

## Sexting among Spanish adolescents: Prevalence and personality profiles

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### Abstract

**Background:** Voluntarily sending sexual content (e.g., photos, videos) among adolescents via the Internet and mobile phones, a phenomenon called *sexting*, is receiving increasing social and research attention. The aims of this study were: 1) to analyze the prevalence and trends of sexting among adolescents by gender and age and 2) to examine the personality profile of adolescents that participated in sexting. **Method:** The sample consisted of 3,223 Spanish adolescents from 12 to 17 years of age (49.9% female; mean age = 14.06, *SD* = 1.37) who anonymously and voluntarily completed self-report questionnaires on sexting and the big five personality factors. **Results:** The overall prevalence of sexting was 13.5%. The prevalence was 3.4% at 12 years old and increased to 36.1% at 17 years of age, showing a growing and significant linear trend. Overall, no differences were found between males and females. The personality profile of those involved in sexting was characterized by higher Extraversion and Neuroticism and by lower scores in Conscientiousness and Agreeableness. **Conclusions:** Given its high prevalence, beyond adopting a perspective based on the dangers of sexting, an educational approach that emphasizes responsible and informed use of information and communication technologies is necessary.

**Keywords:** sexting, sexual content, adolescence, personality.

### Resumen

**Sexting entre adolescentes españoles: prevalencia y asociación con variables de personalidad.** **Antecedentes:** el envío de contenidos sexuales (p.ej., fotos y vídeos) entre adolescentes a través de Internet y el teléfono móvil, o *sexting*, está recibiendo atención social creciente. Los objetivos de este estudio fueron: 1) analizar la prevalencia y tendencias por sexo y por edad del sexting entre adolescentes; y 2) examinar el perfil de personalidad de los adolescentes que participan en sexting. **Método:** participaron 3.223 adolescentes españoles entre 12 y 17 años (49,9% mujeres; edad media = 14,06, *DT* = 1,37) que completaron de forma anónima y voluntaria autoinformes sobre sexting y sobre los cinco grandes factores de personalidad. **Resultados:** la prevalencia total del sexting fue del 13,5%. La prevalencia fue del 3,4% a los 12 años y ascendió al 36,1% a los 17, mostrando una tendencia lineal creciente y significativa. En general, no se encontraron diferencias entre varones y mujeres. El perfil de personalidad de quienes se implicaron en sexting se caracterizó por una mayor Extraversión y Neuroticismo y por menor Amabilidad y Responsabilidad. **Conclusiones:** más allá que adoptar una perspectiva basada en los peligros del sexting, se hace necesario un enfoque educativo que enfatice el uso responsable e informado de las tecnologías de la información y la comunicación.

**Palabras clave:** sexting, contenidos sexuales, adolescencia, personalidad.

Information and communication technologies (ICTs) have enabled the development of new forms of intimate communication and social interaction (Cooper, Quayle, Jonsson, & Svedin, 2016; Döring, 2014; Gámez-Guadix, Borrajo, & Almendros, 2016). One form that has received a great deal of attention in the media and in the public is the voluntary creation and delivery of text messages, photos, or videos, with personal sexual content via the Internet or mobile devices. This phenomenon is called *sexting* (Agustina & Gómez-Durán, 2012; Mitchell, Finkelhor, Jones, & Wolak, 2012; Morelli, Bianchi, Baiocco, Pezzuti, & Chirumbolo, 2016). Sexting behavior could be associated with various problems such

as risky sexual behavior (Benotsch, Snipes, Martin, & Bull, 2012) or an increased likelihood of online victimization (Reyns, Burek, Henson, & Fisher, 2013). However, it also has been pointed out that sexting often constitutes a normative and consensual behavior among adolescents (Walker, Sanci, & Temple-Smith, 2013) and a form of romantic interaction or flirting among adolescents (Cooper et al., 2016; Döring, 2014).

The content of sexting has been one of the most widely debated issues in research on this phenomenon (Drouin, Vogel, Surbey, & Stills, 2013). While in some studies sexting has been limited to sending *sexually suggestive* photos or videos, in others, images of someone naked or semi-naked have been analyzed, whereas others have also included sexually explicit text messages, photos or videos (Mitchell et al., 2012). This inconsistency in the definition has caused difficulties in comparing previous data. Recent studies indicate that sexting frequency may vary depending on the content, which is why it is important to analyze sexual written information (e.g., text messages), as well as images sent with sexual content

(Döring, 2014; Gámez-Guadix, Almendros, Borrajo, & Calvete, 2015). It also appears necessary to differentiate those contents that are sexually suggestive or explicit and images of semi-naked people (e.g., photos of someone in a swimsuit on a beach) (Mitchell et al., 2012).

In any case, the data indicate that sexting is a common phenomenon among adolescents (Fleschler Peskin et al., 2013; Mitchell et al., 2012; Strassberg, McKinnon, Sustafta, & Rullo, 2013). In a recent systematic review of studies on the interchange of sexual content, it was found that sexting prevalence among adolescents ranged from 7% to 27% (Cooper et al., 2016). However, empirical evidence on sex differences in sexting behaviors has been contradictory. While most studies have found no differences between men and women (Benotsch et al., 2012; Weisskirch & Delevi, 2011), others have reported that more men than women tend to engage in sexting (Gámez-Guadix, Almendros et al., 2015), and in others, that the frequency of these behaviors is higher in women (Reyns et al., 2013). These inconsistencies could be due to the different research methodologies used to assess sexting. Regarding age, the data suggest that sexting progressively increases throughout adolescence as age increases. Dake, Price, Maziarz, and Ward (2012) found that the prevalence of sexting increased from 3% at 12 years of age to 32% at 18 years of age. However, although studies are increasing in English-speaking contexts, studies in Spain on the prevalence of sexting and patterns by sex and age among teenagers are very scarce, with some the exception of studies related to sexting among adults (Agustina & Gómez-Durán, 2012; Gámez-Guadix, Almendros et al., 2015).

Certain personality traits could increase the likelihood of engaging in sexting. Most studies on the relationship between personality and sexting have been conducted among university students. For example, Delevi and Weisskirch (2013) found that Extraversion, Neuroticism, and low Agreeableness increased the likelihood of sexting. Dir, Cyders, and Coskunpinar (2013) found that Sensation Seeking (i.e., the tendency to seek innovative, varied, and intense activities and take risks for experience) and Negative Urgency (the trait related to impulsivity that refers to behaving rashly in response to negative emotions) increased the probability of participating in sexting. In turn, Sensation Seeking has been linked to the dimensions of high Neuroticism, Extraversion, and low Conscientiousness (Whiteside & Lynam, 2001), while Negative Urgency has been associated with high Neuroticism, low Conscientiousness, and low Agreeableness (Settles et al., 2012). Ferguson (2011) found that sexting was associated with histrionic personality tendencies. In turn, the histrionic personality is associated with more Extraversion and Openness and with a lesser Agreeableness and Conscientiousness (Saulsman & Page, 2004).

As far as we know, only two studies have examined the relationship between personality and sexting among adolescents. Van Ouytsel, Van Gool, Ponnet, and Walrave (2014) found that the sensation seeking dimension increased the probability of participating in sexting. Temple et al. (2014) reported that increased impulsivity was associated with a higher probability of sending images with sexual content. Although these two previous studies are a valuable starting point on the relationship between personality and adolescent sexting, both are limited by the measures used. In each, sexting was assessed only as sending images in through a single item. Additionally, both studied isolated personality dimensions (e.g., only impulsivity), rather than a set of personality traits. Therefore, empirical information about personality and

sexting among adolescents is scarce. A better understanding of the personality profile of adolescents who engage in sexting will let us better understand the context and motivations of this behavior during adolescence (Van Ouytsel et al., 2014).

Given the paucity of studies on the prevalence of sexting in the Spanish population, the first aim of this study was to analyze the prevalence and frequency of sending sexual content (text messages, photos, and videos) among Spanish adolescents, as well as sex and age differences of those involved. A second aim was to analyze the personality profile of adolescents involved in sexting. To do this, the relationship between the big five personality factors and sexting among adolescents was analyzed.

## Method

### Participants

The sample consisted of 3,223 Spanish adolescents from 12 to 17 years of age (49.9% females, 49.1% males, 1% did not indicate sex) with an average age of 14.06 years ( $SD = 1.37$ ). Teens used the Internet an average of 2.21 hours ( $SD = 1.49$ ) on a typical weekday, while the average use on a typical weekend day is 3.02 hours ( $SD = 1.45$ ). In both cases, this excluded time spent on schoolwork. The social networks most commonly used by teenagers were Instagram (64.8%), YouTube (61.5%), WhatsApp (33.8%), Snapchat (18.3%), Twitter (13.6%), and Facebook (11.9%). Regarding the family environment of adolescents, most parents were married or living together (77%), 12.3% were separated, 7.5% were divorced, 1.6% were single parents, and in 1.6% of cases, one of the two parents was a widower.

### Instruments

*Socio-demographic questionnaire.* We included questions about age, sex, sexual orientation, and place of residence.

*Sexting.* We used an adolescent modified version of three items from the Sexting Questionnaire (Gámez-Guadix, Almendros et al., 2015) to assess how often teens had sent sexual content online in the past year. To differentiate the sexting behaviors of sending photos and information as a result of harassment (e.g., after receiving threats), we asked teenagers to indicate how many times they had done the following things *voluntarily*, that is, because they wanted to: 1) "Send written information or text messages with sexual content about you," 2) "Send pictures with sexual content (e.g., naked) about you," or 3) "Send images (e.g., via webcam) or videos with sexual content about you." The response scale was: 0 = never, 1 = from 1 to 3 times, 2 = from 4 to 10 times, and 3 = more than 10 times. For the present study, we conducted an exploratory factor analysis of principal axes in order to analyze the factorial structure of this questionnaire. The results showed a unifactorial structure (eigenvalues greater than 1 and inspection of scree plot) that explained 66% of the variance. Factorial loadings were .83, .62, and .66 for items *send written information*, *send photos*, and *send images* (e.g., webcam), respectively. The internal consistency (Cronbach's alpha) in the present sample was .71.

*Personality.* To assess the personality characteristics the German Socio-Economic Panel (GSOEP) Big Five Inventory (BFI-S) (Hahn, Gottschling, & Spinath, 2012) was used. This instrument consists of 15 items that assess the big five personality factors: Neuroticism (e.g., "I see myself as someone who worries a lot."), Extraversion

(e.g., “I see myself as someone who is communicative, talkative.”), Openness (e.g., “I see myself as someone who is original, comes up with new ideas.”), Agreeableness (e.g., “I see myself as someone who has a forgiving nature.”), and Conscientiousness (e.g., “I see myself as someone who does things effectively and efficiently.”). It has demonstrated adequate psychometric properties, including an adequate test-retest reliability and convergent (for its association with the NEO-PI-R) and discriminant validity (Hahn et al., 2012). In the present study, its internal consistency (Cronbach’s alpha) was .75, .49, .61, .47, and .60 for Extraversion, Neuroticism, Openness, Agreeableness and Conscientiousness, respectively. These values were comparable to those found in the original validation study (Hahn et al., 2012).

*Procedure*

The study was approved by the Ethics Committee of the Autonomous University of Madrid. Participation was voluntary and responses were anonymous to promote openness and honesty. Based in proportion to the distribution by the center type (public or private) of the Community of Madrid, we randomly selected 21 schools. Of them, 11 schools participated in the study; seven were public schools and four were private schools. The sample consisted of students from the 1<sup>st</sup> to 4<sup>th</sup> levels of secondary education in Spain (equivalent to the 7<sup>th</sup>-10<sup>th</sup> grades in the US system) of each school evaluated. Parents were informed and offered the option to refuse to allow their children to participate in the study. Adolescents completed questionnaires during their regular class schedule. Participants were encouraged to ask questions that might arise when answering any of the items. The questionnaire took approximately 30-40 minutes to complete. Once completed, all adolescents were given information on community resources for counseling and the emails which to contact the investigators.

*Data analysis*

To analyze total prevalence and the prevalence for each type of sexting, we considered the response alternatives 1, 2, or 3 in each of the three items on sexting (i.e., those who had sent some sexual content on at least one occasion). In addition, to obtain more accurate information on the number of times they had participated in sexting among only those who carried it out at least once, we calculated the mean of chronicity. Chronicity has been used as an index of the average number of times that a behavior occurs in a certain period only among those who had presented at least one occasion of a given behavior (see e.g., Borrajo, Gámez-Guadix, & Calvete, 2015; Straus & Ramírez, 2007). To calculate the average chronicity, we recoded the response alternatives as follows: “Never” as 0, “1 to 3 times” as 2 times, “4 to 10 times” as 7 times, and “more than 10 times” as 11 times. We used IBM SPSS 21 statistical software for statistical analyses.

**Results**

Table 1 shows the overall prevalence and prevalence for each type of sexting. The overall prevalence was 13.5%. The most common form of sexting was sending written messages with sexual content on oneself, with a prevalence of 10.8%. Also, 7.1% and 2.1% of adolescents sent sexual photos and videos, respectively. Regarding sex differences, more males than females sent sexual

text messages (12.1% vs. 9.4%;  $\chi^2 = 6.03, p < .05$ ), although the effect size of the differences was small (Cohen’s  $d = 0.09$ ). No significant differences between males and females were found in sending photos and videos. As can be seen in Table 1, most of adolescents were involved in sexting sporadically (i.e., from one to three times) rather than recurrently (e.g., more than 10 times).

Next, we analyzed the average chronicity with which adolescents were involved in sexting behaviors. Chronicity is an indicator of the average number of times that participating in sexting for *only* those teenagers who did it at least once. The results are included in Table 1. As can be seen, adolescents who participated in sexting during the last year did it an average of six times. Chronicity for each type of sexting separately (text, photos, and videos) was around four times during the past year.

Regarding the prevalence of sexting by age, Table 2 shows the percentage of adolescents who were involved in some sort of sexting from 12 to 17 years of age. As shown, the total percentage increased from 3.4% at 12 years to 36.1% at 17 years of age. This pattern was similar for each separate sexting behavior. Additionally, we performed a trend analysis to examine whether this increment was significant. The results showed a significant linear trend upward throughout adolescence,  $F(1, 3211) = 185.18, p < .001$ .

Finally, we analyzed the relationship between sexting and personality traits. To this end, we conducted a logistic regression analysis with personality traits as predictors and sexting as the criterion variable (0 = no involvement and 1 = having participated in sexting over the last year). We also included sex, age, and sexual orientation as control variables. The results are shown in Table 3. Regarding the control variables, the probability of reporting sexting significantly increased with age ( $OR = 1.79, p < .001$ ).

*Table 1*  
Prevalence and chronicity of sexting as a function of age

	Total	Males	Females	t/ $\chi^2$
Sending text messages with sexual contents	10.8%	12.1%	9.4%	6.03*
1 to 3 times	7.2%	7.9%	6.5%	6.94
4 to 10 times	2.1%	2.5%	1.6%	
More than 10 times	1.5%	1.7%	1.2%	
Chronicity [M (SD)]	4.23 (3.34)	4.31 (3.37)	4.05 (3.30)	0.73
Sending pictures with sexual content	7.1%	7.5%	6.7%	0.66
1 to 3 times	4.8%	5.1%	4.4%	1.40
4 to 10 times	1.5%	1.4%	1.6%	
More than 10 times	0.8%	1%	0.7%	
Chronicity [M (SD)]	4.13 (3.22)	4.08 (3.27)	4.15 (3.20)	-0.18
Sending images (e.g., via webcam) or videos with sexual content	2.1%	2.3%	1.9%	0.66
1 to 3 times	1.4%	1.6%	1.2%	1.19
4 to 10 times	0.4%	0.4%	0.4%	
More than 10 times	0.2%	0.2%	0.2%	
Chronicity [M (SD)]	3.98 (3.14)	3.72 (2.98)	4.20 (3.36)	-0.61
Total				
Prevalence (%)	13.5%	14.3%	12.7%	1.65
Chronicity [M (SD)]	6.11 (6.36)	6.28 (6.10)	5.81 (6.53)	0.78

Note: \*  $p < .05$

Table 2  
Prevalence of sexting as a function of age

Age	12	13	14	15	16	17	$\chi^2$	Cramer's V
Sending text messages with sexual content	2.2%	4.9%	9%	16.9%	18.6%	24.6%	145.37***	.23
Sending pictures with sexual content	1.6%	2.3%	5.5%	11.8%	10.8%	25.44%	145.78***	.21
Sending images (e.g., via webcam) or videos with sexual content	0.8%	0.6%	1.1%	3.6%	4.6%	4.1%	38.47***	.11
Total	3.4%	6.1%	11.5%	21.2%	20.9%	36.1%	189.92***	.24

Note: \*\*\*  $p < .001$

Table 3

Regression model for the relationship between personality traits and sexting

	B	E.T.	Wald	Odds ratios	95% Confidence interval	
Sex	0.23	0.14	2.84	1.26	0.96	1.64
Age	0.58	0.05	114.89***	1.79	1.61	1.99
Sexual orientation	-0.69	0.27	6.71**	0.50	0.30	0.85
Conscientiousness	-0.29	0.09	11.43***	0.75	0.63	0.89
Openness	-0.11	0.08	2.04	0.89	0.77	1.04
Neuroticism	0.17	0.08	4.74*	1.18	1.02	1.37
Agreeableness	-0.29	0.10	9.20**	0.75	0.62	0.90
Extraversion	0.39	0.08	24.93***	1.48	1.27	1.73
Constant	-9.50	1.07	79.47	0.00		

Note: \*  $p < .05$ ; \*\*  $p < .01$ ; \*\*\*  $p < .001$ . Sex: 0 = males, 1 = females; Sexual orientation: 0 = non heterosexual, 1 = heterosexual

In addition, sexting was significantly more likely among non-heterosexual adolescents than among heterosexuals ( $OR = 0.50, p < .01$ ).

Personality traits that showed a higher relationship with sexting were Extraversion ( $OR = 1.48, p < .001$ ) and Conscientiousness ( $OR = 0.75, p < .001$ ). Higher Extraversion and lower were associated with a lower likelihood of sexting. Also, less Agreeableness ( $OR = 0.75, p < .01$ ) and higher Neuroticism ( $OR = 1.18, p < .05$ ) increased the likelihood of participating in sexting. Openness to experience showed no significant relationship with sexting.

### Discussion

The generalization of smartphones has been a turning point in the spread of online sexual content because utilities, such as cameras, instant messaging, and Internet connections, are readily accessible at any time and in any place. Considering this, the purpose of this study was to increase the empirical evidence on the prevalence and characteristics of sending sexual content through ICTs among adolescents.

The findings indicate that sexting is a relatively common form of sexual interaction among adolescents. Approximately 15% of adolescents from 12 to 17 years of age admitted to having sent some sexual content online, the percentage increasing up to 36% at 17 years of age. In this sense, sending sexual content increased progressively throughout adolescence, especially at 14 and at 17 years of age. One possible explanation for these findings is that increasing age also increases the likelihood of establishing dating relationships (context in which many sexting behaviors occur) and the use of social networks. In fact, Facebook and Instagram

users must be at least 14 years of age. Generally, no differences between males and females in the involvement of sexting were found. These data are consistent with previous studies conducted with Anglo-Saxon adolescents (Cooper et al., 2016; Döring, 2014). Sexual content was most often written information (nearly 11%), followed by sending sexual photos (7%) and, finally, sending images or videos, for example, via webcam (2%).

Sexting prevalence rates among adolescents are lower than those found among Spanish adults (Agustina & Gómez-Durán, 2012; Gámez-Guadix, Almendros et al., 2015). This finding is also consistent with what was found in international studies (Döring, 2014). It is crucial to note that, since children may be more vulnerable to the possible negative consequences of sexting such as cyberbullying, it seems especially important to educate them from onset of adolescence in the responsible use of ICT.

An additional objective of the study was to analyze the relationship between personality traits and participation in sexting. The traits of Extraversion and Conscientiousness showed a higher association with sexting. Extraversion indicates the tendency towards high sociability and daring social interactions and the tendency to avoid loneliness and seek the company of others. This result is consistent with previous results indicating that sexting is a means of socialization and interpersonal relationship (Döring, 2014), so that extraverted people may feel particularly attracted to it. On the other hand, Conscientiousness is characterized by a higher self-impulse control, greater planning, organization, and a sense of duty, among other features; in contrast, sexting has been linked to impulsivity and lack of self-control (Dir et al., 2013). This could explain why Conscientiousness shows a negative relationship with sexting.

In addition, low Agreeableness increased the likelihood of sexting. This is consistent with the study of Delevi and Weisskirch (2013) among adults, in which it was found that low Agreeableness predicted a greater involvement in sexting behaviors. The trait of Agreeableness refers to being considerate and gentle with others. A possible hypothesis for the relationship between Agreeableness and sexting is that sexting takes place in an online environment (i.e., a context lacking many social cues that are present in face-to-face interactions), in which low-Agreeableness people could feel more comfortable interacting with others. Finally, higher Neuroticism was associated with a greater likelihood of sexting. Neuroticism refers to, among other features, emotional instability and the tendency to act rashly in response to negative emotions, which seem to facilitate the increase in sending sexual contents (Dir et al., 2013).

An unexpected finding of this study was that sexual orientation was associated with a greater involvement in sexting. Because the Internet is a medium through which the lesbian, gay, bisexual, and/or transgendered (LGBT) community can interact and maintain

intimate relationships with others without fear of negative social consequences (Brown, Maycock, & Burns, 2005), it is possible that this group participates more in sexting behaviors as a means of expressing a sexual orientation which is still repressed socially. Future studies should examine this issue.

This study has several limitations that should be taken into account. First, the study is cross-sectional in nature so caution is recommended when establishing temporal relationships between the variables (e.g., between personality traits and sexting). Future longitudinal studies could shed light on the temporal relationships between variables. Second, the internal consistency of some subscales of personality was low. Although the instrument used to tap personality in the present study has shown an adequate convergent validity with the NEO-PI-R, future studies should replicate these results using additional questionnaires with an adequate reliability. Third, this study was conducted among Spanish adolescents. It is important to extend these results to other cultural contexts and other samples (e.g., adults).

In summary, the findings of this study indicate that sexting shows considerable prevalence, which increases progressively with age and is a common feature to many online interactions during adolescence. Therefore, adolescents should be informed of the possible risks and be educated in the proper use of ICT from early adolescence. This issue is particularly important given that

the adolescents with low Conscientiousness tend to show a greater likelihood to engage in sexting. Thus, educational and preventive programs should promote a reflexive attitude and the notion of responsibility online (Garaigordobil & Martínez-Valderrey, 2015). In addition, preventive efforts should be tailored taking into account the specific personality profile of adolescents who get more involved in sexting (e.g., usually the more extraverted). Future studies should analyze the relationship between sexting with other important risky and problem behaviors such as substance abuse, poor academic performance, cyberbullying, or compulsive Internet use (Gámez-Guadix, Calvete, Orue, & Las Hayas, 2015; Gámez-Guadix & Gini, 2016), as well as its role in the processes of socialization and normal experimentation during adolescence (Döring, 2014). In any case, beyond a model based on the possible dangers and the avoidance of any interaction of sexting, it is necessary to adopt a perspective that encourages responsible use of the possibilities offered by the Internet, including sending sexual content use.

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