



# Sexting among Teenagers in the United States: A Retrospective Analysis of Identifying Motivating Factors, Potential Targets, and the Role of a Capable Guardian

Kathy Martinez-Prather<sup>1</sup> & Donna M. Vandiver<sup>2</sup>

Texas State University, United States of America

## Abstract

*Sexting is often broadly defined as the sending and/or receiving of sexually suggestive images or messages to peers through a cell phone (Mitchell et al., 2012). The use of broad definitions and sampling methods among prior sexting studies has produced variations in the research findings. The current study provides a retrospective examination of sexting among 378 teenagers sampled from university college freshmen at a midsize southern university in the United States regarding sexting attitudes and behaviors during high school. Approximately one-third of the participants reported sending a sexting image of himself or herself in high school to someone else using a cell phone. Those who reported more texting use, in general and those who spent more time with friends in an unsupervised setting were significantly more likely to report sexting. Parental monitoring, however, was not significantly related to sexting. The implications of these findings are discussed.*

Keywords: Sexting, Texting, Routine Activities, Capable Guardian.

## Introduction

In the past decade, technology has altered the way teenagers communicate and interact with their peers; teenagers' increased reliance on technology is well documented. Approximately 78% of teenagers own cell phones and one-third send more than 3,000 text messages a month (Lenhart, 2010; Madden, Lenhart, Duggan, Cortesi, & Gasser, 2013). In many instances, the use of sexting is a part of this form of communication. Sexting is often vaguely defined, yet considered a social phenomenon that generally refers to the sending and/or receiving of sexually suggestive images or messages to peers through a cell phone (Agustina & Gomez-Duran, 2012; Mitchell, Finkelhor, & Wolak, 2012). Research regarding the context and precursors to sexting are sparse within the existing literature.

<sup>1</sup>School of Criminal Justice, Texas State University, 601 University Dr., San Marcos, TX 78666, USA. Email: km60@txstate.edu

<sup>2</sup> Associate Professor, School of Criminal Justice, Texas State University, 601 University Dr., San Marcos, TX 78666, USA. Email: vandiver@txstate.edu

New forms of electronic communication (e.g., Facebook, Twitter, texting, etc.) have created concern among parents, healthcare professionals, educators, and law enforcement. These concerns are for the harmful behaviors youth may engage in as these types of communication become more dominant (see generally: Dowdell, Burgess, & Flores, 2011; Jaishankar, 2009; Leary, 2008; Lenhart, 2009; Lounsbury, Mitchell, & Finkelhor, 2011; Mitchell et al., 2012; Wolak & Finkelhor, 2011). Risky behaviors that youth may potentially engage in online can include communicating with or being solicited by prospective sexual predators online, engaging in cyber bullying, and publicly posting sexual images of themselves and others (see generally: Mitchell et al., 2012; Ybarra, Mitchell, Finkelhor, & Wolak, 2007, Ybarra & Mitchell, 2008). Sexting, coupled with teenage sexual experimentation, curiosity, and the sexualization of youth, has presented a new form of risky behavior, resulting in possible legal consequences for youth who engage in such acts (American Psychological Association, 2010; Calvert, 2009; Willard, 2010). Some of these legal interventions have the potential to leave youth branded as (registered) sex offenders. Thus, the consequences of sexting are serious and can negatively affect teenagers for many years after the act has occurred, such as difficulty in attaining future employment, housing, licensing, and educational financial benefits.

In the last few years, high profile media sexting cases have generated a perception among the public that sexting amid youth is ubiquitous, while also bringing attention to the legal consequences for engaging in this type of risky behavior. For example, in Florida, 18-year-old Philip Alpert sent nude pictures of his 16-year-old girlfriend to her family and friends and was subsequently charged with distribution of child pornography and required to register as a sex offender (CNN, 2009). Some states, however, have begun to implement diversion programs to curtail youth from being subjected to child pornography laws intended for adult sexual predators (O'Keefe, Clarke-Pearson, Council on Communication and Media, 2011). Unlike adults, teenagers do not have the same capacity to make rational choices before engaging in risky behaviors. It has been well documented, for example, that the part of the brain responsible for higher level of thinking (e.g., language, emotional behavior, etc.) is not fully developed in teenagers (Fuster, 2002). Recently, researchers noted, "because of their [teenagers] limited capacity for self-regulation and susceptibility to peer pressure, children and adolescents are at some risk as they navigate and experiment with social media" (O'Keefe et al., 2011, p. 800). Thus, due at least in part, their immaturity and impulsivity can lead to sexting along with other risky behaviors online (O'Keefe et al., 2011; Ostrager, 2010).

Cases such as the aforementioned and the severe legal penalties that follow have prompted researchers to assess the extensiveness as well as context surrounding sexting. For instance, identifying the context of the relationship teenagers have with individuals they engage in sexting behavior with is important to developing effective prevention strategies. Nevertheless, identifying the prevalence of sexting has been the focus of much of the research surrounding this emergent area of study. Disparate methods of sampling and operationalizing of sexting, however, have produced conflicting findings among studies on the actual prevalence of sexting among youth. Also lacking in the literature is the examination of the sexting with a theoretical foundation. This research assesses the prevalence of sexting by using a narrow definition and examines the applicability of key elements (the motivation of the offender, the presence of a capable guardian, and who is targeted—i.e., the suitable target) of routine activities theory for providing a more meaningful examination of sexting.

## Review of Literature

### 1. Defining Sexting

Although there is no consistent legal definition for the term sexting, most state laws generally concentrate on nude or semi-nude images of minors (under the age of 18) that are transmitted through cell phones to anyone, regardless of the age of the recipient; however, images can be distributed through computers, web cameras, or digital cameras (Sacco, Argudin, Maguire, & Tallong, 2010). The term sexting, a unification of the word sex and texting, is an activity specifically engaged in through cell phones (Jaishankar, 2009; Lenhart, 2009). For this reason, sexting studies have generally used broad definitions to measure the prevalence of sexting behaviors among youth—sending and/or receiving sexually suggestive images or messages to peers through a cell phone. Differences in these broad definitions and sampling methods among studies have produced variations in findings. Very few studies have made a distinction between passing along a sexted message and creating a sexting image of one's self.

The National Campaign to Prevent Teen and Unplanned Pregnancy and CosmoGirl.com (2008) conducted one of the first studies to examine the prevalence of teen and young adult sexting behaviors. This study (*Sex and Tech*) relied upon a non-probability sample ( $n=1,280$ ) of U.S. participants (i.e., 653 teens age 13-19, 49% male and 51% female; and 627 young adults age 20-26, 51% male and 49% female). Sexting was defined as sending or posting nude or semi-nude photos or videos. Overall, 20% of teenagers reported sexting in the past, while 33% of young adults reported engaging in this type of behavior. Lenhart (2009), implementing a different sampling approach and sexting definition, conducted a telephone survey of a random sample of 800 teenagers 12 to 17 years old. Participants were selected through random digit dialing to represent teenagers in the United States. Respondents were asked whether they had sent or received sexually suggestive nude or nearly nude photos or videos of themselves or someone else through a cell phone. Only four percent of the teenagers reported sending a sexually suggestive image of themselves, with male and female students equally as likely to send such images. When defining sexting as images that include naked breasts, genitals, or bottoms, the rate of participation among youth decreased from 9.6 percent to 1.0 percent when sexting was defined as creating or receiving nude or nearly nude images (e.g., images with youth wearing a bathing suit, posing sexy with clothes on, or focused on clothed genitals) (Mitchell et al., 2012).

The use of broad definitions in research and policy to describe sexting has serious implications. One of these consequences involves potentially exaggerating findings of cases that do not constitute elements of child pornography, a critical component when considering legal interventions (Mitchell et al., 2012). As Lounsbury et al. (2011, p. 1) notes, "a core concern about sexting . . . is the prevalence of incidents where youth are creating images of themselves or other minors who meet criminal definitions of child pornography." Mitchell et al. (2012) suggests sexting is not only rare among youth, but the context of the images does not constitute legal child pornography definitions as many of the current studies and media coverage indicate, resulting in a potentially unjustified moral panic.

Determining what constitutes sexting is in need of further examination. Focusing on images that only meet the definition of child pornography, however, also fails to recognize the impact of this risky behavior that youth casually engage under different contexts. In the case of 14 year-old Angie Verona, provocative self-produced images of the young girl

in her bathing suit and lingerie were hacked from a photo-bucket account and posted on various pornography sites (Karar, 2011). These images, although not pornographic in nature and subject to legal interventions, resulted in other consequences, both psychological and emotional. Recognizing sexting as a risky behavior youth engage in under various contexts warrants further attention in developing effective prevention strategies.

## **2. Routine Activities and Sexting**

For assessing the context of any sexting, Cohen and Felson's (1979) routine activities is relied upon as a framework, as this theory has the potential to identify key factors in the occurrence of sexting. Cohen and Felson's (1979) routine activity theory posits that the following three elements, working simultaneously, are necessary for a crime to occur: (1) a motivated offender, (2) a suitable target, and (3) the absence of a capable guardian. As teenagers text each other, a motivated offender (sender of sext) and a suitable target (recipient of sext) and lack of a capable guardian exist. The current study focuses on what the motivating factors are for one to send a text, what makes one the target of a sext, and the absence of a capable guardian as a correlate to engagement in sexting behavior among teenagers.

## **3. Characteristics of those who Sext**

The majority of research reveals similar findings regarding patterns of sexting. For instance, sexting has been found to be predominant among older teenagers and young adults (AP-MTV, 2009; Lenart, 2009; Temple et al., 2012). Older teenagers (i.e., 17 years old) are more likely to send sexting images than compared to younger participants (i.e., 12 years old), eight percent versus four percent, respectively (Lenhart, 2009). Similar findings also reveal sexting is most common among 18 to 24 year olds (33%) versus 14 to 17 year olds (24%) (AP-MTV, 2009).

Across the majority of survey studies, sexting has been found to occur most frequently between teenagers in a romantic relationship and associated with other sexual risky behaviors (e.g., multiple sexual partners and use of drugs/alcohol prior to sex) (AP-MTV, 2009; Cox Communications, 2009; Temple, Paul, van de Berg, McElhany, & Temple, 2012; The National Campaign to Prevent Teen and Unplanned Pregnancy, 2008). Among teenagers, 66% of teen girls and 60% of teen boys reported they sexted because it was fun or flirtatious (The National Campaign to Prevent Teen and Unplanned Pregnancy, 2008). Thus, the motivation of sexting appears to be a way to communicate to each other for romantic / flirtatious reasons.

The prevalence of cell phone use has also been associated with an increased likelihood of sending and receiving sexting images. Lenhart's (2009) findings suggest teenagers who generally text more often are also more likely to send and receive sexting messages, compared to teenagers who do not use text messaging on a regular basis.

## **4. Monitoring of Cell Phone Use and Capable Guardians**

As the accessibility of technology for youth increases, the potential for such access can result in, especially for youth, little oversight or supervision to aid in the prevention of inappropriate communication with peers (Lenhart, 2009). Concerning parental supervision of cell phone use, Lenhart (2009) found teenagers were less likely to send sexually suggestive nude or nearly nude images of themselves when parents limited their amount of

texting. Whereas nine percent of teenagers who reported sexting had parental restrictions on their texting, 28% of teenagers who did not engage in sexting reported parental restrictions on their texting. This change in sexting behavior exhibited in the presence of monitoring cell phone activity, a possible deterrent to sexting, deserves further review.

Although research on the influence of the capable guardian in deterring crime is limited and methods of operationalizing the capable guardian vary, prior research on guardianship as a component of routine activity theory has revealed a significant effect on crime (Hollis-Peel, Reynald, van Bavel, Elffers & Welsh, 2011). Osgood, Wilson, O'Malley, Bachman, and Johnston's (1996) relied upon routine activity theory when examining adolescent deviant behavior, found the presence of such behavior most common in peer activities without adult supervision. This analysis was further supported in the absence of a structured peer activity, such as a sporting event or a date. In structured events without direct parental supervision, other sources of monitoring (e.g., employees at the event or other adult figures around) took place to ensure social control over minors (Osgood et al., 1996).

The role of guardian has been operationalized in various contexts that extend beyond the parent figure. In their review of prior research on guardianship and its effect on deterring crime, Hollis-Peel et al. (2011) defined human guardianship to include "closed-circuit television" cameras. This type of guardianship however is defined in the context of active monitoring by a human, thus deterring offenders from committing crimes in areas that are indirectly being observed. Therefore, the current study examines guardianship through monitoring by parents/legal guardians of cell phone activity either through frequent observations or through installed cell phone devices.

Adolescent use of time (i.e., participation in conventional activities) has been examined not only as a function of social control theory, which suggests deviance is prevalent amid the break in social bonds between an individual and society, but from a routine activities perspective (Barnes, Hoffman, Welte, Farrell & Dintcheff, 2007). Time use was examined through the absence of capable guardianship during participation in conventional activities. Barnes et al. (2007) examined the relationship between time use (e.g., homework, extracurricular activities / hobbies, a job, television, and time spent with family and friends) and adolescent deviant behaviors (e.g., alcohol consumption, cigarette use, illicit drug use, delinquency, and sexual activity). The findings of this study suggested time spent with family and friends were correlated with deviant behaviors. Frequent time spent with family was a strong predictor of less risky behavior among adolescents versus more frequent time spent with peers in an unsupervised setting, which was the strongest predictor of risky behaviors (Barnes et al., 2007). Subsequently, the study also attempts to examine guardianship through elements of unsupervised time use by teenagers in high school and its effect on sexting behaviors (e.g., time spent with peers in unsupervised settings, extracurricular activities, and having a paid job).

### **Current Study**

The current study provides a retrospective examination of sexting among teenagers from a sample of university college freshmen from the southern United States ( $n=1,600$ ) regarding sexting attitudes and behaviors during high school. Specifically, the study examines the prevalence of sexting behaviors (including the motivation of the sender) and analogous behaviors (i.e., cell phone use) and assesses the relationship between sexting and the presence of a capable guardian.

Although the prior assessments of sexting prevalence among teenagers were inconclusive, a narrow definition of sexting is used in this study and thus, it is hypothesized that sexting is less prevalent compared to previous research findings (see generally: AP-MTV, 2009; Lenhart, 2009; Mitchell et al., 2012; and The National Campaign to Prevent Teen and Unplanned Pregnancy, 2008). In recognizing the increase in access to technology and the pervasiveness of cell phone use among teenagers, we also hypothesize that there will be a positive relationship between sexting and cell phone use. Moreover, as research has suggested lack of adult supervision and positive time use as predictors of adolescent risky behavior (Barnes et al., 2007; Lenhart, 2009; Osgood et al., 1996), it is hypothesized a positive relationship between sexting and the absence of a capable guardian exists. By exploring these potential correlates, the following study aims to enhance the growing literature on sexting behaviors and assist stakeholders in developing effective prevention strategies to inhibit the potential harms sexting can yield.

### **Purpose of the Study**

The focus of this study is to examine the characteristics of sexting relating to prevalence, motivational factors, the relationship between sexting and cell phone use, as well as the relationship between sexting and potential capable guardians. First, to measure the prevalence of sexting, a narrow definition was employed to capture more egregious incidents of sexting more likely to be subjected to legal interventions under child pornography laws, and produce psychological or emotional consequences. In doing so, participants were asked if they had either sent or received a sexually explicit image that included naked breasts, genitals, or buttocks through a cell phone during high school.

Second, to measure the motivational factors for sexting, in addition to determining the target of the sext, participants were asked and provided a list of responses to identify why they sexted. This list included the following responses: (1) to be flirtatious, (2) pressured by a boyfriend / girlfriend, (3) to solicit sex, (4) to get attention, (5) as a joke, and (6) blackmailed, coerced, or threatened by a boyfriend / girlfriend. In order to garner additional responses, participants were also able to provide alternative responses under "Other".

To measure the relationship between sexting and cell phone use, participants were also asked about the extent of cell phone use, texting frequency, whether they turned their phone off at night, and slept with their cell phone in bed during high school. Finally, the relationship between sexting and capable guardians was measured by assessing the frequency of time spent with friends in unsupervised settings and parental limits placed on and parental monitoring of cell phone use. The analysis used to display the findings were primarily descriptive statistics, however, to assess bivariate relationships both a chi-square and a phi coefficient were employed.

### **Methods**

#### ***a. Survey Instrument***

A survey with approximately 50 closed-ended questions was administered to collect data on high school sexting experiences from a sample of freshmen college students who were 18 or 19 years old at the time of the survey. The students were from a midsize university in the southern United States. This method provides some advantages to capturing sexting information. Prior research has found older teenagers are more at risk of engaging in sexting, by soliciting information from 18 and 19 years about their most

recent experiences in sexting. Additionally, asking students primarily about *past* behavior may reduce social desirability.

Some of the questions were developed based on previous survey assessments of sexting prevalence and mobile use (Lenhart, 2009; Lenhart et al., 2010; Mitchell et al., 2012). Participants were asked about high school cell phone use, sexting, cell phone supervision, and use of time. The survey also inquired about participant's sexting behavior in college, sexting violations, and demographic / background information.

### ***b. Procedure***

Participation in the survey was solicited online through the university. Data collected from the Registrar's office was solicited to identify a sampling frame. The sample was generated from a population of 18 and 19 year old university freshmen ( $n=4,152$ ). After stratifying the sample into male and female students, a random sample was selected for each strata (i.e.,  $n=800$  female and  $n=800$  male students).

An initial email was sent in the Fall of 2012 to the sample through their respective university email address, which included a link to the survey instrument. The email described the purpose of the research study and asked participants to complete the survey through an online survey software program (i.e., Qualtrics Research Suite). Three waves were administered with two-week intervals to encourage participation in the survey. Participants were also provided an incentive for completing the survey; students who completed the survey were entered into a lottery to win one of five gift cards to a local retailer in the amounts of either \$10 or \$50.

### ***c. Participants***

Of the 800 students solicited, 413 responded to the survey; however, 35 respondents submitted entirely incomplete data. The cases consisting of missing data were removed, leaving 378 participants, resulting in an overall response rate of 24%. The majority of the survey respondents were female (68.3%) compared to male (31.7%). The racial / ethnic composition included mostly White / Caucasian (54.8%) and Hispanic / Latino (29.4%) respondents. The overwhelming majority of the participants (93.1%) attended a public high school in mostly suburban (50.1%) and urban (31.5%) towns. Although the majority of the respondents were female and included mostly White / Caucasians, the demographic composition is reflective of the overall sample population.

## **Results**

### ***1. Prevalence and Motivation of Sexting***

Based on inconclusive findings from prior research assessments of sexting prevalence among teenagers, it was hypothesized that the rates would be lower than the prevalence reported in previous literature, given that a narrower definition of sexting is used in this research. Respondents were asked about their high school sexting activity in terms of sending and receiving images through a cell phone. In order to measure the prevalence of sexting surrounding specific behaviors, sexting was conceptualized as the sending or receiving of sexually explicit images that include naked breasts, genitals, or buttocks through a cell phone. The use of descriptive statistics provides an account of the prevalence of sexting behaviors in high school reported by the respondents.

Most students (68%; n = 257) reported they did not send a sexting image of themselves in high school. Nearly one-third (31%; n = 120) however, reported sending a sexting image of themselves in high school to someone else using a cell phone. Of the respondents who did not engage in sexting, 27% (n = 70) at least considered sending a sexting image of themselves in high school, while 18% (n = 68) reported photographing images of their own naked breasts, genitals, or buttocks for personal viewing. Fewer respondents (43%; n = 162) indicated never receiving compared to never sending a sexting image. Whereas almost one-third reported sending a sexting image, 56% (n = 212) admitted to receiving a sexting image of someone else. Images that were received by respondents were more likely to be unsolicited rather than requested images.

At the time of the survey, participants were asked if they had sent or received a sext in the last 30 days. The majority of participants reported neither sending (87%; n = 319) nor receiving (85%; n = 311) a sexting image through their cell phone in the last 30 days. Over one-third of the participants (39%; n = 142) reported they were not aware that sexting between minors was a violation of their state law. Further, over half reported their high school did not have a policy against sexting (55%; n = 200) or an education curriculum / program on sexting (79%; n = 289). Only two participants indicated being charged for engaging in sexting during high school; one participant reported receiving 15 days in a Disciplinary Alternative Education Program and the other did not specify any form of punishment received.

Disparities between female and male sexting behavior was apparent in terms of sending and receiving images. Female students reported higher incidents of sending sexting images of themselves and receiving these types of images compared to male students. Overall, respondents reported sending sexually explicit images more often to a boyfriend (37%; n = 73) followed by someone they were interested in dating (23%; n = 45). Rarely did respondents report sending images (3%; n = 6) to an adult (i.e., 20 years or older) as a minor in high school. Images were also most likely to be received by a friend (26%; n = 88), followed by someone they were interested in dating (23%; n = 78), and to a lesser extent by an adult (4%; n = 14).

When asked about motivations behind sending sexting images, over half of the participants who responded to this item reported sexting to be flirtatious (51%; n = 101), followed by being pressured by a boyfriend (17%; n = 34). Approximately 13% (n = 26) of the respondents reported sexting as a means of soliciting sex, and to a lesser extent to get attention or as a joke.

## **2. Sexting and Prevalence of Cell Phone Use**

Considering the pervasiveness of cell phone use among teenagers, it was hypothesized that a positive relationship existed between sending a sext message and cell phone use. Cell phone use was measured by three questions: (1) regular cell phone usage, (2) average daily texting frequency, and (3) turning the cell phone off at night, and (4) sleeping with the cell phone in bed (see Table 1). Concerning regular cell phone and sending a sext message, 99% of those who sent a sext message reported regular cell phone use. Only 1% of those who did not use a cell phone regular reported sending a sext message. In addition, those who reported sending a sext message, were more likely than those who did not send a sext message to send a high number of texts each day.

*Table 1. Cell Phone Use and Sexting*

			Sent a Sext Message		Chi-Square Value	d.f.	Phi Coefficient
<b>Regular Use*</b>	<b>Cell Phone</b>		<b>No</b>	<b>Yes</b>	4.99	1	-.115
	No		15 (6%)	1 (1%)			
	Yes		242 (94%)	118 (99%)			
<b>Texting Frequency*</b>			<b>No</b>	<b>Yes</b>	29.38	5	.280
	0-10/per day		33 (13%)	1 (1%)			
	11-20/per day		29 (11%)	2 (2%)			
	21-50/per day		46 (18%)	24 (20%)			
	51-100/per day		74 (29%)	39 (33%)			
	101-200/per day		40 (16%)	27 (23%)			
	201+/per day		34 (13%)	27 (23%)			
<b>Turning Cell Phone Off at Night</b>			<b>No</b>	<b>Yes</b>	.48	1	-.036
	No		240 (94%)	115 (96%)			
	Yes		15 (6%)	5 (4%)			
<b>Sleeping with Phone in Bed</b>	<b>Cell Phone</b>		<b>No</b>	<b>Yes</b>	3.02	1	.090
	No		43 (17%)	12 (10%)			
	Yes		213 (83%)	108 (90%)			
			<b>Received a Sext Message</b>				
<b>Regular Use**</b>	<b>Cell Phone</b>		<b>No</b>	<b>Yes</b>	21.77	1	.242
	No		16 (10%)	0 (0%)			
	Yes		146 (90%)	211 (100%)			
<b>Texting Frequency**</b>			<b>No</b>	<b>Yes</b>	43.17	5	.340
	0-10/per day		32 (20%)	2 (1%)			
	11-20/per day		14 (9%)	17 (8%)			
	21-50/per day		30 (19%)	39 (18%)			
	51-100/per day		44 (27%)	67 (32%)			
	101-200/per day		22 (14%)	45 (21%)			
	201+/per day		19 (12%)	42 (20%)			
<b>Turning Cell Phone Off at Night</b>			<b>No</b>	<b>Yes</b>	2.49	1	-.082
	No		148 (93%)	204 (96%)			
	Yes		12 (8%)	8 (4%)			
<b>Sleeping with Phone in Bed*</b>	<b>Cell Phone</b>		<b>No</b>	<b>Yes</b>	7.45	1	.141
	No		33 (21%)	22 (10%)			
	Yes		128 (80%)	190 (90%)			

Note: Percentages may not equal 100% due to rounding.

\*  $p \leq .05$  \*\*\*  $p \leq .001$

**Table 2. Capable Guardian and Sexting**

			Sent a Sext Message		Chi-Square Value	d.f	Phi Coefficient
<b>Time Spent with Friends in Unsupervised Setting**</b>			<b>No</b>	<b>Yes</b>	10.09	3	.166
	Often		151 (60%)	89 (76%)			
	Sometimes		25 (10%)	21 (18%)			
	Rarely		68 (27%)	7 (6%)			
	Never		6 (2%)	0			
<b>Parents Limit Cell Phone Usage</b>			<b>No</b>	<b>Yes</b>	.897	1	.049
	No		218 (87%)	107 (92%)			
	Yes		34 (14%)	10 (9%)			
<b>Parents Monitor Cell Phone</b>			<b>No</b>	<b>Yes</b>	1.86	1	-.071
	No		218 (87%)	107 (92%)			
	Yes		34 (14%)	10 (9%)			
			Received a Sext Message		Chi-Square Value	d.f	Phi Coefficient
<b>Time Spent with Friends in Unsupervised Setting***</b>			<b>No</b>	<b>Yes</b>	19.41	3	.23
	Often		85 (54%)	155 (75%)			
	Sometimes		52 (33%)	37 (18%)			
	Rarely		20 (13%)	12 (6%)			
	Never		2 (1.3%)	4 (2%)			
<b>Parents Limit Cell Phone Usage</b>			<b>No</b>	<b>Yes</b>	.897	1	.05
	No		138 (86%)	187 (90%)			
	Yes		22 (14%)	22 (11%)			
<b>Parents Monitor Cell Phone</b>			<b>No</b>	<b>Yes</b>	.122	1	.02
	No		142 (89%)	183 (88%)			
	Yes		18 (11%)	26 (12%)			

Note: Percentages may not equal 100% due to rounding.

\*\*Significant at  $p \leq .01$  \*\*\*Significant at  $p \leq .001$

Concerning turning one's cell phone off at night, only 20 of the 375 students reported turning their phone off at night; no significant differences were found with regard to turning one's cell phone off at night. In addition, most students (321 of 376) reported sleeping with their cell phone with them. Those who sent a sext message were slightly more likely than those who had not sent a sext message to report sleeping with their cell phone with them (90% compared to 83%). The difference between the two groups was approaching a level of significance ( $p = .08$ ).

Another aspect of sexting that is examined is receiving sext messages. Concerning regular cell phone use, again, only a few ( $n = 16$ ) reported *not* using a cell phone regularly. Those who received a sext message compared to those who did not, however, were significantly more likely to use a cell phone regularly (100% compared to 90%). In addition, those who received a sext message compared to those who did not, were significantly more likely to send a larger number of texts. Those who received a sext message were more likely to have their cell phones on at night and sleep with their cell phones (as compared to those who turned their cell phones off at night and did not sleep with their cell phones) to receive a sext message, yet the difference was not significant.

### **Sexting and Role of Supervision: A Possible Capable Guardian**

To assess the effects of a capable guardian, time spent with friends without adult supervision, parental limits on cell phone usage, and the teenagers' knowledge of whether parents monitoring cell phone use was assessed. As noted in Table 2, the more time spent with friends in an unsupervised setting, the more likely one was to send and receive a sext message. The relationship, albeit significant, was relatively weak ( $\phi = .17$  and  $.23$ , respectively) concerning sending and receiving a sex message. Although not significant, when students reported that their parents limited their cell phone and / or monitored their cell phones, the less likely they were to report sending and receiving a sext message.

### **Discussion and Conclusion**

One of the purposes of this study was to assess the prevalence of sexting and to assess the context of exchanging sexually explicit images with particular attention to identifying motivating factors, who are the targets, and who or what serves as a cable guardian. Although the majority of participants in this study reported they did not send a sexting image of themselves, nearly one-third reported sending a sexting image of himself or herself in high school to someone else using a mobile device. In comparison with prior research findings utilizing a broader description of sexting (Cox Communications, 2009; Lenhart, 2009; National Campaign to Prevent Teen and Unplanned Pregnancy, 2008), this study yielded slightly higher sexting prevalence rates incorporating a more specific definition. Overall, sexting prevalence rates from previous research studies range from 4% to 25%(see generally: AP-MTV, 2009; Cox Communications, 2009; Lenhart, 2009; Mitchell et al., 2012; and The National Campaign to Prevent Teen and Unplanned Pregnancy, 2008), whereas nearly 30% of the participants in this study reported sending a sexting image. Given that this study utilizes retrospective reporting may be suggestive that respondents are more apt to report past behavior, an important consideration for future potential samples.

Several characteristics of sexting among minors indicated in prior research were supported by the findings in this study. Female students reported higher incidents of sending sexting images of themselves as well as receiving these types of images while in

high school. Among adults, those who are female are also more likely to engage in sexting behaviors compared those who are male (Wysocki & Childers, 2011). These findings, however, may be attributed to the high percentage of female respondents compared to male respondents.

Concerning applying key elements of routine activities theory, two of the elements overlapped identifying the motivation on the part of the “sender” and identifying who is likely to be a potential victim, or rather a target of the sext message. Participants reported more often sending a sexting image to a boyfriend or someone they were interested in dating, suggesting sexting as a component of romantic relationships or courting practices between youth. Thus, in relationship to routine activities theory, who the target is and their motivation become interrelated. The sext is sent to someone the sender is interested in, romantically and the motivation is to flirt. The ability to flirt with peers was also identified as the dominant motivation for engaging in sexting among participants, indicating the normalcy youth perceive toward sexting as a means of communicating with peers.

Another key element of routine activities theory is the presence of a capable guardian, which is quite critical in that by simply adding a capable guardian the potential for the deviance to occur is eliminated. Here, this study extended the conceptual definition of capable guardian from parental monitoring of cell phone activity to use of time in high school. The role of supervision as operationalized through time use in high school also suggests some support for routine activity theory. Although a significant relationship was not indicated between direct parental monitoring of cell phone activity and sexting behaviors, time spent with friends in unsupervised settings was associated with the sending and receiving of sexually explicit images through a cell phone. It is important to consider, however, the actual receiving of images can be delayed in the presence of an adult. In other words, a minor can receive a sexually explicit image in the presence of a parent or other adult figure, but may view the image later, when supervision is not present. Given that cell phone capabilities provide the opportunity to erase or delete content and images, along with password protection functionalities, youth may engage in a process of self-monitoring of cell phone activity, thus diminishing the deterrent effect of parental supervision.

Concerning the implications of this research and suggestions for future research, several points are worth expanding upon. The disparity in gender participation involving sexting presents an imbalance of negative consequences that mostly affects female teenagers. The presence of female victimization can be exhibited through pressure by male counterparts to send sexually explicit images and mass dissemination of these images to peers and potential predators (Walker, Sancu, & Temple-Smith, 2011). Future research should take a closer examination of gender disparities involving participation in sexting and the subsequent consequences experienced by male and female youth. Additionally, measures to combat sexting incidents among youth (e.g., legislation, diversion programs, and school policies) have been scarcely evaluated for their effectiveness. An evaluation of state laws and the implementation of school sexting policies / education programs and their impact on youth attitudes and involvement toward sexting need to be measured to assist with effective prevention efforts. Moreover, future research on sexting should include clear measurements and definitions of sexting. Sexually suggestive images and sexually explicit images can be interpreted to have the same meaning, thus misrepresenting the nature or context of images minors are truly exchanging with one another.

Although cell phones remain a dominant mode of communication, this form of technology has exposed youth to potential harms resulting from inappropriate use of mobile devices. With approximately one-third of teenagers sending more than 3,000 text messages a month, youth are able to send images and video of themselves and others, providing opportunities to engage in sexting (Hinduja & Patchin, 2010; Lenhart, 2010). The occurrence of sexting between minors has resulted in a response toward legal intervention, which will not help in preventing this type of behavior (Jaishankar, 2009). Although sexting may be an extension of typical sexual exploration by youth (Walker et al., 2011), the severe ramifications these actions present (e.g., mass dissemination of explicit images and subsequent victimization) warrant concern and persistent efforts of prevention through education on behalf of parents, educators, law enforcement, and youth.

### Limitations

Although the design of the study had several advantages (i.e., retrospective survey asking about recent behavior, anonymity assured, and surveyed via Internet), the study is not devoid of limitations. The sample size and source present limitations to the overall findings offered in this study. Prior research has utilized larger cross-national samples, thus limiting the generalizability of the results to a larger population. Further, the participants were adults, providing retrospective data regarding their sexting behaviors during high school. The mode of self-reporting by minors, however, presents the potential for a misrepresentation in sexting behaviors impacted by parental presence during interviews (Strassberg, McKinnon, Sustaita, & Rullo, 2013). The use of young adults in survey samples to assess sexting behaviors retrospectively provides a more accurate assessment of sexting behaviors due to the likelihood of this age group to be more forthcoming and cognizant about their own sexual activities (Agustina & Gomez-Duran, 2012). In addition, additional measures of monitoring beyond parental and use of time need to be employed to assess the relationship between sexting and the role of supervision.

### References

- Agustina, J., & Gomez-Duran, J. (2012). Sexting: Research criteria of a globalized social phenomenon. *Archives of Sexual Behavior, 41*(6), 1325-1328.
- American Psychological Association, Task Force on the Sexualization of Girls. (2010). *Report of the APA Task Force on the Sexualization of Girls*. Retrieved on July 12, 2012 from <http://apa.org/women/programs/girls/report-full.pdf>.
- Associate Press-MTV. (2009). Digital abuse survey. *Knowledge networks*. Retrieved on May 5, 2012 from [http://surveys.ap.org/data/KnowledgeNetworks/AP\\_Digital\\_Abuse\\_Topline\\_092209.pdf](http://surveys.ap.org/data/KnowledgeNetworks/AP_Digital_Abuse_Topline_092209.pdf).
- Barnes, G., Hoffman, J., Welte, J., Farrell, M., & Dintcheff, B. (2007). Adolescents' time use: Effects on substance use, delinquency and sexual activity. *Journal of Youth and Adolescence, 36*(5), 697-710.
- Calvert, C. (2009). Sex, cell phones, privacy, and the First Amendment: When children become child pornographers and the Lolita effect undermines the law. *CommLawConsepectus: Journal of Communications Law and Policy, 18*(1), 1-65.
- Cohen, L., & Felson, M. (1979). Social change and crime rate trends: A routine activity approach. *American Sociological Association, 44*(4), 588-608.

- Cox Communications. (2009). *Teen online & wireless safety survey: Cyberbullying, sexting, and parental controls*. Atlanta, GA: Cox Communications, National Center for Missing and Exploited Children, and John Walsh.
- CNN. (2009, April 8). 'Sexting' lands teen on sex offender list. Retrieved on July 12, 2012 from <http://www.cnn.com/2009/CRIME/04/07/sexting.busts/index.html>.
- Dowdell, E. B., Burgess, A. W., & Flores, J. R. (2011) Original Research: Online social networking patterns among adolescents, young adults, and sexual offenders. *American Journal of Nursing*, 111(7), 28-36.
- Fuster, J. M. (2002). Frontal lobe and cognitive development. *Journal of Neurocytology*, 31(3-5), 373-385.
- Hinduja, S., & Patchin, J. W. (2010). Sexting: A brief guide for educators and parents. Cyberbullying Research Center. Retrieved on July 12, 2012 from [http://www.cyberbullying.us/Sexting\\_Fact\\_Sheet.pdf](http://www.cyberbullying.us/Sexting_Fact_Sheet.pdf).
- Hollis-Peel, M., Reynald, D., van Bavel, M., Elffers, H., & Welsh, B. (2011). Guardianship for crime prevention: A critical review of the literature. *Crime, Law and Social Change*, 56, 53-70.
- Jaishankar, K. (2009). Sexting: A new form of victimless crime? *International Journal of Cyber Criminology*, 3(1), 21-25.
- Karar, H. (2011, November 9). Angie Varona: How a 14-year-old unwillingly became an Internet sex symbol. *ABC Nightline*. Retrieved on January 15, 2013 from <http://abcnews.go.com/Technology/angie-varona-14-year-unwillingly-internet-sex-symbol/story>.
- Leary, M.G. (2008). Self-produced child pornography: The appropriate societal response to juvenile self-sexual exploitation. *Virginia Journal of Social Policy and the Law*, 15(1), 1-51.
- Lenhart, A. (2009). *Teens and sexting: How and why minor teens are sending sexually suggestive nude or nearly nude images via text messages*. Washington, DC: Pew Internet & American Life Project. Retrieved on July 29, 2012 from <http://www.pewinternet.org/Reports/2009/Teens-and-Sexting.aspx>.
- Lenhart, A., Ling, R., Campbell, S., & Purcell, K. (2010). *Teens and mobile phones*. Washington, DC: Pew Internet & American Life Project. Retrieved on July 10, 2012 from <http://pewinternet.org/Reports/2010/Teens-and-Mobile-Phones.aspx>.
- Lounsbury, K., Mitchell, K. J., Finkelhor, D. (2011). *The true prevalence of sexting*. Crimes against Children Research Center, University of New Hampshire. Retrieved on July 10, 2012 from [http://www.unh.edu/ccrc/pdf/Sexting%20Fact%20Sheet%204\\_29\\_11.pdf](http://www.unh.edu/ccrc/pdf/Sexting%20Fact%20Sheet%204_29_11.pdf).
- Madden, M., Lenhart, A., Duggan, M., Cortesi, S., & Gasser, U. (2013). *Teen and technology*. Washington, DC: Pew Internet & American Life Project. Retrieved on October 17, 2013 from <http://www.pewinternet.org/Reports/2013/Teens-and-Tech/Main-Findings/Teens-and-Technology.aspx>.
- Mitchell, J. Kimberly, Finkelhor, D., Jones, L., Wolak, J. (2012). Prevalence and characteristics of youth sexting: A national study. *Pediatrics*, 129(1), 13-20.
- O'Keefe, G.S., Clarke-Pearson, K., & Council on Communications and Media. (2011). The impact of social media on children, adolescents, and families. *Pediatrics*, 127, 800-804.
- Osgood, W., Wilson, J., O'Malley, P., Bachman, J., & Johnston, L. (1996). Routine activities and individual deviant behavior. *American Sociological Review*, 61(4), 635-655.

- Ostrager, B. (2010). SMS.OMG!TTYL: Translating the law to accommodate today's teens and the evolution from texting to sexting. *Family Court Review*, 48(4), 712-726.
- Sacco, D., Argudin, R., Maguire, J. & Tallon, K. (2010). *Sexting: Youth practices and legal implications* (Publication No. 2010-8). Retrieved on May 16, 2012 from [http://cyber.law.harvard.edu/sites/cyber.law.harvard.edu/files/Sacco\\_Argudin\\_Maguire\\_Tallon\\_Sexting\\_Jun2010.pdf](http://cyber.law.harvard.edu/sites/cyber.law.harvard.edu/files/Sacco_Argudin_Maguire_Tallon_Sexting_Jun2010.pdf).
- Strassberg, D., McKinnon, R., Sustaita, M., & Rullo, J. (2013). Sexting by high school students: An exploratory and descriptive study. *Archives of Sexual Behavior*, 42(1), 15-21.
- Temple, J., Paul, J., van de Berg, P., Le, V., McElhany, A., & Temple, B. (2012). Teen sexting and its association with sexual behaviors. *Archives of Pediatrics and Adolescent Medicine*, 166(9), 828-833.
- The National Campaign to Prevent Teen and Unplanned Pregnancy, CosmoGirl.com. (2008). *Sex and tech: Results from a survey of teens and young adults*. Washington, D.C. Retrieved on April 10, 2012 from [http://www.thenationalcampaign.org/sextech/pdf/sextech\\_summary.pdf](http://www.thenationalcampaign.org/sextech/pdf/sextech_summary.pdf).
- Walker, S., Sancu, L., & Temple-Smith, M. (2011). Sexting and young people. *Youth Studies Australia*, 30(4), 8-16.
- Willard, N. (2010). *Sexting & youth: Achieving a rational response*. Center for Safe and Responsible Internet Use: Eugene, OR. Retrieved on April 25, 2012 from [http://csriu.org/documents/sextingandyouth\\_002.pdf](http://csriu.org/documents/sextingandyouth_002.pdf).
- Wolak, J., & Finkelhor, D. (2011). *Sexting: A typology*. Crimes against Children Research Center. Retrieved on May 6, 2012 from [http://www.unh.edu/ccrc/pdf/CV231\\_Sexting%20Typology%20Bulletin\\_4-6-11\\_revised.pdf](http://www.unh.edu/ccrc/pdf/CV231_Sexting%20Typology%20Bulletin_4-6-11_revised.pdf).
- Wolak, J., Finkelhor, D., & Mitchell, K. (2012). How often are teens arrested for sexting? Data from a national sample of police cases. *Pediatrics*, 129(4), 4-12.
- Wysocki, D., & Childers, C. (2011). "Let my finger do the talking": Sexting and infidelity in cyberspace. *Sexuality & Culture*, 15(3), 217-239.
- Ybarra, M., Mitchell, K., Finkelhor, D., & Wolak, J. (2007). Internet prevention messages: Targeting the right online behaviors. *Archives of Pediatrics and Adolescent Medicine*, 161(2), 138-145.
- Ybarra, M., & Mitchell, K. (2008). How risky are social networking sites? A comparison of places online where youth sexual solicitation and harassment occurs. *Pediatrics*, 21(2), 350-357.