abusive dating behaviors, and to recognize that these behaviors are experienced across all digital media platforms. However, most previous research tended to focus on a single media platform. Because media platforms are rapidly changing, and patterns of use are evolving, it may be premature to characterize the impact of any particular platform in

terms of its association with relationship behavior and satisfaction. The current study, therefore, used an inclusive definition of digital media to study digital dating behaviors.

Digital dating abuse is pervasive among adolescents and college students and encompasses many different behaviors. Among younger populations, 1 in 4 high school students report being a victim of digital dating abuse, and sexual minority youth are at a greater risk for victimization than heterosexual youth (Zweig et al., 2013a). One report found that 25% of teens ages 13-18 were called names, harassed, or put down by a dating partner via texting or a cell phone; 22% were asked to do something sexually that they did not want to do; 18% were put down or called names by their partner using digital media; 19% had a dating partner spread rumors about them using digital media; 17% were afraid of their partners' response if they did not respond to a digital media message; and 10% were physically threatened using digital media (Picard, 2007). More than half of teens in one sample (57%) had been asked to send a "sext" message, and most were bothered by this request (Temple, Paul, van den Berg, Le, McElhany, & Temple, 2012).

Although the current study focuses on digital dating abuse among high school students, much of the emerging literature on digital dating abuse has studied digital dating among college students. Among college students, our previous study found that 68.8% reported at least one DDA victimization behavior, and 62.6% reported one or more perpetration behaviors in the past year (Reed, Tolman, & Ward, in press). A study of 788 young adults (age 18-30) found that 10% of young adults experienced direct aggression (act of aggression with intent to harm), and over 70% of participants experienced monitoring/control (Borrajo et al., 2015b).

Digital dating abuse has also been found to be associated with off-line forms of physical, sexual, and psychological abuse, suggesting that DDA is a form of dating violence most closely associated with psychological abuse (Brem, Spiller, & Vandehay, 2014; Epstein-Ngo et al., 2014; Reed, Tolman, & Ward, in press; Zweig et al., 2013a). To date, other contextual factors that increase or decrease the likelihood of DDA involvement have not been heavily studied. A few studies have looked at correlates of experiencing DDA, finding that being female, prior experience with delinquent and problem behavior, history of DDA victimization, experience with sexual activity, depression, anxiety and hostility, and having a negative parent-child relationship is each associated with experiencing DDA (Korchmaros et al., 2013; Zweig et al., 2013b).

Gender differences in digital dating abuse prevalence and experience

Evidence is emerging to support that digital dating abuse is gendered, meaning, how adolescents interpret and respond to DDA experience is likely to differ for girls and boys. In a study of digital dating abuse among teens, Zweig et al. (2013a) found that boys were more likely than girls to perpetrate sexual DDA behaviors (e.g., pressure to send sexual photos). Even in studies in which men report more DDA victimization than women, men reported lower levels of anticipated distress from experiencing DDA behaviors (Bennett et al., 2011). Recent research found that high school girls reported being more upset than boys from experiencing multiple forms of DDA: digital sexual coercion, digital direct aggression, and digital monitoring/control (see Chapter 1). Reed et al. (in press) also found that women reported more negative emotional responses to sending and receiving sexually explicit text messages. These differences in experience of

DDA warrant further study into the role of gender in the likelihood to perpetrate digital dating abuse against a dating partner.

Digital media as a space for the co-construction of gender and dating beliefs

Digital media function as a site for social development at a point in the lifespan with a unique socially constructed set of values and expectations (Manago et al., 2008). Whereas the traditional “media effects” literature focuses on how the primarily passive consumption of media (such as television, magazines, and music) impacts adolescent behavior, digital media theorists have proposed a “co-constructionist” model to study digital media and adolescents (Subrahmanyam & Smahel, 2011; Subrahmanyam, Smahel, & Greenfield, 2006). These researchers posit that digital media act as a “cultural toolkit” used by adolescents to simultaneously *create* their digital environments and *select* content to consume in interactions with their social networks. Adolescents are both constructing their own digital experience and are influenced by the content.

In this way, the on-line and off-line worlds of adolescents are intertwined, and characteristics of the off-line social world (such as gender norms) are reflected in their digital social world (Subrahmanyam & Smahel, 2011). We suggest that digital media (and consequently, digital dating abuse) are gendered because off-line and on-line gender socialization influence the way girls and boys present themselves, behave, and consume media using the Internet and cell phones. Digital media have become an interactive, co-constructed space in which to learn about and promote ideas about gender and about the norms concerning how girls and boys should relate to one another in dating relationships.

According to the co-constructionist model of digital media use, adolescents and young adults create digital spaces to distribute traditional media content *and* create new

media that reflects and reinforces dominant cultural narratives about dating, sex, and gender norms and stereotypes (Manago et al., 2008; Subrahmanyam & Smahel, 2011; Subrahmanyam, Smahel, & Greenfield, 2006). Social media may be *more* influential than traditional media on beliefs and behaviors about dating, sexuality, and gender among youth because social media combine visual portrayals of physical appearance and gender performance that are considered “normal and desirable” coupled with reinforcement of these norms by their peer groups. Although social media allow youth with marginalized identities (e.g., ethnic and sexual minority youth) to seek information and connect with online communities, for most youth, digital media are a place in which the norms present in mainstream media are further reinforced and normalized (Manago et al., 2008). Because digital media offer a space in which dominant cultural messages about gender are likely to be transmitted and reinforced, it is likely that endorsement of these beliefs shapes digital dating behaviors.

Stereotypical gender/dating beliefs and dating violence

Traditional media contain an abundance of messages that dictate dominant cultural norms of femininity, masculinity, and heterosexual courtship (Kim, Sorsoli, Collins, Zybergold, Schooler, & Tolman, 2007; Tolman, Kim, Schooler, & Sorsoli, 2007; Ward, 2003). These messages convey that girls and women are expected to prioritize their physical appearance and sexual appeal to men, to be passive and “nice” in interpersonal relationships and dating, and act as gatekeepers for sexual behavior. Men, conversely, are expected to be powerful, assertive, and aggressive in interpersonal relationships and dating, are valued for their leadership and control over others, and are expected to view and treat women as sexual objects. Regular use and consumption of this

content are associated with beliefs (e.g., Guo & Nathanson, 2011; Vandebosch & Eggermont, 2012a; Ward, Merriwether, & Caruthers, 2006) and behaviors (e.g., Ashby, Arcari, & Edmonson, 2006; Hennessy, Bleakley, Fishbein, & Jordan, 2009; L'Engle & Jackson, 2008) concerning sexuality and sexual relationships. As we have discussed, digital media combine traditional media content with peer-created content that reinforces these scripts and ideas.

Gender socialization, particularly for beliefs concerning dating and sex, is a powerful and salient aspect of early teen relationships that influences how teens think about, experience, and behave in relationships. Holding these stereotypical and traditional beliefs about gender norms and dating relationships is not without consequence, and has been associated with perpetrating dating violence in the off-line context. Feminist scholarship on dating violence and intimate partner violence more broadly has posited that as stereotypical gender roles and norms put men in power over women, violence against women is an attempt to maintain this status quo (e.g., Dobash & Dobash, 1979; Black & Weisz, 2003; Prospero, 2007). Boys who endorse stereotypical gender beliefs may utilize these beliefs in their interactions with girls, or learn to view relationships with girls through an adversarial lens, thus putting them at risk for perpetrating dating violence as a means of exerting power in relationships (Santana et al., 2006). Does the link between these beliefs and dating violence apply to digital forms of abuse?

Empirical research in this area has almost exclusively focused on men's endorsement of stereotypical gender beliefs and its association with male perpetration of violence against women. Holding traditional gender role attitudes has been associated with men's perpetration of violence against romantic partners (McCauley, Tancredi,

Silverman, Decker, Austin, McCormick, et al., 2013; Reed, Silverman, Raj, Decker, & Miller 2011; Stith, Smith, Penn, Ward, & Tritt, 2004; Tharp, DeGue, Valle, Brookmeyer, Massetti, & Matjasko, 2013); endorsing masculine gender roles has been positively associated with dating violence-supportive attitudes (Archer & Graham-Kevan, 2003; Brownridge, 2002; Lichter & McClosky, 2004; Reitzel-Jaffe & Wolfe, 2001); and masculine gender role stress has been associated with men's violence against women and gay men (Gallagher & Parrott, 2011; Jakupcak, Lisak, & Roemer, 2002; for a review see Baugher & Gazmararian, 2015). Conversely, greater endorsement of egalitarian beliefs about sex roles has associated with less endorsement of dating violence-supportive beliefs among men (Berkel, Vandiver, & Bahner, 2004).

Little research has focused on the association between stereotypical gender beliefs and dating violence among adolescents. Longitudinal research has attempted to establish the directionality of this association. In a longitudinal study of 1,759 middle school and high school adolescents, Foshee, Linder, MacDougall, and Bangdiwala (2001) found no association between gender role attitudes and dating violence perpetration (physical, sexual, and psychological abuse). However, a recent longitudinal study of 577 middle and high school boys found that endorsement of traditional gender role attitudes predicted later physical dating violence perpetration for boys with high levels of dating violence acceptance attitudes (Reyes, Foshee, Niolon, Reidy, & Hall, 2014). Both studies assessed gender stereotypes with 11 items adapted from the Attitudes toward Women Scale for Adolescents (Galambos, Petersen, Richards, & Gitelson, 1985) and a measure of stereotypes about girls by Gunter and Wober (1982). Does this association between traditional stereotypical gender beliefs and violence perpetration in relationships extend

to digital forms of violence? Because much of the research on gender beliefs and dating violence have focused on boys' use of violence, we will also explore this association for girls. In this way, the current study will make an important contribution to the literature; expanding knowledge on the association between gender beliefs and dating violence among adolescents, extending this research to girls' perpetration, and exploring these associations in a digital dating abuse context.

The Current Study

As literature on digital dating abuse emerges, we learn that the use of the Internet and cell phones to control, harass, pressure, or threaten a dating partner is a common and harmful experience in teen dating relationships. If we are to better understand and prevent these behaviors in teens' early relationships, it is important to explore individual factors that contribute to DDA perpetration. The scant literature on DDA has thus far focused primarily on correlates of DDA victimization (e.g. Bennett et al., 2011; Zweig et al., 2013b). The current study will examine the role of gender in DDA perpetration in two ways: first, by investigating the contribution of endorsing stereotypical gender and relationship beliefs on perpetrating digital dating abuse; second, by examining our hypothesized model separately by sex to explore whether these associations differ for high school girls and boys.

In this way, the study moves beyond research that looks only at sex differences in DDA victimization and perpetration rates. Gender has been shown to play a role in off-line forms of dating violence, as girls are often found to experience more severe violence and suffer greater consequences from victimization (Arriaga & Foshee, 2004; Foshee, Bauman, Linder, Rice, & Wilcher, 2007; Molidor & Tolman, 1998). But the role of

gender in abuse is more than the sex of those involved in the relationship; gender socialization greatly influences how teens think about, experience, and behave in relationships. Research has also found that holding stereotypical gender beliefs is associated with off-line forms of dating violence. Does this association extend to the digital media context? We hypothesize that consistent with studies on off-line dating violence, endorsing traditional beliefs about what it means to be a woman or a man in romantic relationships will influence both the likelihood to perpetrate DDA and the type of DDA tactics used to exert power and control over a dating partner.

Our primary research question was: **Does the endorsement of traditional stereotypical beliefs about gender and dating relationships predict the frequency and type of digital dating abuse perpetration among high school girls and boys?** We predicted that endorsing rigid, adversarial attitudes about gender roles in dating relationships would predict higher frequency of digital dating abuse perpetration (See Figure 1 to view our conceptual model). We examined this model for women and men separately.

Furthermore, we hypothesized that endorsement of gender beliefs would predict different patterns of DDA perpetration for girls and boys. The current study looked at the frequency of three types of DDA perpetration: digital direct aggression, digital sexual coercion, and digital monitoring/control. We anticipated that endorsement of gender beliefs would predict direct aggression and sexual coercion for boys, as these behaviors align with traditional stereotypical gender roles for boys and men. We expected that endorsement of gender beliefs among girls would predict monitoring/control behaviors,

in alignment with traditional gender stereotypes of female passivity and preoccupation with relationships.

Method

Design

We conducted a self-report cross-sectional survey study of 9th-12th grade students at a large Michigan suburban high school campus. This was a convenience sample, with effort taken to get a representative sample of students in various grade levels and enrolled in both required core curriculum courses and elective courses.

Procedure

Data were collected between December 2013 and March 2014. We recruited participants using convenience sampling among teachers. If teachers agreed to have their classes participate, we visited their classrooms prior to data collection to distribute paper and pencil parent/guardian consent forms. Students were instructed to bring forms home to their parent/guardian and returned a signed form before the day of participation. The parent/guardian consent form included a web address to access a copy of the student survey for their review. Parent/guardian consent (if participants were under the age of 18) and student assent were required for participation.

On the day of data collection, students met for class in a library media center. The principal investigator for this project was present for every day of data collection. Each student was seated at her/his own computer to receive study instructions, complete student assent forms, and take the computer-based online survey. Students who did not receive parent/guardian consent and/or chose not to participate were given another activity and seated separately from the study participants. The principal investigator

introduced the study procedures, passed our student assent forms, and was present throughout the session to answer questions. After completing the survey, students were given a debriefing form that included information about the study, contact information for the research team, and contact information for local and national resources for dating and sexual violence. The study took one day of class time (approximately 50 minutes). Students spent between 21 minutes to 50 minutes filling out the survey. Our recruitment efforts yielded a 67.28% response rate. Participation was voluntary and anonymous, and students received a \$5 gift card as compensation for their participation.

Participants

The sample included 947 valid completed surveys. A pilot study was first conducted with 54 of these students, and because only minor changes were made to the survey after piloting, these students were included in the final sample. There was a 93% completion rate for the survey, and participants who submitted partial surveys were included in the final sample. There were seven additional cases that were deemed invalid and removed. Exclusion criteria included students who experienced technical difficulties and began a new survey with a new ID number (so the first ID case was removed), and students who mistakenly began taking the survey for a second time.

Participants ranged in age from 13-19, and 91.6% of participants were age 14-17. The majority of participants identified as young women (56%) and reported their race/ethnicity as White (72.2%). Others identified as Black (7%), Asian (6.7%), Middle Eastern (4.7%), Latino/a (1.7%), and Multi-racial (5.6%). The sample included students from all grade levels with an underrepresentation of sophomore and juniors, as it was comprised of 29.3% freshmen, 12.8% sophomores, 20.1% juniors, and 29.2% seniors.

Some participants (12.7%) reported participation in a free or reduced lunch program. Almost all participants (96.2%) own a cell phone, 90.7% of cell phone users have a “smartphone,” and all have access to a home computer. Three quarters (74.2%) reported that they have had at least one dating partner, and 27.1% were currently in a dating relationship at the time of the survey. Two participants identify as transgender or gender queer, and 4.7% of girls and 2.2% of boys are in a relationship with or had their most recent relationship with a same-sex partner.

Measures

Demographics. Students were asked to report their age, gender identification, race/ethnicity, religiosity, whether they participate in a free or reduced lunch program (as a proxy for socioeconomic status), same-sex dating behavior, and whether they have access to digital media devices.

Digital Media Use. The survey included several measures of cell phone and Internet use, focusing on social media use.

Cell phone use and texting. Access to cell phones was assessed using two items. Participants were asked, “Do you have your own cell phone?” with response options “Yes” and “No.” If participants answered, “Yes,” they were then asked, “Does your cell phone have access to the Internet? (a ‘smartphone’)” with the response options “Yes” and “No.”

Frequency of text messaging was assessed through three items created for this study. Participants were asked, “On an average day, would you say you send or receive...” with a 7-point response scale ranging from “No text messages” and “1 to 10 text messages” to “More than 300 text messages.” There was also the option of “I don’t

know.” Participants with dating experience responded to, “How often do you/did you text message with your current/most recent dating partner on a typical day?” with a 6-point response scale ranging from “Never” to “Several times an hour.”

Internet and social media use. We examined access to computers with the item, “Do you have access to a computer at home?” with response options “Yes” and “No.” If participants responded, “Yes,” they were also asked, “Do you have your own laptop/tablet?” with response options “Yes” and “No.” We assessed general Internet use with three items. First, participants were given the prompt, “How often do you use the Internet? (on both computers and cell phones).” The prompt was followed by an item asking, “How many hours on a typical weekday do you spend social networking?” with response options ranging from “0” to “10+.” We asked participants to respond to two additional items inquiring about their social networking use on a typical Saturday and on a typical Sunday. Responses about weekday use were multiplied by five, and added to responses about weekend use to create a variable of “hours spent per week social networking.”

Participants responded to several items assessing their preferences and use of various social media. First, participants were asked, “How often do you use each of the following social media? (including logging on to check updates, posting, reading your feed, etc.).” Several popular social media sites were listed, including Facebook, Twitter, Snapchat, and Instagram. For each site, participants could select an option on an 8-point scale from “Never” to “Several times a day.”

Twitter involvement. Participants’ investment in Twitter use was assessed with a six-item measure adapted from the Facebook Intensity Scale (Ellison, Steinfield, &

Lampe, 2007) in which participants report how central Twitter is to one's social life. Example items included, "Using Twitter has become part of my daily routine" and "I would be sorry if Twitter shut down." To update the scale, we replaced "Facebook" with "Twitter" after survey pilot testing yielded feedback from high school students that Twitter was much more relevant to their social lives than Facebook. We also replaced two items ("I'm proud to tell people I am on Facebook" and "I feel that I am part of the Facebook community") with new items, "I feel like my social life would suffer if I were unable to use Twitter" and "Most of my friends have a profile on Twitter." Responses lie on a three-point Likert scale from "1" meaning, "disagree" to "3" meaning, "agree," and a mean of the six items was computed. Higher scores indicate greater personal investment in Facebook as a part of participants' daily life ($M = 2.12$; $SD = .51$; $\alpha = .81$).

Active Twitter Use. We assessed the extent to which participants post and upload content on Twitter using an eight-item measure adapted from the Active Facebook Use measure in Manago, Ward, Lemm, Reed, & Seabrook (in press). The prompt for this measure reads "How frequently do you..." with example items including "post pictures?" and "tweet?" Responses lie on a six-point Likert scale ranging from "1" meaning "Never" to "6" meaning "Several times a day." A mean for the eight items was computed such that higher scores indicate that the participant engages in more active Twitter use in an average visit ($M = 3.85$; $SD = 1.08$; $\alpha = .93$).

Dating experience. Dating partner was defined in this survey as "...ANY of the following: a boyfriend or girlfriend, someone you are a 'thing' with, someone you have dated or are currently dating (e.g., going out with without being supervised), someone who you like or love **and** spend time with, or a relationship that might involve sex." After

presenting this definition, participants were first asked, “Have you ever had a dating partner?” with response options “Yes” and “No.” If participants responded “No,” they were not given additional questions about dating and electronic intrusion experience, and were excluded from analysis in the current study. If participants responded, “Yes,” they were given additional items asking about their dating experience. We asked, “Are you CURRENTLY in a dating relationship?” with response options “Yes” and “No.”

If participants reported dating experience, they were asked follow-up questions about their current or most recent relationship. Participants in relationships at the time of the survey were asked, “How long have you been in this relationship?” with a 5-point response scale ranging from “Less than a month” to “More than a year.” We also asked participants who were NOT currently in a dating relationship the following two questions: “When did your last relationship end?” with a 6-point response scale ranging from “Less than a month ago” to “More than two years ago,” and “How long was your last relationship?” with a 5-point response scale ranging from “Less than a month” to “More than a year.” Finally, participants were asked to report, “What is the gender of your current/most recent dating partner?” with response options, “Young woman,” “Young man,” and “Transgender/gender queer.”

Stereotypical gender and relationship beliefs.

Attitudes Toward Women. The *Attitudes Toward Women Scale for Adolescents* (ATWSA; Galambos, Petersen, Richards, & Gitelson, 1985) is a 12-item scale designed to assess beliefs about appropriate roles for women. Example items include “On a date, the guy should be expected to pay for everything” and “It is all right for a girl to ask out a guy on a date” (reverse-scored). Participants rated each item on a six-point Likert scale

ranging from “strongly disagree” to “strongly agree,” and a mean of the 12 items was computed. Higher scores indicated more traditional beliefs about appropriate roles for women ($M = 2.45$; $SD = .76$; $\alpha = .80$).

Attitudes toward Men. The *Adolescent Masculinity Ideology in Relationships* scale (AMIRS; Chu, Porsche, & Tolman, 2005) is a 12-item scale that assesses beliefs about appropriate roles for men in the context of a social relationship. Example items include “Guys should not let it show when their feelings are hurt” and “It’s ok for a guy to say no to sex” (reverse-scored). Participants rated each item on a six-point Likert scale ranging from “*strongly disagree*” to “*strongly agree*,” and a mean of the 12 items was computed after reverse-coding the necessary items. Higher scores indicated more traditional beliefs about appropriate roles for men ($M = 2.39$; $SD = .79$; $\alpha = .84$).

Adversarial Sexual Beliefs. The *Adversarial Sexual Beliefs Scale* (AVSB) is a nine-item scale that measures the extent to which participants believe that opposite-sex relationships are inherently exploitative and adversarial. We used a modified adolescent version of the scale (Teten, Hall & Pacifici, 2005). Example items include “Guys are only out for one thing” and “Girls are sweet only until they get a guy.” Participants rated each item on a six-point Likert scale ranging from “strongly disagree” to “strongly agree,” and a mean of the 9 items was computed. Higher scores indicated stronger endorsement of adversarial sexual beliefs ($M = 2.67$; $SD = .72$; $\alpha = .73$).

Heterosexual script endorsement. The *Heterosexual Script Scale* (HSS) is an 18-item scale based on work by Kim, Sorsoli, Collins, Zylbergold, Schooler, and Tolman (2007), and assesses participants’ endorsement of several elements of traditional, gender-based scripts for courtship and male-female relations. The measure includes items

assessing endorsement of the sexual double standard, gender-specific courtship strategies, and gender-specific attitudes toward commitment. Many of the items in this scale were derived from the Attitudes Towards Dating and Relationships Measure (Ward & Rivadeneyra, 1999; Ward, 2002; Ward & Friedman, 2006). Example items include “The best way for a girl to attract a boyfriend is to use her body and looks” and “Guys should be the ones to ask girls out and to initiate physical contact.” Participants rated each item on a six-point Likert scale ranging from “strongly disagree” to “agree,” and a mean of the 18 items was calculated. Higher scores indicated stronger endorsement of the heterosexual script ($M = 3.39$; $SD = .79$; $\alpha = .87$).

Digital Dating Abuse. Digital dating abuse (DDA) was measured with a 36-item measure created for use in this study, modified from our previous DDA measure (Reed, Tolman, & Ward, in press). Participants responded to 18 victimization items and 18 perpetration items asking about parallel DDA behaviors. This study will focus on DDA perpetration, but for completeness, we will describe the measure in its entirety. The modified measure included slight modifications to our previous behavioral items, different response options, and asks participants to report on their experiences in their current or most recent dating relationship only. These modifications and the conceptualization of subscales were drawn from our own survey and focus group research, national surveys (e.g., Picard, 2007; The National Campaign to Prevent Teen and Unplanned Pregnancy and Cosmogirl.com, 2008; Tolman, 1999), and related measures (Barrajo et al., 2015b; Bennett et al., 2011; Zweig et al., 2013a).

For each of the 18 DDA victimization items, participants were given the following prompt: “USING THE INTERNET OR A CELL PHONE, MY

CURRENT/MOST RECENT DATING PARTNER...,” and example items included, “Pressured me to sext (sending a sexual or naked photo of myself)” and “Looked at my private information (text messages, emails, etc.) to check up on me without my permission.” Response options were a 4-point Likert scale from “Never” to “Very often.” For the perpetration portion, we gave participants the prompt: “Using the INTERNET OR A CELL PHONE, I...” and example items included, “Pressured my partner to have sex or do other sexual activities” and “Monitored my partners’ whereabouts and activities.” The victimization and perpetration items referred to the same behaviors, with the items re-worded to be appropriate for asking about victimization or perpetration.

Conceptual subscales included Direct Aggression Victimization ($\alpha = .81$), Direct Aggression Perpetration ($\alpha = .81$), Monitoring/Control Victimization ($\alpha = .83$), Monitoring/Control Perpetration ($\alpha = .76$), Sexual Coercion Victimization ($\alpha = .70$), and Sexual Coercion Perpetration ($\alpha = .67$) (Barrajo et al., 2015b; Reed, Tolman, & Ward, in press). Direct Aggression involved intentional digital behaviors meant to hurt, humiliate, or threaten a dating partner using the Internet or a cell phone. Example items include, “Sent me a threatening message” and “Posted a mean or hurtful PUBLIC message about my partner that others could see (such as a group text, Facebook wall post, subtweet, etc.)” Monitoring/control behaviors are the use of the Internet or cell phones to keep track of, intrude on the privacy of, and control the activities and relationships of a dating partner. Example items include, “Monitored my whereabouts and activities” and “Looked at my partners’ private information (text messages, emails, etc.) to check up on them without their permission.” Sexual coercion behaviors included pressuring a dating partner for on-line or off-line sexual behavior and engagement in unwanted distribution of sexual

images. Example items included “Pressured me to sext (sending a sexual or naked photo of myself)” and “Sent a sexual or naked photo or video of my partner to others without their permission.” These subscales were developed based on the validation of a measure of digital dating abuse behaviors created by Borrajo et al. (2015b) and our previous digital dating abuse measure. Borrajo et al. (2015b) validated a measure with two subscales: digital direct aggression and digital monitoring/control. Because our previous work indicated that sexual DDA behaviors were common among young adults, were associated with negative emotions for young women, and were associated with off-line physical, sexual, and psychological abuse, we also included a subscale of digital sexual coercion.

Results

Preliminary Analyses

All analyses were conducted only with those participants that have had dating experience. Participants who responded, “yes” to the item, “Have you ever had a dating partner?” were therefore included in our final sample of 703 participants (54.3% girls, *Mean age* = 16.40, 75.6% White). The distribution of participants in each grade level in this smaller sample mirrored the larger sample: 27.6% freshmen, 11.9% sophomores, 20.5% juniors, and 30.3% seniors. We then conducted preliminary analyses on the dating experiences and digital media use of these participants.

Of the 703 participants with dating experience, 36.4% were in a dating relationship at the time of the survey. Most participants reported heterosexual dating behavior, with 7.2% of girls and 5.2% of boys reporting same-sex dating behavior. We asked participants to focus on their current or most recent relationship for most items on

the survey. The length of these dating relationships varied; those currently in a dating relationship reported relationship lengths ranging from less than a month (18.4%), 1-3 months (19.9%), 3-6 months (13.3%), 6-12 months (17.6%), and more than a year (30.9%). Those reporting on a former dating partner reported that this relationship ended less than a month ago (13.5%), 1-3 months ago (14.6%), 3-6 month ago (16%), 6-12 months ago (21.4%), 1-2 years ago (25.7%), and more than two years ago (7.9%). These past relationships also varied in length from less than a month (16.7%), 1-3 months ago (36%), 3-6 months ago (20.9%), 6-12 months ago (14.6%), and more than a year ago (10.8%).

Participants were frequent users of a variety of digital media. Of the sample of 703 participants with dating experience, 96.2% own a cell phone, and 97.4% have access to a computer at home. Participants reported sending and receiving an average of 51-100 text messages per day, and spent an average of 22.41 hours per week using social media. Most participants reported that they text/texted their current or most recent dating partner frequently; 18.5% text daily, 26.1% text several times a day, and 40.2% text several times an hour. There were no gender differences in reported frequency of texting, but girls ($M = 19.44$ hours, $SD = 19.44$) spent more time per week on social media than boys ($M = 16.72$ hours, $SD = 16.72$), $t(689) = 7.39, p < .000$.

We also examined the frequency of use of four common types of social networking sites. Girls ($M = 4.23, SD = 2.72$) reported using Facebook more frequently than boys ($M = 3.42, SD = 2.72$), $t(678) = 3.961, p < .000$, girls ($M = 5.68, SD = 2.99$) used Twitter more frequently than boys ($M = 5.12, SD = 3.11$), $t(687) = 2.420, p = .016$, girls ($M = 5.78, SD = 2.69$) used Snapchat more frequently than boys ($M = 4.50, SD =$

2.88), $t(683) = 5.961, p < .000$, and girls ($M = 6.69, SD = 2.42$) used Instagram more frequently than boys ($M = 5.19, SD = 3.02$), $t(683) = 7.242, p < .000$. Girls also scored higher than boys on measures of involvement in Twitter and frequency of tweeting and sharing on Twitter. Girls ($M = 2.24, SD = .50$) reported more Twitter involvement than boys ($M = 1.98, SD = .50$), $t(459) = 5.571, p < .000$, and girls ($M = 4.19, SD = .91$) reported more active Twitter use than boys ($M = 3.44, SD = 1.13$), $t(457) = 7.864, p < .000$.

Bivariate Analyses

We conducted independent samples t-tests to examine sex differences on the primary variables of interest (see Table 1). There were significant sex differences on all variables except for DDA Direct aggression. Girls reported higher frequency of perpetration for DDA Monitoring/control, whereas boys reported higher frequency of perpetration of DDA Sexual Coercion. Boys scored higher on all four measures of stereotypical gender belief endorsement.

Zero order correlations were then run between several social media use variables, the four stereotypical gender belief scales, and the three DDA subscales (see Table 2). Although the social media use variables were not included in our hypothesized model, these tests give a fuller picture of how the digital media-rich context in which our participants experience DDA may be associated with our variables of interest. Of the common social media sites tested, more frequent Twitter and Instagram use appeared to be the most associated with endorsement of stereotypical gender beliefs, particularly among boys. For girls, more hours spent social networking per week was associated with endorsement of several types of stereotypical gender beliefs. There were also several

positive associations between Twitter involvement and Twitter active use and stereotypical gender beliefs among boys. DDA sexual coercion and DDA direct aggression perpetration were associated with social media variables for boys, whereas DDA monitoring/control was not strongly linked with social media variables for girls or boys. It is also of note that boys showed a stronger link between social media variables, stereotypical gender beliefs, and DDA perpetration despite girls' reporting higher levels of social media use across all variables.

We also conducted zero order correlations between the stereotypical gender beliefs measures and the DDA perpetration subscales for girls and boys. Several significant associations emerged (see Table 3). Associations were particularly strong between DDA Sexual coercion and DDA Direct aggression for boys. Both girls and boys showed positive associations between stereotypical gender beliefs (specifically, the Heterosexual Script Scale and the Adversarial Sexual Beliefs Scale) and DDA Monitoring/control. These associations were further tested using structural equation modeling.

Testing the Hypothesized Models

We sought to examine the association between stereotypical gender and relationship belief endorsement and perpetration of three types of digital dating abuse among high school girls and boys. We hypothesized that endorsement of stereotypical gender and relationship beliefs would be associated with DDA perpetration for both girls and boys, but that the pattern of contribution of beliefs to type of DDA perpetration may differ by sex. We also hypothesized that the link between endorsement of beliefs and DDA behaviors would be stronger for boys. Structural equation modeling (SEM) was

used to test the hypothesized model, with separate models tested for girls and boys. SEM was used to test whether multiple indicators of stereotypical gender/relationship beliefs contributed to three different types of DDA perpetration, and it allowed us to compare this model for girls and boys. We modeled “stereotypical gender/relationship beliefs” as a latent variable comprised of the mean scores from the Heterosexual Script scale, the Attitudes towards Women scale for Adolescents, the Adolescent Masculine Ideology in Relationships Scale, and the Adversarial Sexual Beliefs Scale. We expected the latent variable of stereotypical gender/relationship beliefs to affect the frequency of perpetration of DDA Sexual coercion, DDA Direct aggression, and DDA Monitoring/control. Models were estimated using full information maximum likelihood to allow for missing data. All models were estimated using Stata v13.1.

Bivariate zero order correlations were conducted to determine the appropriate demographic controls for each model. The following variables were tested as potential demographic correlates: age, participation in a free/reduced lunch program, grade point average, religiosity, ethnic/racial identification (with 0/1 dummy codes for White, Black, Latino/a, Asian, Middle Eastern, Native American, and Multi-racial), and same-sex dating behavior. Only demographic correlates that were significantly associated with all four manifest variables comprising the gender/relationship belief latent variable were included in the model as controls. Variables correlated with all three DDA perpetration manifest variables were also included as controls.

DDA perpetration frequency was also strongly positively associated with DDA victimization frequency in this sample, as it is in other research on this topic (e.g. Reed, Tolman, & Ward, in press; Zweig et al. 2013a). Because we were interested in predicting

the contribution of gender beliefs to DDA perpetration beyond its possible influence on DDA victimization, we controlled for DDA victimization for all three types of DDA perpetration. In the girls' model, DDA victimization frequency and age served as controls for corresponding DDA perpetration variables, and identifying as Black controlled for girls' endorsement of stereotypical gender/relationship beliefs. In the boys' model, identifying as Black and same-sex dating behavior served as controls for boys' stereotypical gender/relationship belief endorsement.

The comparative fit index (CFI) and root mean square error of approximation (RMSEA) were used to assess model fit. A CFI greater than .90 indicates a model with good fit, and a CFI greater than .95 indicates a model with excellent fit (Hu & Bentler, 1999). An RMSEA less than .06 indicates a model with excellent fit (Hu & Bentler, 1999). Model fit improvement utilized modification indices. The hypothesized model (see Figure 1) was tested for girls and then for boys, including appropriate controls for each.

The model tested for girls is shown in Figure 2. For clarity, measurement pathways and error terms are not shown. To view the full model, see Appendix B. In the structural model we allowed our measures of DDA perpetration type to correlate because we expected that each type of DDA perpetration would be related to the others. All measurement pathways were significant. The model for girls showed a good fit to the data (CFI = .961, RMSEA = .051). Identifying as Black was significantly associated with endorsement of stereotypical gender/relationship beliefs ($\beta = .19, p = .001$). Age was also significantly associated with all three types of DDA, such that as age of girls increased, frequency of DDA Direct aggression perpetration ($\beta = .16, p < .000$), DDA Sexual

coercion perpetration ($\beta = .19, p < .000$), and DDA Monitor/control perpetration ($\beta = .11, p = .015$) also increased. DDA victimization variables were strongly associated with all corresponding types of DDA perpetration. Examination of hypothesized individual pathways yielded significant associations between endorsement of stereotypical gender/relationships beliefs and DDA Sexual coercion ($\beta = .13, p < .000$) and DDA Monitor/control ($\beta = .20, p < .000$). For girls, endorsement of stereotypical gender/relationships beliefs contributed to digital sexual coercion and digital monitoring/control perpetration in a current or most recent dating relationship.

The model for boys also fit the data well (CFI = .928, RMSEA = .077) as shown in Figure 3. To view the full model with measurement pathways and error terms, see Appendix C. Identifying as Black was associated with greater endorsement of stereotypical gender/relationship beliefs ($\beta = .13, p = .025$), and reporting same-sex dating behavior was associated with less endorsement of stereotypical gender/relationship beliefs ($\beta = -.27, p < .000$). All three DDA victimization frequency control variables were strongly associated with their corresponding DDA perpetration frequency variables. For the individual hypothesized paths, endorsement of stereotypical gender/relationships beliefs was associated with greater frequency of DDA Direct aggression ($\beta = .14, p = .020$) and DDA Sexual coercion ($\beta = .18, p = .003$).

Therefore, consistent with our hypothesized model, endorsing more stereotypical beliefs about gender was associated with greater frequency of DDA perpetration for both the girls and boys. However, the associations between beliefs and DDA behaviors showed a slightly different pattern by sex. Endorsement of stereotypical gender/relationship beliefs was associated with digital sexual coercion for both girls and

boys. For boys, gender beliefs were also associated with perpetration of digital direct aggression, and for girls, gender beliefs were associated with perpetration of digital monitoring/control.

Discussion

This study sought to investigate whether stereotypical gender beliefs predict digital dating abuse perpetration against a dating partner in high school dating relationships. We measured stereotypical gender beliefs endorsement with four different but related measures of stereotypical gender and dating beliefs. We examined three types of digital dating abuse perpetration: digital direct aggression, digital sexual coercion, and digital monitoring/ control. Using structural equation modeling, we tested our hypothesized model (see Figure 1) for girls and boys separately. Results largely supported our hypotheses; endorsement of stereotypical gender/relationship beliefs predicted frequency of DDA perpetration for girls and boys. As we anticipated, gender beliefs also predicted different patterns of DDA perpetration for girls and boys. For girls, gender belief endorsement was associated with perpetration of digital sexual coercion and digital monitoring/control. For boys, gender belief endorsement was associated with perpetration of digital sexual coercion and digital direct aggression.

We found support for our hypothesized model, that endorsement of traditional gender/relationships beliefs was associated with DDA perpetration for girls and boys. In this way, we contribute to the literature by providing evidence that traditional gender beliefs contribute to dating violence among high school students, and that this association extends to digital forms of abuse. These findings support previous work that indicated that stereotypical gender beliefs are reproduced and performed via digital media, and that

these beliefs and norms influence dating behavior. Therefore, both gender of the perpetrator and beliefs about gender, dating, and heterosexual relationship norms can lead to problematic and harmful dating behaviors.

Past research focused on associations between traditional gender beliefs and perpetration of dating violence among adolescent boys (Reyes et al., 2014; Sears et al., 2007). We have replicated these findings in the digital media context for both boys and girls, lending support to the emerging DDA literature that has linked on-line and off-line abuse (Epstein-Ngo et al., 2014; Reed, Tolman, & Ward, in press; Zweig et al., 2013a). Girls have been found in many studies to perpetrate DDA at similar rates to boys (with the exception of digital sexual behaviors), but may experience more distress and consequences from DDA victimization than boys (Bennett et al., 2011; Reed, Tolman, & Ward, in press; also see Chapter 1) and perpetrate DDA for different reasons (Lucero et al., 2014). Because girls do engage in DDA behavior, it is important to examine predictors of their perpetration, and to also continue to explore gender dynamics in the motivation, experience, and consequences of DDA.

Association between gender belief endorsement and digital sexual coercion

Although we predicted that girls' and boys' beliefs would predict different DDA types according to traditional gender roles in dating relationships, we did not expect that endorsement of these beliefs would be associated with digital sexual coercion for girls. It should be noted that digital sexual coercion perpetration among girls was low, and boys were much more likely to perpetrate this type of DDA. However, this association remains a surprising finding, because stereotypical gender beliefs would dictate that girls are to be sexually appealing to men, but not initiate or pursue sexual activity.

One possible explanation for this finding could lie in the items included in the digital sexual coercion measure. Two items involve pressure for sexual behavior: “Pressured my partner to sext” and “Pressured my partner to have sex or do other sexual activities.” These items run counter to traditional gender roles for women. However, the other two items: “Sent a sexual or naked photo of myself to my partner that they did not want/ask for” and “Sent a naked photo or video of my partner to others without permission” are not as obviously transgressive of stereotypical behaviors for girls in dating relationships. The frequency of reports for the items in the digital sexual coercion subscale support this notion (see Chapter 1, Table 1). For example, 6.3% of girls and 22.2% of boys reported the behavior “Pressured my dating partner to sext;” 5.8% of girls and 18.8% of boys reported the behavior “Pressured my dating partner to have sex or do other sexual activities.” More boys than girls are reporting these “pressure” behaviors. Conversely, 9.2% of girls and 8% of boys reported that they “Sent a sexual/naked photo that the partner did not want/ask for;” and 3.7% of girls and 8% of boys reported that they “Sent a naked photo or video of my partner to others without permission.” Girls were less likely overall to report digital sexual coercion, and boys appear, at first glance, to be more likely to engage in “pressuring” behaviors than sending or distributing photos.

Sending sexual or naked photos without invitation might serve different functions for girls and boys, as girls might use sext messages to try and elicit attention from their partner or to appear more sexually appealing. Indeed, survey research on sexting has found that girls and boys are equally likely to sext, and they are typically sexting dating partners or desired dating partners (Lenhart, 2009). Research on sexting has revealed considerable pressure for girls to send sext messages, although girls are often socially

judged harshly whether they send sext messages or not (Lippman & Campbell, 2014; Ringrose, Gill, Livingstone, & Harvey, 2012) and they experience more distress from being involved in sexting exchanges (Livingstone & Gorzig, 2012; Reed, Tolman, & Ward, in press). Future research should investigate girls' and boys' motivations to send sext messages to dating partners, and could differentiate between digital sexual behaviors that involve pressure and those that involve unwanted sexual messages or sexual messages distribution.

Sex differences in associations between gender beliefs and DDA perpetration

Patterns of association between endorsement of gender/relationship beliefs and type of DDA perpetration did differ between the girls' and boys' models. With the exception of digital sexual coercion perpetration for girls, these patterns largely fell along gendered lines: with higher endorsement of gender/relationship beliefs, girls were also more likely to perpetrate digital monitoring/control, and boys were more likely to perpetrate digital sexual coercion and digital direct aggression. These results support feminist scholarship that situates dominant cultural gender norms, beliefs, and inequality as key factors that contribute to dating violence (Black & Weisz, 2003; Prospero, 2007). With this perspective, dating violence is used to maintain the status quo of gender inequality, allowing boys to exert power over girls in heterosexual relationships. Socialized gender roles teach boys to be assertive, aggressive, and in power, whereas girls are taught to be passive, people pleasing, and balance being sexually desirable but not sexually active.

Our results show that when high school girls and boys endorse these beliefs, they use different DDA tactics to exert control in their relationships. Boys are more likely to

use aggressive, hostile, and sexually coercive tactics. Girls are more likely to use more passive monitoring behaviors, perhaps as a means of exercising possessiveness and ensuring fidelity. These findings are important for understanding the dynamics of how off-line and on-line gender beliefs are reproduced in dating relationships, and how interventions aimed at reducing various DDA behaviors might address stereotypical gender/relationship beliefs.

Correlations between social media variables, gender beliefs, and DDA perpetration

The bivariate results of the current study also contribute to our understanding of the relationship between digital media use, gender beliefs, and DDA perpetration among girls and boys. The zero order correlations show a stronger link between social media variables, gender belief endorsement, and frequency of DDA perpetration for boys than girls. The links are particularly strong between boys' social media use and stereotypical gender beliefs. There were also significant links found between boys' social media use and digital sexual coercion and digital direct aggression. For girls, there were more sporadic associations between social media variables and gender beliefs, and few associations between social media variables and DDA perpetration.

Although not included in the structural equation models in the current study, these results suggest that type, frequency, and involvement with social media are associated with gender beliefs and DDA perpetration for boys, in particular. It is especially noteworthy that the link between social media variables, gender beliefs, and DDA perpetration is so strong for boys when girls scored significantly higher than boys on all social media variables studied. If boys are using less social media than girls, perhaps the media content they are exposed to has a greater influence on their beliefs and behaviors.

These findings could be related to the way that boys interact with dating partners online, their motivations for using social media, or the social media content that they are engaged with. Future research could test models that include social media variables as additional predictors of DDA perpetration. Additionally, research could investigate whether gender/relationship beliefs may mediate the relationship between social media use and DDA perpetration.

Limitations

The current study made a significant contribution to the digital dating abuse literature, finding that endorsement of stereotypical gender/relationship beliefs contributes to DDA perpetration among high school girls and boys. However, the study has limitations that should be considered when interpreting these results. The structural equation models were conducted using cross-sectional data. Therefore, the results present associations between variables rather than directionality or causation. Longitudinal research, like that of Reyes et al. (2014), could elucidate directionality of these relationships. Additionally, DDA perpetration was measured using self-report, and could therefore have been subject to biases including social desirability bias. Future research may look to multiple sources of data on digital dating abuse behavior, including interviews, and peer, parent, and teacher reports. We also have raised concerns about our measure for digital sexual coercion, as it is possible that the items involving “pressuring” a partner for sexual behavior rather than “sending or distributing” sexual images may function differently for girls and boys in relation to stereotypical gender/relationship beliefs.

Finally, because our sample was mostly white, heterosexual high school students from a suburban area of Southeast Michigan, we cannot generalize to other populations. Although we controlled for identity variables that were significantly associated with variables in our models, future research should recruit larger samples to conduct between and within group comparisons among ethnic/racial minority adolescents and sexual minority adolescents. The measures we used to assess endorsement of gender/relationship beliefs are likely not sensitive to cultural difference and to potential differential gender socialization by race. Previous research has also suggested that sexual minority youth are more at risk for experiencing DDA than heterosexual youth (Dank, Lachman, Zweig, & Yahner, 2014). As youth who engage in same-sex dating behaviors are transgressing stereotypical dating norms, it is not surprising that they are less likely to endorse them. Future research focused on sexual minority youth and youth who engage in same-sex dating behavior could uncover other possible predictive factors that contribute to DDA perpetration.

Conclusion

This study found that endorsement of stereotypical gender/relationship beliefs was associated with perpetrating multiple types of digital dating abuse for adolescent girls and boys. We also found that the association between gender/relationship beliefs and type of DDA perpetration differed for girls and boys. These findings support that gender of the perpetrator and their socialized beliefs about gender are both salient ways in which gender influences the experience of DDA in adolescents' relationships. This study was one of the first to apply research on the association between gender beliefs and dating violence perpetration to the digital media context, and to examine these links for

both girls and boys. These results have implications for the prevention of digital dating abuse and dating violence more broadly, as DDA behaviors are likely to exist in a constellation of aggressive and abusive dating behaviors. Effective prevention work can target beliefs about gender roles and norms for heterosexual dating relationships as a means for preventing on-line and off-line dating violence, along with targeting norms supporting violence (Reyes et al., 2014).

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Table IV.1. *Sex differences in primary variables of interest*

	Girls mean (SD)	Boys mean (SD)	T-test statistic
DDA Monitoring/Control	.31 (.44)	.24 (.42)	2.14*

DDA Direct Aggression	.14 (.21)	.15 (.33)	-.53
DDA Sexual Coercion	.09 (.23)	.22 (.43)	-5.21***
HSS	3.22 (.77)	3.58 (.76)	-6.12***
ATWSA	2.11 (.59)	2.86 (.73)	-14.90***
AMIRS	1.97 (.50)	2.90 (.77)	-19.87***
AVSB	2.47 (.67)	2.91 (.70)	-8.48***

Note. * $p < .05$, ** $p < .01$, *** $p < .000$. HSS = Mean of Heterosexual Sexual Script Scale, ATWSA = Mean of Attitudes Towards Women Scale for Adolescents, AMIRS = Mean of Adolescent Masculine Ideology in Relationships Scale, AVSB = Mean of Adversarial Sexual Beliefs Scale.

Table IV.2. Zero order correlations between social media variables, stereotypical gender belief endorsement, and digital dating abuse subscales.

	HSS	ATWSA	AMIRS	AVSB	Sexual Coercion	Direct Aggression	Monitor/Control
Facebook							
Girls	-.04	-.00	-.01	-.03	.02	.13*	.11*
Boys	-.06	-.11	-.20**	-.11	.11	.02	.04
Twitter							
Girls	.15**	.11*	.09	.10	-.00	.07	.03
Boys	.23***	.26***	.22***	.10	.11	.14*	.04
Snapchat							
Girls	.05	.01	.05	.08	-.02	.09	.02
Boys	.12*	.18**	.08	.10	.18**	.17**	.06
Instagram							
Girls	.14**	.13*	.04	.02	.04	.07	.08
Boys	.19**	.26***	.22***	.17**	.09	.17**	.09
Hours spent SN							
Girls	.17**	.23***	.07	.19***	-.02	.05	.05
Boys	.04	.03	-.02	.06	.16**	.11	.08
Twitter Involvement							
Girls	.17**	.06	.08	.13*	-.02	.12	.02
Boys	.34***	.23**	.26***	.21**	.14*	.11	.05
Twitter Active							
Girls	.18**	.03	.01	.08	-.03	.03	.06
Boys	.23***	.17*	.15*	.20**	.14*	.21**	.13

Note. * $p < .05$, ** $p < .01$, *** $p < .000$. Facebook = Mean frequency of Facebook use, Twitter = Mean frequency of Twitter use, Snapchat = Mean frequency of Snapchat use, Instagram = Mean frequency of Instagram use, Hours spent SN = Hours spent per week on social networking sites, Twitter Involvement = Mean score on Twitter involvement scale, Twitter Active Use = Mean on Twitter Active Use scale.

Table IV.3. Zero-order correlations between stereotypical gender beliefs and digital dating abuse subscales.

	DDA Sexual Coercion	DDA Direct Aggression	DDA Monitoring/control
HSS			
Girls	.09	.08	.25***
Boys	.20***	.17**	.12*
ATWSA			
Girls	.04	-.04	.09
Boys	.15*	.16**	.10
AMIRS			
Girls	.09	.06	.07
Boys	.11	.14*	.09
AVSB			
Girls	.13*	.04	.17**
Boys	.20**	.16**	.12*

Note. * $p < .05$, ** $p < .01$, *** $p < .000$. HSS = Mean of Heterosexual Sexual Script Scale, ATWSA = Mean of Attitudes Towards Women Scale for Adolescents, AMIRS = Mean of Adolescent Masculine Ideology in Relationships Scale, AVSB = Mean of Adversarial Sexual Beliefs Scale.

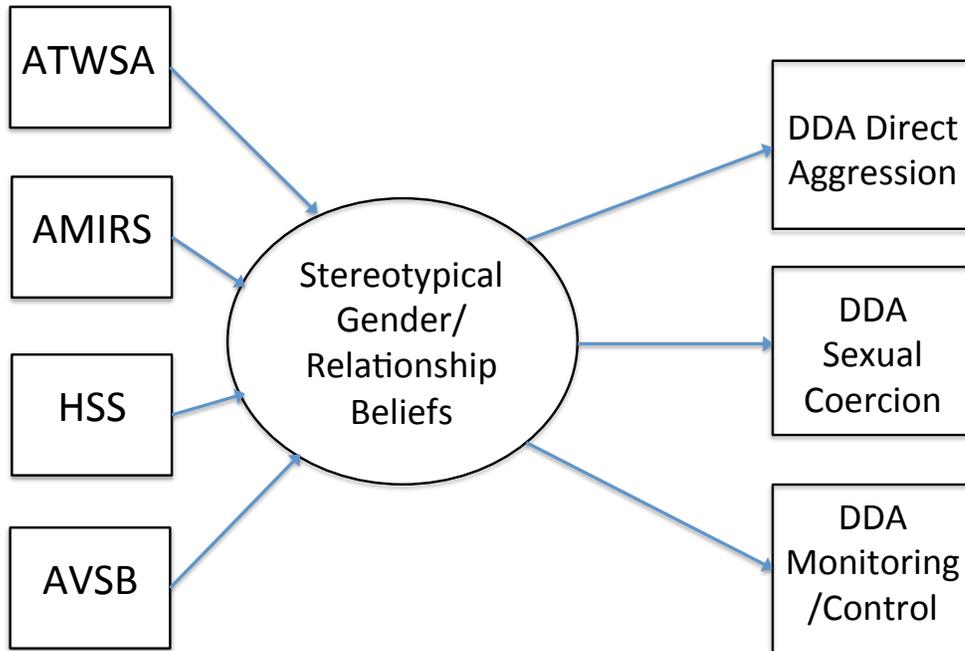


Figure IV.1. Hypothesized conceptual model

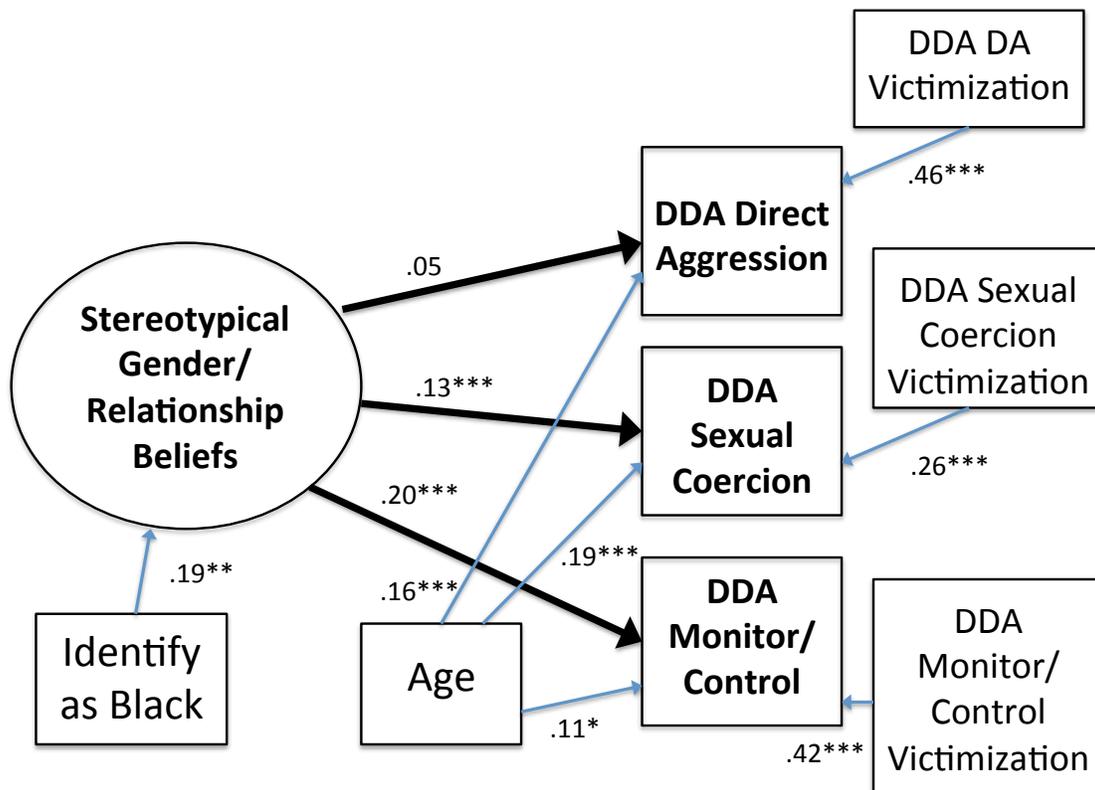


Figure IV.2. Structural equation model for the association between stereotypical gender and relationship belief endorsement and three types digital dating abuse perpetration among high school girls.

Note. * $p < .05$, ** $p < .01$, *** $p < .000$, Model for 382 girls with dating experience. Measurement pathways and error terms not shown. RMSEA = .051, CFI = .961

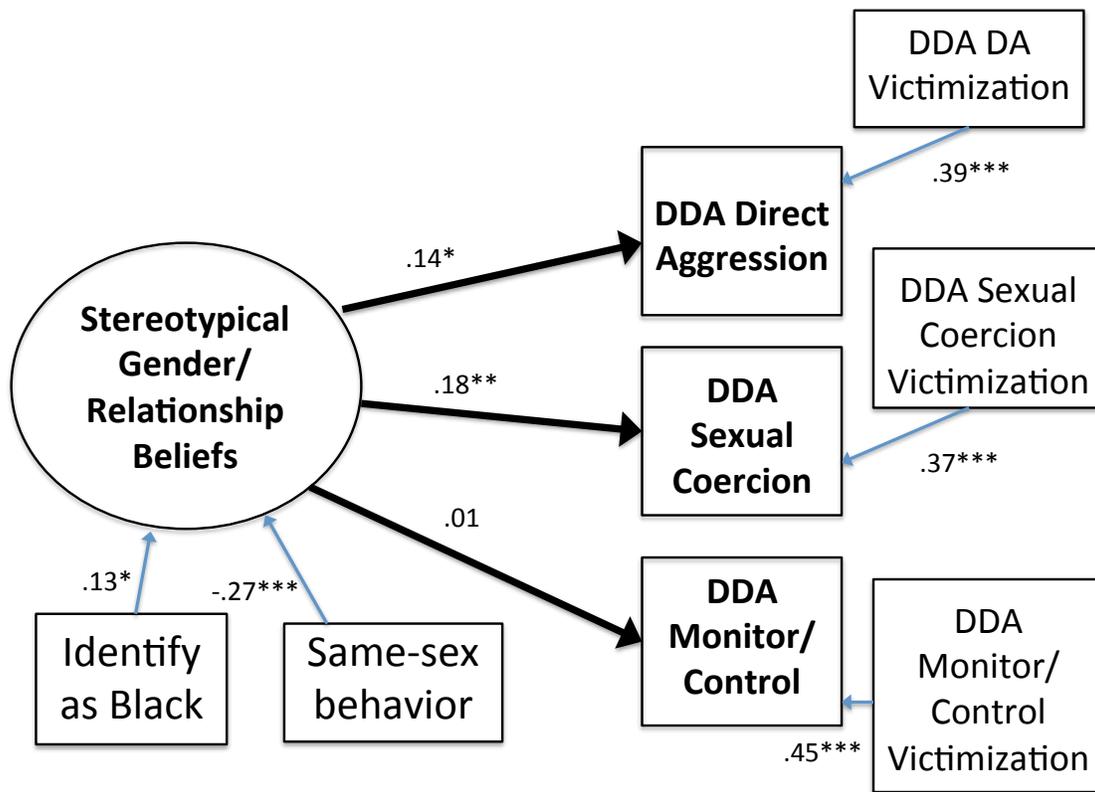


Figure IV.3. Structural equation model for the association between stereotypical gender and relationship belief endorsement and three types digital dating abuse perpetration among high school boys.

Note. * $p < .05$, ** $p < .01$, *** $p < .001$. Model for 314 boys with dating experience. Measurement pathways and error terms not shown. RMSEA = .077, CFI = .928.

CHAPTER V

Discussion

This dissertation project made several significant contributions to the emerging literature on digital dating abuse (DDA), or the use of the Internet or cell phone to harass, threaten, pressure, or coerce a dating partner (Futures without Violence, 2009; Reed, Tolman, & Ward, in press). The central question driving this dissertation was: *How do digital media (cell phones and Internet) function as a gendered, co-constructed space for problematic dating behaviors and dating violence for high school students?* Across three papers, I explored the role of gender and contextual factors on DDA victimization and perpetration in a sample of 703 high school students with dating experience. Consistent with my hypotheses, results showed sex differences in the experience and consequences of DDA victimization, and showed that both attachment anxiety and endorsement of stereotypical gender/relationship beliefs contributed to various types of DDA perpetration among girls and boys. Indeed, digital media were shown to be a gendered space in which both the gender of the participant and their beliefs about gender and romantic relationships shaped their DDA experiences.

Summary of findings

In Study 1, I introduced a measure of DDA to assess three types of DDA victimization and perpetration: digital sexual coercion, digital direct aggression, and digital monitoring/control. This measure was novel in that I asked participants about several aspects of their DDA experience: the frequency of various DDA behaviors in their current or most recent relationship, whether they were upset by the most recent incident of each type of victimization, and their emotional and behavioral responses to

victimization experiences. In this way, I began to look beyond the frequency of DDA behaviors in adolescents' behaviors to present a fuller and more accurate picture of the impact of DDA experiences on adolescents' lives. Consistent with previous literature, digital monitoring/control behaviors were the most commonly reported victimization type among girls and boys, and girls experienced more frequent digital sexual coercion than boys. This study also investigated, beyond frequency, how girls and boys interpret and experience DDA victimization. We found that girls were more upset by every type of DDA victimization, and reported more negative emotional and behavioral responses to DDA victimization than boys. Girls and boys may experience the same DDA behaviors, but have a very different experience.

Study 2 focused more closely on digital monitoring/control, the most commonly reported type of DDA behavior in Study 1 and other previous research (e.g., Bennett, Guran, Ramos, & Margolin, 2011; Borrajo, Gámez-Guadix, & Calvete, 2015; Reed, Tolman, & Ward, in press). Who is more likely to engage in digital monitoring/intrusion behaviors? To investigate one possible individual difference factor, this study examined associations between romantic attachment insecurity (anxiety and avoidance) and frequency of perpetration of digital monitoring/control. In this study, digital monitoring/control behaviors were called "electronic intrusion" behaviors to be consistent with our previous study with a college student sample (Reed, Tolman, & Safyer, 2015). Study 2 sought to replicate the college student study in which we found an association between levels of attachment anxiety and electronic intrusion perpetration. Study 2 extended this research by studying high school student digital dating relationships, expanding the measure of electronic intrusion, and adding additional

relationship characteristic variables as covariates. The results successfully replicated our previous findings for both girls and boys; levels of attachment anxiety were associated with frequency of electronic intrusion perpetration, even after controlling for demographics, relationship characteristics, social media use, and electronic intrusion victimization. Therefore, this study supported our theory that digital media can, especially for anxiously attached dating partners, both trigger and perpetuate a “cycle of anxiety.”

Finally, Study 3 continued to explore individual factors in DDA perpetration by examining the contribution of socialized stereotypical beliefs about gender and heterosexual relationships to the frequency of digital direct aggression, digital sexual coercion, and digital monitoring/control perpetration. Separate structural equation models were tested for girls and boys, comparing the patterns of association between beliefs and perpetration of each type of DDA perpetration. I found support for my hypothesized model; endorsement of stereotypical gender/relationship beliefs were associated with perpetration of DDA for both girls and boys. However, girls’ and boys’ beliefs predicted different types of DDA perpetration, and interestingly, these patterns largely corresponded to stereotypical gender norms. Boys were more likely to endorse gender/relationship beliefs overall, and their beliefs predicted digital sexual coercion and digital direct aggression. Girls’ beliefs predicted both digital sexual coercion and digital monitoring/control.

Implications for the gendered nature of digital dating abuse

These studies indicate that although digital dating abuse is experienced and perpetrated by both girls and boys in high school dating relationships, the experience of

and motivation for DDA differs significantly by gender. Study 1 found that gender is a salient factor in the experience of DDA victimization. Reports of frequency and prevalence are insufficient to understand the gender dynamics of DDA, and only tell a piece of the story. When girls experience DDA in their dating relationships, they are more likely than boys to be distressed and suffer emotional and behavioral consequences from these experiences. Specifically, they are more likely to be sad or upset and to change their behavior (e.g., avoiding their partner, blocking their partners' number on their phone, telling someone that the incident occurred) as a result of victimization.

Previous research found that college women reported more anticipated distress when considering DDA victimization (Bennett et al., 2011). The findings from Study 1 replicate this finding with actual distress experienced from DDA behaviors in high school relationships. These results also speak to the broader debates in the dating violence literature. The gendered nature of DDA and other forms of intimate partner violence are often centered on arguments over the meaning of similar prevalence rates for girls/women and boys/men. Feminist perspectives on dating violence and intimate partner violence argue that girls and women are differentially impacted by dating violence, in that girls and women often experience more severe abuse, more injuries as a result of abuse, and suffer worse emotional consequences from abuse (e.g. Kimmel, 2002; Molidor & Tolman, 1998; Sears, Byers, & Price, 2007). Study 1 applied these ideas to the digital media context, finding disparities in the emotional experience and consequences of digital dating abuse that mirror these findings for off-line abuse. Indeed, moving beyond “behavioral checklists” of frequency of abuse is a promising direction for research on both off-line and on-line abuse.

Individual differences in DDA perpetration

Studies 2 and 3 find evidence for significant individual difference factors that, in tandem with considerations of gender, contribute to DDA perpetration. Previous literature showed that DDA was a common occurrence in adolescent dating relationships. Which adolescents are more likely to engage in these behaviors? What factors might predict their frequency and type of perpetration? Across the two studies, individual differences in attachment anxiety and endorsement of gender/relationship beliefs were associated with DDA perpetration.

As a next step, future research could consider how attachment insecurity and gender/relationship beliefs endorsement interact to contribute to harmful digital dating behaviors. For example, some research has found a link between attachment insecurity and masculine gender role stress, or the distress men and boys may experience when they believe they are not conforming to society's expectations for men. Researchers have posited that for men experiencing masculine gender role stress with high levels of attachment avoidance, using violence against a dating partner may be a means of gaining control in relationships. For men experiencing masculine gender role stress with attachment anxiety, violence may be used to alleviate their emotional distress (McDermott & Lopez, 2013). Some empirical research has supported this theory (Mahalik, Aldarondo, Gilbert-Gokhale, & Shore, 2005; McDermott & Lopez, 2013). Might gender role stress and attachment insecurity also contribute to digital forms of dating violence? How might these associations function for girls?

Co-occurrence of DDA victimization and perpetration

The results across the three studies support that DDA victimization and perpetration often co-occur in high school dating relationships. DDA victimization and perpetration were strongly associated for both girls and boys, and DDA victimization was a significant predictor of DDA perpetration in both Studies 2 and 3. In fact, victimization was the strongest predictor of perpetration compared to other variables of interest in these studies. It is important to recognize that the likelihood for adolescents involved in DDA to report both victimization and perpetration behaviors is high; however, as we have shown in these three studies, not all DDA experiences are equal. If girls are experiencing more distress and more severe emotional and behavioral consequences than boys, these experiences may be more of a concern for their mental and physical well-being.

Another possible reason for the high rate of co-occurrence in this and other research could be that many of the behaviors included in DDA measures may not be problematic when experienced in isolation or in circumstances when behaviors are interpreted by the victim as welcomed, benign, or mildly annoying behavior. Concern is raised when adolescents are experiencing a repeated pattern of digital dating abuse behaviors, and/or are interpreting and experiencing these behaviors as distressing or threatening. As we have discussed in Studies 2 and 3, DDA perpetration may also be more complex than it appears. Perpetration may be motivated by a desire to alleviate attachment anxiety for girls or boys, and in Study 2, girls scored higher than boys on attachment anxiety. As discussed in Study 3, girls may perform traditional gender roles by engaging in digital monitoring/control behaviors as a means of fidelity assurance or relationship maintenance, or engage in “sexting” to appear more sexually appealing.

Future research should prioritize detangling the dynamics of motivation, intention, experience, and consequence of presumed “reciprocal” digital dating abuse.

Implications for practice and prevention

These dissertation studies arose out of my practice experiences with adult domestic violence survivors and teen members of youth-led dating violence prevention programs. In these settings, there was an expressed need from clients and practitioners for digital dating abuse to be recognized as a form of gendered violence that was impacting both teen and adult survivors. However, the research and practice knowledge on digital forms of abuse was extremely limited. The focus on gender in this dissertation was motivated by a desire to bring the voices of my clients and teen collaborators to this emerging literature; they were experiencing the gendered consequences and social implications of digital dating abuse, and wanted to know if these experiences were “normal” or widespread. The results of this dissertation suggest that DDA is indeed a widespread issue for adolescents and that digital dating exists in and is influenced by a larger culture that reinforces rigid gender norms and stereotypes about women and men in relationships.

Therefore, I think this dissertation has several implications for practice and prevention. First, it can serve to normalize DDA experiences for victims, frame DDA as a problematic form of abuse, and provide vocabulary to describe adolescents’ distressing digital dating abuse experiences. It can validate girls’ experiences of personal and social consequences suffered from DDA, despite the dominant narrative that both girls and boys engage in these behaviors equally. Study 1 evaluated which types of DDA are most and least distressing for adolescents (especially girls), giving practitioners and educators a

guide for assessing the many way that digital media may be used as tools for abuse for adolescents. Study 2 posited that digital dating may be more anxiety provoking for some adolescents than others, and provides a point of intervention for preventing a cycle of electronic intrusion that could escalate to control, possessiveness, and abuse. Study 3 supported and can inform prevention work that challenges dominant cultural messages about gender roles, heterosexual relationship scripts, and stereotypes about women and men to prevent dating violence. Finally, all three studies taken together emphasized the importance of incorporating digital media into existing dating violence prevention efforts. Work aimed at promoting healthy dating relationships should incorporate communication and negotiation around digital media boundaries as an important relationship skill.

The results from this dissertation were used to inform the development of a pilot program for youth-led dating violence and sexual assault prevention in the school where these data were collected. Digital forms of abuse, gender, and the implications of digital media for dating and sexual violence were emphasized in all the work we did in this program. In addition to focusing on digital media as a space for dating and sexual violence to occur, digital media can also be used as a tool for prevention. Future work could also explore the positive uses of digital media to provide information and resources to teens, to provide platforms for youth to connect for prevention efforts, and act as spaces for social media campaigns.

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APPENDICES

APPENDIX A

Narrative of collaboration with the three high schools, survey design, and pilot testing

For this dissertation research, we designed and implemented a survey study about digital dating abuse at three large local high schools. In this section I will provide a narrative of the process we took to collaborate with these schools to conceptualize and implement this project, the first phase of which was the survey study.

When a teacher contacted me for help in January 2013 when several students reported being pressured to send sexual text messages (“sexting”), I volunteered to present workshops on DDA and the creation of healthy “digital boundaries” in relationships. After attending one of these workshops, the school principal became interested in how my research might be helpful in moving from a reactive case-by-case school response to DDA towards changing school culture and focusing on prevention. The survey study is part of a larger project focused on raising the awareness of and prevention of dating and sexual violence in these three high schools, and this context is relevant to understanding my approach to this project as a marriage of research scholarship, practice, and community-based intervention.

Rich Tolman and I met with the three high school principals in March 2013 to discuss our research collaboration. The principals were very interested in the topics of digital dating abuse, dating violence, bullying, and cyberbullying among their students. They were interested in a survey study that would tell them “the numbers,” or an estimate of the scope of these issues in their school community. They were also interested in what action might result from the survey study, and were concerned that about the possibility

that our research team would “collect data and leave.” Instead, they wanted to use the survey results to inform prevention programming in their schools, although they did not elaborate on what this might look like. This type of collaboration, with an aim towards prevention, aligned well with our goals. Based on the discussion in this meeting, I drafted a research proposal. In July 2013 the principals gave us feedback on this proposal, including small changes that would ensure that we aligned with school policies and bylaws for research.

During our communications at this point in the project, it was identified that one of the principals, who will be known as Monica Thomas, would be our “point person” of contact for the schools. This was due to her enthusiasm for the project, and because the survey data collection would occur in her high school (which will be called Glen High School in this dissertation). Monique Ward, Rich Tolman, and I met with Monica in late July 2013 to present a revised research proposal. We agreed on a three-phase project. Phase one would include the survey study with high school students. Phase two would be the dissemination of these results through various means to the school community (including open-ended plans to present results to teachers, students, staff, and parents). Phase three would focus on utilizing the survey results to inform sustainable prevention efforts in the schools, with a focus on student involvement. During this meeting, we also discussed consent procedures and methods of disseminating the survey.

I wrote the IRB application and designed the survey study from August to September 2013. The IRB application was prepared with input from Monique Ward, Rich Tolman, and Monica Thomas. The IRB application included a Memo of Understanding from the three high school principals, agreeing to their role and involvement in the

research. It was agreed that both written parent consent and student assent would be obtained before participation, and that the data collection would take place in the Media Center of Glen High School, where there are 90 computers for students to use. I developed a draft of the survey measures, in collaboration with Monique Ward and Rich Tolman, and submitted the draft to the high school principals for feedback and approval. The principals reviewed the survey in early November 2013 and asked for no changes or revisions. IRB approval for the survey study was received on November 19, 2013.

During this time, Monica Thomas and I were contacting teachers to request that their students participate in the survey study. We contacted teachers that taught classes in a range of subjects and for different grade levels. Monica arranged for all the Health classes in all three high schools to participate, which is a required course that is often taken during 9th grade. This ensured that we surveyed the majority of the 9th grade students from all three high schools. To balance out the sample with upperclassmen, we drew the remaining sample from primarily advanced elective course where 11th and 12th graders were likely to be enrolled.

Pilot testing

Pilot testing of the survey began on December 5, 2013. The survey was distributed to three classes of students enrolled in 3rd, 5th, and 6th hours of the course “Female Topics.” The class is only offered for female students during their senior year. This class was selected for pilot testing because the survey contents overlapped with the course curriculum, which includes units on healthy relationships, self-efficacy, media portrayals of women, substance abuse, and individual student projects on a topic of their choice (e.g. human trafficking, intimate partner violence, teenage pregnancy). I visited

the class a week before our first survey session to distribute parent/guardian consent forms and to introduce the study to students. Students were informed that they were part of the pilot phase of the research, and that I would return for the survey session and then on a subsequent to get their feedback on the survey. These students were encouraged to not discuss the survey or its contents with other students. On December 5th these three classes met in the Glen Media Center, and those that had received parent/guardian consent took the survey on the school computers. The pilot sample included 56 students.

The week following the survey session, I returned to these pilot classrooms to have an informal discussion about the survey. I had a list of broad, open-ended questions to ask the classes about digital dating abuse broadly and about experience of taking the survey. Questions included: “I’m really interested in the possible negative and positive ways that students at this school use digital media in dating relationships. What are some positive ways? Negative ways?” “Were these covered in the survey?” “What were your general impressions of the survey?” “Was anything confusing or unclear?” “Was it difficult to focus on one relationship throughout the survey?” I had three hour-long discussions with classes about the survey and the topic of digital dating abuse. I only took written notes during these discussions. These notes were not used for research purposes.

I made revisions to the survey based on the feedback from these pilot discussions. The major changes that were made included focusing on Twitter rather than Facebook, as students reported that these items seemed irrelevant to them because Facebook is no longer the most popular social media used by high school students. The students also suggested that I change and broaden the language used to define a “dating partner.” Dr.

Ward, Dr. Tolman, and Monica Thomas approved the final survey after all revisions were made. I then scheduled survey sessions with individual teachers.

APPENDIX C

Full structural equation model predicting boys' digital dating abuse perpetration

