



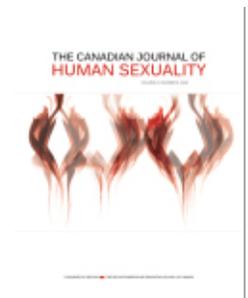
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Investigating differences between sexters and non-sexters on attitudes, subjective norms, and risky sexual behaviours

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Computer-mediated communication (CMC) is often used to initiate, maintain, or terminate intimate relationships and recently, such platforms have been considered an outlet for sexual communication. This has led to the emerging trend of sending sexually suggestive messages via computer devices in what is known as “sexting.” The current study expands the definition of sexting to include different types of sext content (i.e., non-sexters, less explicit, explicit, and very explicit) and modes of transmission (e.g., cell phone, social networking). Our primary goal was to determine whether sexting behaviours, risky health behaviours, attitudes and subjective norms, sensation seeking, and motivations for sexting differ across separate sexter groups ($N = 511$). Individuals who had never sent a sext message were classified as non-sexters ($n = 117$), those who had sent sexy word-based messages were classified as less explicit sexters ($n = 135$), semi-nude photo or video senders were classified as explicit sexters ($n = 87$), and individuals who had sent fully nude photos or videos were classified as very explicit sexters ($n = 172$). Results revealed that participants who report very explicit forms of sexting had higher positive attitudes toward sexting and engaged in riskier sexual behaviours relative to explicit, less explicit and non-sexters. In general, sexters perceived more social pressure to engage in sexting and demonstrated a higher need for sensation seeking compared to non-sexters. Higher rates of alcohol consumption were found among the very explicit and explicit sexter groups compared to less explicit and non-sexters.

KEY WORDS: sexting, attitudes, subjective norms, risky sexual behaviours

INTRODUCTION

Over the past 10 years, emerging adults have integrated computer-mediated communication (CMC) as a primary means of interacting with peers (Hampton, Goulet, Rainie, & Purcell, 2011; Lenhart, Ling, Campbell, & Purcell, 2010; Smith, 2011). CMC can be defined as any communication, written or visual, that takes place through the use of electronic devices (Thurlow, Lengel, & Tomic, 2004). Currently, text messaging (Smith, 2011) and social networking sites (Hampton et al., 2011) are the most popular means of digital communication among young adults. For instance, Smith (2011) revealed that 95% of young adults between the ages of 18–29 years owned a cell phone, and of these individuals, 97% regularly used the text messaging option. On average, 87.7 text messages were sent or received daily. Brenner and Smith (2013) found that approximately 90% of internet users between the ages of 18–29 used social networking sites such as Facebook.

Many forms of CMC including text messaging, social networking, emailing, instant messaging (IM), and video chatting (e.g., Skype and FaceTime) are used to initiate, enhance, or

terminate intimate relationships (Huntley, 2006). Recently, these platforms have been considered an outlet for sexual exploration (Lenhart, 2009). This has led to the trend of sending sexually suggestive or explicit texts, photo, or video messages via computers or mobile devices – a phenomenon known as “sexting” (Drouin, Vogel, Surbey, & Stills, 2013). Generally, it has been shown that text messaging is the most commonly used method of sending sexy photos or videos, followed by email, Facebook and Twitter (Drouin et al., 2013).

Prevalence of Sexting among Emerging Adults

Prevalence rates have been shown to vary substantially across different studies depending upon the content of the sext message (e.g. nude or semi-nude photos/videos, or sexually suggestive word-based messages) and the mode of transmission (e.g. cell phone, social networking site, email or IM) used to operationalize sexting (Drouin et al., 2013). When defined explicitly as either sending nude or semi-nude photos or videos rates range from 2.5%–20% for adolescents and 13–44% for emerging adults (Benotsch, Snipes, Martin, & Bull, 2013; Gordon-Messer, Bauermeister, Grodzinski, & Zimmerman,

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2013; Mitchell, Finkelhor, Jones, & Wolak, 2012; The National Campaign to Prevent Teen and Unplanned Pregnancy, 2008). When more inclusive definitions of sexting are used, specifically, definitions that contain sexually suggestive word-based messages or non-visual content, prevalence rates increase considerably (The National Campaign to Prevent Teen and Unplanned Pregnancy, 2008). Though as many as 39% of teens and 59% of emerging adults admit to sending word-based sext messages, the variability in prevalence rates can be explained by the lack of consistency in the message content used to define sexting. It is also likely that prevalence rates change over time, making sexting a difficult behaviour to examine. The discrepancy in rates within the current research is associated with a lack of consensus on which types of sexting content and modes of transmission to include in the operational definition of sexting (Dir, Cyders, & Coskunpinar, 2013; Drouin et al., 2013).

Risky Health Behaviours Associated with Sexting

Numerous studies have demonstrated that individuals who pursue sexual partners through internet websites report significantly higher rates of sexual sensation seeking and risky sexual activities (Benotsch, Kalichman, & Cage, 2002; Grosskopf, Harris, Wallace, & Nanin, 2011; Grov et al., 2007). Individuals who recruit sexual partners via the internet also report higher rates of substance use during their sexual encounters, unprotected sex acts, and greater incidence of sexually transmitted infections (Benotsch et al., 2013). Considering the current climate of extreme cell phone (Smith, 2011) and social networking use among emerging adults (Hampton et al., 2011), there seem to be compelling reasons to explore how these devices relate to sexual behaviours within this population (Benotsch et al., 2013; Gordon-Messer et al., 2013), especially given that sexting behaviours have been found to mediate the relationship between risk-taking behaviour and sexual hookups (Dir et al., 2013).

Three explanations have been proposed in the literature to account for the ubiquity of sexting. First, it has been argued that sensation seekers engage in sexting behaviours in conjunction with other risky health behaviours, such as problematic alcohol use (Dir et al., 2013). Second, it has been posited that sexting serves as a substitute for physical sexual contact, which can be viewed as a safer sex option (Lenhart, 2009). Finally, sexting may represent a new mode of transmitting sexual content to a partner, modifying a long established phenomenon of sending suggestive photos to a sex partner (Chalfen, 2009). Few studies, however, have actually examined the relationship between sexting and risky health behaviours, and among those that do (see Benotsch et al., 2013; Ferguson, 2011; Gordon-Messer et al., 2013), dissimilar definitions of sexting and the use of different measures have contributed to equivocal findings.

Attitudes toward Sexting and Subjective Norms

Several studies have explored participant attitudes toward sexting. For instance, The National Campaign to Prevent Teen and Unplanned Pregnancy (2008) found that over half the young adults in their study felt that that sexting was “flirty” (75%), “hot” (55%), “exciting” (59%), or “fun” (56%). Within this same sample, it was reported that roughly half the participants viewed sexting as “stupid” (50%) or “dangerous” (65%). The Associated Press and MTV (2009) also explored attitudes toward sexting to find substantial variation dependent on whether one personally engaged in sexting behaviours. Individuals who sexted were more likely to use positive words such as “fun,” “hot,” “exciting” or “flirty” when describing sexting, whereas those who did not were more likely to use negative words, such as “stupid,” “uncomfortable,” or “gross” (Associated Press & MTV, 2009, p. 3).

There has been considerably less research on subjective norms for sexting. In one of the few, The National Campaign to Prevent Teen and Unplanned Pregnancy (2008) reported that the majority of their participants felt sending sexy messages (78%) and sexy picture/video (65%) was “common” or “very common.” Almost 60% of female participants, and 9% of males, felt that sending sexy picture/videos to someone or posting them online was common (The National Campaign to Prevent Teen and Unplanned Pregnancy, 2008). Though there is currently limited research exploring the relationship between attitudes for sexting and subjective norms, a pattern has emerged suggesting that young adults who hold positive attitudes toward sexting are more likely to engage in the behaviour themselves.

Focus of the Current Study

The purpose of the current study was to expand on the existing literature by using a broad definition of sexting to include different types of sext content (i.e., very explicit, explicit, and less explicit) and modes of transmission (i.e., cell phone, social networking, email and IM). The main goal of this study was to determine whether the variables of sexting behaviours, risky health behaviours, attitudes and subjective norms, and sensation seeking differ across separate sexters groups: (1) Non-sexters; (2) Less explicit sexters; (3) Explicit sexters; (4) Very explicit sexters. We also explored motivational factors involved in sexting to determine whether they varied by sexter group. Overall, we predicted that participants who reported more explicit forms of sexting – sending nude photos or videos – would report higher rates of positive attitudes toward sexting and endorsement of subjective norms, as well as higher rates of alcohol use, sensation seeking, and risky sexual behaviours, relative to all other groups. In addition, it was expected that explicit sexters would score higher on these variables than less explicit sexters, who in turn would score higher than non-sexters.

Table 1. Distribution of Demographic Characteristics by Sexter Group

	Non-Sexter <i>n</i> = 117	Less Explicit <i>n</i> = 135	Explicit <i>n</i> = 87	Very Explicit <i>n</i> = 172	Total
Age	<i>M</i> = 22.27 (<i>SD</i> = 5.3)	<i>M</i> = 23.04 (<i>SD</i> = 6.11)	<i>M</i> = 23.03 (<i>SD</i> = 3.95)	<i>M</i> = 23.60 (<i>SD</i> = 5.5)	
Lifetime Number Sex Partners	<i>M</i> = 0.85 (<i>SD</i> = 2.04)	<i>M</i> = 2.34 (<i>SD</i> = 2.82)	<i>M</i> = 4.11 (<i>SD</i> = 3.41)	<i>M</i> = 5.03 (<i>SD</i> = 3.34)	<i>M</i> = 3.21 (<i>SD</i> = 3.39)
Monthly Number Sex Partners	<i>M</i> = 0.21 (<i>SD</i> = 0.43)	<i>M</i> = 0.60 (<i>SD</i> = 1.07)	<i>M</i> = 0.78 (<i>SD</i> = 0.71)	<i>M</i> = 0.98 (<i>SD</i> = 0.74)	<i>M</i> = 0.67 (<i>SD</i> = 0.83)
Gender					
Female	95 (81.2%)	91 (67.4%)	72 (82.8%)	137 (79.7%)	395 (77.3%)
Male	22 (18.8%)	44 (32.6%)	15 (17.2%)	35 (20.3%)	116 (22.7%)
Ethnicity					
Caucasian	38 (32.5%)	59 (43.9%)	46 (52.9%)	119 (69.2%)	262 (51.3%)
East Asian	27 (23.1%)	27 (20%)	12 (13.8%)	17 (9.9%)	83 (16.2%)
Black	2 (1.7%)	2 (1.5%)	1 (1.1%)	1 (0.6%)	6 (1.2%)
South Asian	41 (35%)	33 (24.4%)	17 (19.5%)	16 (9.3%)	107 (20.9%)
Hispanic	1 (0.9%)	2 (1.5%)	2 (2.3%)	5 (2.9%)	10 (2%)
Other	8 (6.8%)	12 (8.9%)	9 (10.3%)	14 (8.1%)	43 (8.4%)
Orientation					
Straight	113 (96.6%)	124 (91.9%)	77 (88.5%)	142 (82.6%)	456 (89.2%)
Gay	1 (0.9%)	3 (2.2%)	2 (2.3%)	1 (0.6%)	7 (1.4%)
Lesbian	1 (0.9%)	2 (1.5%)	1 (1.1%)	3 (1.7%)	7 (1.4%)
Bisexual	2 (1.7%)	6 (4.4%)	7 (8%)	26 (15.1%)	41 (8%)
Education					
Less than High School	1 (0.9%)	2 (1.5%)	1 (1.1%)	0	4 (0.8%)
Completed High School	20 (17.1%)	18 (13.3%)	9 (10.3%)	17 (9.9%)	64 (12.5%)
Some Undergraduate	78 (66.7%)	92 (68.1%)	60 (69%)	119 (69.2%)	349 (68.9%)
Completed Undergraduate	10 (8.5%)	18 (13.3%)	7 (8%)	24 (14%)	59 (11.5%)
Graduate School or Above	8 (6.8%)	5 (3.7%)	10 (11.5%)	12 (7%)	35 (6.8%)
Relationship Status					
Single	89 (76.1%)	63 (46.7%)	19 (21.8%)	30 (17.4%)	201 (39.3%)
Casually Dating	2 (1.7%)	10 (7.4%)	14 (16.1%)	15 (8.7%)	41 (8%)
Seriously Dating	19 (16.2%)	51 (37.8%)	46 (52.9%)	93 (54.1%)	209 (40.9%)
Married	7 (6%)	8 (5.9%)	5 (5.7%)	13 (7.6%)	33 (6.5%)
Cheating	0	0	2 (2.3%)	6 (3.5%)	8 (1.6%)
Open Relationship	0	1 (0.7%)	0	3 (1.7%)	4 (0.8%)
Friends Benefits	0	2 (1.5%)	1 (1.1%)	12 (7%)	15 (2.9%)

METHOD

Participants

The sample comprised 511 participants (females; *n* = 395) recruited from several online forums (e.g., Reddit) and five universities in a large Western Canadian city. Participants from the research institution were eligible for course credit, while others (i.e., those recruited through online forums or from neighbouring institutions) were entered into a draw to win one of several gift certificates. The majority of the sample consisted of heterosexual, female undergraduates of primarily Caucasian descent (see Table 1). Participants ranged in age from 16 to 51 years (*M* = 23.05; *SD* = 5.4). A disproportionately large percentage of participants (77%), relative to comparable research, reported sending sext messages (*n* = 394). The average reported number of lifetime sexual partners was

3.21 (*SD* = 3.39), while the number of sex partners over the last month was 0.67 (*SD* = 0.83).

Table 1 indicates that 22.89% (*n* = 117) of participants were non-sexters, 26.42% (*n* = 135) were less explicit sexters, 17.03% (*n* = 87) were explicit sexters, and 33.66% (*n* = 172) were very explicit sexters. The most popular mode used to transmit a sext message was the cell phone (82.6%), compared to all other modes of transmission including Facebook, Twitter, email, or IM.

Design & Procedure

This research involved a one-way between-groups design with four levels (sexter group). Participants completed an anonymous, counterbalanced online survey (<http://fluidsurveys.com>) which took approximately 40 minutes to complete.

Measures

Demographic information. Participants were asked their age, gender, ethnicity, and sexual orientation, as well as their level of education, and number of sexual partners, both over their lifetime and within the previous month. Participants were also asked to indicate one categorical label (i.e., single, married, cheating etc.) that best described their current relationship status.

The Sexting Behaviours Survey (The National Campaign to Prevent Teen and Unplanned Pregnancy, 2008). The National Campaign to Prevent Teen and Unplanned Pregnancy (2008) and CosmoGirl.com collaborated to investigate sexting behaviours and attitudes among teens and young adults using an online self-report survey. Permission to modify the survey to fit the needs of the current study was granted from The National Campaign to Prevent Teen and Unplanned Pregnancy. The measure included 12 items, six of which pertained to participants' sexting behaviours and frequency of sexting behaviours, such as "Have you sent a sexy word-based message to someone via cell phone, email, Facebook, Twitter, or IM?" Questions were answered on a numerical scale ranging from 0 (I have never done this) to 9 (or more). Sexting was clearly defined in the instructions leading up to the survey items as "Sending sexy word-based messages, OR semi-nude (for example, posing in sexy lingerie) photos or videos, OR nude (for example, breasts, genitals or buttocks visible) photos or videos." Responses on these items were used to categorize participants into sexting groups. For example, individuals who had never sent a sext message were classified as non-sexters, individuals who had sent sexy word-based messages were classified as less explicit sexters, individuals who had sent semi-nude photos or videos were classified as explicit sexters, and individuals who had sent fully nude photos or videos were classified as very explicit sexters. The sexting frequency items were analyzed to determine the popularity of different types of sexting by content. In addition, the measure included three items which focused on motivational factors for sending different types of sexting content, for instance, "To initiate sexual behaviour with the recipient, or as a substitute for sexual contact, or to be fun/flirtatious etc." Motivational data was analyzed based on percentages within each sexter group.

Finally, three items explored the modes of transmission used for sexting different types of content; "When you send [(1) word-based sexts, (2) semi-nude, or (3) nude photos/videos] what device or platform do you usually use?" Options included, "I do not send these messages," "text messaging (cell phone)," or "Facebook, Twitter, or IM." Cronbach's alpha for the Sexting Behaviours Survey was established at $\alpha = .84$.

Attitudes and subjective norms. The Attitudes toward Sexting Measure (ATSM) and the Subjective Norms for Sexting Measure (SNM; Hudson, 2011; The National Campaign to Prevent Teen and Unplanned Pregnancy, 2008) were approved for adaptation to fit the needs of the current study. Items on the Attitudes toward Sexting Measure were scored

on a 5-point Likert scale ranging from *strongly disagree* (0) to *strongly agree* (4). For example, participants were asked "How much do you agree or disagree that "flirty" describes sending sexy word-based messages?" Scores were totaled to give a combined value ranging from 0 to 136, where higher scores reflect more positive attitudes toward sexting. In the present study, Cronbach's alpha was .90.

The Subjective Norms for Sexting Measure (Hudson, 2011; The National Campaign to Prevent Teen and Unplanned Pregnancy, 2008) comprised 16 items. The first eight items were scored on a 4-point Likert scale ranging from *not common at all* (0) to *very common* (3) and included questions such as, "How common would you say sending sexy messages to someone else is among people your age?." The remaining eight items were scored on a 5-point Likert scale ranging from *strongly disagree* (0) to *strongly agree* (4). For instance, participants were asked how much they agree or disagree with statements such as, "To my knowledge, all of my close friends have sent sexy word-based messages." Responses to all items were totaled to provide a combined score ranging from 0 to 56, where higher scores indicate more endorsement of subjective norms toward sexting. Cronbach's alpha was established at $\alpha = .85$.

The Alcohol Use Disorders Identification Test (AUDIT; Babor, Higgins-Biddle, Saunders, & Monteiro, 2001). The 10-item AUDIT was used to measure participants' alcohol use. For example, "How many drinks containing alcohol do you have on a typical day when you are drinking?" Each question contained a fixed set of responses from which to select, and scores on each question range numerically from 0 to 4. Responses were summed to provide a total score between 0 and 40. Total AUDIT scores from 8 to 15 indicate a moderate level of alcohol related problems, such as harmful or hazardous drinking. Scores 16 to 20 indicate a high level of alcohol related problems, whereas scores above 20 designate a need for further assessment for alcohol dependence. Several research studies have reported on the reliability of the AUDIT (Fleming, Barry, & MacDonald, 1991; Hays, Merz, & Nicholas, 1995), revealing high internal consistency and high test-retest reliability (Conigrave, Saunders, & Reznik, 1995). In the current study, Cronbach's alpha was .84.

The Need Inventory of Sensation Seeking (NISS; Roth & Hammelstein, 2012). The NISS was used to evaluate an individual's need for novelty or excitement where sensation seeking represented a motivational disposition. The 17-item NISS asked participants to evaluate their attitudes and behaviours on questions like, "I like to find myself in situations which make my heart beat faster." Participants rated how often they had felt that way during the past 6 months on a 5-point Likert scale ranging from *almost never* (1) to *almost always* (5). The NISS consists of two subscales, one which measures respondents' "need for stimulation" (NS; 11 items) and the other which measures "avoidance of rest" (AR; 6 items). Since the NS subscale is recommended as a gauge for global sensation seeking (Roth, Hammelstein, & Brähler, 2007), only this subscale was used in the present study. Total scores for this

Table 2. ANCOVA Results among Sexter Groups on Dependent Variables

Measure	<i>F</i>	<i>p</i>	η^2	95% CI	
				Lower	Upper
Attitudes toward Sexting Measure	50.85	<.001	.335	57.67	89.00
Subjective Norms Measure	10.98	<.001	.098	23.53	33.87
The Need Inventory Sensation Seeking	21.25	<.001	.174	27.34	37.31
Alcohol Use Disorder Identification Test	11.77	<.001	.104	2.24	7.80
Sexual Risk Survey	46.98	<.001	.317	2.38	32.16

Note: values are adjusted for the effect of the covariates.

subscale range from 0 to 55, where higher scores indicate a greater need for sensation seeking. In the current study, internal consistency reliability was $\alpha = .86$.

Sexual Risk Survey (SRS; Turchik & Garske, 2009). The SRS measures participants' frequency of risky sex behaviours over the past 6 months. The survey comprises 23 open ended items. Participants were able to freely respond by specifying the number of times they have engaged in certain behaviours. For instance, participants were asked questions such as, "How many partners have you engaged in sexual behaviour with, but not had sex with?" Raw scores were recoded into separate categories of 0 to 4, then summed to give a total SRS score ranging from 0 to 92, where higher scores indicate engagement in behaviours reflecting greater sexual risk taking. The SRS has been shown to have good content, concurrent and convergent validity (Turchik & Garske, 2009). In the present study, Cronbach's alpha was $\alpha = .92$.

Statistical Analyses

A one-way multivariate analysis of covariance (MANCOVA), with gender and age as covariates, was determined to be the best analysis for the study's main research question: whether there are differences among types of sexters on attitudes and subjective norms toward sexting, as well as various health compromising behaviours. Univariate follow-up analyses were conducted with a Bonferroni adjusted alpha of .01. Missing values were treated with mean replacements before any statistical analyses were performed.

RESULTS

Analyses of Differences between Sexter Groups

A one-way MANCOVA conducted on the combined dependent variables of attitudes toward sexting, subjective norms, alcohol use, sensation seeking, and risky sexual behaviours was statistically significant after adjusting for gender and age, *Pillai's Trace* = .47, $F(15, 1509) = 18.52$, $p < .001$; partial $\eta^2 = .16$, indicating differences between sexter groups. The multivariate effect size indicated that 16% of the variance in the combined dependent variables was accounted for by sexter group.

Follow-up univariate ANCOVAs illustrated that scores on each of the dependent variables including attitudes toward sexting ($F(5, 505) = 50.85$, $p < .001$; partial $\eta^2 = .335$), subject norms for sexting ($F(5, 505) = 10.98$, $p < .001$; partial $\eta^2 = .098$), global sensation seeking ($F(5, 505) = 21.25$, $p < .001$; partial $\eta^2 = .174$), alcohol use ($F(5, 505) = 11.77$, $p < .001$; partial $\eta^2 = .104$), and sexual risk taking ($F(5, 505) = 46.98$, $p < .001$; partial $\eta^2 = .317$) were significantly different among the sexter groups (see Table 2).

Descriptive statistics on dependent variables for each sexter group are presented in Table 3. As expected, Fisher's least significant difference (LSD) post-hoc analyses indicated that very explicit sexters scored significantly higher on positive attitudes toward sexting than all other groups ($M = 86.68$). Explicit sexters scored significantly higher on positive attitudes ($M = 81.00$) toward sexting than did less explicit sexters ($M = 74.88$), who in turn scored higher on this measure than non-sexters ($M = 60.50$).

Table 3 also illustrates significant differences found on the endorsement of subjective norms among the different sexter groups. Specifically, all three sexter groups scored significantly higher than non-sexters on subjective norms for sexting ($M = 25.16$). Very explicit sexters ($M = 31.51$) did not score higher on subjective norms for sexting than did either explicit ($M = 32.00$) or less explicit sexters ($M = 29.20$).

Sensation seeking was prominent among all sexters in general, as shown by the significantly higher need for sensation seeking scores among sexter groups relative to their non-sexter counterparts. Alcohol use was notably higher among very explicit sexters ($M = 7.05$) compared to less explicit sexters ($M = 4.79$) and non-sexters ($M = 3.16$), but was not significantly higher than explicit sexters ($M = 6.54$). Both explicit and less explicit sexters scored significantly higher on alcohol use than non sexters. However, it is worth noting that AUDIT scores did not reach clinically significant levels of problematic alcohol consumption for any of the groups. Only slightly elevated scores were found among the very explicit sexters.

Sexual risk scores were significantly highest for the very explicit sexter group compared to all other groups ($M = 29.69$). As expected, explicit sexters ($M = 24.10$) scored significantly higher on sexual risk taking than less explicit sexters

Table 3. Descriptive Statistics for Dependent Variables Organized by Sexter Group

	Sexter Group			
	Non-Sexter <i>n</i> = 117	Less Explicit <i>n</i> = 135	Explicit <i>n</i> = 87	Very Explicit <i>n</i> = 172
Attitudes toward Sexting Measure	<i>M</i> = 60.50 _a (1.43)	<i>M</i> = 74.88 _b (1.33)	<i>M</i> = 81.00 _c (1.65)	<i>M</i> = 86.68 _d (1.18)
Subjective Norms Measure	<i>M</i> = 25.16 _e (.83)	<i>M</i> = 29.20 _f (.77)	<i>M</i> = 32.00 _f (.96)	<i>M</i> = 31.51 _f (.68)
Need Inventory Sensation Seeking	<i>M</i> = 28.69 _g (.69)	<i>M</i> = 35.03 _h (.64)	<i>M</i> = 35.32 _h (.80)	<i>M</i> = 36.20 _h (.57)
Alcohol Use Disorder Identification Test	<i>M</i> = 3.16 _i (.47)	<i>M</i> = 4.79 _j (.44)	<i>M</i> = 6.54 _k (.54)	<i>M</i> = 7.05 _k (.39)
Sexual Risk Survey	<i>M</i> = 5.38 _l (1.53)	<i>M</i> = 13.31 _m (1.43)	<i>M</i> = 24.10 _n (1.77)	<i>M</i> = 29.69 _o (1.26)

Note: Means are adjusted for the effect of the covariates. Standard errors appear in parentheses. Within rows, means with different subscripts differ significantly at *p* < .001. ATSM scale ranges from 0 to 136. SNM scale ranges from 0 to 56. NISS scale ranges from 0 to 55. AUDIT scale scores from 8 to 15 indicate moderate level of alcohol related problems. SRS scale ranges from 0 to 92.

Table 4. Summary of Correlations, Means, and Standard Deviations

	<i>M</i>	<i>SD</i>	1	2	3	4	5
1. Attitude toward Sexting Measure	76.34	18.77	—				
2. Subjective Norms Measure	29.53	9.34	.199*	—			
3. Need Inventory for Sensation Seeking	34.02	8.11	.387*	.265*	—		
4. Alcohol Use Disorders Identification Test	5.47	5.29	.184*	.235*	.366*	—	
5. Sexual Risk Survey	18.84	19.84	.365*	.173*	.295*	.451*	—

Note: **p* < .001. The dependent variable was participant sexter type (non-sexter, less explicit, explicit, or very explicit). Age and gender served as covariates.

(*M* = 13.31), and in turn, less explicit sexters scored higher than non-sexters (*M* = 5.38).

Multiple Regression Analysis

A stepwise multiple regression analysis was used to examine the relationship between participants' sexter type and positive attitudes toward sexting, subjective norms for sexting, alcohol use, sensation seeking, and risky sexual behaviours. The results of the regression indicated that two predictor variables explained 40.6% of the variance in sexting behaviours after controlling for age and gender, $F(7, 503) = 51.00, p < .001$. The analysis showed that positive attitudes toward sexting ($\beta = .396, p < .001$) and engaging in more risky sexual behaviours ($\beta = .337, p < .001$) significantly predicted sexter type. Table 4 illustrates correlations and descriptive statistics, and Table 5 presents the unique contribution of each predictor variable to sexting behaviours. Although the current study suggests that sexters in general have higher rates of endorsement of subjective sexting norms, global sensation seeking, and more problematic alcohol use, the regression model excluded these variables as predictors of an individual's sexter type.

Motivations for Sexting

Motivational factors were used as exploratory variables to investigate whether reasons for sexting vary by sexter group and whether, as proposed in previous studies, sexting could be categorized as either another risky behaviour in which sensation seekers like to engage (Dir et al., 2013), a substitute for sexual contact which can be viewed as a safer sex option (Lenhart, 2009), or a modern way of transmitting sexual content to a partner (Chalfen, 2009).

As indicated in Table 6, very few sexters stated that sexting was "a substitute for sexual contact," indicating it unlikely that participants in this study use sexting as a safer sex option. With respect to sexting representing another risky behaviour appealing to sensation seekers, the minority of less explicit sexters indicated that the main reasons for sending sext messages was to "initiate sexual contact with the recipient," "to get a girl's or guy's attention," or "to feel sexy"; these reasons circumscribe a need for excitement and were categorized as sensation seeking motivations. Further, only 15% of explicit sexters and 19% of very explicit sexters indicated global sensation seeking motivations for sexting. Though the evidence does indicate that individuals who sext score higher on a

Table 5. Summary of Multiple Regression Model for the Prediction of Sexting Behaviours

Model	<i>b</i>	<i>SE_b</i>	β	<i>sr</i> ²	<i>t</i>	<i>p</i>
Attitudes Toward Sexting	.025	.002	.396	.116	10.00*	.000
Sexual Risk Survey	.020	.003	.337	.073	7.92*	.000

Note: The overall stepwise multiple regression results indicate, $F(7, 503) = 51.00$, $r^2 = .415$, $\text{adj. } r^2 = .407$. * $p < .001$ after controlling for age and gender.

Table 6. Motivations for Sexting

Motivations for Sexting	Sexter Group		
	Less Explicit (%)	Explicit (%)	Very Explicit (%)
Safer Sex Option	4.4	4.6	7
Sensation Seeking	13.4	14.9	19.2
Sexual Appeal	60.8	25.3	9.9
Relationship Maintenance	19.9	43.6	54
Other	1.5	11.6	9.9

measure of sensation seeking and do engage in other risky health behaviours *generally* (see Table 3), the intentions behind sexting among participants in this sample point more to other motivations than either risk taking or excitement.

Specifically, it was determined that the majority of less explicit sexters indicated the main reasons for sending sexy word-based messages was to be “funny,” “fun,” or “flirtatious.” Collectively, these reasons appear to encompass a more general motivation; that is, to highlight their *sexual appeal*. More than a quarter of explicit sexters also indicated sexual appeal as a motive for sending semi-nude photos or videos.

However, the majority of explicit and very explicit sexters reported that their main reasons for sending a semi- or fully nude photo or video were to give their partner a sexy present, to enhance their relationship, or to respond to a sext that was given to them. Altogether, these reasons point to a broader motivation that we identified as *relationship maintenance*.

Overall, the evidence demonstrates that the motivations for sexting are similar among the different sexter groups. In total, almost 65% of all sexters within this sample reported two main reasons for sending a sext: (1) sexual appeal motivations or (2) relationship maintenance motivations. In this context, sexting can be classified as a way to present oneself as sexually appealing – a category we had not originally hypothesized – or as a relationship maintenance strategy for transmitting sexual content to a current partner.

DISCUSSION

The purpose of this study was to expand on existing literature by using a comprehensive definition of sexting to include dif-

ferent types of sext content and modes of transmission. Our main goal was to determine whether attitudes toward sexting, endorsement of subjective norms, alcohol use, and sexual risk differ across separate sexters groups. Consistent with previous research (see Delevi & Weisskirch, 2013; Drouin et al., 2013; Gordon-Messer et al., 2013; The National Campaign to Prevent Teen and Unplanned Pregnancy, 2008), we found that sexting in general is a prevalent behaviour among emerging adults. Sexting rates in the current study were disproportionately higher than previous research, possibly due to our broad definition of sexting, as well as the potential for prevalence rates to change over time. The large majority of our participants reported engaging in sexting behaviours, and noted using their cell phone as the primary mode for transmitting sexual content.

When broadening the definition of sexting to include various sexter groups, support for our main prediction was found. Individuals who sent fully nude photos or videos reported the highest rates of positive attitudes toward sexting, and the greatest engagement in risky sexual behaviours, relative to all other groups. A gradual increase in positive attitudes toward sexting and risky sexual behaviours was shown as the sexting content among these groups became more explicit. It is possible that participants who send nude sexts hold more favourable attitudes toward sexting and engage in more risky sexual contact because they have not experienced negative consequences associated with these behaviours, such as sexually transmitted infections, unplanned pregnancy, or having a sext forwarded to others without their permission. It may also be the case that these young adults view sexting and promiscuity positively, such as a way to enhance their sexual appeal, maintain social status among their peers, initiate or enhance sexual relationships, or establish a sense of maturity or accomplishment. Regardless, both endorsement of positive attitudes and engagement in sexually risky behaviour were found to be highest among the most explicit sexters.

Of interest, it was further revealed that sexters in general, regardless of the type of sexting content, perceive peer pressure to sext. All sexter groups perceived sexting to be a common activity among men and women their age. Further, sexters were significantly more likely than non-sexters to state that people who exchange sext messages are expected to engage in sexual activity with the sext recipient.

It was also established that sexters as a whole have higher rates of global sensation seeking and experience more – although not clinical levels – of problematic alcohol consumption, than do non-sexters. Specifically, individuals who sent sext messages, photos, or videos indicated a greater need for thrilling experiences compared to individuals who did not sext. Alcohol consumption was highest among those who sent semi-nude or fully nude photos or videos (i.e., the explicit and very explicit sexters) relative to individuals who sent word-based sexts, or who did not sext at all. The benefits of engaging in sensation seeking behaviours are often instant and rewarding (e.g., sexual pleasure, peer approval, or getting drunk), while the detriments are far-removed and indefinite (e.g., contracting a sexually transmitted infection, getting

pregnant, or developing cirrhosis of the liver). This may explain why sexters view sending sexually suggestive messages, photos, or videos as positive; the potential negative consequences of very explicit sexting are undetermined or difficult to envision over the immediate gratifications.

The multiple regression analysis examined the relationship between sexter type and various predictor variables after controlling for age and gender. Attitudes toward sexting and engaging in risky sexual behaviours were shown to be positively and significantly correlated with sexter type, indicating that participants who scored higher on positive attitudes toward sexting and risky sexual behaviour participated in more explicit types of sexting. Different types of sexting behaviour therefore, may be more accurately related to an individual's positive attitudes toward sexting and their level of sexual risk taking, over and above other factors such as social pressure to engage in sexting (subjective norm), sensation seeking, and alcohol use. These results may help researchers better understand which factors play a significant role in explaining differences in sexting behaviour among emerging adults.

Finally, an analysis of the motivations for sexting allows us to begin to understand sexting as a way to attract a partner by highlighting one's sexual appeal or as a relationship maintenance strategy – a way to keep a relationship exciting – which has been argued by Chalfen (2009) as the modification of a long established phenomenon of sending suggestive photos to a sex partner. The hypotheses that sexting occurs as a substitute for sexual contact (Lenhart, 2009), or that it represents another risky behaviour in which sensation seekers like to engage, were not supported by our admittedly limited data.

The findings of the current study, as well as those of others (see Dir et al., 2013) suggest that sexting might represent a high risk behaviour for individuals who engage in concurrent sensation seeking behaviours. Clearly, there is a need for additional sexting research to further establish this link. While not all sexting behaviours are detrimental – indeed, our evidence indicates that in contexts where perceived ‘relationship maintenance’ is relevant, sexting may be beneficial – it still behooves educators to integrate information regarding sexting behaviours, and the risks associated with sexting, into digital safety curriculum. Recently, the Ministry of Education made revisions to provincial kindergarten to grade 12 curriculums. One specific suggestion was to implement digital literacy standards for all students. Digital literacy standards highlight the need for students to be technologically proficient in our advancing society. Standards included teaching topics such as digital safety and privacy settings (Ministry of Education, 2013). It may be beneficial for educators to include additional information regarding the risks associated with current digital trends that have been substantiated by empirical evidence.

Limitations and Future Directions

Our data was collected from a non-random convenience sample of undergraduate students from numerous post-secondary institutions in a large Western Canadian city. The sample

comprised primarily heterosexual, female undergraduates of Caucasian descent; thus the results cannot be generalized to other populations. Future sexting researchers should focus efforts on accessing a more diverse sample – particularly males – to gain results that are more representative. Second, the measures used to gauge sexual risk taking, sexting behaviours, alcohol, and drug use relied on self-reported behaviour. It is therefore possible that participants over- or underestimated their involvement in these behaviours due to either memory deficits or social desirability bias.

Despite these limitations, the results from this study help researchers tailor their operationalization of sexting to include specific content or modes of transmission that are more common among emerging adults. This can make it easier to draw conclusions between studies and to accurately represent sexting behaviours among young adults, as well as to begin to understand the relationship between sexting and health related issues. In addition, future researchers may benefit from examining the precise sexual behaviours engaged in with sexting partners to more accurately measure this relationship.

Further investigations should also examine how cultural or religious beliefs influence sexting behaviours. For example, this investigation found similar percentages of Caucasian (33%), East Asian (23%) and South Asian (35%) participants within the non-sexter group. However a steady decrease in East Asian and South Asian participant percentages was observed as the sexter groups became more explicit. Specifically, the percentages for East and South Asians within the very explicit sexter group dwindled to approximately 10% and 9% respectively. The opposite effect was observed for Caucasian participants, where a steady increase in percentages was reported as the sexter groups became more explicit. Caucasians comprised approximately 69% of the very explicit sexter group whereas East and South Asians together represented only 19% of this group; these results point to a cultural or religious impact on sexting. East and South Asians hold similar cultural values, such as the importance of family goals over individual desires, and typically, members of these cultures hold more sexually conservative attitudes. For instance, sexual restraint is highly valued, especially among women, and sexual contact outside of a marriage is greatly frowned upon (Okazaki, 2002). It is possible that for individuals within these cultures, more explicit forms of sexting are in considerable conflict with their values and beliefs, so individuals are less likely to push these behavioural boundaries.

Finally, sexual orientation influences on sexting behaviours were not explored in this study, providing an avenue for future research. Our results revealed that the most notable change in sexual orientation percentages among the sexter groups was found for bisexual and heterosexual participants. The percentage of bisexual participants increased as the sexter groups became more explicit in content: Bisexuals represented almost 2% of the non-sexters, 4% of the less explicit sexters, 8% of the explicit sexters, and 15% of the very explicit sexters. On the other hand, percentages of heterosexual participants slightly decreased as the sexter groups became more explicit.

Heterosexuals represented almost 97% of the non-sexters, 92% of the less explicit sexters, 89% of the explicit sexters, and 83% of the very explicit sexters. These results indicate that sexting is primarily used by heterosexuals, to a lesser degree by bisexuals, and to an even lesser degree by homosexuals. Future research should explore whether these findings are typical or whether sexting behaviours are used by all sexual orientations equally.

This study was, to our knowledge, the first to explore differences between sexters and non-sexters on attitudes, subjective norms, and risky sexual behaviours. It was established that more explicit sexters possess favourable attitudes toward sexting and engage in riskier sexual behaviours. Sexters in general perceive more peer pressure to engage in sexting, have a higher need for new experiences, and on average have slightly more alcohol related issues than non-sexters. Motivations for sexting appear to focus on presenting sexual appeal to others and maintaining or enhancing relationships. These results suggest the need for digital literacy programs to be integrated into public school curriculum. Such programs should be centred around modifying attitudes and dealing with peer pressure, as well educating students on the health and social risks associated with sexting.

REFERENCES

- Associated Press & MTV (2009). AP–MTV Digital abuse study, Executive Summary. Retrieved from http://www.athinline.org/MTV-AP_Digital_Abuse_Study_Executive_Summary.pdf
- Babor, T.F., Higgins-Biddle, J.C., Saunders, J.B., & Monteiro, M.G. (2001). *The alcohol use disorder identification test: Guidelines for use in primary care* (2nd ed.). Geneva: World Health Organization, Department of Mental Health and Substance Dependence.
- Benotsch, E.G., Kalichman, S., & Cage, M. (2002). Men who have met sex partners via the Internet: prevalence, predictors, and implications for HIV prevention. *Archives of Sexual Behavior*, 31(2), 177–183. <http://dx.doi.org/10.1023/A:1014739203657> Medline:11974643
- Benotsch, E.G., Snipes, D.J., Martin, A.M., & Bull, S.S. (2013). Sexting, substance use, and sexual risk behavior in young adults. *Journal of Adolescent Health*, 52(3), 307–313. <http://dx.doi.org/10.1016/j.jadohealth.2012.06.011> Medline:23299017
- Brenner, J., & Smith, A. (2013). 72% of online adults are social networking site users: Social networking sites remain most popular among young adults, but other age groups continue to increase their engagement. *Pew Internet & American Life Project*. Retrieved from <http://pewinternet.org/Reports/2013/social-networking-sites.aspx>
- Chalfen, R. (2009). It's only a picture: Sexting, "smutty" snapshots and felony charges. *Visual Studies*, 24(3), 258–268. <http://dx.doi.org/10.1080/14725860903309203>
- Conigrave, K.M., Saunders, J.B., & Reznik, R.B. (1995). Predictive capacity of the AUDIT questionnaire for alcohol-related harm. *Addiction (Abingdon, England)*, 90(11), 1479–1485. <http://dx.doi.org/10.1111/j.1360-0443.1995.tb02810.x> Medline:8528033
- Delevi, R., & Weisskirch, R.S. (2013). Personality factors as predictors of sexting. *Computers in Human Behavior*, 29(6), 2589–2594. <http://dx.doi.org/10.1016/j.chb.2013.06.003>
- Dir, A.L., Cyders, M.A., & Coskunpinar, A. (2013). From the bar to the bed via mobile phone: A first test of the role of problematic alcohol use, sexting, and impulsivity-related traits in sexual hookups. *Computers in Human Behavior*, 29(4), 1664–1670. <http://dx.doi.org/10.1016/j.chb.2013.01.039>
- Drouin, M., Vogel, K.N., Surbey, A., & Stills, J.R. (2013). Let's talk about sexting, baby: Computer-mediated sexual behaviors among young adults. *Computers in Human Behavior*, 29(5), A25–A30. <http://dx.doi.org/10.1016/j.chb.2012.12.030>
- Ferguson, C.J. (2011). Sexting behaviors among young Hispanic women: incidence and association with other high-risk sexual behaviors. *The Psychiatric Quarterly*, 82(3), 239–243. <http://dx.doi.org/10.1007/s11126-010-9165-8> Medline:21153441
- Fleming, M.F., Barry, K.L., & MacDonald, R. (1991). The alcohol use disorders identification test (AUDIT) in a college sample. *The International Journal of the Addictions*, 26(11), 1173–1185. Medline:1743817
- Gordon-Messer, D., Bauermeister, J.A., Grodzinski, A., & Zimmerman, M. (2013). Sexting among young adults. *The Journal of Adolescent Health*, 52(3), 301–306. <http://dx.doi.org/10.1016/j.jadohealth.2012.05.013> Medline:23299018
- Grosskopf, N.A., Harris, J.K., Wallace, B.C., & Nanin, J.E. (2011). Online sex-seeking behaviors of men who have sex with men in New York City. *American Journal of Men's Health*, 5(5), 378–385. <http://dx.doi.org/10.1177/1557988310372801> Medline:20798150
- Grov, C., DeBusk, J.A., Bimbi, D.S., Golub, S.A., Nanin, J.E., & Parsons, J.T. (2007). Barebacking, the Internet, and harm reduction: an intercept survey with gay and bisexual men in Los Angeles and New York City. *AIDS and Behavior*, 11(4), 527–536. <http://dx.doi.org/10.1007/s10461-007-9234-7> Medline:17431756
- Hampton, K.N., Goulet, L.S., Rainie, L., & Purcell, K. (2011). Social networking sites and our lives: How people's trust, personal relationships, and civic and political involvement are connected to their use of social networking sites and other technologies. *Pew Internet & American Life Project*. Retrieved from <http://www.pewinternet.org/Reports/2011/Technology-and-social-networks.aspx>
- Hays, R.D., Merz, J.F., & Nicholas, R. (1995). Response burden, reliability, and validity of the CAGE, Short MAST, and AUDIT alcohol screening measures. *Behavior Research Methods, Instruments, & Computers*, 27(2), 277–280. <http://dx.doi.org/10.3758/BF03204745>
- Hudson, H.K. (2011). *Factors affecting sexting behaviors among selected undergraduate students* (Unpublished doctoral dissertation). Southern Illinois University Carbondale, IL.
- Huntley, R. (2006). *The world according to y: Inside the new adult generation* (1st ed.). Crow's Nest, NSW: Allen & Unwin.
- Lenhart, A. (2009). Overview: Teens and sexting: How and why minor teens are sending sexually suggestive nude or nearly nude images via text messaging. *Pew Internet and American Life Project*. Retrieved from http://www.pewinternet.org/~media/Files/Reports/2009/PIP_Teens_and_Sexting.pdf

- Lenhart, A., Ling, R., Campbell, S., & Purcell, K. (2010). Teens and mobile phones. *Pew Internet & American Life Project*. Retrieved from <http://www.pewinternet.org/Reports/2010/Teens-and-Mobile-Phones.aspx>
- Ministry of Education (2013). *BC's digital literacy framework (DRAFT)*. Retrieved from http://www.bced.gov.bc.ca/dist_learning/docs/digital-literacy-framework-v3.pdf
- Mitchell, K.J., Finkelhor, D., Jones, L.M., & Wolak, J. (2012). Prevalence and characteristics of youth sexting: a national study. *Pediatrics*, *129*(1), 13–20. <http://dx.doi.org/10.1542/peds.2011-1730> Medline:22144706
- The National Campaign to Prevent Teen and Unplanned Pregnancy (2008). Sex and tech: Results from a survey of teens and young adults. Retrieved from <http://thenationalcampaign.org/sextech/>
- Okazaki, S. (2002). Influences of culture on Asian Americans' sexuality. *Journal of Sex Research*, *39*(1), 34–41. <http://dx.doi.org/10.1080/00224490209552117> Medline:12476254
- Roth, M., & Hammelstein, P. (2012). The need inventory of sensation seeking (NISS). *European Journal of Psychological Assessment*, *28*(1), 11–18. <http://dx.doi.org/10.1027/1015-5759/a000085>
- Roth, M., Hammelstein, P., & Brähler, E. (2007). Beyond a youthful behavior style: Age and sex differences in sensation seeking based on need theory. *Personality and Individual Differences*, *43*(7), 1839–1850. <http://dx.doi.org/10.1016/j.paid.2007.06.004>
- Smith, A. (2011). Americans and text messaging. *Pew Internet & American Life Project*. Retrieved from <http://pewinternet.org/~media/Files/Reports/2011/Americans%20and%20Text%20Messaging>
- Thurlow, C., Lengel, L. & Tomic, A. (2004). *Computer mediated communication: Social Interaction and the Internet*. London: Sage.
- Turchik, J.A., & Garske, J.P. (2009). Measurement of sexual risk taking among college students. *Archives of Sexual Behavior*, *38*(6), 936–948. <http://dx.doi.org/10.1007/s10508-008-9388-z> Medline:18563548