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Sexting and Mental Health among a Spanish College Sample: An Exploratory Analysis

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Abstract

*Recent research on sexting suggests it could be related to mental health, but so far studies have often used simple and not clinically validated measures of mental health. Specific aims of this study were: 1) to analyze the lifetime prevalence of sexting behaviors among a Spanish College Sample by gender, and 2) to examine the psychopathological profile of those students who engaged in sexting. **Method:** The sample consisted of 120 Spanish college students (75% female, 22.1 mean age) who took part in an online survey about their engagement in sexting behaviors and psychopathological symptomatology, measured by LSB-50. **Results:** Out of the sample, 42% of participants engaged in active sexting behaviors, 58% in passive sexting, and 31% of participants had both received content and sent content. Furthermore, 41.1% of the sample showed depressive symptoms, whilst 52.7% reported anxiety symptoms, and sexters were 2.98 times more likely to be depressed, 2.52 times more likely to have anxiety, and 2.63 times more likely to show global psychopathology than non-sexters. **Conclusions:** Sexting is highly prevalent amongst Spanish college students, and those people who engage in sexting have higher ratios of mental health issues.*

Keywords: Sexting, Mental Health, Depression, Anxiety, College Students.

Introduction

In the past few years, sexting has been getting increased attention from the media and the research community as it has been linked to unwanted and harmful consequences, in particular for younger population (Agustina & Gómez-Durán, 2012; Wolak & Finkelhor, 2011; Benotsch et al., 2012; Ngo, Jaishankar & Agustina, 2017). Sexting is generally known as the sending, receiving or forwarding of sexual text messages, nude images

and/or sexual content (e.g., photos, videos) via the Internet, mobile phones or any electronic devices (Wolak & Finkelhor, 2011).

Informed sexting prevalence rates vary considerably, ranging from 1% for participants who sent erotic or sexual content (imagery or text messages) and 7,1% for those who received the content, to 30% for participants who sent the content and 45% for those who received it in adolescent and young adult samples (Mitchell et al., 2012; Englander, 2012). The literature review carried out by Klettke et al. (2014) shows that 53.3% of participants engaged in sexting behaviors in general. Posterior studies highlight similar prevalence rates in adults: Drouin et al. (2015) found that 47% of their adult population had engaged in sexting behaviors, Hudson et al. (2015) found that 80.9% of their sample had engaged in sexting at least once, whilst 48.5% of the sample was engaging in sexting behaviors at the time they were questioned.

For the purpose of this study, several online sexual victimization behaviors (OSV) and online sexual aggression behaviors (OSA) have been investigated as part of the sexting dynamics, attending to the recently observed relationship between sexting and online victimization (Agustina, 2012; Reyns et al. 2011). The online sexual victimization behaviors (OSV) include being a victim of non-consensual dissemination of oneself nude imagery or sexual content, being pressured to sext and being threatened to sext; online sexual aggression behaviors (OSA) include: disseminating someone's nude imagery or sexual content without their consent, pressuring someone to sext and threatening someone to sext.

Research also highlights an existing relationship between mental health or psychological health and sexting (Dake et al., 2012; Klettke et al., 2014; Jasso et al., 2017). Taking into account the increasing number of suicide cases related to sexting (Jasso et al., 2017), the relationship between sexting and mental health seems of particular interest, even though results up to date are mixed (Klettke et al., 2014; Jasso et al., 2017).

A significant association between depressive symptoms and impulsivity and sexting was found by Temple et al. (2014), but the relationship was not significant when they controlled for previous sexual behaviors. Englander (2012)'s results indicate that people who engaged in sexting were less likely to have depression-related issues, but more likely to have anxiety-related problems; on the contrary, Van Ouytsel et al. (2014)'s findings point towards a significant relationship between depressive symptoms and engagement in sexting behaviors.

Therefore, the aims of this study are to report sexting prevalence rates in a Spanish College sample, and to examine the psychopathological profile of those students who engaged in sexting, using clinically validated mental health measures. For the purpose of this research, we will define sexting as creating, sending and/or forwarding nude or sexually explicit images or videos through any electronic devices (i.e. excluding texts messages).

1. METHODS

1.1 Participants

The original sample was comprised of 242 participants. However, participants who did not complete the survey or did not answer to the mental health questionnaire were removed from the original sample. The final sample consisted of 120 Spanish college students, 89 women (75% of the sample) and 31 men (25%), with ages ranging from 18 to 56 years old. The descriptive statistics for the total sample can be found in Table 1.

1.2 Instruments

Sexting questionnaire. We used a modified version of the JOV-Q (Montiel & Carbonell, 2012) to assess nine different sexting behaviors. For each of the measured sexting behaviors, we asked how many times they engaged in the behavior, on a 6-point Likert scale (0= never; 6= everyday). This then was recoded as lifetime prevalence (Yes, at least once/ No, never engaged in this behavior). For the purpose of this study, we divided sexting behaviors in Active Sexting and Passive Sexting. Active sexting behaviors include those where the subject has to actively create or carry out an action (i.e. creating and sending one self's sexual content or forwarding someone else's sexual content); Passive sexting encompasses all the behaviors where the subject *receives* an action (i.e. receiving sexts or being pressured to sext).

Mental Health questionnaire. In order to measure mental health we used the Spanish version of LSB-50, which is a revised and shorter version of the SCL-90. This instrument consists of 50 items that assess psychological symptomatology. Responses to the items were collected on a 4-point Likert scale (0= never and 4= extremely). We used the global subscale, the depression subscale and the anxiety subscale. To analyze the presence or absence of mental health symptoms, the results obtained from the LSB-50 questionnaire were converted according to the authors' guidelines (Abuín & Rivera, 2014). All of the scores under 85 were considered as symptomatology not present and were given a 0, and those who obtained 85 or higher were considered as symptomatology present and were given a 1.

Socio-demographic questionnaire. We included questions about age, sex, marital status, parental marital status, place of residence, employment situation, academic situation, and questions about frequency and use of phones and social media.

1.3 Procedure

The study was approved by the Ethics Committee of the International University of Catalunya (UIC Barcelona). Participation was voluntary and responses were anonymous to promote openness and honesty. The survey was administered online using Qualtrics online survey platform. The survey link was sent to university professors from Spanish universities with a request to pass it on to their students. The participating students then self-selected to take part in their own time. The questionnaire took approximately 20-25 minutes to complete, and once completed, students were given information on community resources in case of distress and the email address to contact the investigators in case of concerns. No participant contacted the investigators.

2. RESULTS

2.1 Sample demographic characteristics

Table 1 shows the descriptive statistics of variables for the total sample. Of the 120 participants, the age average was 22.1 years old. In the sample, 53.4% of the participants were single, 94.1% were undergraduate students, and the greater majority was living with their parents (62.7%) and did not hold any job in addition to being a student (73.5%). Out of the total sample, 98% owned a smartphone and 97.5% used social media, using their mobile phones as the most frequent form of internet access (90.7%). Finally, the greater majority of participants used the internet more than 3 hours per day (49.2%).

Table 1. Descriptive statistics of demographic and background variables for the total sample

	% (N=120)	Mean (SD)	Min	Max
Demographic Variables				
Gender				
Male	24.6			
Female	75.4			
Age		22.1 (5.2)	18	56
Marital Status				
Single	53.4			
In relationship	42.2			
Married	1.70			
Common Law Partner	1.70			
Divorced/separated	0.80			
Parental Marital Status				
Married	70.3			
Divorced/Separated	22.9			
Widow	5.10			
Other	1.70			
Academic Situation				
Undergraduate	94.1			
Master's Degree	2.50			
Erasmus	0			
International Student	0			
Other	3.40			
Living Situation				
With parents	62.7			
Student Apartment	26.3			
Off Campus student residence	3.40			
On Campus student residence	0			
Alone	1.70			

With partner	5.90			
Employment Status				
Unemployed	73.5			
Employed Full Time	6.00			
Employed Partial Time	20.5			
Own Smartphone	98			
Age of first phone access		13.7	7	60
		(5.6)		
Internet Access				
Mobile Phone	90.7			
Laptop	55.1			
Desktop PC	4.20			
Tablet	4.20			
PlayStation	0.80			
Frequency Internet Access				
Once a week	0			
2-3 times a week	0.80			
Everyday	33.9			
2-3hrs per day	16.1			
More than 3hrs per day	49.2			
Social Media Use				
Yes	97.5			
No	2.50			

2.2 Prevalence of sexting behaviors

The prevalence of sexting behaviors by gender is shown in table 2. Out of the 120 participants, 42% had engaged in at least one of the active sexting behaviors, and prevalence was higher for males (60.7%) than for females (35.3%), ($p = .018$, $OR = 2.83$). For the individual active behaviors, females reported higher but not significant engagement in creating and sending their content (31.8%) than males (28.0%); however, men were 6.79 times more likely to report forwarding someone else's content ($p = .000$, $OR = 6.79$) than women. There were no significant differences between male and female participants for the rest of the active behaviors.

For the overall passive behaviors, males reported higher prevalence rates than females (62.1% vs 56.2%), although the difference was not significant. Out of the total sample, 55.5% of participants had received sexts at least once, 31.2% of participants had been pressured to sext, at least once, and 2.8% had had their sexual content disseminated without their consent at least once. Finally, 31% of the participants engaged in both active and passive sexting, being males (48.3%) 2.84 times more likely to engage in both behaviors than females (24.7%).

Table 2. Prevalence of sexting behaviors by gender

	Total sample (N=120) %	Male (N=31) %	Female (N=89) %	Sig. Test, OR
Active Sexting Behaviors				
Any Active Sexting	42.0	60.7	35.3	$\chi^2 = (1, n=113) = 5.60, p = .018, OR = 2.83, 95\% CI [1.18, 6.83]$
Creating and sending nude or sexual imagery of oneself	30.9	28.0	31.8	$\chi^2 = (1, n=110) = .128, p = .720, OR = .84, 95\% CI [.31, 2.24]$
Creating and sending nude or sexual imagery of someone else without consent	0.90	0	1.2	$\chi^2 = (1, n=110) = .312, p = .576, OR = 0$
Forwarding to others nude images or sexual content received from someone else	13.8	34.6	7.2	$\chi^2 = (1, n=109) = 12.51, p = .000, OR = 6.79, 95\% CI [2.13, 21.65]$
Pressuring someone to sext	4.6	11.5	2.4	$\chi^2 = (1, n=109) = 3.77, p = .052, OR = 5.28, 95\% CI [.83, 33.53]$
Threatening someone to sext	1.8	3.8	1.2	$\chi^2 = (1, n=110) = .784, p = .376, OR = 3.32, 95\% CI [.20, 55.02]$
Passive Sexting Behaviors				
Any passive sexting	58.0	62.1	56.2	$\chi^2 = (1, n=118) = .311, p = .577, OR = 1.28, 95\% CI [.54, 3.01]$
Receiving sexts	55.5	57.7	54.8	$\chi^2 = (1, n=110) = .069, p = .793, OR = 1.13, 95\% CI [.46, 2.74]$
Being a victim of un-consensual diffusion	2.80	0	3.6	$\chi^2 = (1, n=109) = .918, p = .338, OR = 0$
Being pressured to sext	31.2	20	34.5	$\chi^2 = (1, n=109) = 1.89, p = .169, OR = .47, 95\% CI [.16, 1.39]$
Being threatened to sext	4.6	0	6.0	$\chi^2 = (1, n=109) = 1.56, p = .212, OR = 0$
Active and Passive Sexting overlap	31.0	48.3	24.7	$\chi^2 = (1, n=118) = 5.73, p = .017, OR = 2.84, 95\% CI [1.19, 6.81]$

2.3 Prevalence of psychopathology

The prevalence of mental health variables by gender are presented in table 3. Results showed that out of the total sample, 39.3% of participants suffered from global psychopathological symptoms above the clinical threshold, with a slightly, but not significantly, higher prevalence rate in males (44.4%) than in females (37.6%). Similarly, results regarding depression and anxiety, showed that the overall prevalence was 41.1% and 52.7% respectively, both being higher, but not significantly, for males (51.9%; 55.6%) than for females (37.6%; 51.8%). Overall, anxiety scores were higher than depression scores ($p < .001$) and that global psychopathology scores ($p < .001$).

Table 3. Prevalence of psychopathology by gender

<i>Psychopathology</i>	<i>Total sample (N=120) %</i>	<i>Male (N=31) %</i>	<i>Female (N=89) %</i>	<i>Sig. Test, OR</i>
<i>IGS</i>	39.3	44.4	37.6	χ^2 (1,n=112)= .397, p =.529, OR= 1.33, 95% CI [.55, 3.18]
<i>Depression</i>	41.1	51.9	37.6	χ^2 (1,n=112)= 1.71, p = .191, OR= 1.78, 95% CI [.75, 4.27]
<i>Anxiety</i>	52.7	55.6	51.8	χ^2 (1, n=112)= .118, p = .731, OR= 1.17, 95% CI [.49, 2.78]

2.4 Mental Health and Sexting

Table 4. Prevalence rates of psychopathology by sexting status (creating and sending)

<i>Psychopathology</i>	<i>Non Sexters</i>	<i>Sexters</i>	<i>Sig. Test, OR</i>
<i>IGS</i>	32.9%	56.3%	χ^2 (1,n=105)= 5.06, p = .024, OR= 2.63, 95% CI [1.12, 6.16]
<i>Depression</i>	32.9%	59.4%	χ^2 (1,n=105)= 6.46, p = .011, OR= 2.98, 95% CI [1.27, 7.04]
<i>Anxiety</i>	46.6%	68.8%	χ^2 (1,n=105)= 4.40, p = .036, OR= 2.52, 95% CI [1.05, 6.07]

The prevalence rates of psychopathology by general active sexting (i.e. creating and sending nude or sexual content), are shown in Table 4. Results showed that for participants who sexted (i.e. created and sent their nude imagery or sexual content) the presence of global psychopathology was higher than for students who did not sext (56.3% vs 32.9%), and sexters were 2.63 times more likely to show global psychopathology symptoms than non-sexters, (p = .024, OR= 2.63). Results also showed that sexters were

2.98 times more likely to present depression symptoms above clinical threshold than non sexters (59.4% vs 32.9%; $p = .011$, OR = 2.98), and that they were 2.52 times more likely to suffer from anxiety than non sexters (68.8% vs 46.6%), ($p = .036$, OR = 2.52).

Finally, a step by step binary logistic regression analysis was conducted to examine if gender, frequency of internet use and depression could predict the presence of active sexting behavior (i.e. creating and sending nude or sexual content of oneself). Results showed that gender did not predict creating and sending sexual content; however, both the frequency of internet use ($p = .042$) and depression ($p = .015$) did. Results are shown in table 5.

Table 5. Logistic binary regression for predicting sexting behavior (creating and sending sexual content)

	B	SE	t (Wald)	Df	p	Exp (B)
Gender	-.157	.55	.08	1	.774	.86
Frequency of internet use	.527	.26	4.13	1	.042	1.69
Depression	1.10	.45	5.94	1	.015	3.012
Constant	-3.53	1.18	8.9	1	.029	.029
Nagelkerke R ²	.14					

3. DISCUSSION

Due to the rapid development of new technologies, new ways of social and romantic interactions have appeared. One of these new ways of social interaction is *sexting*, and findings are not homogeneous on whether sexting is part of a normal sexual expression or if it is a harmful and risky behavior that should be prevented. The aims of this study were to explore the prevalence of different types of sexting behaviors among a Spanish College sample, and to explore the psychopathological profile of those students who sexted versus those who did not sext. To do so, we conducted an online survey, using clinically validated measures of mental health, to investigate the correlation of sexting with depression, anxiety and global psychopathology.

Overall, our findings suggest that 30.9% of the total sample had created and sent their own nude imagery or sexual content voluntarily at least once. These findings are consistent with the results obtained by many studies with adult samples, in which prevalence rates range from 27.8% to 33% for this behavior (Gámez-Guadix et al., 2015; Englander, 2012; Frankel et al., 2018; Morelli et al., 2016; Delevi & Weisskirch, 2013; Gordon-Messer et al., 2013; and AP-MTV, 2009).

For the general passive sexting behaviors, results showed that out of our total sample, 58% of participants had received sexts at least once in their life. These results are in line with evidence found in other studies, being their prevalence rates between 54.3% and 64.2% for this behavior (Dir et al., 2013; Boulat et al., 2012; and Klettke et al., 2014).

For the general active behavior (creating and sending sexual content) and for the general passive behavior (receiving sexts) we did not find significant differences between prevalence rates for males and females. These results are in line with other investigations (Gámez-Guadix et al., 2015, Benotsch et al., 2013, Dir et al., 2013, Drouin & Landgraff, 2012 and Henderseon & Morgan, 2011). However, for the active sexting behavior of forwarding someone else's nude imagery or sexual content, there was a significant difference between males and females. For our sample, men (34.6%) were 6.79 times more likely to forward someone else's sexual content than women (7.2%). Furthermore, results indicate that there is a significant difference in gender regarding those who engaged in both active and passive sexting behaviors. These differences may be due to the unbalanced gender ratio in our sample, since most of the literature does not find significant differences between gender.

Notably, our study also investigated online sexual aggression (OSA), including: disseminating someone's sexual content without their consent, pressuring someone to send their sexual content and threatening someone to send their sexual content. For our sample, there were no significant differences between males and females for the OSA behaviors. Men showed higher prevalence rates than women for pressuring someone to sext (11.5% vs 2.4% respectively), and for threatening someone to sext (3.8% vs 1.6%, respectively) although the differences were not significant. In interpreting these results it is important to bear in mind that this is an exploratory study with a small sample, and it will take further research to see if these rates will be indeed replicated. Nevertheless, these findings are interesting, given that to our knowledge, there have not been any studies in Spain that have looked into the prevalence of online sexual aggression behaviors. Our prevalence results suggest that the more harmful and risky the active behavior, the fewer people who engage in it.

Regarding the online sexual victimization (OSV) results, which include: being a victim of non-consensual dissemination of sexual content, being pressured to sext and being threatened to sext, our findings indicate that overall, 2.8% of the sample had been a victim of non-consensual dissemination. Similarly, Gámez-Guadix et al. (2015)'s results show that 1.1% of their adult sample had been a victim of non-consensual dissemination of their content. Furthermore, 31.2% of the participants had been pressured to sext, with women showing higher prevalence rates than men (34.5% vs. 20.0%), although the difference was not significant. These results are also in line with Gámez-Guadix et al. (2015)'s findings where 31.5% of the women had been pressured to send their pictures, in comparison to 22.0% of men. The similarity in the results found by us and by Gámez-Guadix et al. (2015) might rely on the fact that both studies use a Spanish adult sample, which might indicate that the results are consistent across the country. However, Gámez-Guadix et al., (2015) did find a significant difference between men and women for being pressured to sext, which might indicate that our sample size was not large enough for us to find a significant difference between genders.

Thus, with regards to prevalence rates, our study findings are comparable to previous work and other samples. However, the main contribution of this study is to look at the relationship with mental health variables. Regarding this relationship, up to date literature results are scarce and inconclusive (Gassó et al., 2019; Klettke et al., 2014). Our results show that 39.3% of the total sample suffered from global psychopathology, 41.1% suffered

from depression and 52.7% of the sample suffered from clinical anxiety. With regards to gender, there were no significant differences between males and females in the three mental health measures we used. These results are in contrast with the results published by the authors of the LSB-50 psychometric test, where they found a significant difference between gender, being that women showed higher mental health scores for the three measures (Global psychopathology $p < 0.01$; Depression $p < 0.01$; Anxiety $p < 0.01$) (Abuín & Rivera, 2014).

Our findings indicate that sexters were 2.63 times more likely to meet the threshold for global psychopathology, 2.98 times more like to meet the threshold for depression, and 2.52 times more likely to meet the threshold for anxiety than non-sexters. These finding differ from some studies that have looked into the relationship between sexting and mental health. For instance, Morelli et al. (2016), Gordon-Messer et al. (2013), Klettke et al. (2018) did not find significant associations between sexting behaviors and mental health. However, our results are in line with those reported by other studies (Dake et al., 2012, Van Ouytsel et al., 2014, Chaudhary et al., 2017, Gámez-Guadix and de Santisteban, 2018). Furthermore, Jasso et al. (2017) found that sexting might be an important risk factor for suicidal ideation, and that it is related to cybervictimization and depression. A recent longitudinal study of Spanish adolescents by Gámez-Guadix and de Santisteban (2018) found initial support that Depression at T1 predicted for Sexting at T2 rather than the other way around. In line with their findings, our study suggests a clear relationship between sexting and mental health in Spanish adult population.

Finally, our results showed that Frequency of Internet Use and Depression were predictors for active sexting behaviors (creating and sending sexual content). In this sense, using the internet more than 3 hours per day was a significant predictor of creating and sending sexual content ($p = .042$), and being Depressed also predicted for higher engagement in creating and sending sexual content ($d = .015$). It is possible that people with greater mental health difficulties are more inclined to engage in sexting behaviors, but it is also possible that sexting victimization is related to adverse mental health outcomes. Our survey, in common with nearly all surveys of sexting behavior, suffered from the practical limitation of using a cross-sectional design. Therefore, it is not possible for us to establish the temporal relationship between sexting and mental health.

Conclusion

In summary, our findings indicate that one out of every three people has sent a sext at least once, and that two out of every three people have received a sext at least once. These results indicate high sexting prevalence rates among Spanish college students, and, for general sexting behaviors, no difference has been found between men and women. Furthermore, a significant relationship has been found between active sexting and mental health, and sexters have been found to have higher rates of global psychopathology, depression and anxiety than non-sexters. These findings have important implications for mental health practitioners and educational communities, and suggest a need to find effective prevention strategies that will protect adolescents and young adults from becoming more victimized online. Furthermore, these results highlight the need to focalize preventive efforts and strategies towards protecting those adolescents and young adults with psychopathological symptomatology from engaging in sexting behaviors.

This study has several limitations that should be taken into account. First, the sample used was comprised of only college students, rather than the general population, so generalization of results should be cautiously done. Second, as stated above, this study is cross-sectional, and not longitudinal, so no temporal relationships can be established between mental health variables and sexting behaviors. Finally, in order to increase cross measurement validity of findings, other studies should try to replicate our results obtained with a particular, validated, psychometric questionnaire, with other instruments. Further research should also explore if there are differences in mental health between consensual and non-consensual sexters, and should analyze the relationship between sexting and non-consensual dissemination of sexual content.

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Author Contributions

Gassó, A. collected the data, analyzed the results and wrote the paper. Müller-Johnson, K. contributed to the methodology and data analysis and Agustina, J. R. and Montiel, I. contributed in conceiving the paper and reviewing the final version.

Conflict of interest

The authors declare no conflict of interest.

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