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“We’re not gonna be friends anymore”: Associations between Viewing Relational Aggression on Television Aggression and Relational Aggression in Text Messaging during Adolescence

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Abstract

A number of studies suggest that adolescents who view relational aggression on television are more likely to engage in higher levels of subsequent relational aggression in social interactions. This research examined longitudinal associations between viewing relational aggression on television and relationally aggressive behavior in text messaging over a one-year period during adolescence. Participants were 197 adolescents who completed a number of questionnaires regarding media use and aggression. Adolescents were each given a Blackberry device and a sample of text messages was coded for aggressive behavior. Results revealed that exposure to relational aggression on television was associated with higher levels of relational aggression in texting one year later, but only for girls. Results are discussed with reference to the General Aggression Model.

Keywords

media; texting; cell phone; relational aggression; social aggression; indirect aggression

Most adolescents are using media at remarkable rates: for example American teenagers are using nearly nine hours of entertainment media each day, excluding the media they use at school or for doing homework (Rideout, 2015). Additionally, youth spend more than six of those nine hours using screen media, including watching TV, movies, online videos, video, computer, and mobile games, and using social media and the Internet (Rideout, 2015). Indeed, the media have become a salient source of entertainment, knowledge, and a means of communication for adolescents today. Though multiple forms of new media have been created in recent years (e.g. social networking websites, video games), television viewing remains one of the most dominant forms of media use among both children and adolescents (Rideout, 2015). As such, it is important to be aware of what content adolescents are

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viewing on television, as content plays a large role in the outcomes associated with media use (e.g. Anderson et al., 2010). Relational aggression is seen frequently in adolescent television (e.g. Coyne & Archer, 2004), and has been associated with subsequent aggressive behavior in adolescence (e.g. Coyne, 2016).

Observational measures of aggression are commonly used in short-term, experimental media studies. However, questionnaires and self-report measures are used in the vast majority of research examining long-term outcomes of media aggression, and such measures may have significant bias and may lack ecological validity (see Underwood, Ehrenreich, & Meter, in press). Additionally, no study to our knowledge has examined long-term associations between media aggression and aggression via electronic communication. Therefore, the purpose of this paper is to explore longitudinal associations between viewing relational aggression on television and sending relationally aggressive text messages over a 1-year period during adolescence.

Relational Aggression and Media

Relational aggression, or behavior intended to harm or manipulate the relationships or social standings of individuals who do not wish to be harmed (Crick & Grotpeter, 1995), has been studied much less frequently than physical aggression, with regard to media research. A number of content analyses have been conducted on this topic, where relational aggression is seen frequently in popular media, including soap operas (Coyne & Archer, 2004), reality TV shows (Coyne, Robinson, & Nelson, 2010), and Disney movies (Coyne & Whitehead, 2008), as well as in television programs directed at both children (Linder & Gentile, 2009), and adolescents (Cecil, 2008). In sum, relationally aggressive portrayals are frequent in the media, though less research has examined the outcomes of viewing this type of aggression.

A great deal of research focuses specifically on the harmful effects of viewing violent media (e.g., Gentile, Coyne, & Walsh, 2011; Greitemeyer, & Mügge, 2014), but little research examines the implications of viewing relational aggression in the media. Indeed, cross-sectional research shows that viewing relationally aggressive behavior in the media was associated with higher levels of relationally aggressive cognitions and behavior in children (Martins et al., 2013), adolescents (Ward & Carlson, 2013), and in romantic relationships in emerging adulthood (Coyne, Nelson, Graham-Kevan, Tew, Meng, & Olsen, 2011). Most recently, one study examined the longitudinal nature of these associations, and discovered that viewing relational aggression in television during adolescence was associated with higher levels of relationally aggressive behavior three years later (Coyne, 2016).

Theoretical Assumptions

There are a number of theories that can be applied to the associations between viewing aggression in media and real-life aggression. The current study will utilize the General Aggression Model (Anderson & Bushman, 2002), which suggests that exposure to violent or aggressive media may influence aggressive attitudes and behavior in both short and long-term contexts. Though this theoretical model is typically applied to violent media, past research has utilized the General Aggression Model in examining the associations between

viewing relational aggression in media and subsequent aggressive behavior (Coyne, 2016; Martins, Coyne, & Linder, 2018). According to the model, repeated exposure to aggressive media may lead to the development of an aggressive personality through the development of aggressive attitudes and behavior, desensitization, and aggressive expectations, perceptions, and schemas. The long-term model then connects with the short-term as an individual with an aggressive personality is placed in various situations (e.g. viewing aggressive media) that may influence their present internal state including cognitions (e.g. aggressive thoughts), arousal (e.g. physiological arousal), and affect (e.g. angry or aggressive mood). In this way, viewing an aggressive episode on television may influence an individual to become angry, physiologically aroused, and thinking about hurting others, which may influence them to react more aggressively when provoked. This theory, along with a multitude of existing research on the topic, suggests that viewing aggressive behavior on television may influence subsequent aggression in adolescents in the long-term.

One major criticism of the media aggression field is that aggression is often measured using questionnaires (often self-report), especially when examining long-term effects. The major purpose of the current study is to examine whether exposure to media relational aggression might be associated with relational aggression via text messaging, which may represent a more ecologically valid way of examining aggressive behavior during adolescence.

Text Messaging in Adolescence

Research has examined the frequency of mobile phone use in the adolescent age group, where 78% of adolescents have their own smartphone and report that texting is the most common way that they communicate with their friends (Anderson, 2015). Additionally, teenagers are sending an average of 55 texts per day (Rideout, 2015), and many say their social lives would end if they had to stop texting (CTIA, 2008). Although it is clear that text messaging is a popular form of communication among adolescents, little research has focused specifically on the content of text messages sent and received by adolescents. One study examined the content of adolescent text messages by giving each participant a Blackberry mobile device to use for a number of weeks (Underwood, Ehrenreich, More, Solis, & Brinkley, 2015). All text messages sent and received by the participants were coded for content, and results showed that most adolescents were sending positive or neutral messages to their peers (e.g. "Tina was telling all the girls how hot you looked," "my mom will pick me up later"). Additionally, many teens were participating in negative talk (e.g. "Dont even fuckin hit me up anymore. Delete everything. I never stepped into ur life. Duces nigga."). Though "negative talk" in this study was somewhat infrequent, some research has examined the effects of sending and receiving these aggressive types of text messages.

Existing research reveals that discussion of aggression have been seen in adolescent text messages. For example, one study found that 15% of adolescents have been the recipient of a threatening message, and 3% report sending threatening messages to others online (Berson, Berson, & Ferron, 2002). Additionally, research shows that 7% of adolescent text messages contain obscenities (Underwood, Rosen, More, Ehrenreich, & Gentsch, 2012), and that text messaging has been used to physically, sexually, and psychologically abuse a romantic partner (Reed, Tolman, & Ward, 2016). Research also shows that relational

aggression, such as rumor spreading, gossiping, and talking behind people's backs, is seen in text messaging (Allen, 2012), where relationally aggressive behavior over text messaging has been associated with reduced feelings of belonging, lower self-esteem, worse mood (Smith & Williams, 2004).

Gender Differences

Media are used ubiquitously among adolescents, though research shows that teenage boys and girls use media differently. For example, one study found that among teens, boys and girls are spending approximately the same amount of time using media each day. However, girls spend more time using social media and listening to music (Rideout, 2015) whereas boys report spending more time playing video games each day (Ohannessian, 2009). Additionally, research shows that more than half of adolescents (boys and girls) report sending text messages every day, though girls send far more texts throughout the day (girls send 69, boys send 39 text daily; Rideout, 2015). Further, one study examined texting behavior in adolescence and found that females of higher class rank (e.g. seniors vs. sophomore) reported extremely high texting frequencies when compared with both genders of other class ranks (Schroeder, Alavez, & Sims, 2016). It is important to note the differential effects of media use on boys and girls in adolescence, where spending more time using media was associated with higher levels of depression and anxiety for adolescent girls, but not for adolescent boys (Ohannessian, 2009).

In addition to gender differences in media use in adolescence, there is also some research showing gender differences in exposure to aggression in media, and in aggressive behavior in general (e.g., Padilla-Walker, Nelson, Carroll, & Jensen, 2010). For example, adolescent girls view more relational aggression on television than boys do during late adolescence (Coyne, 2016). Additionally, research shows that females are more likely to be depicted acting in relationally aggressive ways on television than males (Coyne et al., 2010), and that when women view reality type television shows (which are known to depict high levels of relational aggression) they are more likely to value relationally aggressive behavior (Behm-Morawitz, Lewallen, & Miller, 2016). However, there is no strong evidence suggesting that females are more relationally aggressive than males in general (Archer, 2004; Card, Stucky, Sawalani, & Little, 2008). Thus, research shows that there are differences in terms of media usage, as well as in aggressive behavior between males and females. The current study examines gender as a moderator to determine whether viewing aggressive behavior in media differentially influences the amount of aggressive text messages sent by adolescents.

The Current Study

The current study investigates whether viewing relational aggression in media is associated with increased relationally aggressive behavior in the form of aggressive text messaging among adolescents. This study adds to the research literature in a number of significant ways. First, it is the first study to our knowledge to examine longitudinal associations between media aggression and aggression in electronic communication (specifically, texting). Second, the methodology allows us to examine real-life communication related to aggressive behavior, which is rare in longitudinal media aggression research. Finally, this

study adds to the growing literature on relational aggression and media, specifically, being only the second longitudinal study on this topic. In line with the General Aggression Model, we hypothesize that viewing higher levels of relational aggression on television will be associated with more relational aggression in texting over time.

Methods

Participants

Participants were part of a longitudinal study examining the precursors, trajectories, and outcomes of aggression. Participants were initially recruited during the 3rd or 4th grade from elementary schools in a school district in a suburb of a large metropolitan area in the southern-central United States. Adolescents were invited to participate in the second wave of the research project ahead of their annual visits during the summer prior to entering high school in the 9th grade. At this time, the details of the project were explained to the participants and their parents, including that they would be provided with a BlackBerry phone configured to capture all text message and email communication sent and received by the device. The sample for this analysis will include 197 participants (96 girls) provided with BlackBerries in the tenth and eleventh grades ($M_{age} = 14.07$ and 15.33 years old respectively). In the 10th grade, 54.5 percent of parents reported the participant as Caucasian, 22.3% African American, 16.3% Hispanic, and 7% reported being of another race, mixed race, or did not report their race. Of those whose parents reported annual income, 15.9% earned less than \$25,000, 17.7% earned \$25,000 – 50,000, 22.2% earned \$51,000 – 75,000, 18.2% earned \$76,000 – 100,000, and 26.7% earned more than \$101,000. Attrition between the summer before tenth grade and the summer before 11th grade was 11.1% ($n=22$). T-tests were conducted, and these participants did not differ significantly on baseline ratings of texting behavior.

Procedures

Participants were tested twice, approximately one year apart. Wave 1 predominately took place during 10th grade, and Wave 2 during 11th grade. Adolescents completed a number of questionnaires during this time, including media use. Additionally, adolescents were also provided with a new BlackBerry device. Service plans with unlimited text messaging and data plans were provided by the investigators. All text messages were captured and stored in a secure, off-site archive maintained by Global Relay, a company specializing in archiving digital communication. Underwood, et al., (2012) and Ehrenreich, Underwood, & Ackerman (2014) provide further details regarding this method and ethical considerations.

Measures

Television aggression and time.—Adolescents listed their three favorite television programs and rated how frequently they viewed each program on a scale of 1 (*not frequently*) to 7 (*extremely frequently*). Time spent viewing television programs was used as a covariate in all analyses. These programs were then reviewed by 752 independent raters (37% male, $M_{age} = 23.67$, $SD = 8.69$), who were asked to rate how much relational aggression was in each program they were familiar with (i.e., had viewed regularly). Raters were recruited through online postings, word-of-mouth, or fliers on campus from multiple

high schools and universities across the United States and completed the ratings online. Raters were provided with a full definition and several examples. Aggression ratings were based on a 1 (e.g., *not aggressive*) to 5 (e.g., *extremely aggressive*) Likert scale.

The raters evaluated 352 different programs and the mean ratings given by the raters of a particular program (at least two raters per show) were determined. Inter-rater reliability was assessed using intraclass correlations (ICC) which are appropriate when using continuous data (e.g., Shrout & Fleiss, 1979). Expert ratings are commonly used in media violence research (e.g., Huesmann, et al., 2003; Krahé, et al., 2010; Möller, & Krahé, 2009) and show high reliability, convergent validity, predictive validity, and discriminant validity across multiple cultures and ages (Busching, et al., 2013). Intraclass correlations showed moderate reliability in the current study. Averages across the three shows were used for both relationally and physically aggressive content, with higher scores representative of more aggressive content overall.

It should be noted that we also computed an interaction between content and time (so that aggressive programs viewed more frequently were given greater weight in the analyses). However, once main effects were included in the model, no interaction influenced any of the variables; therefore, these were dropped from the model. Coyne (2016) and Padilla-Walker et al., (2015) provide statistical justification of this technique.

Relational aggression in text messages.—Given that over 500,000 text messages were archived each month, coding all archived SMS content was not feasible. Four days of text messaging for each participant were selected for micro-coding during the 10th and 11th grade years: two days each in the fall prior to the school's homecoming football game and dance and the day before Valentine's Day and Valentine's Day. These two 2-day periods were chosen because we anticipated increased social interaction (both positive and negative) to coincide with the numerous social activities associated with Homecoming and Valentine's Day. If a participant did not have any archived communication during these two periods (because of non-use or phone malfunction), alternative dates were chosen by expanding the search before and after the given 2-day period.

Transcripts of the text messages were then formatted for coding (see Underwood et al., 2012 and Ehrenreich, et al., 2014 for more details). Formatted transcripts were randomly distributed to a team of 24 trained micro-coders. A graduate research assistant trained graduate and undergraduate micro-coders for approximately 8 weeks. Coders were required to achieve inter-coder reliability greater than $\kappa = .6$ on the final five practice transcripts prior to completing training. Following training, twenty percent of the transcripts were coded by a second coder to ensure continued inter-rater reliability. A coding system was developed for relational aggression. Given that relational aggression does not involve any physical context and primarily takes place via words, it was possible to code relational aggression directly from text messaging. Each utterance refers to a complete thought; an individual text message may contain a single utterance, or multiple utterances. The two-day transcripts were coded chronologically, reviewing sent and received messages in the same order in which the participant exchanged them. This provided the coder with a significant amount of contextual information, including their previous interactions with the person they were

communicating with over within the days that were coded, as well as their communication with the rest of the peer group that could be pertinent (e.g. instances of relational aggression when participants might reveal deceit and exclusion toward one peer in their communication with another peer). When the coder could not confidently discern the meaning of a text message, the exchange was discussed by the entire coding team. If after this discussion the team was still not confident about the meaning of a message, the utterance was coded as neutral talk. Defaulting to neutral talk in ambiguous circumstances ensures the reported frequencies of texting behavior represent conservative estimates.

Relational aggression in texting consisted of a combination of two different codes including social exclusion and friendship manipulation. The relational aggression code had acceptable reliability ($\kappa = .69$). An interaction that highlights this type of manipulative behavior is presented below.

(9:59:17 am) Rebecca to Nick: “Im obviously not fine. You promised me youd spend the weekend with me. Now youre going to go off with Paul. Peace.”

(9:59:22 am) Nick to Rebecca: “What? No I’m not. I can not see him if that’s what you want, its no problem. I’m sorry. I just want my best friend to meet the girl I want to marry”

(9:59:24 am) Rebecca to Nick: “Whatever just go then.”

(9:59:30 am) Rebecca to Nick: “Im replying shortly because im hurt. Doesnt look like you care”

(9:59:35 am) Nick to Rebecca: “I’m not going. I’m going to spend time with you”

(10:23:02 am) Nick to Paul: “Wait 2nd thought bro I’ll hang with you saturday night, that cool?”

(10:23:08 am) Nick to Rebecca: “I’m Going to spend all weekend with you. That hasn’t changed. I’m glad you know I care about you.”

(10:23:11 am) Nick to Rebecca: “I know. Your My girl. And that means I’ll anything for you to show you my love for you. Your not just a girl, your an angel”

(10:33:55 am) Nick to Rebecca: “I love you rebecca. I can’t wait to spend time with you. Your everything to me”

(10:34:06 am) Nick to Rebecca: “I’m sorry...”

Results

Preliminary Analyses

Preliminary statistics are provided for Wave 1 only for parsimony, though statistics for Wave 2 can be obtained by contacting the primary author. A Multivariate Analysis of Variance (MANOVA) revealed that there were no significant gender differences between variables, $F(4, 149) = .86, p = .49$, partial $\eta^2 = .03$. Means and standard deviations for these analyses can be viewed in Table 1. Additionally, bivariate correlations were conducted for all major variables (see Table 2).

Main Analyses

The model examined bidirectional effects of aggression in media on aggression in texting over a one year time period. Overall frequency of texting and overall television time were used as covariates in both models. Additionally, a robust maximum likelihood estimator analysis was utilized, given that most variables in the model were skewed. Texting variables were treated as count variables in each model. Such specification made the two typical multigroup analysis not feasible in the current software (Mplus, v7.4). Thus, a mixture modeling with known classes (male vs female) was estimated, with group differences in the parameters estimated by creating new parameters that reflect such differences through the model constraint command (e.g. $P_{\text{dif}} = P_{\text{male}} - P_{\text{female}}$). If the new parameter is statistically significantly different from zero, it indicates a group difference (Muthén, 2010). The typical goodness of fit indices of a structural equation modeling are not available and thus not reported. We compared a few models that concern the dependent count variables, such as Poisson, zero-inflated Poisson, negative binomial, and zero inflated negative binomial in terms of Bayesian Information Criterion (BIC), and found the negative binomial model was the best specification for the dependent part of the full model (i.e. BIC was smallest for this model than for other models, indicating better fit).

We first tested for group differences as a function of gender using a mixture model. Path coefficients were individually compared and significant gender differences ($p < .05$) were found on two different paths (relational aggression television (wave 1) to relational aggression texting (wave 2); overall television time (wave 1) to relational aggression texting (wave 2)). Therefore, these paths were unconstrained by gender in the final model, while all other paths were constrained.

For girls only, viewing relational aggression on television was associated with greater use of relational aggression in texting one year later ($\beta = .73, p < .001$) (See Figure 1). Conversely, initial levels of relational aggression in texting was not associated with higher levels of viewing relational aggression the next year for either boys or girls ($\beta = -.16, p = .22$). Overall time spent viewing television was associated with a lower use of relational aggression in texting. Stability paths were again highly significant over time.

Discussion

This study examined the longitudinal association between viewing relationally aggressive television and sending aggressive text messages. In summary, as we predicted, viewing relationally aggressive TV predicted higher levels of relational aggression in text messages (for girls only). Viewing relationally aggressive television predicted increases in sending relationally aggressive text messages for girls. Previous research suggests that when women view highly relationally aggressive content on television, they are more likely to value this type of behavior themselves (Behm-Morawitz et al., 2016). Given that text messages are an ideal platform for gossiping, excluding others and, manipulating relationships, it is not surprising that viewing this content relates to higher levels of this form of behavior in text messages. In fact, direct observation of text message communication may actually be a more realistic assessment of adolescent's relational aggression than other reports.

It was interesting that the association between relationally aggressive television and aggressive text messaging was only significant for girls. Results revealed that time spent watching television in general better predicted sending relationally aggressive texts for boys, than viewing relational aggression in television specifically. Previous research suggests that there are not meaningful differences in boys' and girls' involvement in relationally aggressive behavior (Archer, 2004; Card, Stucky, Sawalani & Little, 2008). Within this sample there were no gender differences in mean levels of relationally aggressive television, text messages, or behavior. Although empirical evidence suggests that boys and girls engage in relational aggressive behavior at similar levels, there is nonetheless the social perception that relational aggression is a "female" form of aggression (Giles & Heyman, 2005), and indeed female television characters are more likely to be depicted engaging in relational aggression than male characters. The fact that relational aggression is more often enacted by female characters may lead to a stronger modeling effect for girls than for boys, accounting for this gender difference.

These findings should be considered in light of methodological limitations. Although the longitudinal nature of this study was a strength, there was a gap of several months between ratings of television and aggressive behavior, and when text messages were coded. Although the GAM proposes that viewing aggressive television should have a lasting effect on subsequent behavior, this study did not enable the examination of the immediate impact of viewing these types of television programs. Finally, text messaging lacks several social cues (e.g. body language, tone of voice) that might guide the coder in deciding whether relationally aggressive communication was genuine or made in jest. Given that these cues are absent for the communicators as well, observing the text messaging communication without these cues actually makes for a more ecologically valid form of observation. Although coders were also not privy to the shared understandings between participants and peers from previous on- and offline interactions, this is a challenge present in all forms of observational research.

Despite these limitations, this study also extends previous research in important ways. We used self-reports and observational data to overcome the issue of shared method variance that so often plagues aggression research. This study's use of direct observation of text message communication permitted the researchers to naturalistically observe adolescents' peer interactions via their most preferred form of communication (Anderson, 2015) with their full peer network over two days, providing an advancement over many other observational studies of aggression in the laboratory (Dishion & Andrews, 1995) or the classroom (Snyder et al., 2010). Given that text messaging is one of the primary forms of peer interaction among adolescents (Anderson, 2015), and teenagers are increasingly engaging with multiple media platforms simultaneously (Rideout, 2015), understanding how television and text message communication may work in tandem is an important advancement in research on aggressive behavior.

This study provides important future directions for research. Although these results provide limited support for an association between relational aggression in text messages and viewing relationally aggressive television, we consider that these two distinct media platforms nonetheless deserve further examination. According to the General Aggression

Model, exposure to media aggression can lead to increases in aggression not only by changing long-term behavior patterns, but also by creating an immediate pattern of aggressive cognition, affect, and arousal. Given that text messaging allows instantaneous access to the entire peer network (Anderson, 2015), it is possible that text messaging may allow adolescents to act quickly and impactfully upon the heightened arousal and aggressive cognitions that these types of television programs induce. When an adolescent views two characters bond with each other by gossiping about a third character, that adolescent can in turn text their own friend and engage in similar relational aggression *immediately*. Examining the association between viewing aggressive television and text messages *in real time* may not only reveal significant overlap in aggression in these two domains, but also provide researchers a highly naturalistic method for testing the immediate effect of viewing aggressive television as outlined by the GAM.

This study presents an initial investigation into the role of viewing relationally aggressive television and relationally aggressive text messaging. As adolescents' smartphones increasingly become a focal point for both media consumption and peer interaction, the lines between traditional media and digital communication will continue to blur. Understanding both the unique and combined impact of these variables on adolescent adjustment will become increasingly important.

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Figure 1: Relational aggression, texting, and television

Notes: Standardized values are shown. For model simplicity, all path weights and covariances are not shown for exogenous variables. Control variables are also not shown. Additionally, error terms for endogenous variables and covariances are not shown. All additional statistics can be obtained by contacting the author directly. Statistics before the slash represent girls, after the slash represent boys.

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

Table 1:

Means and Standard Deviations for Gender Differences for Major Variables

	Girls		Boys	
	M	SD	M	SD
Television Relational Aggression	3.32	.70	3.10	.80
Television Time	5.30	1.30	5.28	1.33
Texting Relational Aggression	1.08	1.69	1.06	2.99
Total Text Messages	366.28	277.13	381.09	391.82

Table 2:

Bivariate correlations between major variables

Variable	1.	2.	3.	4.	5.	6.	7.
1. Relational aggression TV 1	---	.55***	-.02	-.16	-.04	.09	-.11
2. Relational aggression TV 2	.31**	---	.06	-.15	-.17	-.10	-.18
3. Relational aggression texting 1	-.08	-.17	---	.33**	.01	-.05	.31**
4. Relational aggression texting 2	.20 ⁺	.22 ⁺	-.02	---	.29**	-.05	.28*
5. Time 1	.07	-.15	.06	-.10	---	.41***	.20 ⁺
6. Time 2	-.20 ⁺	-.09	-.21 ⁺	-.03	.42***	---	.12
7. Total text messages	-.10	.17	.17	.26*	.01	.01	---

Note: Statistics below the diagonal represent girls, above the diagonal represent boys.

⁺
 $p < .10$ *
 $p < .05$ **
 $p < .01$ ***
 $p < .001$