



Copyright © 2017 International Journal of Cyber Criminology – ISSN: 0973-5089
July – December 2017. Vol. 11(2): 169–182. DOI: 10.5281/zenodo.1037379
Publisher & Editor-in-Chief – K. Jaishankar / Open Access (Authors / Readers No Pay Journal).

This is a Diamond Open Access article distributed under the terms of the Creative Commons Attribution-NonCommercial-ShareAlike 4.0 International (CC-BY-NC-SA 4.0) License, which permits unrestricted non-commercial use, distribution, and reproduction in any medium, provided the original work is properly cited.



SPECIAL ISSUE ON SEXTING

Adults who Sext: Exploring Differences in Self-Esteem, Moral Foundations, and Personality

Danielle M. Crimmins¹ & Kathryn C. Seigfried-Spellar²

Purdue University, United States of America

Abstract

This study assessed the prevalence of sexting behaviors among adults, and the relationship between sexting and moral foundations, self-esteem, and individual differences. Additionally, this study examined differences in the methods used to send sext messages (mobile applications vs. text messages) and image content (e.g., face, masturbating). Respondents solicited through Amazon's Mechanical Turk completed the anonymous survey measuring "attitudes toward sexting." The final sample included 508 adult participants; 68% of adults reported sexting behaviors, and both mobile applications and traditional text messages were used to send sext messages. In general, individuals who scored higher on extraversion and lower on conscientiousness, agreeableness, harm, and fairness were more likely to engage in sexting behaviors. Self-esteem was not associated with any sexting behaviors. Results also found significant differences between individuals who send semi-nude and nude sext messages. Limitations and future research suggestions are discussed.

Keywords: Sexting, Adults, Personality, Individual Differences, Moral Foundations, Self-Esteem, Five-Factor Model.

Introduction

Sexting, which is the combination of "sex"+"texting", is the "sending, receiving, or forwarding of sexually explicit messages, images or photos through electronic means, particularly between cell phones" (Klettuk, Hallford, & Mellor, 2014, p. 45). The media has publicized multiple sexting incidents which have resulted in cyberbullying and suicide (Dean, 2012), distribution of child pornography charges (Miller, 2015), and possible criminal charges as a result of sexting with a minor (Rosenberg, 2016). Sexting cases

¹ Graduate Student, Department of Computer and Information Technology (CIT), Purdue University, Knoy Hall of Technology, 401 N. Grant St., West Lafayette, IN 47907., USA. Email: dcrimmin@purdue.edu

² Assistant Professor, Department of Computer and Information Technology (CIT), Purdue University, Knoy Hall of Technology, 401 N. Grant St., West Lafayette, IN 47907., USA. Email: kspellar@purdue.edu

resulting in cyberbullying and suicide have garnished nationwide media attention, such as the case of Jessica Logan (Hastings, 2009); however, some research suggests positive links to sexting, specifically greater levels of sexual satisfaction (Stasko & Geller, 2015). As there are both negative and positive outcomes for engaging in sexting, the phenomenon warrants further investigation.

In 2009, Music Television (MTV) and Associated Press (AP) found 3 of 10 individuals, ages ranging from 14 - 24 years old, reported engaging in sexting. Similarly, Gordon-Messer and colleagues (2013) found nearly 30% of respondents, ages ranging from 18 - 24, engaged in sexting. Samimi and Alders (2014) found 60% of college students reported they were currently engaging in sexting or had engaged in sexting in the past which is similar to Delevi and Weisskirch (2013) who found 89% of college students engage in sexting. As statistics point out, sexting is prevalent among teens and young adults. A review of sexting literature in 2014 found the majority of studies (52%) sampled participants with ages ranging from 10 - 19 (Klettke, Hallford, & Mellor, 2014). However, a recent study has found sexting is also prevalent among adults. Specifically, Stasko and Geller (2015) found 88% of adults (ages ranging from 18 - 82 years old) engage in sexting.

Researchers suggest text messaging is the main method individuals use to engage in sexting (Drouin & Landgraff, 2011). Similarly, researchers found British adolescents (12 - 15 years old) primarily use Blackberry Messenger for sexting (Ringrose, Harvey, Gill & Livingstone, 2013). In recent years, however, individuals have started using mobile messaging applications to communicate. For instance, as of February 2017, there were over 35 million Snapchat users and over 19 million WhatsApp users per month (Statistica, 2017). Snapchat gained media attention because of the assumption it was used for sexting (Wortham, 2013). Recently, Van Ouytsel and colleagues (2017) examined the methods used by adolescents in Belgium to sext through qualitative interviews. Results indicated individuals primarily use mobile applications, such as Snapchat and WhatsApp, to engage in sexting because they believe it was more convenient and less likely to be accessed compared to E-mail and Facebook messenger, which they viewed as too "open" (Van Ouytsel, Van Gool, Walrave, Ponnet, & Peeters, 2017).

Previous research has also examined the relationship between sexting, personality characteristics (Delevi & Weisskirch, 2013), and self-esteem (Hudson, 2011; Gordon-Messer et al., 2012). More specifically, Delevi and Weisskirch (2013) found extraversion to be a predictor for sexting via text message and neuroticism and low agreeableness predicted sending a sexually suggestive photo (i.e., photo in underwear) among a sample of undergraduate students. Among college students, researchers found self-esteem to not be significantly related to sexting (Gordon-Messer et al., 2012; Hudson, 2011).

Finally, an individual's moral foundation has not directly been assessed with regards to sexting behaviors. However, the National Campaign's Sex & Tech Survey (2008) listed "immoral" as a choice for not sexting, which resulted in 34% of respondents indicating they do not engage in sexting because they perceive it to be "immoral." Similarly, Abraham (2015) asked non-sexters their reason for not engaging in sexting. Responses included: "I find it to be inappropriate" (68%); It violates a religious/cultural belief (26%); and "I find it dangerous" (63%). Additionally, Abraham (2015) asked non-sexters their perception of individuals who engage in sexting, 78% indicated it was because "they don't know how risky it is". The second most popular reason was "those who sexts engage in more sexual activity" (nearly 30%). Overall, the National Campaign's survey (2008) and



Abraham (2015) study examined individuals' attitudes and beliefs toward sexting rather than morality specifically; however, based on these responses, moral foundations may play a role in engaging in sexting behaviors.

Current Study

The overall goal of the current study was to assess the sexting behaviors of adults in a general internet-based sample, as well as the relationship between sexting, moral foundations, self-esteem, and individual differences. Additionally, the current study explored the prevalence of different methods used for sexting (i.e., traditional text messages vs. mobile application), and the type of the image/video (i.e., semi-nude vs. nude), as well as the recipient (e.g., boyfriend vs. stranger) and content of the image (e.g., face, masturbating).

Based on previous literature and the specific aims associated with the current study, the following three hypotheses were tested:

- H1. There are mean differences between individuals who sext and individuals who do not on personality, moral foundations, and self-esteem.
- H2: There are mean differences between those who send *semi-nude* sext messages and those who do not on personality, moral foundations, and self-esteem.
- H3: There are mean differences between those who send *nude* sext messages and those who do not on personality, moral foundations, and self-esteem.

Methods

Participants

514 respondents consented to the anonymous, online survey. However, prior to analysis, 6 respondents were deleted due to incomplete data as a result of either not qualifying for the study ($n = 1$; e.g., under 18 years of age), or dropping out before completion ($n = 5$), The final dataset for statistical analyses included 508 respondents. As shown in Table 1, the majority of respondents identified as male ($n = 278$; 54.8%), Caucasian/White ($n = 391$, 77%), heterosexual ($n = 434$; 85.5%) and single, never married ($n = 270$; 53.2%). The average age of participants was 33.28 (SD = 9.96; Range 18 - 72). Of the total sample ($N = 508$), 68% of individuals indicated they had sent a sext messages (semi-nude and/or nude) regardless of the method used (i.e., text message vs. mobile application) compared to 32% of individuals who reported never sending a sext message.

Materials

The study consisted of five surveys/questionnaires: demographics, sexting behaviors, five-factor model, moral foundations, and self-esteem. The demographic questionnaire consisted of nine questions which asked participants to self-report descriptive information (e.g., gender, age, race). Sexting behaviors were measured using a modified version of the "Sex and Tech" survey, which was developed by the National Campaign to Prevent Teen and Unplanned Pregnancy (2008). For the purpose of this study, sexting refers to an individual sending nude and/or semi-nude photos and/or videos via text messages or mobile application. Text messages includes traditional texting through short messaging services through the telephone system (SMS); whereas, mobile applications include application software that allows the sending of messages between app users (e.g., Snapchat,

WhatsApp, Facebook Messenger). The original Sex and Tech survey contained 25 items, but the present study only included four of these items, namely whether the respondent has ever sent a semi-nude or nude sext and if the semi-nude or nude sext included the respondent's face.

Table 1. Demographics for Self-Reported Sexting vs. Non-Sexting

Variable		Sexted (n = 344)	Never Sexted (n = 164)	Total (N = 508)
Age	18-24	69 (20.1)	17 (10.4)	86 (16.9)
	25-30	123 (35.8)	35 (21.3)	158 (31.1)
	31-34	62 (18)	24 (14.6)	86 (16.9)
	35-40	50 (14.5)	33 (20.1)	83 (16.3)
	41-44	16 (4.7)	10 (6.1)	26 (5.1)
	45-50	12 (3.5)	13 (7.9)	25 (4.9)
	50 +	12 (3.5)	32 (19.5)	44 (8.7)
Gender	Female	144 (41.9)	83 (50.6)	227 (44.7)
	Male	198 (57.7)	80 (48.8)	278 (54.8)
	Transgender	2 (0.7)	1 (0.6)	3 (0.6)
Race	African American	28 (8.1)	7 (4.3)	35 (6.9)
	Asian	26 (7.5)	7 (4.3)	33 (6.5)
	Caucasian / White	257 (74.8)	134 (81.7)	391 (77)
	Hispanic	25 (7.2)	9 (5.5)	34 (6.7)
	Other	8 (2.3)	4 (2.4)	12 (2.3)
	Decline	0	3 (1.8)	3 (.6)
Sexual Orientation	Heterosexual	285 (82.9)	149 (90.8)	434 (85.5)
	Homosexual	16 (4.6)	4 (2.4)	20 (3.9)
	Bi-Sexual	39 (11.3)	6 (3.6)	45 (8.8)
	Other	4 (1.1)	1 (0.6)	5 (1)
	Decline	0	4 (2.4)	4 (.8)
Marital Status	Single	195 (56.8)	75 (45.7)	270 (53.2)
	CL or CU	17 (4.9)	6 (3.7)	23 (4.5)
	Married	108 (31.3)	66 (40.2)	174 (34.2)
	Divorced	18 (5.2)	12 (7.3)	30 (5.9)
	Other	6 (1.7)	3 (1.8)	9 (1.7)
	Decline	0	2 (1.2)	2 (0.4)

Note. Values represent frequency with percentages in parentheses. Any discrepancies due to rounding. CL or CU = Common Law or Civil Union



The original Sex and Tech (2008) survey aimed at examining sexting behaviors and attitudes towards sexting; as the current study specifically aimed at understanding sexting behaviors, the 21 questions not pertaining to sexting behaviors were removed from the survey. This adaptation of the Sex and Tech (2008) survey has been used in a previous study which investigated sexting behavior (see Crimmins & Seigfried-Spellar, 2014). Additionally, the questions were adapted into four sets of questions to look at the different methods used for sending sext messages, including: nude images sent via text; semi-nude images sent via text; nude images sent via mobile application; and semi-nude images sent via mobile application.

The Five-Factor Model Rating Form (FFMRF; Widiger, 2004) measured the respondents' individual differences based on the Big 5 personality characteristics: Neuroticism, Extraversion, Openness to Experience, Agreeableness, and Conscientiousness. Participants were given 30 opposite word pairs (e.g., introverted vs. extroverted) and asked to rate themselves using a 5-point Likert scale ranging from 1 (extremely low) to 5 (extremely high). Based on FFMRF scoring, the scale resulted in five subscales: Extraversion ($\alpha = .80$), Agreeableness ($\alpha = .70$), Neuroticism ($\alpha = .83$), Openness to Experience ($\alpha = .72$), and Conscientiousness ($\alpha = .80$).

The survey also consisted of the Moral Foundations Questionnaire (MFQ; Haidt, 2012; Graham, Haidt, & Nosek, 2008), which assessed how individuals determine if something is right or wrong. The scale consists of 32 questions, and participants were asked to rate themselves using a 6-point Likert scale ranging from 0 (not all relevant) to 6 (extremely relevant). This scale was created based on the Moral Foundation Theory, which was first developed by Haidt and Joseph (2004). Using the scoring guidelines for the Moral Foundation Questionnaire, five subscales were created: Harm ($\alpha = .72$), Fairness ($\alpha = .71$), In-group ($\alpha = .77$), Authority ($\alpha = .77$), and Purity ($\alpha = .88$).

Finally, self-esteem was measured using Rosenberg's (1965) Self-Esteem Scale, which has previously been used in the sexting literature (Gordon-Messer et al., 2012; Hudson, 2011). This scale consists of 10 questions using a 5-point Likert scale ranging from 1 (strongly agree) to 5 (strongly disagree); for instance, participants were asked "I feel I have a number of good qualities." A higher score indicated a higher level of self-esteem. For the current study, the Self-Esteem scale yielded a Cronbach's alpha of .94.

Design and Procedure

The study was conducted electronically using an anonymous, Internet-based survey on the survey platform Qualtrics. Researchers have found the Internet is adequate and valid tool for conducting social psychological and experimental research (McGraw et al. 2000; Lewis et al. 2009). Further, Lewis and colleagues (2009) suggest web-based surveys generate a more generalizable sample. The online survey solicited participants from Amazon's Mechanical Turk (MTurk) in order to obtain a sample of adult Internet users. Research has demonstrated MTurk may be used to obtain high-quality data inexpensively and rapidly from a diverse participant pool (Arditte, Çek, Shaw, & Timpano, 2016; Johnson & Borden, 2012; Miller, Crowe, Weiss, Maples-Keller, & Lynam, 2017) and provides better generalizability than snowball sampling procedures (Berinsky, Huber, & Lenz, 2011).

The study was advertised on Mechanical Turk as “Anonymous Survey: Attitudes toward Sexting Behaviors.” The study was advertised for two days in April 2017. To qualify for participation, individuals were required to be permanent residents in the United States and at least 18 years or older. Further, the study only solicited individuals who were high reputation workers (i.e., 95% and above approval ratings), which indicates the individual has a high success rate for completing “HITS” or human intelligence tasks (see Peer, Vosgerau, & Acquisti, 2014). Upon completion, participants were provided a “code word” which they anonymously submitted through MTurk’s website for compensation. The code word was changed daily, and the Qualtrics software prevented ballot box stuffing. In line with current pricing practices on MTurk, participants were paid \$0.50 for completing the survey.

During the course of the survey, no identifying information was collected (e.g., name, social security number, IP address); instead, participants were randomly assigned an ID number. Anonymity and confidentiality increase the participant’s confidence in self-disclosing deviant behavior. The survey began with a consent page which detailed the purpose of the study, the voluntary nature of the study and the confidentiality of the data collected, per Institutional Review Board (IRB) protocols. Participants were able to quit the survey at any time and the study took approximately 15 minutes to complete. The demographic portion of the survey was force choice; however, respondents were able to decline to respond to any question, per IRB protocols. Additionally, a validation question was also included to identify participants who were not carefully reading the questions and/or randomly selecting answers. All respondents were treated in accordance with the ethical standards set forth by the American Psychological Association (APA).

Analytical Strategy

Two-tailed statistical significance was set at the alpha level of .05 prior to any analyses; however, due to the exploratory nature of this study, significance levels of .10 were also included. Descriptive analyses explored the frequency of behaviors based on respondent demographics (e.g., gender, race, marital status). Additionally, frequencies explored the prevalence of sexting behaviors based on the method used to send the sexts (texting vs. mobile applications), as well as the content of the image/video (e.g., face, masturbating). Sexting behaviors were examined based on three categories: individuals who never sexted vs. sexted (dichotomous); individuals who sent *semi-nude* sext vs. never sent a *semi-nude* sext (dichotomous); and individuals who never sent a *nude* sext vs. sent a *nude* sext (dichotomous). In addition, a zero-order correlation determined if any of the variables were significantly related to sexting behaviors. Finally, mean differences were explored for the significantly correlated variables using a one-way analysis of variance (ANOVA); we calculated the effect size using omega (ω), which is considered to be less biased compared to eta squared (see Field, 2013; Kirk, 1996).

Results

Descriptives

As shown in Table 1, the majority of participants ($n = 344$; 68%) reported sexting. The majority of sexters identified as male ($n = 198$; 58%), Caucasian/white ($n = 257$, 75%), heterosexual ($n = 285$, 83%), and single ($n = 195$, 57%). The mean age for sexters was 31



years ($SD = 7.92$; Range 18 - 68 years). As shown in Table 3, there was a positive, significant relationship between sending a *semi-nude* sext and sending a *nude* sext message, $r_{\phi}(507) = .42$ with $p = .001$, respectively. Results suggest individuals who send a semi-nude sext messages are more likely to also send a nude sext message.

As shown in Table 2, the majority of respondents reported sending a *semi-nude* photo/video via text message ($n = 291$, 57%); however, only 1/3 ($n = 168$, 33%) of individuals self-reported sending a *nude* photo/video via text message. It was even less common for individuals to send sexts via mobile applications (e.g., Snapchat); 103 (20%) individuals reported sending a *semi-nude* image, and 50 (10%) reported sending a *nude* image via mobile applications.

Table 2. Method, Type of Image, and Image Content for Sexters

Variable		Text		Mobile App	
		Semi-Nude ($n = 291$)	Nude ($n = 168$)	Semi-Nude ($n = 103$)	Nude ($n = 50$)
Face Shown in Image	Yes	161 (55.7)	93 (55.5)	67 (65)	34 (68.6)
	No	127 (43.6)	73 (43.2)	36 (35)	15 (29.4)
	Decline	2 (0.7)	2 (1.2)	0	1 (2)
Sexual Activity in Image	Yes	128 (44)	95 (56.8)	55 (53.4)	34 (66.7)
	No	161 (55.3)	73 (43.2)	47 (45.6)	14 (29.4)
	Decline	2 (0.7)	0	1 (1)	2 (3.9)
Recipient of Image	Stranger	32 (11.1)	20 (11.9)	21 (20.4)	13 (25.5)
	Acquaintance	48 (16.7)	24 (14.3)	21 (20.6)	12 (23.5)
	Friend	93 (32.5)	46 (27.4)	35 (34)	21 (41.2)
	Interested in Dating	109 (38)	54 (32)	44 (43.6)	21 (41.2)
	GF/BF	227 (78.5)	128 (76.2)	76 (73.8)	37 (72.5)
	ASR	240 (82.8)	138 (82.1)	80 (77.7)	38 (74.5)
	Dating App	73 (25.3)	38 (22.6)	43 (41.7)	19 (37.3)

Note. Values represent frequencies with percentages in parentheses. GF/BF = girlfriend or boyfriend; ASR = active sexual relationship; Dating App = person met through a dating application (e.g., Tinder). The categories above are not mutually exclusive; individuals could belong to more than one category based on self-reported sexting behaviors.

Regardless of the method (text vs. mobile app) or type of image (semi-nude vs. nude), the majority of respondents indicated they did not send images to strangers, acquaintances, friends, someone's they wanted to be dating, or a person from a dating application. Instead, the majority of respondents indicated sending sext messages to a girlfriend/boyfriend or a person they had an active sexual relationship, again regardless of sexting method or type of image (see Table 2). The sexting categories displayed in Table 2

are not mutually exclusive; individuals could belong to more than one category based on self-reported sexting behaviors.

Hypothesis Testing

H1: There are mean differences between individuals who sext and individuals who do not on personality characteristics, moral foundations and self-esteem.

To determine if there were significant differences between those who engage in sexting and those who do not, a zero-order correlation was conducted (see Table 3). Results indicate a significant, positive relationship between engaging in sexting and Extraversion, $r_{pb}(507) = 0.13$ with $p = .003$ and a significant negative relationship between sexting and moral foundation Fairness, $r_{pb}(507) = -0.10$ with $p = .03$. Additionally, a moderate, negative relationship was found between sexting and Conscientiousness, $r_{pb}(507) = -0.08$ with $p = .08$; Agreeableness, $r_{pb}(507) = -0.08$ with $p = .07$; and moral foundation Harm, $r_{pb}(507) = -0.08$ with $p = .07$.

Table 3. Zero-order Correlations between Individual Differences, Moral Foundation, Self-Esteem, and Sexting Behaviors

Variable	Sext			Five-Factor Model					Moral Foundations					
	Sext	Semi	Nude	N	E	O	A	C	SE	Harm	Fair	InGrp	Aut	Purity
Sext	1	0.67**	0.46**	-0.06	0.13**	0.05	-0.08***	-0.08***	-0.04	-0.08***	-0.10*	0.02	0.01	-0.03
Semi		1	0.42**	-0.10*	0.10*	0.13**	-0.02	-0.02	0.02	0.04	0.01	-0.03	-0.01	-0.05
Nude			1	-0.09*	0.04	0.10*	-0.07	-0.02	-0.01	-0.00	-0.02	-0.07	-0.04	-0.10*

*** $p < .10$, ** $p < .01$, two-tailed; * $p < .05$, two-tailed; Listwise $N = 507$

Note. Semi = seminude sext messages; Nude = Nude sext messages; N = Neuroticism; E = Extraversion;

O = Openness to experience; A = Agreeableness; C = Conscientiousness; SE = Self-Esteem; Ingrp = In-group; Aut = Authority

As shown in Table 4, results from the analysis of variance (ANOVA) indicated significant group differences between individuals who sent sext messages compared to those who did not for Fairness, $F(1, 507) = 4.91$, $p = .03$, $\omega = .09$, and Extraversion $F(1, 507) = 9.16$, $p = .003$, $\omega = .13$. Additionally, results indicated a moderate group difference for the follow variables: Agreeableness, $F(1, 507) = 3.50$, $p = .06$, $\omega = .07$; Conscientiousness, $F(1, 507) = 2.91$, $p = .09$, $\omega = .06$; and Harm, $F(1, 507) = 3.35$, $p = .07$, $\omega = .07$. Results suggested individuals who score higher on extraversion are more likely to engage in sexting compared to individuals who score lower on extraversion. Results also suggested individuals who engage in sexting score lower on conscientiousness, agreeableness, harm, and fairness compared to individuals who do not engage in sexting.

H2: There are differences between those who send semi-nude sext messages and those who do not on individual differences, moral foundations and self-esteem.

The authors conducted zero-order correlations between semi-nude sexting, individual differences, moral foundations, and self-esteem (see Table 3). Results indicate a significant, positive relationship between semi-nude sexting and Openness to Experience, $r_{pb}(507) = 0.13$ with $p = .004$, and Extraversion, $r_{pb}(507) = 0.10$ with $p = .03$. In addition, a significant, negative relationship was indicated between semi-nude sexting and Neuroticism, $r_{pb}(507) = -0.10$ with $p = .02$. As shown in Table 4, significant group differences existed between individuals who sent semi-nude sext messages compared to



those who did not for the following traits: Neuroticism, $F(1, 506) = 5.22, p = .02, \omega = .09$; Extraversion, $F(1, 506) = 4.89, p = .03, \omega = .09$; and Openness to Experience, $F(1, 506) = 8.44, p = .004, \omega = .12$. Results suggested individuals who engage in *semi-nude* sexting score higher on openness to experience and extraversion and low on neuroticism compared to individuals who do not engage in *semi-nude* sexting.

Table 4. Means and Standard Deviations for Individual Differences, Moral Foundations, and Self-Esteem for Sexters vs. Non-Sexters

Variables	Sext		Seminude Sext		Nude Sext	
	Yes (n = 344)	No (n = 164)	Yes (n = 291)	No (n = 217)	Yes (n = 168)	No (n = 340)
FFMRF						
N	2.40 (.81)	2.49 (.80)	2.35 (.81)	2.52 (.80)	2.32 (.79)	2.48 (.81)
E	3.07 (.75)	2.85 (.80)	3.06 (.75)	2.91 (.80)	3.05 (.72)	2.97 (.79)
O	3.34 (.67)	3.27 (.76)	3.40 (.70)	3.21 (.69)	3.41 (.66)	3.27 (.71)
C	3.60 (.68)	3.70 (.70)	3.59 (.68)	3.62 (.68)	3.58 (.67)	3.61 (.68)
A	3.26 (.65)	3.40 (.64)	3.28 (.67)	3.31 (.64)	3.23 (.66)	3.32 (.64)
Moral Foundations						
Fairness	4.53 (.85)	4.70 (.77)	4.59 (.83)	4.60 (.83)	4.55 (.78)	4.60 (.86)
Harm	4.57 (.87)	4.72 (.81)	4.64 (.86)	4.60 (.83)	4.61 (.87)	4.62 (.84)
Purity	3.06 (1.32)	3.15 (1.39)	3.04 (1.33)	3.16 (1.36)	2.90 (1.37)	3.19 (1.31)
Authority	3.50 (1.00)	3.48 (1.06)	3.48 (1.04)	3.50 (1.01)	3.44 (1.02)	3.51 (1.02)
In-group	3.29 (.98)	3.24 (.92)	3.25 (.97)	3.31 (.96)	3.17 (.99)	3.32 (.95)
Self-Esteem						
SE	3.62 (1.04)	3.71 (.96)	3.66 (1.05)	3.63 (.98)	3.62 (1.09)	3.66 (.98)

Note. Values represent means with standard deviation in parentheses; N = Neuroticism, E = Extraversion, O = Openness to Experience, C = Conscientiousness, A = Agreeableness; The FFMRF ranges from 0 (low) to 5 (high); Self-Esteem (SE) scale ranges from 1 (strongly agree) to 5 (strongly disagree); Moral Foundation scale ranges from 0 (not at all relevant) to 5 (extremely relevant)

H3: There are differences between those who send *nude* sext messages and those who do not on individual differences, moral foundations and self-esteem.

Finally, the zero-order correlations indicated a significant, positive relationship between *nude* sexting and Openness to Experience, $r_{pb}(507) = 0.10, p = .03$ (see Table 3). Additionally, a significant, negative relationship was found between *nude* sexting and Neuroticism, $r_{pb}(507) = -0.10$ with $p = .03$; and Purity, $r_{pb}(507) = -0.10$ with $p = .02$. Results from the ANOVA showed significant group differences between individuals who sent *nude* sext messages compared to those who did not for the following variables (see Table 4): Neuroticism, $F(1, 506) = 4.35, p = .04, \omega = .08$; Openness to Experience, $F(1, 506) = 4.69, p = .03, \omega = .08$; and Purity, $F(1, 506) = 5.29, p = .02, \omega = .09$. Overall, individuals who sent *nude* sext messages score higher on openness to experience and lower on neuroticism and purity compared to individuals who do not engage in sending nude set messages.

Discussion

The current study found sexting is prevalent among adults, which is consistent with previous research (Stasko & Geller, 2015). However, the current study found only 68% of individuals self-reported engaging in sexting compared to 88% of adults in the Stasko and Geller's study (2015). Our sample demographics and sampling procedures were similar to Stasko and Geller's (2015) study; however, our study included more men; though, it is unclear as to why our sample reported less sexting behaviors. Still, we believe our findings suggest sexting is a common behavior among adults, especially those in their 20s and 30s, not just a "common and normalized practice" among young people (i.e., 16–29 years of age; see Yeung et al., 2014, p. 332). Compared to Yeung et al. (2014), who reported 38% of sexters were in their 20s, we found 50% ($n = 173$) of sexters were in their 20s, and 35% ($n = 122$) of sexters were in their 30s. Additional research is needed to explore the sexting behaviors of adults, and why sexting appears to decline for both men and women in their 40s; especially since some research suggests "women with declining fertility think more about sex" (see Easton, Confer, Goetz, & Buss, 2010, p. 516).

The current study also examined the method (text message vs. mobile application) used for sending sext messages. Our respondents reported using both text messaging and mobile applications to engage in sexting; however, more individuals still use traditional text messaging, which is contrary to Van Ouytsel et al. (2017); however, they sampled 15 to 18 year olds. This difference in preference for traditional texting vs. mobile app messaging may be due to adult vs. adolescent sampling. Future research should determine longitudinally how sexting changes from adolescence to adulthood.

Additionally, the current study found regardless of image type or method for sending the image, the majority of respondents indicated sending images to their girlfriend/boyfriend or an individual they had an active sexual relationship. Research examining sexting among young adults and college students suggest sexting is becoming a "prevalent part of today's youth dating culture" (Spencer, et al., 2015, p S22). The current study provides evidence that sexting is also a part of adult dating culture, specifically for sexual relationships and committed relationship (i.e., boyfriend/girlfriend); in general, previous research indicates individuals in a relationship are more likely to sext (Dir, Coskunpinar, Steiner, & Cyders, 2013a; Dir, Cyders, & Coskunpinar, 2013b; Hudson, 2011; Weisskirch & Delevi, 2012). In addition, we found the majority of individuals who sext do not send sext messages to strangers, acquaintances, or individuals they met on a dating application; consistent with the findings of Yeung et al. (2014). Overall, individuals may be more likely to send sexts when in a sexual relationship and/or committed relationship because of the perceived level of trust and increased level of trust. Therefore, future research should examine the role of trust in sending sexts with images, and other relationship factors, such as long distance relationships and length of relationship.

Finally, our hypotheses were supported in that individual differences and moral foundations were related to sexting behaviors; however, consistent with previous research (Gordon-Messer et al., 2012; Hudson, 2011), self-esteem was not associated to sexting in our sample of adults. More specifically, sexters scored higher on extraversion and lower on agreeableness and conscientiousness compared to non-sexters; low agreeableness and low conscientiousness describes individuals who are impulsive, irresponsible, and lack long-term goals; high extraversion is related to gregariousness and excitement seeking (see Egan, 2009; John, Naumann, & Soto, 2008). In addition, low agreeableness and low



conscientiousness strongly associate with antisocial behavior (see Jones, Miller, & Lynam, 2011). These individual differences also support previous research that suggests sensation-seeking and negative urgency (i.e., impulsivity) are related to sexting (Dir et al., 2013b). Historically, low agreeableness and low conscientiousness are also related to traits associated with the dark triad, specifically Machiavellianism and psychopathy (see Schmitt, 2004). Therefore, future research should examine additional individual differences, such as the dark triad (e.g., Machiavellianism).

Additionally, individuals who engage in *semi-nude* sexting score higher on openness to experience and extraversion and low on neuroticism compared to individuals who do not engage in *semi-nude* sexting. According to previous research, high extraversion and low agreeableness are related to sexual risk-taking for men (Turchik, Garske, Probst, & Irvin, 2010). Similarly, high extraversion has been associated with increased risk-taking behaviors (Schmitt, 2004). Further, individuals who engage in *nude* sexting score higher on openness to experience and low on neuroticism. High openness to experience describes individuals who are more motivated and willing to try unconventional things; low neuroticism describes individuals who are more emotionally stable. Regarding neuroticism, our findings were not consistent with that of Delevi and Weisskirch (2013), who found high neuroticism predicted sending sexually suggested picture or video. This discrepancy may be due to differences in sampling procedures; Delevi and Weisskirch (2013) sampled undergraduate students from a child/human development classes, whereas the current study solicited adults from MTurk.

With regards to moral foundations, individuals who self-reported engaging in sexting scored lower on harm and fairness compared to individuals who do not engage in sexting. This finding appears consistent with our reported individual differences; according to Glenn, Iyer, Graham, Koleva, and Haidt (2009), psychopathy predicted low scores on harm and fairness. Harm foundation refers to "attachment systems and an ability to feel the pain of others" (MoralFoundations.org, 2016, para. 2), and fairness foundation refers to the idea of "justice, rights and autonomy" (para. 3). Essentially, individuals who engage in sexting are less concerned with harm and fairness moral principles. Further, individuals who engaged in *nude* sexting scored lower on purity compared to individuals who did not sext. Purity foundation is "shaped by the psychology of disgust and contamination," and individuals try to live in an "elevated, less carnal and more noble way" (MoralFoundations.org, 2016, para. 6); purity foundation is also rooted in religious traditions (e.g., the body is a temple; MoralFoundations.org, 2016, para. 6). Thus, individuals who send *nude* sexts are less concerned with purity as a moral foundation. However, the current study found no significant differences for *semi-nude* sexting and moral foundations.

Although the current study is the first to assess adult sexting behaviors with moral foundations, individual differences, and self-esteem, there are limitations. Specifically, sexting was measured by a self-report survey; self-report surveys require participants to remember past behaviors, which could be inaccurate based on the individuals' ability to recall. However, because of the ethical and legal issues surrounding sexting research, anonymous internet-based surveys, as a data collection method, preserves the privacy of individuals.

Conclusion

Overall, the vast majority of adult respondents' self-reported engaging in sexting. Consistent with previous research, the current study found self-esteem was not associated with sexting behaviors. However, our hypothesis was supported in that there were significant differences for individual differences and moral foundations among sexters vs. non-sexters. The individual differences predictive of sexting behaviors are also associated with other forms of risk-taking and/or antisocial behaviors; however, for adults, sexting may be seen as a less risky behavior since the majority of the recipients of sexts were in committed or sexual relationships. Thus, adults with these individual differences may be predisposed to engage in sexting behaviors; however, they are not likely to send semi-nude/nude images to strangers. In addition, moral foundations were related to sexting and nude sexting behaviors; future research should explore the relationship between moral foundations and other forms of online deviance and risky behaviors. Overall, for adults, sexting may be a normal and healthy aspect of relationships (i.e., committed and/or sexual; see Stasko & Geller, 2015); but for minors, sexting remains a serious problem due to the legal implications (Hinduja & Patchin, 2015), and the lack of foresight into the consequences of sharing intimate images (e.g., bullying, harassment).

References

- Abraham, A. E. (2015) *Sexting uncensored: an exploratory study of the behaviors, experiences and perceptions of sexting among college students*. Unpublished Master's Thesis. California State University, Fresno. Fresno, California.
- Arditte, K. A., Çek, D., Shaw, A. M., & Timpano, K. R. (2015). The importance of assessing clinical phenomena in Mechanical Turk re-search. *Psychological Assessment*, 28(6),684-691.
- Associated Press and Music Television. (2009). *2009 AP-MTV Digital Abuse Study*. Retrieved from <http://www.athinline.org>.
- Berinsky, A. J., Huber, G. A., & Lenz, G. S. (2011). Using Mechanical Turk as a subject recruitment tool for experimental research. *Submitted for review*.
- Crimmins, D. M., & Seigfried-Spellar, K. C. (2014). Peer attachment, sexual experiences, and risky online behaviors as predictors of sexting behaviors among undergraduate students. *Computers in Human Behavior*, 32, 268-275.
- Dean, M. (2012, October 18). The Story of Amanda Todd. *The New Yorker*. Retrieved from <http://newyorker.com>.
- Delevi, R., & Weisskirch, R.S. (2013). Personality factors as predictors of sexting. *Computers in Human Behavior*, 29(6), 2589-2594.
- Dir, A. L., Coskunpinar, A., Steiner, J. L., & Cyders, M. A. (2013a). Understanding differences in sexting behaviors across gender, relationship status and sexual identity, and the role of expectancies in sexting. *Cyberpsychology, Behavior and Social Networking* 16(8) 556 -574.
- Dir, A. L., Cyders, M. A., & Coskunpinar, A. (2013b). 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.
- Drouin, M., & Landgraff, C. (2011). Texting, sexting, and attachment in college students' romantic relationships. *Computers in Human Behavior*, 28(2), 444-449.



- Easton, J. A., Confer, J. C., Goetz, C. D., & Buss, D. M. (2010). Reproduction expediting: Sexual motivations, fantasies, and the ticking biological clock. *Personality and Individual Differences, 49*(5), 516–520.
- Egan, V. (2009). The ‘big five’: Neuroticism, extraversion, openness, agreeableness and conscientiousness as an organizational scheme for thinking about aggression and violence. In M. McMurrin & R. C. Howard (Eds.). *Personality, Personality Disorder and Violence* (pp. 63–79). UK: John Wiley & Sons.
- Field, A. (2013). *Discovering Statistics using IBM SPSS Statistics*. 4th ed. Thousand Oaks, CA: Sage Publications.
- Glenn, A. L., Iyer, R., Graham, J., Koleva, S., & Haidt, J. (2009). Are all types of morality compromised in psychopathy?. *Journal of personality disorders, 23*(4), 384–398.
- Gordon-Messer, D., Bauermeister, J. A., Grodzinski, A., & Zimmerman, M. (2013). Sexting among young adults. *Journal of Adolescent Health, 52*, 301–306.
- Graham, J., Haidt, J., & Nosek, B. (2008). The Moral Foundations Questionnaire. Retrieved from www.MoralFoundations.org.
- Haidt, J. (2012). *The righteous mind: Why good people are divided by politics and religion*. Vintage.
- Haidt, J., & Joseph, C. (2004). Intuitive ethics: How innately prepared intuitions generate culturally variable virtues. *Daedalus, 133*(4), 55–66.
- Hastings, K. (2009, March 10). Teenager commits suicide after "sexting" a nude photo to her boyfriend made her life misery. *Daily Mail*. Retrieved from <http://www.dailymail.co.uk>.
- Hinduja, S., & Patchin, J. W. (2016). State sexting laws: A brief review of state sexting and revenge porn laws and policies.
- Hudson, H. K. (2011). *Factors affecting sexting behaviors among selected undergraduate students*. Southern Illinois University at Carbondale.
- John, O. P., Naumann, L. P., & Soto, C.J. (2008). Paradigm shift to the integrative Big Five trait taxonomy: History, measurement, and conceptual issues. In O. P. John, R. W. Robins, & L. A. Pervin (Eds.), *Handbook of personality* (pp. 114–158). New York, NY: Guilford Press.
- Johnson, D. R., & Borden, L. A. (2012). Participants at your fingertips using Amazon’s Mechanical Turk to increase student–faculty collaborative research. *Teaching of Psychology, 39*, 245–251.
- Jones, S.E., Miller, J.D., & Lynam, D.R. (2011). Personality, antisocial behavior, and aggression: A meta-analytic review. *Journal of Criminal Justice, 39*(4), 329–337.
- Kirk, R. E. (1996). Practical significance: A concept whose time has come. *Educational and psychological measurement, 56*(5), 746–759.
- Klettek, B., Hallford, D. J., & Mellor, D. J. (2014) Sexting prevalence and correlates: A systematic literature review. *Clinical psychology review, 34*(1), 44–53.
- Lewis, I., Watson, B., & White, K. M. (2009). Internet versus paper-and-pencil survey methods in psychological experiments: Equivalence testing of participant responses to health-related messages. *Australian Journal of Psychology, 61*(2), 107–116.
- McGraw, K. O., Tew, M. D., & Williams, J. E. (2000). The integrity of web-delivered experiments: Can you trust the data?. *Psychological Science, 11*(6), 502–506.
- Miller, M. (2015, September 21). N.C. just prosecuted teenage couple for making child porn of themselves. *The Washington Post*. Retrieved from <http://washingtonpost.com>.

- Miller, J. D., Crowe, M., Weiss, B., Maples-Keller, J. L., & Lynam, D. R. (2017). Using online, crowdsourcing platforms for data collection in personality disorder research: The Example of Amazon's Mechanical Turk. *Personality Disorders: Theory, Research, and Treatment*, 8(1), 26-34.
- Child Victim Identification Program (2017, May). *Purpose and function*. Retrieved from <http://www.missingkids.com/CVIP>.
- Moral Foundations (2016, January). *Moral Foundations*. Retrieved from <http://www.moralfoundations.org>.
- 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>.
- Peer, E., Vosgerau, J., & Acquisti, A. (2014). Reputation as a sufficient condition for data quality on Amazon Mechanical Turk. *Behavior Research Methods*, 46(4), 1023-1031.
- Ringrose, J., Harvey, L., Gill, R., & Livingstone, S. (2013). Teen girls, sexual double standards and 'sexting': Gendered value in digital image exchange. *Feminist Theory*, 14(3), 305-323.
- Rosenberg, E. (2016, September 22). Anthony Weiner faces new scrutiny after report about girl, 15. *The New York Times*. Retrieved from <http://www.nytimes.com>.
- Rosenberg, M. (1965). *Society and the Adolescent Self-Image*. Princeton, NJ: Princeton University Press.
- Samimi, P., & Alderson, K. (2014). Sexting among undergraduate students. *Computers in Human Behavior*, 31, 230-241.
- Schmitt, D. P. (2004). The Big Five related to risky sexual behaviour across 10 world regions: Differential personality associations of sexual promiscuity and relationship infidelity. *European Journal of Personality*, 18(4), 301-319.
- Spencer, J., Olson, J., Schrager, S., Tanaka, D., & Belzer, M. (2015). 40. Sexting and Adolescents: A Descriptive Study of Sexting and Youth in an Urban Population. *Journal of Adolescent Health*, 56(2), S22.
- Stasko, E.C., & Geller, P.A. (2015). Reframing sexting as a positive relationship behavior. *American Psychological Association*, p. 6-9.
- Statista. (2017). *Most popular mobile messaging apps in the United States as of February 2017, by monthly active users (in millions)*. Retrieved from <https://www.statista.com/statistics>.
- Turchik, J. A., Garske, J. P., Probst, D. R., & Irvin, C. R. (2010). Personality, sexuality, and substance use as predictors of sexual risk taking in college students. *Journal of sex research*, 47(5), 411-419.
- Van Ouytsel, J., Van Gool, E., Walrave, M., Ponnet, K., & Peeters, E. (2017). Sexting: adolescents' perceptions of the applications used for, motives for, and consequences of sexting. *Journal of Youth Studies*, 20(4), 446-470.
- Widiger, T. (2004). *Five Factor Model Rating Form (FFMRF)*. Retrieved from www.uky.edu/~widiger/ffmrf.rtf.
- Wortham, J. (2013). A growing app lets you see it, then you don't". *New York Times*. Retrieved from <http://www.nytimes.com>.
- Yeung, T. H., Horyniak, D. R., Vella, A. M., Hellard, M. E., & Lim, M. S. (2014). Prevalence, correlates and attitudes towards sexting among young people in Melbourne, Australia. *Sexual health*, 11(4), 332-339.