

Sexting by High School Students: An Exploratory and Descriptive Study

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Abstract Recently, a phenomenon known as *sexting*, defined here as the transfer of sexually explicit photos via cell phone, has received substantial attention in the U.S. national media. To determine the current and potential future impact of sexting, more information about the behavior and the attitudes and beliefs surrounding it must be gathered, particularly as it relates to sexting by minors. The present study was designed to provide preliminary information about this phenomenon. Participants were 606 high school students (representing 98 % of the available student body) recruited from a single private high school in the southwestern U.S. Nearly 20 % of all participants reported they had ever *sent* a sexually explicit image of themselves via cell phone while almost twice as many reported that they had ever *received* a sexually explicit picture via cell phone and, of these, over 25 % indicated that they had *forwarded* such a picture to others. Of those reporting having sent a sexually explicit cell phone picture, over a third did so despite believing that there could be serious legal and other consequences attached to the behavior. Given the potential legal and psychological risks associated with sexting, it is important for adolescents, parents, school administrators, and even legislators and law enforcement to understand this behavior.

Keywords Sexting · Explicit cell phone pictures · Adolescents

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Introduction

New communication technologies play an increasingly important role in the lives of young people, especially adolescents (Valkenburg & Peter, 2011). In particular, the instant access to others via the Internet (e.g., Facebook, Twitter, instant messaging) and the ubiquitous cell phone (with its text messaging and still/video camera) have dramatically changed when, how, and what teens learn about each other and the world (Peter, Valkenburg, & Schouten, 2005; Valkenburg & Peter, 2007). Not all of this new access has had strictly positive outcomes (Valkenburg & Peter, 2011). For example, cyberbullying (bullying via e-mail, text messages, Facebook, etc.) has become a modern way (especially for teens) to be aggressive or intimidating (Ang & Goh, 2010; Raskauskas & Stoltz, 2007; Tokunaga, 2010).

The Internet has also made possible, or at least made far easier, adolescents' access to sexually explicit media, both commercial and amateur, and other sexually related sites. The perceptions of, motivations for, and possible outcomes of access to such websites by adolescents has been studied by a number of researchers (Baumgartner, Valkenburg, & Peter, 2010; Brown & L'Engle, 2009; Flood, 2007; Mitchell, Wolak, & Finkelhor, 2007; Peter & Valkenburg, 2006, 2008, 2009, 2011; Ybarra & Mitchell, 2005). Among the findings of this body of research is that adolescents, for a number of reasons, may be at greater risk than are adults for negative outcomes associated with access to sexually oriented Internet sites (e.g., Baumgartner et al., 2010).

An even newer opportunity for adolescents to become exposed to explicit material is via *sexting*, defined here as the transfer of sexually explicit pictures via cell phone. Sexting has received substantial media attention, particularly when engaged in by adolescents (e.g., Fatah, 2008; Hoffman, 2011; Lutz, 2010; Reavy, 2008; Rubinkam, 2008). A survey by the National Campaign to Prevent Teen and Unplanned Pregnancy and Cosmo-Girl.com (2008) found that roughly 20 % of teens surveyed

reported that they had “participated in sexting,” while a poll conducted by the Associated Press-MTV (2009) found that 3 of 10 people, ages 14–24, reported having sent or received nude photos on their phones or online. In an internet safety survey conducted by Cox Communications (Thomas, 2009), almost 20 % of teens reported having “participated in sexting,” while a poll by the Pew Internet and American Life Project of Washington (Lenhart, 2009) found that approximately 15 % of American teenagers had received “nude or sexually suggestive” photos on their cell phones.

Although the results of these surveys are potentially informative, their methodological limitations make it somewhat difficult to derive accurate estimates of the prevalence of this behavior overall and nearly impossible to do so among minors. For example, both the Associated Press-MTC (2009) and National Campaign to Prevent Teen and Unplanned Pregnancy and CosmoGirl.com (2008) polls failed to distinguish teen minors from legal adults. Yet this distinction has important legal ramifications: In many states, those sending or receiving nude pictures of those (including themselves) under age 18 years risk charges as serious as possession or distributing child pornography, carrying penalties that include being listed on a sex offender registry (Lewin, 2010).

The most recently published (and only peer-reviewed) study on sexting (Mitchell, Finkelhor, Jones, & Wolak, 2012; O’Connor, 2011) surveyed a cross-sectional national respondent base of 1560 “youth Internet users.” This survey garnered a great deal of national attention, largely because of the frequently referenced finding that “Two and one-half percent of youth had appeared in or created nude or nearly nude pictures or videos” (p. 13) that were then posted on the Internet or shared via cell phone.

The news-worthiness of this derives from this figure being far below (by a factor of 5 or more) the prevalence rates reported in the previous surveys. However, while technically accurate, the 2.5 % figure is actually rather misleading. As seen in Table 1 of their publication, Mitchell et al. found that (1) among the quarter of their sample that were ages 10–12, <0.6 % “appeared in, created, or received a nude or nearly nude image” while (2) among those age 15–17, 15 % of participants reported having done so. Despite it being widely reported in the media, the overall prevalence figure of 2.5 % masks a dramatic age effect that indicates that more than 1 in 8 mid-teen minors admit to having *sexted*. Further, their survey participants were interviewed by phone, at home, while their parents were also at home. Mitchell et al. argued that because they asked “mostly yes or no questions,” and checked “at regular intervals that youth were in a private location,” the children interviewed “could be assured of the confidentiality of their response.” However, one could imagine that many of the children and teens interviewed about their participation in (from their parents’ perspective) questionable (and possibly illegal) behavior, while their parents (knowledgeable about the nature of the interview questions) could be

in the next room, might be less than completely forthcoming. To the extent this is true, the prevalence data reported in this study would underestimate the participants’ sexting behavior.

Another methodological limitation of these surveys is that they usually inquire whether participants had ever sent or posted “nude or semi-nude,” “nearly nude,” or “sexually suggestive” pictures of themselves, with the definition of these terms open to the respondent’s interpretation (e.g., in a bathing suit, undergarments, provocative clothing, partial nudity, an enticing gaze, etc.). However, the legal (and other) consequences of sending or receiving these different categories of pictures can be very different. In addition, the phrasing of *sent or posted* in reference to these images makes it impossible to differentiate between sexting via cell phone and the posting of these pictures online. The distinction between sending nude photos via cell phone and posting nude pictures online may be an important one, as teens may view sending pictures via cell phone, as they do text messaging, as being a relatively risk-free way to communicate (Cupples & Thompson, 2010). As a result of the methodological limitations in these surveys, we know relatively little about the sending and receiving of truly sexually explicit cell phone pictures by minors. However, the available data do provide us a statistical starting place (i.e., prevalence estimates) as well as some examples of the potential risks (legal and otherwise) associated with sexting through some high profile cases. For example, a 13-year-old girl and a 12-year-old boy from Indiana were charged with possession of child pornography and child exploitation after it was discovered they were using their cell phones to exchange nude pictures of themselves with each other (Lutz, 2010).

The popular press has reported a number of examples from around the country of such potentially serious legal consequences for teens sending or receiving explicit cell phone pictures (e.g., Lithwick, 2009; Schorsch, 2010). These reported cases undoubtedly represent extreme and relatively infrequent responses to sexting. Still, a recent study (Wolak, Finkelhor, & Mitchell, 2012), utilizing a stratified U.S. national sample of over 2700 law enforcement agencies, estimated that from 2008 to 2009, 3477 cases of “youth-produced sexual images” were investigated, most of which involved images distributed by cell phone. When only minors were involved and there were no “aggravating elements,” arrests occurred in only 18 % of the cases. As Wolcak et al. noted, legislatures and law enforcement throughout the country now have to deal with how to appropriately deter and otherwise respond to sexting when engaged in by minors.

Beyond any legal consequences of sexting, there are also potentially significant psychological consequences to consider. For example, the teenage girl who had sent nude images of herself to her boyfriend and had those same pictures distributed to others by him after they broke up (Celizic, 2009). Or consider the teen who phoned topless pictures of herself to a classmate in hope of getting his attention. A third party acquired the pictures and sent

them to students at her school and other schools in the surrounding area. The girls in both these examples ultimately committed suicide (Inbar, 2009). There have also been reported cases where the threat to make public a single explicit picture sent to a boyfriend/girlfriend has been used to blackmail the sender into sending additional, even more explicit, cell phone pictures (Englander, 2010). While such consequences are extreme and likely rare, they illustrate, at least, the end point of a continuum of possible psychosocial risks associated with sexting.

Given the potential legal and psychosocial consequences of sexting, it is important for adolescents, parents, and school administrators to understand this phenomenon and its potential impact. An important starting place is to have an estimate of the prevalence of this behavior among adolescents and some sense of their awareness (or lack thereof) of the potential consequences of sexting. The present study was designed to examine these important questions, while addressing some of the methodological limitations of previous surveys. Specifically, (1) we surveyed only adolescents (for whom the legal consequences of sexting would be the most serious) and (2) asked only about the sending and receiving of cell phone pictures depicting *nude* breasts (for females), buttocks, and/or genitals (excluding semi-nude, nearly nude, or sexually suggestive pictures) to focus on the types of material most likely to have significant legal and psychosocial consequences.

The primary findings of the study are descriptive in nature: The percentages of high school boys and girls who acknowledge having sent or received sexually explicit cell phone pictures. In addition, the following hypotheses will be tested:

1. Significantly more students will report having received than having sent a sexually explicit cell phone picture.¹
2. The oldest students (seniors) will be the most likely to report having sent and received a sexually explicit cell phone picture while the youngest (freshman) will be the least likely.²
3. Students who report having sent a sexually explicit cell phone picture of themselves will be significantly more likely to describe this behavior (in general) as acceptable than will those never having sent such a picture.
4. Students who believe that there are potentially serious legal consequences to sexting will be significantly less likely to report having sent a sexually explicit cell phone picture of themselves than those believing there are not such consequences.
5. Compared to students who report never having sent or received a sexually explicit cell phone picture, those reporting having done so will also report sending and receiving significantly more regular text messages.

¹ Based on the findings of all previous sexting surveys reporting this data.

² Based on the findings of all previous sexting surveys reporting this data.

Method

Participants

Participants were students at a private high school in the southwest U.S. A total of 606 students (328 males, 278 females) elected to participate, representing 78 % of all the students attending the school and over 98 % of the school's students available to participate (e.g., with the remainder of the school's population either being unavailable because of exams or absent from school that day). Among participants, 194 (32.2 %) were freshmen, 111 (18.4 %) were sophomores, 150 (24.9 %) were juniors, and 148 (24.6 %) were seniors (three did not indicate their year in school).³ The ethnicity of the school's student body was as follows: 9 % African American, 6 % Asian, 75 % Caucasian, 14 % Hispanic, and 2 % other.⁴ These figures were generally comparable to the larger community in which the students resided.

Procedure

After obtaining approval from the school's superintendent and principal and the IRB, e-mails describing the study were sent to all school parents approximately 2 weeks prior to the conduct of the study. E-mails were the primary method by which the school notified parents of any school activity or issue. The e-mail to parents described the nature of the study, including a copy of the study questionnaire, and allowed them to choose to not have their son/daughter participate. Less than 1 % of parents declined to have their child participate and all but two students whose parent(s) permitted their participation did so. On a single day, the study questionnaire (requiring about 10 min for completion) was administered to all eligible students during regular class periods.

Questionnaires were completed anonymously. The primary questions inquired about the students' experience in sending and receiving sexually explicit cell phone pictures (i.e., *sexting*), defined as "pictures depicting the genitals or buttocks for both sexes and/or the breasts for females." The questionnaire also asked for demographics (sex, year in school), cell phone ownership (with 96 % reporting having their own cell phone), participation in online social networking sites (with 83 % reporting having a *Facebook* or *Myspace* page), and (among those with a cell phone) the average number of daily text messages sent ($M = 91$, $SD = 93$, range, 1–300) and received ($M = 95$, $SD = 96$, range, 0–300).

Two open-ended questions followed, concerning the students' understanding of what consequences (e.g., legal, school-related), if any, they believed "were currently associated" with being

³ Based on the school's demographics, most of these students were between 15 and 17 years.

⁴ The ethnicity of our participants was not collected. These figures represent the ethnicity of the entire school population.

caught sexting and what consequences, if any, they thought “should result” from sexting. Finally, students were asked to identify which of five choices best “represented their feelings” about sending sexually explicit cell phone pictures. Choices included “It is always wrong to send or forward such pictures,” “It is ok to send such pictures of yourself, but not of other people,” “It is ok to forward such pictures you might receive, but not to be the one to first send such a picture,” “Sending, receiving, or forwarding such pictures is ok,” and “None of the above (please explain here).”

Results

Table 1 lists the percentages of students, by gender and year in school, reporting sending or receiving a sexually explicit cell phone picture (*sext*). As per Hypothesis 1 (utilizing McNemar’s test) among both males, $\chi^2(1) = 25.6, p < .001$, and females, $\chi^2(1) = 64.6, p < .001$, students were significantly more likely to report having received than having sent such a picture. Further, significantly more males (49.7 %) than females (30.9 %) reported having received a sext, $\chi^2(1) = 21.8, p < .001$, but the groups did not differ in the percentage of students reporting having sent a sext of themselves (18.3 % for male, 17.3 % for females), $\chi^2(1) < 1$. Of those having received such a picture, 25.1 % (27 % of males, 21.4 % of females), $\chi^2(1) < 1$ indicated that they had *forwarded* the picture to at least one other person.

While student age was not assessed, year in school served as a proxy for this variable. As anticipated (Hypothesis 2), among males, freshman were significantly less likely than seniors to have sent (9.2 % vs. 26.5 %), $\chi^2(1) = 10.2, p < .001$, or received (38.5 % vs. 65.1 %), $\chi^2(1) = 13.3, p < .001$, a sext. Among females, while seniors sent more sexts than did freshmen (24.2 % vs. 14 %), this difference was not significant, $\chi^2(1) = 2.63$. Freshman females did, however, receive significantly fewer sexts than did senior females, 25 % vs. 46.2 %, $\chi^2(1) = 7.28, p < .01$.

Students were asked to choose which of five alternatives best characterized their “feelings about sending sexually explicit cell phone pictures.” The percentages of students selecting each option were as follows: “Always wrong to send or forward such

pictures” (50.4 % of females, 33.9 % of males), “It is ok to send such pictures of yourself, but not of other people” (26.1 % of females, 31 % of males), “It is ok to forward such pictures you might receive, but not to be the first one to send such a picture” (1.5 % of females, 3.8 % of males), “Sending, receiving, or forwarding such pictures is ok” (5.1 % of females, 12.2 % of males), and “None of the above; Please explain” (12.5 % of females, 18.5 % of males). The most common write-in response was some variation of “It is a personal choice” (5.9 % of females, 4.4 % of males).

The proportions of students offering positive (i.e., it’s always ok, it’s ok for self, it’s a personal choice) versus negative (it’s always wrong) “feelings” about sexting were compared for those who did and did not acknowledge having ever sent a sext of themselves. Not surprisingly, there was a strong, albeit imperfect, relationship found. As predicted (Hypothesis 3), among those characterizing sexting as wrong were proportionately, $p < .001$, fewer students (4.9 %) who also reported having sent such a picture than were found among those describing the behavior as acceptable (28.7 %), $\chi^2(3) = 54.3$. Still, over 14 % of those sending an explicit picture reported feeling that such behavior was *always wrong* or expressed generally negative feelings about it.

Only 26.6 % of the students responded to the open ended question asking what they believed were (if any) the current legal consequence for sexting, with 58 % of these students believing the consequence to be rather serious (e.g., a felony, jail time, child pornography charges, sexual offense). Contrary to our expectation (Hypothesis 4), among students responding to this question, those reporting having sent a sexually explicit cell phone picture were significantly *more likely* to perceive some legal consequence to the behavior (34.5 % vs. 24 %), $\chi^2(1) = 4.9, p < .03$, than those not having done so.

Most participants offered an opinion regarding what consequences (they could offer more than one), if any, they thought there *should be* if caught sexting. The single most common response (21 %) reported that they believed there should be *no consequence* for sexting. Other relatively common responses included removal of phone privileges (8 %), school suspension or expulsion (4 %), pornography charges (2 %), jail (5 %), sexual harassment charges (2 %), community service (25 %), and a fine (7 %).

Those reporting having sent a sexually explicit cell phone picture of themselves also reported sending ($M = 134, SD = 102$ vs. $M = 78, SD = 87$), $t(573) = 5.80, p < .001$, and receiving ($M = 124, SD = 100$ vs. $M = 70, SD = 84$), $t(572) = 7.0, p < .001$, many more regular, daily, text messages (Hypothesis 5).

Finally, among our participants, 8.4 % reported that they had ever *sent* a sexually explicit picture that they *took of someone else* to a third party, with males significantly more likely to report having done so than females (11.8 % vs. 4.5 %), $\chi^2(1) = 10.12, p < .001$. In many of these cases, the person pictured was reportedly unaware of his/her picture having been taken or that it was being sent to others. This was particularly the case when the individual taking/sending the picture was male.

Table 1 Percentage of students reporting having sent or received a sexually explicit cell phone picture (“sexting”)

Year in school	Males ($n = 327$)		Females ($n = 275$)	
	Sent	Received	Sent	Received
Freshmen	9.2	38.5	14.0	25.0
Sophomores	23.3	56.7	14.0	24.0
Juniors	18.9	43.2	17.3	28.0
Seniors	26.5	65.1	24.2	46.2
Mean	18.3	49.7	17.3	30.9

Discussion

Contemporary communication technologies enable users to exercise new freedoms, but can also create unforeseen problems. Cell phone users, including 95 % of adolescents in our survey and over 80 % of teens nationally (Reardon, 2008), are not only able to hold private conversations, but can now also communicate instantly and privately (with little, if any, adult supervision) via text, picture, or video. The prevalence rates for sending and receiving sexually explicit cell phone pictures (depicting breasts for girls, genitals, and/or buttocks) among the adolescents we surveyed were considerable: On average, nearly one-fifth of the boys and girls surveyed reported having sent such pictures and almost one-third of girls and half of the boys said they had received them. These figures were similar to (and, in some cases, somewhat higher than) those suggested by the several nationwide, large scale surveys published in the popular press. Together, these reports indicate that sexting by adolescents is not rare, occurring at a qualitatively higher rate than the overall 2.5 % reported in the only peer-reviewed study on this topic (Mitchell et al., 2012; O'Connor, 2011). The very different research methodology employed by Mitchell et al. is, perhaps, the major reason for outcomes so different from that reported by all others.

The substantial difference we found between the reported rates of sending an explicit cell phone picture of oneself and receiving an explicit picture (especially for males) was consistent with previous surveys and likely accounted for in two ways. First, while most students who sent these pictures probably did so to just one other person (e.g., a current or desired boyfriend or girlfriend) (Lenhart, 2009), some may have sent the picture to more than one person. More likely, forwarding was the issue (Lenhart, 2009). About a quarter of our participants (with more males than females) who received such a cell phone picture reported they had forwarded it to others. Forwarding not only adds to the number of sexting recipients, but can thereby add significantly to the psychosocial risks to the person pictured as well as to the number of people potentially legally at risk for sending or possessing the picture on their phone.

While we found substantial support for our logically-derived expectation that students who sent explicit cell phone pictures of themselves would be more likely than others to evaluate such behavior as acceptable, about 1 in 7 who sexted still reported generally *negative* feelings about the behavior. It is also notable that over a third of the teens we surveyed who had never sexted reported generally positive feelings about the behavior, placing them at risk for engaging in the behavior in the future.

We found no support for our belief that students expecting serious legal consequences for getting caught sending explicit pictures of themselves would be less likely to have sent such pictures. In fact, they were slightly (but significantly) *more likely* to have done so. Therefore, while a concern about legal consequences may have deterred some students from sending explicit self-photos via cell phone, of the 110 students who reported

sending such pictures, over a third did so despite believing that there would be serious legal consequences were they to be apprehended for this behavior. Of course, sexting would hardly be the first example of adolescents making choices they believe *could* have serious negative consequences (Robinson, Emmons, Moolchan, & Ostroff, 2008). Unfortunately, we know nothing about how likely they thought it was that they *would* get caught. Further, nearly three-fourths of our participants failed to offer any response to the question on their understanding of the legal consequences for sexting, so we don't know if our findings on this measure would have held up had most students responded to this question.

Among our high school participants, the seniors were, as hypothesized, the most likely to report having sent or received a sexually explicit cell phone picture, while the freshmen were among the least likely. This age effect has also been described in previous sexting surveys (e.g., Lenhart, 2009; Mitchell et al., 2012). Older teens are likely to have had their cell phones longer than younger students and, therefore, had more opportunity to have ever sent or received an explicit photo.

We anticipated that teens comfortable with sexually explicit digital communication (i.e., sexting) might also be those who are, in general, more comfortable and experienced with text messaging as a form of communication. Consistent with this, those acknowledging ever sending a sexually explicit cell phone picture of themselves also reported both sending and receiving substantially more regular text messages than their non-sexting peers.

Prior surveys, and the results of this study, suggest that many high school (and perhaps even younger) students are sending and/or receiving sexually explicit photos of each other, while schools, parents, and the legal system are trying to decide how to deter or otherwise deal with it (Ostrager, 2010). One wonders how many of the schools we approached that declined to participate in this study did so because they either failed to recognize the prevalence or potential seriousness of the behavior or chose to remain blind to it rather than have to address this sensitive issue.

Limitations and Future Research

Several aspects of the present study clearly limit the generalizability of its findings. First, our findings (like those of all such surveys) was based exclusively on self-reports, the accuracy of which is unknown. A clearly significant limit is that the findings came from a single, private high school with a fairly homogeneous (i.e., largely Caucasian and middle/upper-middle SES) student body. On the positive side, almost every student at the school available to participate in this study chose to do so, avoiding the problem of volunteer bias common in sex research (Strassberg & Lowe, 1995). It will be important to determine the extent to which our findings can be generalized to a more demographically diverse group of adolescents attending public schools and other private schools.

Future research on sexting should also examine more closely adolescents' motivations and other factors (e.g., peer pressure, personality features) for choosing to engage in sexting (Weiss & Samenow, 2010), even when appreciating the potentially serious consequences of the behavior. There may also be positive consequences of sexting to be identified (e.g., can such behavior, when based on mutual consent, ever improve a relationship?). Finally, the consequences of serious legal (e.g., criminal charges) or other over-reactions to identified instances of teen sexting need to be studied so that more appropriate and productive responses can be found.

Summary

The results of this study demonstrate that, consistent with most of the national survey data available from reports in the popular media, significant numbers of high school boys and girls are sending and/or receiving sexually explicit cell phone photos, often with little, if any, appreciation for the possible psychological, interpersonal, and sometimes legal consequences of doing so. Even many of those who believed there *could be* serious legal consequences still chose to engage in the behavior. Even if subsequent research reveals somewhat lower prevalence rates than found here for minors (as young as 14) engaging in sexting, these results still argue for educational efforts (e.g., cell phone safety assemblies, awareness days, integration into class curriculum, teacher training, etc.) designed to raise awareness about the potential consequences of sexting among young people.

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