Original Research

The Association Between Stereotypical Gender and Dating Beliefs and Digital Dating Abuse Perpetration in Adolescent Dating Relationships

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Abstract

Digital media have become a significant context for adolescent dating relationships. As the use of social media and mobile phones increases, so do concerns that these media might be a context for "digital dating abuse" (DDA), or the use of digital media to harass, pressure, threaten, coerce, or monitor a dating partner. Although DDA has been shown to be common in adolescent dating relationships, little is known about the predictors of DDA perpetration or the role of stereotypical gender and dating beliefs in shaping these behaviors. This survey study of 703 high school students with dating experience investigated the role of gender beliefs in DDA

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perpetration using structural equation modeling. The survey included items pertaining to participants' digital media use, stereotypical gender and dating beliefs, and three types of DDA perpetration. Girls reported more frequent perpetration of some types of DDA, and boys expressed greater endorsement of stereotypical gender and dating beliefs. The data supported our hypothesized models, such that endorsement of stereotypical beliefs was associated with different types of DDA perpetration for girls and boys. Higher endorsement of stereotypical beliefs was related to perpetration of digital monitoring and control behaviors for girls, and to directly aggressive and hostile digital behaviors for boys. These patterns align with stereotypical gender roles. Associations with sexually coercive digital behaviors for both girls and boys are discussed. This study suggests that beyond the gender of the perpetrator, societal beliefs about gender and dating may shape the problematic use of digital media in dating relationships.

Digital media have become a significant context for adolescent dating relationships (e.g., Fox, Osborn, & Warber, 2014; Fox, Warber, & Makstaller, 2013). Most adolescents (77%) have a cell phone and almost all (95%) of teens aged 12 to 17 years use the Internet (Lenhart, 2012). Teens are also avid users of social media. Data indicate that 80% of teens aged 12 to 17 years have an account on a social networking site (e.g., Twitter), and most adolescents report using social media daily (Lenhart, Purcell, Smith, & Zickuhr, 2010). As digital media use increases, so do concerns that it provides a context and tool for the perpetration of problematic dating behaviors and dating violence. This study explored endorsement of stereotypical gender and dating beliefs (SGDBs) as a possible predictor for perpetrating different types of digital dating abuse (DDA).

Prevalence of Digital Media as a Context and Tool for Dating Violence

The ubiquitous and public nature of digital media use in dating relationships may put adolescents at risk for problematic digital dating behaviors. A pattern of these behaviors, which we have termed "digital dating abuse," reflects several types of actions, including monitoring someone's activities

and whereabouts, hostility, and pressuring for sexual behavior using the Internet or cell phones (Futures without Violence, 2009; Reed, Tolman & Ward, 2016). DDA is pervasive among adolescents, with studies finding that one in four high school students report being a victim of DDA (Zweig, Dank, Yahner, & Lachman, 2013), and 29% to 46% report perpetration (Cutbush, Ashley, Kan, Hampton, & Hall, 2010; Korchmaros, Ybarra, Langhinrichsen-Rohling, Boyd, & Lenhart, 2013). Using digital media to monitor or control a dating partner is the most frequently reported type of DDA behavior and is most likely to be harmful when it occurs as a pattern; however, some DDA behaviors are harmful even when experienced once (Reed, Tolman, & Ward, 2016). DDA behaviors have also been associated with off-line forms of physical, sexual, and psychological abuse, suggesting that they may often occur in a constellation of abusive and unhealthy relationship behaviors (e.g., Epstein-Ngo et al., 2014; Reed, Tolman, & Ward, 2016; Zweig, Dank et al., 2013).

As in the broader dating violence literature, there have been mixed findings on the rates of DDA perpetration for girls and boys. Some studies have found no gender differences in DDA perpetration (e.g., Reed, Tolman, & Ward, 2017), whereas others have found that girls perpetrate DDA more frequently than boys (Epstein-Ngo et al., 2014). Data also indicate that girls self-report more frequent perpetration of nonsexual forms of DDA, whereas boys self-report much higher rates of sexual DDA (meant to pressure or coerce into sexual behavior) and sexual coercion perpetration (Young, King, Abbey, & Boyd, 2009; Zweig, Dank et al., 2013).

Adolescent SGDBs and Dating Violence

Sexual script theory posits that there are socialized directives for courtship and sexual relationships that outline expectations about appropriate sexual partners, emotions, and behaviors (Gagnon & Simon, 1973). In addition to being culturally grounded, these scripts are also gendered, defining different expectations for women and men (Kim et al., 2007). Girls and women are expected to prioritize romantic relationships, act passively in their relationships, and be sexually appealing but not "too" sexually active. Conversely, traditional sexual roles for boys and men dictate that they should be in control and assertive in their relationships, prioritize sex over romantic attachment, and treat girls and women as sexual objects. These messages are pervasive and often depict dating as an adversarial game that pits girls and boys against one another (Kim et al., 2007). Comparable themes are incorporated within traditional gender ideologies, more broadly, which dictate that women be emotional, nurturing, and sexually modest, and call for men to be aggressive, emotionally restricted, virile, and self-reliant (Smiler & Epstein, 2010).

Evidence indicates that many adolescents do indeed endorse these SGDBs. In fact, gender stereotypes become increasingly less flexible across middle school and high school (Alfieri, Ruble, & Higgins, 1996). Early work on White adolescents' dating behavior found that their romantic relationships followed rigid gendered "scripts" (Rose & Frieze, 1993), with girls focused more on interpersonal qualities of their partner and boys focused on physical attraction to their partners (Feiring, 1996). In addition, research on gender differences consistently finds higher levels of physical aggression and more permissive attitudes toward casual sex among boys (Hyde, 2005).

However, internalizing these beliefs can be confining and, in some cases, harmful for adolescents. Endorsing traditional gender beliefs has been linked to increased drug and alcohol problems and delinquency among boys (e.g., Horwitz & White, 1987); greater acceptance of violence against women (e.g., Murnen, Wright, & Kaluzny, 2002); and heavier self-objectification among girls that results in lower self-esteem, depression, and lower sexual self-effi-cacy (e.g., Aubrey, 2006; Grabe, Hyde, & Lindberg, 2007; Impett, Schooler, & Tolman, 2006).

Research also shows that holding SGDBs is associated with perpetrating dating violence in the off-line context. Empirical research in this area has almost exclusively focused on adult men's endorsement of stereotypical gender beliefs, finding associations between these beliefs and men's perpetration of violence against women (e.g., McCauleyet al., 2013; Murnen et al., 2002; Tharp et al., 2013), and with a greater tendency to endorse dating violence-supportive *attitudes* (Archer, Graham, & Kevan, 2003; Brownridge, 2002; Lichter & McCloskey, 2004; Reitzel-Jaffe & Wolfe, 2001). Less research has focused on associations between stereotypical gender beliefs and dating violence among girls, women, and adolescents. Exceptions include a recent longitudinal study that found that endorsement of traditional gender role attitudes predicted subsequent physical dating violence perpetration for boys with high levels of dating violence acceptance attitudes (Reyes, Foshee, Niolon, Reidy, & Hall, 2016; for null findings, see Foshee, Linder, MacDougall, & Bangdiwala, 2001). It is less clear, however, if the association between traditional gender beliefs and violence perpetration in adolescent relationships is evident in digital contexts.

When investigating predictors of DDA perpetration, we believe it is important and necessary to examine both stereotypical *gender* beliefs and stereotypical beliefs about *dating relationships*. As described above, these beliefs are linked. Dating relationships are a significant developmental mile-stone for adolescents, and much emphasis is placed on learning how to have romantic relationships and develop intimacy with others (Smetana, Campione-Barr, & Metzger, 2006). How adolescents form, maintain, and end

dating relationships is heavily influenced by sexual scripts and beliefs about gender (Kim et al., 2007). Although there are gender norms that are not necessarily specific to dating relationships (e.g., women as nurturers, men as leaders), these gender norms have implications for and impact stereotypical beliefs about dating relationships (e.g., women are the emotional caretakers in relationships, men are assertive in relationships). Measures of gender beliefs that do not address the stereotypical adversarial nature of men and women in heterosexual relationships are therefore lacking in their ability to understand socialized influences on dating relationships.

Exploring Gender and SGDBs as Predictors of DDA

Although DDA is a common occurrence in adolescent dating relationships, it is by no means universal. In working to understand its unique predictors, we argue that gender and dating beliefs warrant attention. In addition to potential gender differences in prevalence rates, analyses indicate that context matters, finding that the *experience* and *consequences* of DDA likely differ for girls and boys. For example, research on high school and college students found that young men may anticipate less distress than young women from experiencing the same behaviors, and young women may have more negative responses than young men to some DDA behaviors (Bennett, Guran, Ramos, & Margolin, 2011; Reed, Tolman, & Ward, 2016; Reed et al., 2017). These findings coincide with analyses of off-line dating violence, which, for female victims, indicate higher injury rates, higher rates of severe violence, higher levels of distress, and greater negative impacts on mental health (Arriaga & Foshee, 2004; Foshee, Bauman, Linder, Rice, & Wilcher, 2007; Molidor & Tolman, 1998). Qualitative research also supports that the experience of DDA is likely to differ by gender. Stonard, Bowen, Walker, and Price (2017) found that girls were more likely to engage in monitoring behaviors, presumably because they were more preoccupied by ensuring a partner's fidelity, and girls were more likely to justify monitoring behaviors as healthy and reasonable. Therefore, because the experience of dating violence and DDA likely differs for girls and boys, we investigated potential gender differences both in the prevalence rates and potential predictors of DDA perpetration.

There is also preliminary evidence that gender beliefs and stereotypes may impact DDA behaviors similar to the way they affect off-line dating violence. First, some of the many factors identified as predictors of perpetrating *off-line* dating violence include gender and acceptance of violence against women (e.g., Foshee, Linder, MacDougall, & Bangdiwala, 2001; Lewis & Fremouw, 2001; O'Keefe & Aldridge, 2005). Therefore, endorsing sexist

beliefs and gender stereotypes may also predict perpetration of online dating violence. Second, emerging data highlight some specific contributions. A recent study of 233 eighth-grade adolescents found that endorsement of masculine and feminine gender stereotypical traits influenced likelihood to perpetrate DDA via various media technologies (Wright, 2017). Another recent study of 466 high school students in Belgium found that endorsing stereotypes predicted perpetration of one type of DDA, digital monitoring behaviors (Van Ouytsel, Ponnet, & Walrave, 2017). Accordingly, in the current study, we focused on gender as a predictor of DDA perpetration both in terms of the gender of the perpetrator and the pre-existing gender beliefs that might be influencing girls' and boys' DDA behavior.

The Current Study

Both gender and gender beliefs have emerged as significant predictors of off-line dating violence, albeit with a focus on boys' use of violence. Might the association between SGDBs and dating violence extend to both girls and boys, and in the digital media context? Our primary research question was as follows:

> **RQ1:** Does the endorsement of stereotypical beliefs about gender and dating relationships predict the frequency and type of DDA perpetration among high school girls and boys?

Consistent with preliminary literature that indicates links between SGDB and off-line dating violence, we predicted that endorsing rigid, adversarial attitudes about gender roles in dating relationships would predict higher frequency of DDA perpetration (See Figure 1 to view our conceptual model). We used multiple measures to examine the combined impact of endorsing stereotypical gender beliefs and stereotypical dating relationship beliefs—including measures that assess traditional gender norms (Attitudes Toward Women Scale for Adolescents [ATWSA]; Galambos, Petersen, Richards, & Gitelson, 1985; Adolescent Masculinity Ideology in Relationships Scale [AMIRS]; Chu, Porche, & Tolman, 2005) and the adversarial nature of gender norms and heterosexual dating scripts (Adversarial Sexual Beliefs Scale [AVSB]; Teten, Hall, & Pacifici, 2005; Heterosexual Script Scale [HSS]; Seabrook, Ward, Reed, Manago, Giaccardi, & Lippman, 2016). This set of beliefs, taken together, forms a latent concept we called "stereotypical gender and dating beliefs" (SGDB).

Furthermore, based on emerging evidence that the experience of DDA is likely to differ for girls and boys, we hypothesized that endorsement of
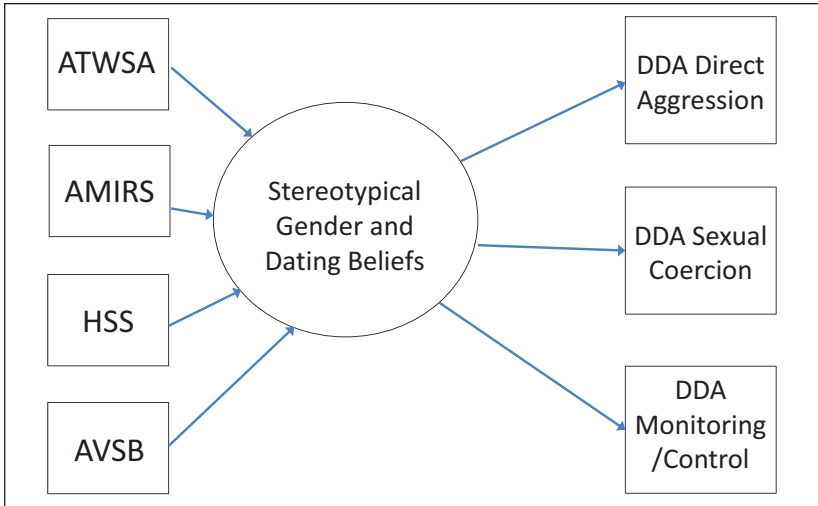
Figure 1. Hypothesized conceptual model.
Note. ATWSA = Attitudes Toward Women Scale for Adolescents; AMIRS = Adolescent Masculinity Ideology in Relationships Scale; HSS = Heterosexual Sexual Script Scale; AVSB = Adversarial Sexual Beliefs Scale; DDA = digital dating abuse.

SGDB would predict different patterns of DDA perpetration for girls and boys. We anticipated that endorsement of SGDB would predict greater use of direct aggression and sexual coercion among boys, as these behaviors align with traditional gender roles for boys and men (Kim et al., 2007). We expected that endorsement of SGDB among girls would predict greater monitoring/control behaviors, in alignment with traditional gender stereotypes of female passivity and preoccupation with relationships (Kim et al., 2007). Because we anticipated these patterns of SGDB contributions to DDA and adolescent experiences with DDA to differ for girls and boys, we examined this model for girls and boys separately.

Method

Design and Participants

Data were collected between December 2013 and March 2014 as part of a larger survey study on digital media use, dating violence, and DDA among adolescents. For other studies analyzing research questions from these data, see Reed et al., 2017 and Reed, Tolman, Ward, & Safyer, 2016. We conducted a self-report cross-sectional survey study of 9th to 12th grade students at a

large Michigan suburban public high school campus with three high schools. This was a convenience sample, with effort taken to get a representative sample of students in various grade levels who were enrolled in both required core curriculum courses and elective courses. The sample included 947 valid completed surveys. There was a 93% completion rate for the survey, with partial surveys included. There were seven additional cases that were deemed invalid and removed. Exclusion criteria included students who experienced technical difficulties and students who mistakenly began taking the survey for a second time.

All analyses were conducted only with those participants who had dating experience; therefore, our final sample included 703 participants (*Mean age* = 16.40 years). The majority of participants identified as young women (54.3%) and reported their race/ethnicity as White (75.6%). Others identified as Black (8%), Asian (4.1%), Middle Eastern (3.6%), Latino/a (1.3%), and multiracial (5.7%). Some participants (13.8%) reported participation in a free or reduced lunch program. 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. The distribution of grade level and race/ethnicity of participants was also similar to school-wide demographics (See Reed, Tolman, Ward, & Safyer, 2016 for more information on school demographics).

Of the 703 participants with dating experience, 36.4% were in a dating relationship at the time of the survey. Most participants reported exclusively heterosexual dating behavior, with 7.2% of girls and 5.2% of boys reporting some same-sex dating behavior. Most of the sample (96.2%) owned a cell phone, and all had access to a computer at home. Participants reported sending and receiving an average of 51 to 100 text messages per day and spent an average of 22.41 hr per week using social media. Most participants reported that they 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* = 27.16 hr, *SD* = 19.44 hr) spent more time per week on social media than boys (*M* = 16.85 hr, *SD* = 16.72 hr), $t(689) = 7.39$, $p < .001$.

Procedure

All health class teachers were invited to participate to get an approximately representative sample of ninth grade students (as it is a required course). Emails were sent out to all health class teachers from school administrators, and the principal investigator then communicated individually with these teachers to set up data collection sessions. All health teachers agreed to

participate. We also targeted teachers from elective courses who were likely to have an overrepresentation of upperclassmen to ensure that all grade levels were sampled. These teachers were snowball sampled, as the principal investigator contacted teachers who had already expressed interest in the study and asked these teachers to nominate their colleagues who also might be interested in participating.

Once teachers were recruited, the principal investigator visited each classroom to describe the study procedures, invite students to participate, and distribute consent forms. Parent/guardian consent (if participants were below the age of 18 years) and student assent were required for participation. Students completed surveys on computers in a school library media center during one day of class time with the principal investigator present. Students spent between 21 and 50 min completing the survey. Our recruitment efforts yielded a 67.28% response rate. Participation was voluntary and anonymous, and students received a US$5 gift card as compensation for their participation.

Measures

Cell phone use and texting. Access to cell phones was assessed using two items. Participants were asked, "Do you have your own cell phone?" If participants answered, "Yes," they were then asked, "Does your cell phone have access to the Internet? (a 'smartphone')." 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 1 = "*No text messages*" and 2 = "*1 to 10 text messages*" to 7 = "*More than 300 text messages*." 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 that ranged from 1 = "*Never*" to 6 = "*Several times an hour*."

Internet and social media use. Participants reported how many hours on a typical weekday and a typical weekend they spend social networking on a scale from 1 to 11, with responses ranging from 1 = "*0 hours*" to 11 = "*10+ hours*." Responses about weekday use were multiplied by five and added to responses about the weekend use to create a variable of "hours/week of social networking."

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 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 asked, "Have you ever had a dating partner?" Participants were also 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 Dating Beliefs

Attitudes toward women. The ATWSA (Galambos et al., 1985) is a 12-item scale designed to assess beliefs about appropriate roles for women. Example items include "Swearing is worse for a girl than for a boy" and "It is all right for a girl to ask out a guy on a date" (reverse-scored). Participants rated each item on a 6-point scale ranging from 1 = "*strongly disagree*" to 6 = "*strongly agree*," and a mean of the 12 items was computed. Higher scores indicated more traditional beliefs about appropriate roles for women ($\alpha = .80$).

Attitudes toward men. The AMIRS (Chu et al., 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 6-point scale anchored by 1 = "*strongly disagree*" and 6 = "*strongly agree*." Mean scores were computed such that higher scores indicated more traditional beliefs about appropriate roles for men ($\alpha = .84$).

Adversarial sexual beliefs. The 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 et al., 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 6-point scale ranging from 1 = "*strongly disagree*" to 6 = "*strongly agree*," and a mean of the nine items was computed. Higher scores indicated stronger endorsement of adversarial sexual beliefs ($\alpha = .73$).

Heterosexual script endorsement. The current study used a shortened 18-item version of the HSS (Seabrook, Ward, Reed, Manago, Giaccardi, & Lippman, 2016) based on work by Kim et al. (2007) to assess participants' endorsement of several elements of traditional, gender-based scripts for courtship and male–female relations. 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 6-point scale ranging from 1 = "*strongly disagree*" to 6 = "*strongly agree*." A mean was calculated across items. Higher scores indicated stronger endorsement of the heterosexual script ($\alpha = .87$).

Digital Dating Abuse. DDA was assessed with a 36-item measure adapted from a previous DDA measure used in a study with undergraduates (Reed, Tolman, & Ward, 2016). Participants responded to 18 victimization items and 18 perpetration items asking about parallel DDA behaviors. Our analyses focused only on DDA perpetration as the outcome. For each of the 18 DDA perpetration items, participants were given the following prompt: "Using the Internet or a cell phone, I . . ." Responses were provided via a 4-point scale that ranged from 0 to 3, with endpoints "*Never*" to "*Very often*."

The original DDA measure included 19 behaviors treated as one scale of DDA perpetration, with 19 parallel items for victimization. For the revised measure, we modified these items and divided them into three conceptual subscales. Two of the subscales (Digital Direct Aggression and Digital Monitoring/Control) drew from the conceptualization of DDA validated by Borrajo, Gámez-Guadix, Pereda, and Calvete (2015). Based on previous work that sexual DDA behaviors are associated with off-line physical, sexual, and psychological abuse and linked to negative emotions for young women, we added the third conceptual subscale of Digital Sexual Coercion.

Digital Direct Aggression Perpetration (eight items, $\alpha = .81$) involved intentional digital behaviors meant to hurt, humiliate, or threaten a dating partner using social media or a mobile phone. Example items from this sub-scale include, "Sent a threatening message" and "Spread rumors about my partner." Digital Monitoring/Control Perpetration (six items, $\alpha = .76$) involve using social media or mobile phones to keep track of, intrude on the privacy of, and control the activities and relationships of a dating partner. This sub-scale included items such as "Monitored who my partner talks to and is/was friends with" and "Looked at my partner's private information (text messages, emails, etc.) to check up on them without their permission." The Digital Sexual Coercion Perpetration subscale (four items, $\alpha = .67$) measured the pressuring of a dating partner for on-line or off-line sexual behavior and engaging in unwanted distribution of sexual images. Example items from this subscale include "Sent my partner a sexual or naked photo of myself that they did not ask for" and "Pressured my partner to sext (sending me a sexual or naked photo)."

Analytical Plan

We used structural equation modeling (SEM) to examine the association between SGDB endorsement and perpetration of three types of DDA, testing separate models for girls and boys. We modeled "stereotypical gender and dating beliefs" (SGDBs) as a latent variable from the HSS, ATWSA, AMIRS, and AVSB. We expected the latent variable of SGDB to be associated with

Table 1. Sex Differences in Primary Variables of Interest.

	Girls M (SD)	Boys M (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. DDA = digital dating abuse; HSS = Heterosexual Sexual Script Scale; ATWSA = Attitudes Toward Women Scale for Adolescents; AMIRS = Adolescent Masculinity Ideology in Relationships Scale; AVSB = Adversarial Sexual Beliefs Scale.
*p < .05. **p < .01. ***p < .001.

the frequency of perpetrating 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.

The comparative fit index (CFI), root mean square error approximation (RMSEA), and model chi-square 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, and an RMSEA below .10 is considered an adequate fit (Hu & Bentler, 1999). Model chi-square assesses overall fit, and a *p* value of less than .05 indicates good model fit (Kline, 2005). Chi-square measures are sensitive to normality of data distribution, so other goodness of fit measures were also used. Model fit improvement utilized modification indices. The hypothesized model (see Figure 1) was tested for girls and boys, including appropriate controls for each.

Results

Gender Differences in Key Variables

We conducted independent samples *t* tests to examine gender differences on the primary variables of interest (see Table 1). There were significant gender 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 SGDB endorsement.

Table 2. Zero-Order Correlations Between Stereotypical Gender and Dating 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. DDA = digital dating abuse; HSS = Heterosexual Sexual Script Scale; ATWSA = Attitudes Toward Women Scale for Adolescents; AMIRS = Adolescent Masculinity Ideology in Relationships Scale; AVSB = Adversarial Sexual Beliefs Scale. Statistically significant correlations shown in bold.
*$p < .05$. **$p < .01$. ***$p < .001$.

We conducted zero-order correlations between the SGDB measures and the DDA perpetration subscales for girls and boys. Several significant associations emerged (see Table 2). Associations were particularly strong between DDA Sexual Coercion and DDA Direct Aggression for boys. Both girls and boys showed positive associations between the SGDB measures (specifically, the HSS and the AVSB) and DDA Monitoring/control. These associations were tested using SEM.

Testing the Hypothesized Models

Bivariate zero-order correlations were conducted to determine necessary demographic controls for each model. The following variables were tested as potential 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 multiracial), and same-sex dating behavior. Only demographic correlates that were significantly associated with all four manifest variables comprising the SGDB latent variable were included in the model as controls. Variables that correlated with all three DDA perpetration manifest variables were also included as controls.
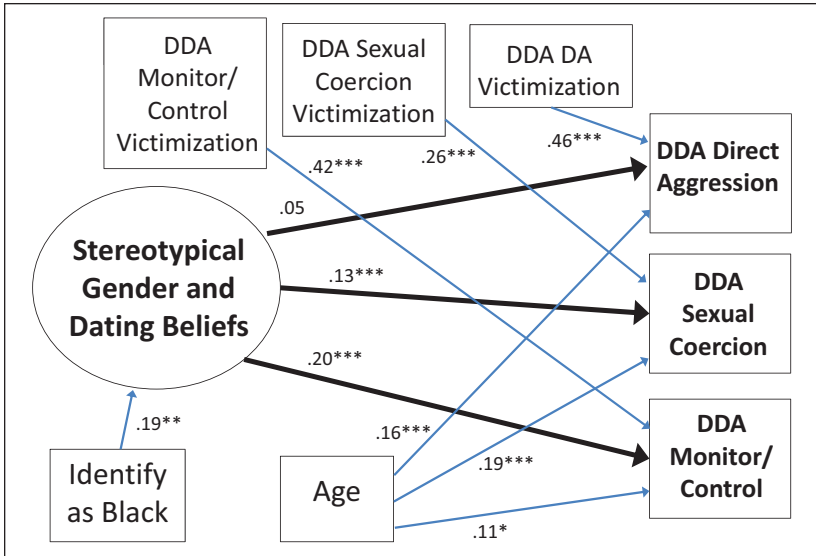
Figure 2. Structural equation model for the association between stereotypical gender and dating belief endorsement and three types of digital dating abuse perpetration among high school girls.
Note. Model for 382 girls with dating experience. Measurement pathways and error terms are not shown. Standardized estimations included. Black lines indicate hypothesized associations, and gray lines indicate control variables. CFI = .961; RMSEA = .051; 90% CI = [.061, .094]; $\chi^2(38) = 75.22$; $p < .001$; $R^2 = .434$. CFI = comparative fit index; RMSEA = root mean square error approximation; DDA = digital dating abuse; DA = Direct Aggression.
*$p < .05$. **$p < .01$. ***$p < .001$.

DDA perpetration frequency was strongly positively associated with DDA victimization frequency in this sample, consistent with other research (e.g., Reed, Tolman, & Ward, 2016; Zweig, Dank et al., 2013). Because we were interested in predicting the contribution of SGDB 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, age as well as DDA victimization frequency, served as controls for corresponding DDA perpetration variables, and identifying as Black was a control variable for girls' SGDB endorsement. In the boys' model, identifying as Black and same-sex dating behavior served as control variables for boys' SGDB endorsement.

The model tested for girls is shown in Figure 2. For clarity, measurement pathways and error terms are not shown. 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,
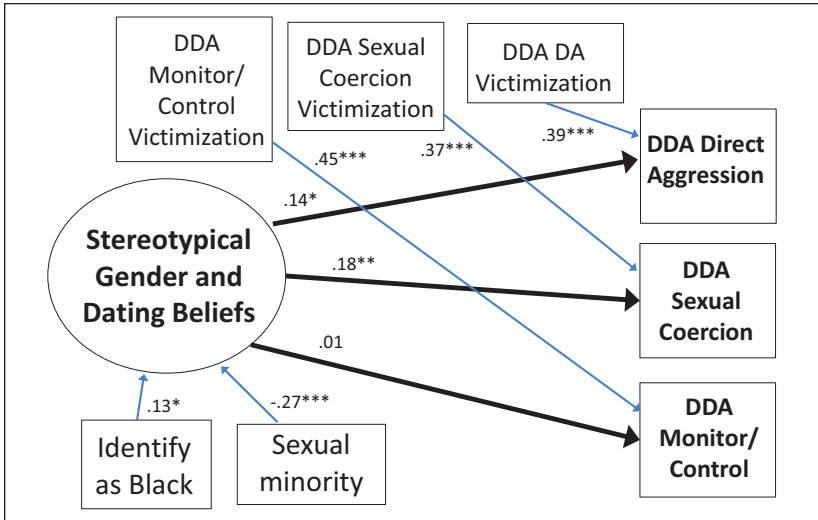
Figure 3. Structural equation model for the association between stereotypical gender and dating belief endorsement and three types of digital dating abuse perpetration among high school boys.

Note. Model for 314 boys with dating experience. Measurement pathways and error terms are not shown. Standardized estimations included. Black lines indicate hypothesized associations, and gray lines indicate control variables. CFI = .928; RMSEA = .077; 90% CI = [.061, .094]; $\chi^2(40) = 114.45$; $p < .001$; $R^2 = .455$. CFI = comparative fit index; RMSEA = root mean square error approximation; DDA = digital dating abuse; DA = Direct Aggression.
*$p < .05$. **$p < .01$. ***$p < .001$.

CFI = .961; RMSEA = .051; 90% confidence interval (CI) = [.061, .094], $\chi^2(38) = 75.22$, $p < .001$, $R^2 = .434$. Identifying as Black was associated with significantly higher SGDB endorsement. Age was also significantly associated with all three types of DDA, such that as the age of the girls increased, frequency of DDA Direct Aggression, Sexual Coercion, and Monitor/Control perpetration also increased. DDA victimization variables were strongly associated with all corresponding types of DDA perpetration. Examination of hypothesized individual pathways yielded significant associations between SGDB endorsement and DDA Sexual Coercion and DDA Monitoring/Control. For girls, SGDB endorsement contributed to more frequent perpetration of digital sexual coercion and digital monitoring/control in a current or most recent dating relationship.

The model for boys was an adequate fit to the data, CFI = .928, RMSEA = .077, 90% CI = [.061, .094], $\chi^2(40) = 114.45$, $p < .001$, $R^2 = .455$, shown in Figure 3. Identifying as Black was associated with greater SGDB endorsement

and reporting same-sex dating behavior was associated with less SGDB endorsement. All three DDA victimization control variables were strongly associated with their corresponding DDA perpetration frequency variables. For the individual hypothesized paths, SGDB endorsement was associated with greater frequency of DDA Direct Aggression and DDA Sexual Coercion.

Discussion

This study sought to investigate whether endorsement of SGDBs predicted DDA perpetration in high school dating relationships. Results largely supported our hypotheses: stronger endorsement of SGDB was associated with greater frequency of DDA perpetration for both girls and boys, and the pattern of these associations differed by gender. For girls, SGDB endorsement was associated with perpetration of digital sexual coercion and digital monitoring/control. For boys, SGDB endorsement was associated with perpetration of digital sexual coercion and digital direct aggression.

This study replicated past research on associations between SGDB and perpetration of dating violence among boys (Reyes et al., 2016; Sears, Byers, & Price, 2007), extending those findings to both girls and boys in the digital media context. These findings support the emerging DDA literature that links on-line and off-line abuse (Epstein-Ngo et al., 2014; Reed, Tolman, & Ward, 2016; Zweig, Dank et al., 2013). Many studies found that girls perpetrate DDA at similar rates as 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, 2017) and perpetrate DDA for different reasons (Lucero, Weisz, Smith-Darden, & Lucero, 2014). Because girls do engage in DDA behavior, it is important to examine predictors of their perpetration and to also continue exploring 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' SGDB beliefs would predict different types of DDA perpetration, we did not expect that SGDB endorsement 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 SGDB would dictate that girls are to be sexually appealing but not sexually proactive.

One possible explanation for this finding could lie in the items included in the digital sexual coercion subscale. 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. This notion is supported by frequency data for these items: 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 to be more likely to engage in "pressuring" behaviors than sending or distributing photos.

In addition, sending sexual or naked photos without invitation might serve different functions for girls and boys, as girls might use sext messages to try to 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 & Görzig, 2012; Reed, Tolman, & Ward, 2017). 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.

Associations Between Gender Beliefs and DDA Perpetration

Patterns of association between SGDB endorsement and type of DDA perpetration differed between the girls' and boys' models. With the exception of digital sexual coercion perpetration for girls, these patterns fell along gendered lines; girls with higher SGDB endorsement were more likely to perpetrate digital monitoring/control, and boys with higher SGDB endorsement 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. As stated earlier, cultural gender roles teach boys to be assertive, aggressive, and powerful, whereas girls are taught to be passive, people pleasing, and 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 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 provide important insights into how off-line and on-line gender beliefs are reproduced in dating relationships, and how interventions aimed at reducing DDA behaviors might address SGDBs. It should also be noted that boys participated in digital monitoring/control behaviors as well, and future research should investigate whether these behaviors are truly experienced as "passive" when perpetrated by either gender.

Limitations

The current study makes a significant contribution to the DDA literature, finding that SGDB endorsement contributes to DDA perpetration among high school girls and boys. However, the study has limitations that should be considered when interpreting these results. SEM was conducted using cross-sectional data. Therefore, the results present associations between variables rather than directionality or causation. Longitudinal research, such as Reyes et al. (2016), could elucidate directionality of these associations. In addition, DDA perpetration was measured using self-report and could therefore have been subject to biases, including social desirability bias. Although using SEM corrects for measurement bias, future research may look to incorporate multiple sources of data on DDA 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 SGDBs.

Another potential limitation was the ethical dilemmas raised when studying physical and sexual victimization among adolescents in a school setting. As discussed in Sharkey, Reed, & Felix, 2017, there is a tension between protecting student confidentiality if they participate in research but do not

want to disclose dating violence experiences and maintaining student safety. This research was approved by school principals from all participating schools on the campus, and these administrators had the opportunity to give input into the survey. An aggregated summary of findings was provided to school administrators at the conclusion of the research study. Lengths were taken to ensure that school administrators, teachers, parents, and students were able to review the research survey before participating, and the limits of confidentiality due to mandated reporting were explained to the students and included in their consent forms. However, it is possible that students felt uncomfortable responding to questions about dating violence experiences with other students and teachers present, and they may have been concerned about their information being disclosed to administrators and their parents. We assured students that their data would not be attached to their name and contact information, and that we would only share the data in a de-identified and aggregated fashion. Students were also given a list of resources to pursue if they wanted additional support.

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. For example, we found in our analyses that identifying as Black was associated with greater SGDB endorsement. However, because of the small sample of Black youth, a few participants with particularly strong views could significantly influence this finding, and we cannot assess any within-group differences in these beliefs. The measures we used to assess SGDB 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 youth who engage in same-sex dating behavior could uncover other possible predictive factors that contribute to DDA perpetration.

Practical Implications

DDA has significant implications for educators and practitioners who engage with adolescents. This study found that although both girls and boys perpetrate DDA, the gender of the perpetrator and the beliefs they bring to the

relationship are salient factors to consider. DDA is indeed a widespread issue for adolescents, and digital dating exists in and is influenced by a larger culture that reinforces rigid gender norms and stereotypes about women and men in relationships. Practitioners should watch for signs of DDA in adolescent relationships, instead of focusing only on face-to-face behaviors that might be more observable in school or institutional settings. Educators and practitioners can aid in framing these digital behaviors as problematic and help adolescents to create healthy and comfortable digital boundaries in their relationships. These results have clear implications for dating violence prevention efforts, providing evidence that prevention should address heterosexual gender stereotypes and norms, and promote healthy, consensual, and respectful dating behaviors rather than viewing dating as adversarial. Effective prevention work should target myths about gender differences and target norms supporting violence (Reyes et al., 2016).

Conclusion

This study contributes to the literature by providing evidence that the association between SGDB and dating violence among high school students extends to both girls and boys in the digital media context. These findings support previous work that SGDB are reproduced and performed via digital media, and that these beliefs and norms may influence dating violence. Therefore, both gender of the perpetrator and beliefs about gender and courtship norms can lead to problematic and harmful dating behaviors.

Declaration of Conflicting Interests

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