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Sexting Behaviors among Adolescents in Rural North Carolina: A Theoretical Examination of Low Self-Control and Deviant Peer Association

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Abstract

The purpose of this study is to assess the prevalence of sexting among high school students as well as examine the theoretical foundation toward explaining this type of behavior. Specifically, we examined data from a sample of high school students in rural North Carolina to determine if low self-control and deviant peer association are constructs for explaining sexting among youth. Results indicated that both theoretical constructs are in fact predictors of the behavior, as well as other variables.

Keywords: Sexting, Theory, Low Self Control, Deviant Peer Association.

Introduction

Cell phones have become a normal American commodity, much like computers and televisions. Much like other forms of technology, adolescents are frequent users of these devices. Lenhart (2012) estimated that 77% of 12-17 year olds own a cell phone and about 25% adolescents own a smart phone. While ownership of a cell phone can be useful for teenagers, it has also opened up a world of opportunity to participate in deviant behavior. Sexting, one the most prevalent issues in the media today, has especially become an issue within this age group (Benotsch, Snipes, Martin, & Bull, 2013; Hinduja & Patchin, 2010;

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Mitchell, Finkelhor, Jones, & Wolak, 2012; Wolak, Finkelhor, & Mitchell, 2012). While potentially entertaining for youth at the time of transmission, young people are not considering the potential consequences of these compromising images. For instance, the images can be sent and reposted to an unintended recipient (such as other peers or family members) or a potential employer may refuse an applicant a position as a result of an inappropriate picture.

Sexting is often referred to as sending or receiving sexually suggestive or explicit images from one cell phone to another (Hinduja & Patchin, 2010; Judge, 2012; Lenhart, 2009; Mitchell, Finkelhor, Jones & Wolak, 2012). Using this definition, Mitchell et al. (2012) indicated approximately 7% of teenagers have reported receipt of nude or almost nude images via cell phone, with half of these participants being females between the ages of 16 to 17 years old. Lenhart (2009) also found that 5% of teens admitted to sending these types of images. However, other research suggests that this is an underestimation of the occurrence of this behavior. For instance, Strassberg et al. (2013) sampled a private school in the Southwest and found that 40% of the respondents received a sexually explicit image on their cell phone.

It is important to note that some research has included the definition of sexting to include sending nude or sexually suggestive pictures via text or email. With this expanded definition, the frequency of occurrence differed based on recent research. MTV and the Associated Press (2009) found that 18% of young adults up to age 24 report receipt of a sext. Other studies indicated 15% to 30% of teenagers have received a sexting image (Lenhart, 2009; Rice et al., 2012; Temple et al., 2012).

There is also concern about the ease of dissemination of messages and pictures, which can be forwarded to dozens of recipients in a matter of seconds through a cell phone. While adolescents often view this behavior as harmless, it can result in legal consequences (Lee et al., 2013). Depending upon the recipient of the sexting material, as well as the distribution material, participation in this behavior can also be considered a child pornography offense (Eraker, 2010; Mitchell et al., 2012). It is illegal to send a sexual picture or video of oneself to individuals under the age of 18, or for a person over the age of 18 to possess these materials of a minor (Gillespie, 2011; Leary, 2010). However, many states in the United States have passed new legislation making it illegal for minors to possess child pornography, so a 16 year old high school student can be prosecuted for possession and distribution of a sexting picture. Strassburg et al. (2013) determined that 58% of youth were actually aware of the serious legal consequences associated with sexting. In addition, those youth in the study who had sexted were more aware of the legal consequences compared to those who had not sexted.

Sexting also has other adverse issues associated with the behavior. For instance, Reynolds, Burek, Henson and Fisher (2011) have found that youth who sext also have an increased likelihood of being victimized online in other ways (e.g., interpersonal relationship violence, and cyber bullying), especially female Internet users. This victimization can result in psychological distress, such as depression, anxiety and suicidal thoughts. Further, other studies have found a correlation between sexting and unsafe sex practices. Rice et al. (2012) and Benotsch et al. (2013) found that teenagers who sext are more likely to have unprotected sex, while Temple et al. (2012) determined that sexters will have multiple sexual partners and use drugs or alcohol before sex. In addition, Ferguson (2011) asserted that sexting behavior was positively associated with omission of birth control by teenagers while having sexual intercourse.

Participation in sexting has also been linked to minorities compared to White students. Dake et al. (2012) surveyed students in 35 middle schools and 26 high schools in the Midwest, with data from 1,289 youth analyzed for the study. Seventeen percent of the sample reported participating in sexting behavior; however, there was no difference in gender. Regarding race and ethnicity, Dake and colleagues indicated that this behavior was more likely to occur among minorities. Of the respondents in the sample that sexted, 32% of those were African American and 23% were White. Further, Dake et al. (2012) found that youth were also more likely to drink alcohol or smoke marijuana.

While there have been multiple recent studies publishing descriptive and frequency information of the occurrences, or even simple regression analysis, there is a gap in the amount of theoretical studies that examine this issue. There is a need to apply criminological theory to deviant behavior to better understand the predictors. The present study will be utilizing two criminological theories to investigate sexting among youth: General Theory of Crime and Social Learning Theory.

Theoretical Application

The first theory applied to sexting in this study is the General Theory of Crime, which asserts that low self-control is the predictive factor of criminality. Gottfredson and Hirschi's (1990) argued that individuals, who were exposed to ineffective parenting, including lack of bond, poor monitoring, and inconsistent or ineffective discipline, were more likely to develop low self-control (Gibbs, Giever, & Martin, 1998; Gibbs, Giever, & Higgins, 2003). Low self-control includes the inability to resist temptation when an opportunity presents itself as the individual does not consider the long-term consequences of their behavior. Individuals with low self-control are characterized as impulsive, insensitive, risk-taking, and attracted to simplistic tasks (Delisi, 1998). Gottfredson and Hirschi (1990) argued that individuals with low self-control are unable to see the consequences of their actions:

...the dimensions [characteristics] of self-control are, in our view, factors affecting the calculation of the consequences of one's acts. The impulsive or shortsighted person fails to consider the negative or painful consequences of his acts; the insensitive person has fewer negative consequences to consider; the less intelligent person also has fewer consequences to consider (has less to lose) (Gottfredson & Hirschi, 1990, p. 95).

Crime is attractive because it provides the immediate benefits for the individual with low self-control without considering the long-term impact of the act for themselves or others, whether legally or socially. This logic can be applied to sexting. The impulsive person is not likely to foresee the negative or painful consequences of sexting for the victim. Instead, the offender may only consider the enjoyment he or she will get from taking and/or sending the picture, and the popularity gained by participating in such behavior. Further, an inconsiderate person is not likely to care about the negative consequences of their victim.

This theory has been especially effective in explaining various types of cyber crime including illegal music downloading (Higgins, Wolfe, & Marcum, 2008; Hinduja & Ingram, 2008), movie piracy (Higgins et al., 2006; Higgins, Fell, & Wilson, 2007), and software piracy (Higgins & Wilson, 2006; Moon, McCluskey, & McCluskey, 2010). A few studies have even tested General Theory of Crime as a theoretical explanation for

hacking behaviors online (Bossler & Burruss, 2010; Holt, Bossler, & May, 2012). However, there is a gap in past research regarding the use of this theory to predict sexting.

The second theoretical application, Social Learning Theory, posits that crime is a learned behavior and this learning process involves four parts (Akers, 1998). Differential association in social learning theory refers to an individual's primary interactions with others in a group. Definitions refer to an individual's attitudes toward a behavior, including the techniques, rationalization, and drives to perform a behavior. Imitation of this behavior refers to witnessing someone else perform a behavior and emulating the behavior. Lastly, reinforcement refers to the anticipated and actual rewards of participation in the behavior, as well as the punishments that may promote the initiation and continuation of a behavior (Higgins & Marcum, 2011).

This version of social learning theory is complex. The complexity comes in the causal logic or timing of the social learning theory parts. However, Akers (1998) argued that a positive connection between social learning theory measures and a dependent measure provides sufficient support for the theory as a whole. For example, researchers show that differential association is the most supported part of social learning theory (Pratt et al., 2011). This indicates support for social learning theory, especially when considering Krohn's (1999) view that the majority of social learning takes place within differential association. In other words, social learning of sexting takes place within groups. Within groups, adolescents learn that sexting is socially acceptable by their peers and are encouraged to participate.

Multiple studies have shown support for Social Learning Theory to explain cyber crime (Bossler & Burruss, 2010; Higgins et al., 2007, 2008; Hinduja & Ingram, 2008; Holt et al., 2010; Ingram & Hinduja, 2008; Morris & Higgins, 2010). In addition, research has also indicated that individuals with lower levels of self-control gravitate toward deviant peer groups offline (Chapple, 2005; Longshore, Chang, Hsieh, & Messina, 2004) and online (e.g., Bossler & Holt, 2010; Higgins et al., 2006; Wolfe & Higgins, 2009). Again, while we are yet to have concrete evidence from past research indicating that this theory would effectively predict sexting in juveniles.

Present Study

Research has consistently indicated that individuals under the age of 18 are not only those who are most likely to be victimized online in multiple ways, but also have a high likelihood of perpetrating these types of crimes. Furthermore, as stated previously, there is still a gap in the theoretical literature that provides support of explanation of this behavior for this age group. The purpose of this study is provide a clearer picture of the amount of high school students who are participating in the cyber crime of sexting, as well as the predictors of such behaviors.

Methodology

Research Design

A rural county in western North Carolina was chosen to participate in the study. The Board of Education for that county provided approval for its students to participate. After obtaining Internal Review Board approval from the researcher's university, the principals of four high schools in this county agreed to allow their students to participate on a voluntary basis. All 9th through 12th graders were recruited for the study. First, a consent

form was sent home two weeks before administration of the survey to the parents and/or legal guardians of all the students, along with information about the study. By signing the consent form, parents had the opportunity to allow their child to participate in the study. At the time of survey administration, all children able to participate were given the survey with an assent form attached. Respondents were able to withdrawal from participation at any time. A total of 1617 surveys were completed.

Measures

Discussed below are the measurements used for this particular study. These same measures were also used by Ricketts, Maloney, Marcum and Higgins (2014) to analyze the effects of Internet addiction on sexting behaviors, demonstrating the validity of the measures used for the present study.

Sexting. The dependent measure for this study is sexting. The specific item that is as follows: Have you ever performed following behaviors in the past year: texted a nude/partially nude picture of yourself that was unwanted by the recipient. The original answer choices for these items are 1 (Never), 2 (Once), 3 (2-3 times), 4 (4-6 times) and 5 (7+ times). The original answer choices result in non-normal data (i.e., data that is not normally distributed). In order to alleviate the non-normal data issue, the answer choices are collapsed to represent 0 (Never) and 1 (sexted at least once).

Low Self-Control. In order to address our hypothesis that individuals with low self-control are likely to perform sexting, we include a measure of low self-control. We use a 6-item measure that comes from Schreck and Miller's (1999) study. The measure captures risk taking, forethought, and anger. Others have examined self-control without using the 24-item Grasmick et al. (1993) scale, instead using similar items (Agnew, Scheuerman, Grosholz, Isom, Watson, & Thaxton, 2011; Childs, Cochran, & Gibson, 2009; Higgins, Jennings, Tewksbury, & Gibson, 2011). The items for this measure are as follows: "I am usually pretty cautious," "I don't devote much thought and effort to preparing for the future," "I lose my temper easily," "I see no need for hard work," "I sometimes take a risk just for the fun of it," and "Most things people call delinquency don't really hurt anyone." The respondents indicated their response using a 5-point Likert-type scale (1=Strongly Disagree to 5=Strongly Agree). For this measure, higher scores are indication of lower levels of self-control. The internal consistency is acceptable (Cronbach's Alpha=0.70).

Deviant Peer Association. In order to address our hypothesis that individuals who associate with deviant peers are more likely to sext, we include an expanded measure to capture multiple forms of crime and deviance. The measure captures the number of friends that performed an action in the past year. There were 15 items in this measure, with some of the measures as follows: How many of your friends performed the following behavior in the past year: 1) texted a nude/partially nude picture, 2) used another person's debit/credit care without his/her permission, 3) used another person's license/ID card without his/her permission, 4) logged into another person's email without his/her permission and sent an email, and 5) logged into another person's Facebook and posted a message. The respondents marked their responses using a 5-point Likert-type scale (1=None and 5=all of them). Higher scores on the scale indicate more association with

deviant peers. The internal consistency for this measure is acceptable (Cronbach's alpha = 0.95).⁴

Control measures. We use a number of control measures such as age, race, gender and GPA. All of these measures were self-reported.

Analysis Plan

The analysis plan takes place in two steps. The first step is a presentation of the descriptive statistics. A descriptive analysis provides some indication of the distribution of the data. The second step is the use of multiple regression. Multiple regression is an analysis technique that uses a set of independent measures (i.e., low self-control, deviant peer association, age, sex, race, and GPA) to predict or correlate to a dependent measure (i.e., sexting) (Freund & Wilson, 2002). In this study, the dependent measure is dichotomous, and this violates the assumption of Ordinary Least Squares regression model, which required a continuous dependent variable (Lewis-Beck, 1978). In this study, binary logistic regression is the technique employed. While binary logistic regression is the proper technique, as with any form of multiple regression, multicollinearity (high statistical correlation between at least two variables) is a potential problem. To assess this issue, we follow Menard's (2002) suggestion that the tolerance coefficient may be proper to use in binary logistic regression. Freund and Wilson (2002) argue that tolerance levels that fall below 0.20 indicate the presence of multicollinearity.

Results

Table 1 and 2 presents the descriptive statistics. The table shows that 13% of the sample has participated in sexting behaviors. The mean self-control score for the sample was 17.78. The average peer association score for the sample was 20.80. The average age of the sample was 15.77, with 49% of the sample being male. Seventy-two percent of the sample was white. The average grade point average is 2.30.

Table 3 presents the logistic regression for sexting. The results indicate that our assumptions that self-control and social learning theories will have a link with sexting are supported in these data. As self-control increases the likelihood of sexting increases ($b=0.08$, $\text{Exp}(b)=1.08$, 8% increase per one unit change). As individuals association with deviant peers increases, the likelihood of sexting increases ($b=0.09$, $\text{Exp}(b)=1.10$, 10% increase per one unit change). Finally, males are more likely than females ($b=0.68$, $\text{Exp}(b)=1.98$, 98% increase per one unit change) to engage in sending sexting pictures. The tolerance coefficients indicate that multicollinearity is not a problem with these data.

⁴A recent trend in the criminological literature is a focus on using actual measures of delinquency from peers. Several researchers show that there is a difference between actual measures of delinquency from peers and perceptual measures (Boman, Stogner, Miller, Griffin, & Krohn, 2012). Akers (1998, 2009) argues that peers are likely to overestimate the delinquency of their friends, but the overestimation is important in the peer effect on delinquent behavior. In other words, whether the estimation of peer delinquency is over or underestimated, the peer influence will still come through. Young and Weerman (2013) using social network data from adolescents to show that this is the case. Therefore, the present study uses the perceptions of cybercrime from associates.

Table 1. Descriptive Statistics

Measure	N	%
Race		
White Non-Hispanic	1086	70.4
African-American	70	4.5
White Hispanic	100	6.5
Other	287	18.6
Gender		
Male	778	49.9
Female	775	49.7
GPA		
Mostly As	418	27.7
Mostly As and Bs	657	43.5
Mostly Bs	90	6.0
Mostly Bs and Cs	238	15.8
Mostly Cs	35	2.3
Mostly Cs and Ds	41	2.7
Mostly Ds	1	0.1
Mostly Ds and Fs	18	1.2

Table 2. Descriptive Statistics

Measure	Mean	S. D.	Alpha
Sexting	0.13		
Self-Control	11.66	3.35	0.70
Peer Association	20.80	10.07	0.95
Age	15.77	1.33	
Sex	0.49		
Race	0.72		
GPA	2.30	1.33	

Table 3. Logistic Regression Analysis of Sexting

Measure	b	S.E.	Exp(b)	Tolerance
Self-Control	0.08*	0.04	1.08	0.91
Peer Association	0.09**	0.01	1.10	0.91
Age	0.08	0.11	1.08	0.98
Male	0.68*	0.30	1.98	0.97
Race	-0.26	0.31	0.77	0.98
Grade Point Average	0.16	0.09	1.18	0.93

Chi-Square: 134.34**; -2 log Likelihood: 389.32; Cox & Snell: 0.10; Nagelkerke: 0.30;

Discussion and Conclusion

The purpose of the present study is to provide an examination of whether self-control and social learning theories are related to sexting. The results of this study show that as self-control levels go down, the likelihood of sexting increases. This is supportive of Gottfredson and Hirschi's (1990) and Hirschi's (2004) assumptions. These findings indicate that individuals with low self-control are less likely to regulate their impulses when it comes to sexting. Further, individuals with low self-control are not likely to foresee the potential consequences that come from this behavior. They are unlikely to weigh the potential ramifications, such as criminal punishment or victimization of other youth by continued distribution of the material.

The results also show that individuals that associate with deviant peers are more likely to engage in sexting. Given that our view of deviant peer association is consistent with Akers's (1998) version of social learning theory, we believe that our result is supportive of the theory. Krohn (1999) asserted social learning can occur through association with deviant peers. In other words, deviant peers provide an environment that is conducive to developing supportive attitudes toward deviant behavior. Thus adolescents who spend time with other adolescents who support sexting are more likely to participate in this behavior.

The results also indicated that males were more likely to participate in sexting. Our theoretical basis would then assert that males are more likely to have lower levels of self-control and be affected by deviant peers more than their female counterparts. This finding is especially interesting, as Dake et al. (2012) and Lenhart (2009) determined no difference in sexting participation between the sexes. In other words, they found that males and females were equally likely to participate in sexting. We can deduce from the findings of this study, as well as past research, there is a need for educational programs in the high school and college setting educating both sexes on the social and legal repercussions of participation in sexting.

Findings from the present study should be kept within the limits of this study. First, the results come from a cross-sectional sample. It is important to keep in mind that Gottfredson and Hirschi (1990) argued that cross-sectional samples were valid and important to provide information to inform criminology of actions regarding their theory. Second, the data for this study are gathered from a particular geographical area. This presents a threat to external validity of the findings as to the findings may not be generalizable to the population of youth. However, these theories have been supported with multiple studies to explain youth deviancy, including different cyber criminalities, and is therefore appropriate for the study.

Despite these limits, the present study shows that low self-control and social learning theory have links with sexting behaviors in adolescents. Also, this literature is extremely important as it is the one of the first pieces of research looking at theoretical predictors of sexting of adolescents. As mentioned previously, a possible policy implication of these findings is the development of programs for high school students to address the legal implications and punishments of sexting. Recognition of the juvenile groups who have a strong interest in technology and innovation may be the minors to target for this type of intervention. For instance, the Texas School Safety Center provides educational literature and training regarding sexting dangers for youth. The Educational Council and National Healthy Marriage Resource Center have also provided literature and dedicated website space to education on the dangers of sexting.

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