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Applying Attachment Theory to Link Family of Origin Violence History to Cyber Dating Abuse Among College Students

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Abstract

Purpose Despite family of origin violence (FOV) exposure being consistently related to traditional forms of dating abuse (DA) perpetration and victimization, few studies have extended this association to cyber DA. As attachment insecurity is commonly linked to FOV exposure and DA, we examined whether attachment anxiety and attachment avoidance mediated the relation between FOV (i.e., experiencing parent-to-child aggression, witnessing interparental aggression) and cyber DA perpetration and victimization forms (i.e., direct cyber aggression, cyber monitoring/controlling, cyber sexual DA).

Methods We tested these associations using a crosssectional design with 584 college students.

Results Parent-to-child aggression was indirectly related to all forms of cyber DA perpetration and victimization through attachment anxiety. Attachment avoidance was unrelated to both forms of FOV; however, it was directly related to increased direct cyber aggression victimization, increased cyber sexual DA victimization, and decreased cyber monitoring/controling perpetration. Findings suggested that those with a history of experiencing parent-to-child aggression may develop an anxious attachment style and perpetrate cyber DA to relieve distress associated with physical distance from their romantic partners. Additionally, people with avoidant attachment styles may be less apt to perpetrate cyber DA due to comfort with physical distance from romantic partners.

Conclusion These findings extended the intergenerational transmission of violence theory of DA etiology from in-person DA to cyber DA perpetration and victimization using an attachment theory framework. Cyber DA prevention research should explore interventions that reduce attachment insecurity, particularly among individuals with histories of parent-to-child aggression.

Keywords Attachment · Cyber dating abuse · Intergenerational transmission of violence · Childhood maltreatment · Family violence

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As young adults are increasingly reliant on social media and smartphones for communication with romantic partners, new ways to perpetrate dating abuse (DA) have emerged and such behavior has proliferated (Zweig et al., 2013). The use of technology to perpetrate verbal aggression, monitor and/or control dating partners, and sexually coerce partners is often referred to as cyber DA (Baker & Carreño, 2016; Reed et al., 2018; Zweig et al., 2013). A recent national study estimated that over three-fourths of adolescents and young adults experienced at least one cyber DA behavior in their lifetime (Ellyson et al., 2021). Other studies reflected similar, or even greater, prevalence rates among young adults (e.g., Zapor et al., 2017). In addition to disrupting healthy romantic relationship functioning, cyber DA victimization is related to mental health problems among young people such as increased anxiety, depression, and trauma, whereas

cyber DA perpetration is related to health risk behavior such as increased substance use (Brem et al., 2019; Zweig et al., 2014). These deleterious mental health problems and health risk behaviors associated with cyber DA coupled with high prevalence rates highlight the need for more research on its etiology to inform prevention efforts.

Conceptualizing Cyber Dating Abuse

The construct of cyber DA is inconsistently defined, measured, and conceptualized. This presents a challenge for developing conceptual models that explain the etiology and maintenance of cyber DA in adolescent and young adult relationships (Caridade et al., 2019). Historically, cyber DA was considered a novel method for perpetrating established forms of DA (e.g., psychological DA) rather than a distinct form of DA (Leisring & Giumetti, 2014; Zapor et al., 2017). Despite temporal associations and overlap between physical and cyber DA perpetration and victimization (Temple et al., 2016), there are several unique behaviors that support conceptualizing cyber DA as a distinct form of DA, including using technology to monitor one's location and posting/sending sexual images online without consent (Caridade et al., 2019; Powell et al., 2018). Although debate remains if cyber DA is a unique form of DA or a form of psychological DA, emerging research suggests cyber DA is distinct given cyber DA occurred in the absence of in-person psychological DA (Marganski & Melander, 2018) and predicted future in-person psychological and physical DA (Brem et al., 2021). Consistent with established cyber DA measures (for review, see Brown & Hegarty, 2018), this study conceptualized cyber DA as direct cyber aggression, cyber monitoring/controlling, and cyber sexual DA.

Perpetrating psychological forms of DA, such as threatening and verbal aggression, using technology (e.g., text messages, phone calls) is referred to as direct cyber aggression. For example, perpetrators can intimidate or harass their romantic partners by sending text messages that contain threats of in-person harm and/or insults (Wolford-Clevenger et al., 2016). Additionally, direct cyber aggression can include online behaviors such as name-calling, "shouting" at partners using capital letters, ignoring a partner, and abruptly terminating contentious online conversations (Leisring & Giumetti, 2014). Direct cyber aggression perpetration is also frequently accompanied by other types of cyber DA.

The most commonly endorsed form of cyber DA is cyber monitoring/controlling (Ellyson et al., 2021), which occurs overtly and/or covertly (Messinger et al., 2021). Overt cyber monitoring/controlling may be perpetrated via repeatedly calling or texting one's partner to monitor who they are around and restricting their ability to communicate with select individuals (e.g., blocking phone numbers on their

partner's phone; Freed et al., 2017). Conversely, perpetrators of covert cyber monitoring/controlling may read their partner's personal messages without receiving their partner's permission (Tompson et al., 2013). These behaviors are likely linked to normalization in one's environment, as perpetrating cyber monitoring/controlling is related to witnessing interparental controlling behavior and perceived social norms among peers surrounding cyber monitoring and controlling (Van Ouytsel et al., 2020). Although these behaviors may be normalized in familial and peer contexts, this normalization does not diminish the problematic nature of such behavior interpersonally.

One increasingly pervasive and deleterious manifestation of cyber sexual DA is revenge porn, or the posting of nonconsensual nude or sexual images/videos of a current or former partner online, often with the intent to get revenge following an argument or relationship dissolution (Powell et al., 2018). Cyber sexual DA can also occur via coercion, where perpetrators may threaten or pressure their partners to send nude/sexual images or engage in other sexual actions (Reed et al., 2016). Other cyber sexual DA behaviors include sending unsolicited nude or sexual images and taking intimate photos/videos of a partner without their permission (Powell et al., 2018; Reed et al., 2016). More studies investigating predictors, risk factors, and contexts specific to cyber DA are also needed to improve conceptual models of this emerging form of DA.

Theoretical Framework

The Intergenerational Transmission of Violence

The intergenerational transmission of violence theory proposes that exposure to violence during childhood can predict later perpetration of violence in adolescence and young adulthood (Widom & Wilson, 2015). This exposure to violence, referred to as family of origin violence (FOV), can either be directly experienced (e.g., parent-to-child aggression) or witnessed (e.g., interparental aggression). Recent meta-analyses concluded that adolescents and young adults who experience parent-to-child aggression and who witness interparental aggression are more likely to be perpetrators and victims of DA (Goncy, 2020; Goncy et al., 2020). Still, these meta-analyses found substantial unexplained variance between FOV and later DA, emphasizing the need for further exploration of mechanisms between FOV and DA. Additionally, these findings only studied in-person forms of DA, which may not generalize to modern adolescents and young adults when the overwhelming majority of them (i.e., over 90%) use social networking sites (e.g., Snapchat) and technology (e.g., texting) to communicate with their romantic partners (Lenhart et al., 2015; Nesi et al., 2017). Considering

these trends, extending theories of DA etiology to cyber DA is necessary for modern DA prevention and intervention.

Attachment Theory

As insecure attachment is related to early adverse experiences (e.g., neglect, abuse) and later DA in young adulthood, attachment could be a mechanism that facilitates an intergenerational transmission of violence. Attachment theory posits that one's close relationships with others are shaped by the quality of early interactions with their caregivers (Bowlby, 1969). People who experience nurturing, supportive, and consistent parenting are more likely to develop a secure attachment style, whereas insecure attachment often stems from a history of inconsistent discipline, neglect, and/or abuse (Briere et al., 2017). During adolescence and young adulthood, one's attachment tends to transfer from their parents to their peers (Seiffge-Krenke, 2003). As these early romantic relationships are shown to guide the quality of later relationships (Connolly et al., 2014), understanding the impact of attachment, particularly insecure attachment, on relationship behavior in young adulthood is crucial.

Insecure attachment is typically comprised of two orthogonal dimensions: attachment anxiety and attachment avoidance (Brennan et al., 1998). Anxious attachment is hallmarked by fear of abandonment and a strong desire for closeness which may manifest in clinging behavior and pleas for attention (Mikulincer & Shaver, 2007). Meanwhile, individuals with attachment avoidance prefer emotional distance, fear intimacy with attachment figures, and are inclined to be self-reliant (Conradi et al., 2016; Mikulincer & Shaver, 2007). Increasing evidence indicates that attachment anxiety may underly some jealousy-related cyber monitoring behavior (Miller et al., 2014). These anxious feelings can provoke one to monitor their partner's behavior to relieve distress, whether it be to screen for infidelity or to reassure their relationship's security, among other motives. Individuals with greater attachment anxiety may also make more negative attributions about their partner's behavior (Knobloch et al., 2001). These negative attributions could provoke greater feelings of anger toward romantic partners and, in severe cases, lead individuals with anxious attachment to perpetrate DA when their anxious concerns are activated and unaddressed (Campbell & Marshall, 2011; Goncy & van Dulmen, 2016). In fact, increasing research supports a link between attachment anxiety and cyber DA. Attachment anxiety is related to increased intrusive cyber behavior (e.g., monitoring a dating partner's whereabouts, looking at their private electronic information; Reed et al., 2015). Additionally, attachment anxiety is directly related—and indirectly related via jealousy—to increased cyber psychological and relational aggression (Toplu-Demirtaş et al., 2020). Thus,

attachment anxiety is often a primary focus in DA prevention research.

In contrast with attachment anxiety, findings are mixed regarding the relation between attachment avoidance and DA. Attachment avoidance could be unrelated to, or even protective against, involvement in DA. This is particularly true when partners with avoidant attachment withdraw from conflict, avoid escalations, and reduce their expectations from romantic partners (Collins et al., 2002; Grych & Kinsfogel, 2010). Although individuals who withdraw from conflict are not in any way responsible for their partner's aggression, this withdrawal could frustrate romantic partners and exacerbate conflict. In turn, their partner's increasing frustration could increase vulnerability for victimization among the partner with attachment avoidance (Miga et al., 2010). Despite mixed findings, both anxious and avoidant attachment are positively related to physical DA perpetration and victimization (Spencer et al., 2021). However, this may not be true with cyber DA, as romantic partners may be less likely to perpetrate cyber monitoring behavior given their comfort with physical and emotional distance (Reed et al., 2015). Therefore, including both forms of insecure attachment is important for understanding the extent to which attachment insecurity relates to online dating behavior.

Attachment style could explain the relation between FOV and later DA. For example, in one study, the type of attachment that influenced this association differed by gender, such that attachment anxiety amplified the association between FOV (i.e., interparental and parent-to-child aggression) and DA perpetration among male adolescents, whereas attachment avoidance exacerbated this association among female adolescents (Grych & Kinsfogel, 2010). Another study demonstrated that among women, parent-to-child aggression was indirectly related to DA perpetration via attachment anxiety, but not attachment avoidance among college students (Lee et al., 2014). Although significantly less documented in empirical literature, attachment avoidance has been linked to DA victimization (Bonache et al., 2017). Though these findings provide evidence for including attachment in studies of intergenerational violence transmission, their inconsistencies underscore the need for more research on this topic. Particularly, few studies have examined the influence of these insecure attachment styles on both victimization and perpetration, and even fewer have tested if this generalizes to cyber DA.

The Current Study

Although limited, recent studies suggested that experiencing FOV is related to cyber DA and attachment insecurity, and attachment insecurity is associated with cyber DA (e.g., Celsi et al., 2021; Toplu-Demirtaş et al., 2020). Although

there is increasing research linking attachment insecurity to cyber DA perpetration, no known study prior to this has tested whether experiencing and witnessing FOV is indirectly related to cyber DA perpetration and victimization through attachment insecurity. Additionally, as cyber DA does not have methodological standardization across studies (Caridade et al., 2019), examining these associations across forms of cyber DA (i.e., monitoring/controlling, sexual DA, direct aggression) is important for understanding the extent to which these mechanisms predict individual cyber DA behaviors. Therefore, this study uniquely examined how forms of attachment insecurity and FOV differentially relate to these forms of cyber DA perpetration and victimization.

In the current study, we aimed to examine whether experiencing parent-to-child aggression and witnessing interparental aggression in childhood were indirectly related to later cyber DA perpetration and victimization across forms via attachment anxiety and attachment avoidance. We examined this model while statistically controlling for the effects of age and gender, as these were correlated with several study variables. Further, there are mixed findings regarding gender differences in cyber DA prevalence (Caridade et al., 2019). Rather, there may be gender differences in attitudes toward certain cyber DA behaviors and the type of behavior used to perpetrate cyber DA (Brown et al., 2020). Thus, controlling for gender is particularly important when studying forms of cyber DA. Because previous cross-sectional findings suggested that alcohol problems may increase risk for cyber DA perpetration (Brem et al., 2019; Zweig et al., 2014), we also controlled for alcohol use/problems. Consistent with prior research, we hypothesized that experiencing and witnessing FOV would relate to all forms of cyber DA perpetration and victimization via attachment anxiety. Additionally, we expected that experiencing and witnessing FOV would indirectly relate via attachment avoidance to all forms of cyber DA victimization, but not perpetration. Finally, consistent with findings from Reed et al. (2015), we expected attachment avoidance would have a negative relation with cyber monitoring/controlling perpetration (for the hypothesized model, see Fig. 1).

Method

Participants and Procedures

Study procedures received Institutional Review Board (IRB) approval from the last author's institution. We recruited 588 participants (68.7% female) from undergraduate psychology courses at a large, public, southeastern university, who were informed they could earn partial course credit for participating. Eligibility criteria included being at least 18 years old and in a romantic relationship for at least one

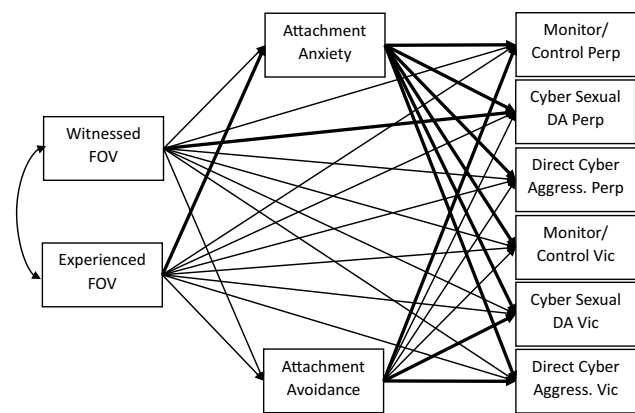


Fig. 1 Path model of the effects of parent-to-child aggression and interparental aggression on cyber DA types and forms, mediated by attachment anxiety and attachment avoidance. *Note.* Path model included gender, age, and alcohol use/problems as covariates. Paths in bold were statistically significant at $p < .05$. Witnessed FOV = witnessed interparental aggression; Experienced FOV = experienced parent-to-child aggression

month. To be included in analyses, participants also had to report they owned and used a smartphone (i.e., a phone that had access to the Internet). Nearly all (99.3%) participants reported that they owned and used a smartphone; participants who endorsed not owning a smartphone were excluded from analyses, resulting in a final sample of 584 participants. Participants who chose to participate in our study and met eligibility criteria completed an online survey via Qualtrics.com. Most participants identified as heterosexual (88.1%), whereas 7.8% of participants identified as bisexual and 2.6% identified as homosexual. The remaining participants identified as another sexual orientation (e.g., queer, pansexual, asexual; 1.4%). The mean age of participants was 18.94 years ($SD = 1.72$). The sample was predominantly White (83.5%) followed by Black/African American (7.7%), Asian/Pacific Islander (5.8%), Hispanic/Latinx (4.3%), Indian/Middle Eastern (2.0%), and other (2.4%).

Measures

Demographics

Participants provided their age, year in college, gender identity, relationship length, sexual orientation, race/ethnicity, and technology use habits in a demographic questionnaire.

Alcohol Use and Problems

The 10-item Alcohol Use Disorders Identification Test (AUDIT; Saunders et al., 1993) measured alcohol use and problems within the past year. This measure assessed the intensity and frequency of drinking, symptoms of tolerance

and dependence, and negative consequences after alcohol use. Previous investigations of the AUDIT among college students demonstrated acceptable internal reliability (Brem et al., 2019; Zweig et al., 2014). In the present study, the AUDIT also demonstrated acceptable internal reliability ($\alpha=0.84$).

Family of Origin Violence

We used a four-item scale adapted from Parent–Child Conflict Tactics Scales to assess FOV (Straus et al., 1998). Participants were presented a list of violent acts (e.g., “slapped,” “kicked, bit, punched, or hit with a fist,” and “slammed against a wall”) and rated how frequently these acts occurred across interparental (i.e., father-to-mother, mother-to-father) and parent–child (i.e., mother-to-child, father-to-child) dyads before the age of 18. Respondents were asked to rate this on an 8-point Likert scale (0 = *never*; 8 = *more than 50 times*) with higher scores indicating more frequent interparental (i.e., witnessing) and/or parent-to-child (i.e., experiencing) aggression. We dichotomized (0 = *no history*, 1 = *history*) responses into two variables, one representing a history of witnessing interparental aggression and the other representing a history of experiencing parent-to-child aggression.

Attachment Insecurity

To measure attachment insecurity, we used the Experiences in Close Relationships-Revised Scale (ECR-R; Fraley et al., 2000). The ECR-R uses 36 items to assess attachment insecurity across two 18-item subscales measuring attachment anxiety (e.g., “I often worry that my partner will not want to stay with me”) and attachment avoidance (e.g., “I get uncomfortable when a romantic partner wants to be very close”). Respondents were asked to rate each item on a seven-point Likert scale, with higher scores indicating greater attachment anxiety or avoidance. Among a sample of young adults in dating relationships, both subscales previously demonstrated strong internal consistency across gender (Goncy & van Dulmen, 2016). Both the attachment anxiety ($\alpha=0.94$) and attachment avoidance ($\alpha=0.94$) subscales demonstrated strong internal consistency in the present study.

Cyber Dating Abuse

Cyber DA perpetration and victimization was measured using the 36-item Digital Dating Abuse (DDA) scale which includes two sets of 18 parallel victimization and perpetration items (Reed et al., 2017). The DDA assessed respondents’ experiences of cyber DA in their current dating relationship and has three subscales for both victimization and perpetration (i.e., six total subscales): digital sexual coercion (e.g., “I sent my partner a sexual/naked photo that my

partner did not want/ask for”), digital direct aggression (e.g., “My partner sent me a threatening message”), and digital monitoring/controlling (e.g., “I monitored my partner’s whereabouts and activities”). Responses to DDA ranged from 1 (*never*) to 4 (*very often*). We computed average scores for each of the six final subscales. The DDA previously demonstrated acceptable internal consistency across subscales ($\alpha=0.67-81$; Reed et al., 2018). In this sample, the overall DDA demonstrated strong internal consistency ($\alpha=0.90$) and acceptable internal consistency across subscales ($\alpha=0.65-0.84$).

Data Analytic Strategy

We used SPSS Version 27.0 to examine descriptive statistics and bivariate correlations and to calculate internal consistency of study variables. All forms of cyber DA evidenced positive skewness (skewness = 2.24–4.17, $SE=0.10$). Therefore, we log-transformed these six variables prior to conducting further analyses.

To test study hypotheses, we conducted path analysis using Mplus Version 8.5 which allows for simultaneous testing of regression equations. Maximum likelihood estimation was used to handle missing data. Further, as maximum likelihood is robust to issues of nonnormality, using this technique further accounted for nonnormally distributed variables in this study (i.e., all forms and types of cyber DA; Kline, 2015). As illustrated in Fig. 1, we simultaneously regressed all cyber DA types (i.e., perpetration, victimization) and forms (i.e., direct aggression, sexual DA, monitoring/controlling) on both forms of attachment insecurity (i.e., anxiety, avoidance). We also regressed attachment insecurity forms and cyber DA types and forms on both forms of FOV (i.e., experiencing parent-to-child aggression, witnessing interparental aggression). Finally, we controlled for alcohol use/problems, gender, and age by including them as additional predictor variables in all regression equations. The model was fully saturated which produced perfect model fit to the data; therefore, we did not examine or report model fit indices (Kline, 2015).

When testing whether FOV forms were indirectly related to cyber DA types and forms through attachment insecurity, we used bias-corrected bootstrap method procedures. Using bootstrapping resampling allowed us to estimate indirect effects more accurately without relying on the normal distribution assumption (Shrout & Bolger, 2002). The use of bias-corrected confidence intervals also corrects for biases that may accompany the use of conventional mediation tests, such as the Sobel test (MacKinnon et al., 2004). We used 5,000 bootstrapped samples and 95% bias-corrected confidence intervals to test for significant indirect effects between FOV and cyber DA via attachment insecurity. Indirect effects were considered significant if the bias-corrected

confidence interval did not include a 0 value. To compare results from the bootstrapping method with traditional methods of testing mediation, we calculated indirect effects using the product of coefficients approach and evaluated these effects for significance with Sobel tests (MacKinnon et al., 2004; Sobel, 1986).

Results

Descriptive Statistics

Means, standard deviations, and bivariate correlations among study variables are reported in Table 1.

Path Analyses

Results of path analyses are presented in Table 2 and Fig. 1. Findings demonstrated a statistically significant path from

Table 1 Means, standard deviations, and bivariate correlations among study variables

	1	2	3	4	5	6	7	8	9	10	11	12	13
1. Age	-												
2. Gender	-.21**	-											
3. AUDIT	.03	-.09*	-										
4. Anxiety	-.02	.08	.10*	-									
5. Avoidance	.06	-.05	.10*	.30**	-								
6. Witness	.01	.07	-.04	.16**	.03	-							
7. Experience	-.00	.04	.07	.21**	.08	.34**	-						
8. SDA Vic	.01	-.14**	.22**	.23**	.23**	.07	.10*	-					
9. DA Vic	.05	-.17**	.23**	.24**	.19**	.06	.08	.52**	-				
10. MC Vic	.06	-.25**	.22**	.16**	.08	.04	.08	.25**	.53**	-			
11. SDA Perp	.09*	-.26**	.24**	.25**	.11*	.11**	.08	.50**	.42**	.38**	-		
12. DA Perp	.06	-.15**	.21**	.17**	.11**	.09*	.08*	.34**	.66**	.33**	.49**	-	
13. MC Perp	.04	-.03	.16**	.34**	-.04	.14**	.12**	.28**	.44**	.51**	.34**	.50**	-
<i>M</i>	18.94	1.70	4.57	3.25	2.72	.16	.19	1.15	1.09	1.31	1.09	1.05	1.23
<i>SD</i>	1.72	—	4.62	1.31	1.20	—	—	.33	.21	.50	.24	.17	.36

AUDIT Alcohol Use and Problems, *Anxiety* Attachment Anxiety, *Avoidance* Attachment Avoidance, *Witness* Witnessing Interparental Aggression, *Experience* Experiencing Parent-to-Child Aggression, *SDA Vic* Cyber Sexual DA Victimization, *DA Vic* Direct Cyber Aggression Victimization, *MC Vic* Cyber Monitoring/Controlling Victimization; *SDA Perp* Cyber Sexual DA Perpetration; *DA Perp* Direct Cyber Aggression Perpetration; *MC Perp* Cyber Monitoring/Controlling Perpetration

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

Table 2 Standardized coefficients from FOV, attachment insecurity, and control variables to cyber DA

	Mediators		Cyber DA Victimization			Cyber DA Perpetration		
	Anxiety	Avoidance	Direct Cyber Aggression	Sexual DA	Monitor/ Control	Direct Cyber Aggression	Sexual DA	Monitor/ Control
Age	-.01 (.04)	-.05 (.05)	.01 (.03)	-.03 (.04)	-.00 (.06)	.03 (.04)	.03 (.03)	.04 (.05)
Gender	.10* (.04)	-.02 (.04)	-.17*** (.04)	-.13** (.04)	-.25*** (.04)	-.14*** (.04)	-.24*** (.04)	-.05 (.04)
Alcohol Use	.10* (.04)	.10* (.04)	.18*** (.05)	.18*** (.05)	.18*** (.05)	.17*** (.05)	.21*** (.05)	.14** (.05)
Experiencing	.17*** (.04)	.06 (.04)	.01 (.05)	.03 (.05)	.02 (.04)	.04 (.06)	-.00 (.04)	.02 (.05)
Witnessing	.09 (.05)	.01 (.05)	.00 (.05)	.04 (.04)	.05 (.04)	.03 (.06)	.11* (.05)	.07 (.05)
Anxiety	—	—	.22*** (.05)	.17*** (.05)	.16*** (.05)	.16** (.05)	.15*** (.05)	.37*** (.04)
Avoidance	—	—	.08* (.04)	.15*** (.04)	-.01 (.04)	.02 (.04)	.01 (.04)	-.19*** (.04)

Standard errors are in parentheses. *Witnessing* Witnessing Interparental Aggression, *Experiencing* Experiencing Parent-to-Child Aggression; *Anxiety* Attachment Anxiety; *Avoidance* Attachment Avoidance

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

witnessing interparental aggression to cyber sexual DA perpetration. Additionally, the path from experiencing parent-to-child aggression to attachment anxiety was statistically significant. Paths from attachment anxiety to all forms of cyber DA perpetration and victimization were also statistically significant. Although no paths linked FOV to attachment avoidance, there were significant paths from attachment avoidance to cyber monitoring/controlling perpetration, direct cyber aggression victimization, and cyber sexual DA victimization. Notably, attachment avoidance had positive effects on direct cyber aggression victimization and cyber sexual DA victimization; however, the coefficient on the path from attachment avoidance to cyber monitoring/controlling was negative.

Tests of Mediation

Results of mediation analyses are displayed in Table 3. Both approaches we used to test indirect effects (i.e., bootstrapping, products of coefficients) demonstrated consistent findings. As there were no significant paths from either form of FOV to attachment avoidance and witnessing interparental aggression was not linked to either form of attachment insecurity, we only tested indirect effects from experiencing parent-to-child aggression to cyber DA types and forms via attachment anxiety. Bootstrapping tests for indirect effects demonstrated experiencing parent-to-child aggression had positive indirect effects on all forms of cyber DA perpetration and victimization through attachment anxiety.

Discussion

This study investigated whether the intergenerational transmission of violence extends to cyber DA through the lens of attachment theory. Consistent with expectations, results supported that attachment anxiety, but not attachment

avoidance, indirectly linked FOV to all forms of cyber DA victimization and perpetration, independent of the effects of age, gender, and alcohol use/problems. This extends prior research examining the effects of attachment anxiety on the relation between FOV and DA (Goncy & van Dulmen, 2016; Grych & Kinsfogel, 2010; Lee et al., 2014) by testing these associations on cyber DA rather than traditional manifestations of DA. According to these results, young adults who endorse experiencing parent-to-child aggression are more vulnerable to developing an anxious attachment style and, in turn, being a victim and perpetrator of cyber DA.

Attachment theory posits that experiencing childhood maltreatment perpetrated by parents may alter a child's internal working models of relationships and interfere with their ability to form a secure attachment style (Bowlby, 1969). Parent-child relationships provide a foundation for children to determine whether they will be accepted, rejected, supported, or dismissed in subsequent close relationships. Therefore, parents who use aggressive, controlling, and/or coercive parenting styles likely communicate rejection to their children. Experiencing rejection from caregivers, one's primary source of attachment in early life, may lead people to anxiously expect rejection from others when they form relationships in adolescence and young adulthood (Volz & Kerig, 2010). This hypothesis is supported by our findings linking experiencing parent-to-child aggression to attachment anxiety. According to social learning theory, children may also learn and internalize behavior from their social environment (Bandura & Walters, 1977). By internalizing aggressive, controlling, and coercive practices from within the family of origin, one may be predisposed to consider these behaviors an acceptable way to resolve conflict and treat others, which may manifest in interactions with romantic partners (Schelbe & Geiger, 2017).

As few studies have examined how these developmental antecedents and internalization of behavior may influence online interactions, this study bridges a substantial gap in

Table 3 Mediation of the effects of parent-to-child aggression on forms of cyber DA perpetration and victimization through attachment anxiety

	Point Estimate	Products of Coefficients			Bootstrapping	
		SE	Z	P	Lower 95% BCa CI	Upper 95% BCa CI
Direct Aggression Perp	.03	.01	2.56	.01*	.01	.06
Sexual DA Perp	.03	.01	2.45	.01*	.01	.05
Monitor/Control Perp	.06	.02	3.86	.00***	.03	.10
Direct Aggression Vic	.04	.01	3.06	.00**	.02	.07
Sexual DA Vic	.04	.01	2.65	.01**	.01	.06
Monitor/Control Vic	.03	.01	2.56	.01*	.01	.05

Standardized estimates are shown. *BCa CI* Bias-corrected and accelerated confidence interval; 5,000 bootstrap samples

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

empirical literature. In particular, cyber DA primarily occurs in the context of physical separation from a romantic partner. Individuals with attachment anxiety are more likely to be uncomfortable with physical and emotional distance from romantic partners (Bowlby, 1982) and this study provides evidence to suggest that this discomfort may provoke people with attachment anxiety to use technology to relieve anxious feelings associated with distance from their partner. According to our findings, partners with anxious attachment styles are more likely to monitor and control their partner's whereabouts, which may be a strategy to avoid rejection and maintain security in their relationship when they are not near their romantic partner. As attachment anxiety was associated with more direct cyber aggression perpetration, this technology-facilitated aggression may stem from intense reactions to perceived rejection and/or anger after making negative attributions about their partner's behavior when experiencing relationship insecurity (Campbell & Marshall, 2011). These reactions may also be exacerbated by the combination of greater ambiguity in online interactions and physical distance from romantic partners. Perpetrating cyber sexual abuse could also be another tactic for individuals with attachment anxiety to coerce their partners into verifying their commitment to the relationship, which allows people with anxious attachment styles to reassure their relationship's security. These associations with attachment anxiety were also present for cyber DA victimization across forms, which may reflect this behavior being normalized in the relationship considering the commonly bidirectional nature of DA (Bates, 2016). Another potential explanation could be that people with attachment anxiety may select romantic partners who also have anxious attachment styles.

When accounting for attachment avoidance and attachment anxiety in the path model, experiencing parent-to-child aggression and witnessing interparental aggression did not have significant direct paths to cyber DA, with the exception of the direct path between witnessing interparental aggression and cyber sexual DA perpetration. The lack of a significant direct relation between FOV and most forms of cyber DA perpetration and victimization is likely attributed to the consistently small-to-moderate association between FOV and DA (Goncy, 2020; Goncy et al., 2020). Indeed, correlation analyses revealed a small association between FOV and cyber DA in the present study and is consistent with the association observed with traditional forms of DA; however, this was only for certain types and forms which differed based on the form of FOV. Future research should replicate these findings to determine if there is a consistent pattern by which FOV forms are directly related to specific forms and types of cyber DA. Additionally, these findings should be replicated to determine if the direct path between witnessing interparental aggression and cyber sexual DA is unique to

this sample. In addition to considering differences between having a history of FOV or not, future efforts should also consider the severity, timing, and length of exposure to FOV forms when testing its effects on cyber DA.

Contrary to hypotheses, attachment avoidance was not related to either form of FOV, suggesting attachment avoidance may have alternative or more influential etiologies outside violence in the family of origin. However, consistent with prior research demonstrating that individuals with attachment avoidance may be more vulnerable to DA victimization (Spencer et al., 2021), attachment avoidance directly associated with several forms of cyber DA victimization. This may reflect situational factors that accompany DA which we did not assess in this study, such as situations where individuals with attachment avoidance may withdraw from conflict engagement, leaving engagement in the hands of the perpetrator (Bonache et al., 2017; Miga et al., 2010). Our findings also extended the impact of attachment avoidance on victimization to specific forms of cyber DA; attachment avoidance associated with increased cyber sexual DA and cyber monitoring/controlling victimization, but not direct cyber aggression victimization. As this is an emerging field of study, further studies on situational factors and relationship characteristics could reveal what underlies this relation.

In addition to being unrelated to cyber sexual DA and direct cyber aggression perpetration, attachment avoidance was negatively related to cyber monitoring/controlling perpetration. Our finding is consistent with prior research that demonstrated a negative association between attachment avoidance and electronic intrusion among women (Reed et al., 2015). This negative relation could be attributed to the general preference of individuals with attachment avoidance to have psychological, physical, and emotional distance with partners, and thus monitoring/controlling would disrupt this established distance. Additionally, given their predisposition to avoid discomfort, people with avoidant attachment styles may also avoid monitoring their partner's whereabouts or activities to evade distress associated with discovering partner dishonesty, infidelity, and/or rejection. Other explanations could include technology and social media habits, as individuals with avoidant attachment styles report decreased smartphone use and texting (Morey et al., 2013). Additionally, these individuals use social networking sites less frequently and generally hold more negative attitudes toward social networking sites (Oldmeadow et al., 2013). As a result, people with avoidant attachment styles are also less likely to experience jealousy related to social media (Marshall et al., 2013; Reed et al., 2015). These factors in tandem may decrease the likelihood of someone with avoidant attachment to engage in cyber monitoring behavior with their romantic partners. Compared to their peers with anxious attachment styles, individuals with avoidant attachment may also avoid using technology to perpetrate direct aggression and sexual DA.

Prevention and Intervention Implications

These findings pose several implications for cyber DA prevention and intervention. Evidence-based childhood interventions (e.g., Child-Parent Psychotherapy; Lieberman et al., 2018) that strengthen parent–child attachment relationships, address the caregiver’s trauma, and promote positive caregiving practices may reduce FOV (Narayan et al., 2021). Such parenting interventions might also decrease a child’s likelihood of developing an insecure attachment style, which could prevent cyber DA in later dating relationships. Additionally, a recent systematic review identified three prevention programs that target cyber DA (Galende et al., 2020). These effective preventive interventions focused on building skills (e.g., communication, conflict resolution), raising awareness, providing relationship education, and promoting the belief that individuals can change. However, a key limitation across these programs was a lacking theoretical basis (Galende et al., 2020). Findings from the present study support using trauma-informed and attachment-based theoretical foundations for future cyber DA prevention programs. From these theoretical foundations, prevention programs can focus on integrating appropriate mental health skills interventions into their curriculum.

Results suggest that attachment anxiety is a cognitive mechanism that underlies cyber DA perpetration and victimization across its behavioral manifestations. Implementing dialectical behavioral therapy (DBT) skill training (e.g., distress tolerance, emotion regulation) may prevent DA (Shorey et al., 2012; Waltz, 2003). These DBT skills could help people with attachment insecurity tolerate anxious feelings associated with distance from their romantic partner and prevent impulsive reactions that may manifest in online behavior. In addition to using mental health skills-based interventions, prevention program developers are encouraged to consider curriculum on healthy relationship skill-building with a particular focus on appropriate online behavior, which is a primary focus of existing cyber DA prevention programs (Galende et al., 2020). In individual psychotherapy settings, clinicians might target concurrent trauma (e.g., via prolonged exposure therapy) and attachment insecurity (e.g., via attachment narratives, systemic therapy, family therapy), which are effective at reducing attachment insecurity related to childhood maltreatment and violence exposure (Cobbett, 2021; Vetere & Dallos, 2008).

Limitations and Future Directions

There are several limitations that should be considered when interpreting these findings. First, there is limited generalizability as we tested these hypotheses in a sample of college students that were predominately White, non-Hispanic, heterosexual, and cisgender women. These findings should be

replicated among representative samples inclusive of racial, ethnic, sexual, and gender minority individuals to determine whether these findings generalize. Second, although we used mediation analyses that assume a specific order of events, we used a cross-sectional study design; therefore, we cannot assume causality in these findings. Future studies that use longitudinal designs could more robustly determine whether experiencing FOV predicts cyber DA via attachment insecurity. Third, by only including dichotomous FOV history in the model, we did not capture the depth of FOV experiences. Future studies assessing the effects of FOV on attachment and DA should consider differences across FOV behavioral manifestations (e.g., psychological abuse vs. physical abuse), severity, timing, and/or length of exposure.

Conclusion

This study expanded prior research on the intergenerational transmission of violence from FOV history to later cyber DA by examining the mediating effects of attachment insecurity among a sample of undergraduate students. Results indicated that attachment anxiety, but not attachment avoidance, explained the relation between experiencing parent-to-child aggression and all forms of cyber DA perpetration and victimization. Witnessing interparental aggression was unrelated to attachment anxiety and neither experiencing parent-to-child aggression nor witnessing interparental aggression associated with attachment avoidance. However, attachment avoidance directly associated with increased direct cyber aggression victimization, increased cyber sexual DA victimization, and decreased cyber monitoring/controlling perpetration. Future studies should replicate these findings among diverse samples using longitudinal designs.

Declarations

Conflict of Interest We have no known conflict of interest to disclose.

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