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Sexting amongst a spanish college sample: prevalence, online sexual victimization and psychopathology.

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Sexting amongst a Spanish College Sample: prevalence, online sexual victimization and psychopathology

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Abstract

Sexting is the act of sending, receiving an/or forwarding nude or semi-nude pictures or videos through electronic devices and/or social media platforms. Although voluntary and consensual sexting between adults is considered by some scholars to be a form of normal sexual expression, sexting is also, a risky behavior that can have psychological consequences and be the threshold for other forms of online sexual victimization, such as sexting coercion, image-based sexual abuse, or sextortion. Psychological consequences can range from victims' low self-esteem, decrease of academic performance, and sleep alterations, to more severe implications such as depression, anxiety and suicidal ideation, especially for late teenagers and young adults.

Thus, the general aim of this doctoral dissertation is to study sexting and online sexual victimization behaviors amongst a Spanish college sample, and their association with psychopathology. Firstly, we hypothesized that university students who engaged in sexting would report more psychopathology than those who did not engage in sexting; furthermore, that those students who had been online sexually victimized would also report more psychopathology than those who had not been victimized, differing such results by gender; thirdly, we hypothesized that the association between sexting and psychopathology would differ by level of consent and gender; and, finally, that sexting coercion perpetrators would have a different psychopathological profile than non-perpetrators.

The sample consisted of 1370 Spanish college students (73.6% female; 21.4 mean age; SD = 4.85) who took part in an online survey. We measured sexting, online sexual victimization and online sexual perpetration using a modified Spanish version of the Juvenile Online Victimization – Questionnaire (JOV-Q) and psychopathology using a clinically validated measured (LSB-50).

Results are presented in the form of four original research articles. The first article was a preliminary study, which showed that, in general, those students who engaged in sexting reported higher psychopathology than those who did not engage in sexting, thus confirming our first hypothesis. The second article analyzed the association between sexting, online sexual victimization and three psychopathological measures (global psychopathology, depression and anxiety) by sex, and found that males and females engage differently in sexting behaviors, and that women are more pressured and threatened to sext than men. Furthermore, results for the male sample showed a significant association between psychopathology and online sexual victimization, whilst for females, both sending sexts and online sexual victimization behaviors were significantly associated with poorer mental health. The third article aimed to investigate the psychopathological correlates of different sexting coercion behaviors by gender; results highlighted significant differences between males and females: males were significantly more likely to engage in sexting coercion perpetration and females were significantly more likely to be victimized by sexting coercion. Lastly, results regarding psychopathology showed a significant association for all of the measured sexting behavior forms (coerced or not) and poorer mental health for female students, thus confirming our third hypothesis. Finally, the fourth article's aim was to examine the psychopathological profile of sexting coercion perpetrators vs non-perpetrators, and, additionally, examining sex differences. Results from the analyses showed significant differences in the psychopathological profile between perpetrators and non-perpetrators, with perpetrators reporting higher scores for psychoreactivity, hypersensitivity, hostility, somatization and depression, and findings suggest that male and female perpetrators have similar psychopathological profiles.

Therefore, the results presented here show that, in general, there is not a solid association between sending sexts and poorer mental health, but they show that there is a strong and solid relationship between online sexual victimization and poorer mental health, with important sex differences. This study contributes to a deeper understanding of the relationship between sexting behaviors, online sexual victimization, sexting coercion and psychopathology, specially taking into account sex differences.

Resumen

El sexting es la conducta de enviar, recibir y/o reenviar fotos y/o vídeos de contenido sexual mediante dispositivos electrónicos o redes sociales. Aunque el sexting voluntario y consensuado entre adultos esta considerado como una forma de expresión sexual normativa, el sexting es un comportamiento de riesgo que actúa como umbral para otras formas de victimización sexual online, como el sexting coercitivo, el abuso sexual basado en imágenes o la sextorsión. Las consecuencias psicológicas en las víctimas pueden variar desde baja autoestima, disminución del rendimiento o alteraciones del sueño hasta implicaciones más severas como la depresión, ansiedad y la ideación suicida, especialmente en adolescentes y jóvenes adultos.

Teniendo esto en cuenta, el objetivo principal de la presente tesis doctoral es analizar los comportamientos de sexting y de victimización sexual online, y su asociación con la psicopatología. El objetivo de la presente tesis doctoral se ha basado en cuatro principales hipótesis: a) que los estudiantes universitarios que se involucran en conductas de sexting presentarían más psicopatología que aquellos que no se involucran en conductas de sexting; b) aquellos estudiantes que son sexualmente victimizados online también presentarían más psicopatología que aquellos que no habían sido victimizados, y que existirían claras diferencias entre hombres y mujeres; c) que la asociación entre sexting y

psicopatología diferiría en base al nivel de consentimiento existente y al género; y d) que el perfil psicopatológico de los perpetradores de sexting coercitivo diferiría del perfil de los no-perpetradores. La muestra está compuesta por 1370 estudiantes universitarios españoles (73.6% mujeres; media de edad 21.4; DS= 4.85) que han participado en una encuesta online. Los comportamientos de sexting y victimización y perpetración sexual online se han medido utilizando una versión modificada del Juvenile Online Victimization – Questionnaire (JOV-Q), y la psicopatología se ha medido utilizando un instrumento clínicamente validado en población española (LSB-50).

Los resultados se han presentado mediante compendio de artículos, con cuatro artículos de investigación originales. El primer artículo ha sido un análisis preliminar, cuyos resultados indican que aquellos estudiantes universitarios que se implican en conductas de sexting muestran más psicopatología que aquellos que no practican sexting, confirmando así la primera hipótesis. El segundo artículo ha analizado la asociación entre el sexting, la victimización sexual online y tres medidas psicopatológicas (psicopatología global, depresión y ansiedad) por género. Los resultados han mostrado que los hombres y las mujeres participan de formas distintas en los comportamientos de sexting, y que las mujeres son más presionadas y amenazadas para practicar sexting que los hombres. Asimismo, los resultados han señalado que en hombres sólo existe una asociación significativa entre la victimización sexual online y la psicopatología, mientras que en las mujeres también se ha encontrado una asociación entre la psicopatología y el sexting. El tercer artículo ha investigado los correlatos psicopatológicos de diferentes comportamientos de sexting coercitivo por género. Los resultados han subrayado diferencias significativas entre hombres y mujeres: los hombres presentan una mayor probabilidad de ejercer coerción, mientras que las mujeres presentan una mayor probabilidad de ser víctimas de sexting coercitivo. Además, los resultados en relación a

la psicopatología han mostrado una asociación significativa entre todos los comportamientos (sexting y victimización sexual online) y peores indicadores de salud mental para las mujeres, confirmándose así la tercera hipótesis planteada. Finalmente, el cuarto artículo ha examinado el perfil psicopatológico de los perpetradores de sexting coercitivo y las diferencias por género. Los resultados de los análisis han mostrado importantes diferencias entre perpetradores y no perpetradores, y los hombres y las mujeres perpetradores presentan perfiles psicopatológicos similares.

Por todo ello, los datos recabados del presente estudio indican que, en general, no existe una relación sólida entre los comportamientos de sexting y peores indicadores de salud mental, pero sí existe una relación sólida entre la victimización sexual online y peores indicadores de salud mental, con importantes diferencias entre hombres y mujeres. La presente investigación contribuye a una comprensión y un conocimiento más profundos de la relación existente entre el sexting, la victimización sexual online, el sexting coercitivo y la psicopatología, teniendo en especial consideración las diferencias entre sexos.

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1. Introduction

1. Conceptualization of the term

Since the development of the iPhone in 1997, information technologies, and thus, interpersonal relationships have evolved and changed rapidly. The development of intelligent technological devices with immediate internet access has encouraged the creation of instant communications and unlimited access to all kinds of virtual content, including erotic or sexual images or videos. According to Agustina (2010), the exchange of sexual messages has existed throughout history, however, new technologies have facilitated the exchange of images and videos, which are undoubtedly more explicit and might have a stronger impact. This exchange of erotic or sexual content has become to be known as sexting, a term first used in 2005 by the Sunday Telegraph, which unified the terms *"sex"* and *"texting"*, and tried to describe a new and incipient phenomenon where people were exchanging text messages with erotic or sexual content. In 2009, the term sexting was included in the English dictionary as an official word (Gaylord, 2011). The term sexting has evolved over the years, however, up to date there is still no clear consensus around its definition (Barrense-Dias, Berchtold, Surís & Akre, 2017); this means different conceptualizations of the phenomenon are used when carrying out studies on sexting, which makes it difficult for the academic community to compare results and obtain homogeneous data (Agustina & Gómez-Durán, 2012).

As sexting was getting an increased media attention, numerous scientific investigations were carried out to try to understand this new phenomenon. Incipient research used a more restrictive conceptualization of the phenomenon, defining sexting as the sending of text messages with erotic or sexual content (Martín-Pozuelo, 2015; OSI, 2011), however,

due to the massive use of smartphones and new technological devices, most researchers have included the sending of sexually suggestive pictures and/or videos as part of the definition of the term (Barrense-Dias et al., 2017). In this line, Ferguson (2011) defined sexting as the *"sending of explicit photographs or messages to others"*, Kowalski, Limber, & Agatston, (2007) defined it as exclusively sending sexually explicit or nude photographs, and Strassberg, Rullo & Mackaronis, (2014) defined it as *"the transfer of sexually explicit photos via cell phone"*. However, these definitions remained very restrictive, and thus, derived in a poor conceptualization of the term sexting.

More recent research started to use broader definitions of sexting to conceptualize the phenomenon, including a broader repertoire of actions such as the sending, receiving and forwarding sexually explicit photos or videos. Mitchell, Finkelhor, Jones & Wolak (2012) in a national study with 1560 US minors, defined sexting as creating, receiving or forwarding nude or semi-nude images, and accordingly, many authors included in their definitions sending, receiving and any type of electronic transference of sexually explicit or suggestive pictures, videos and/or text messages, but, exclusively using mobile phones or technological devices (Hinduja & Patchin, 2010; Wysocki & Childers, 2011; Hudson & Fetro, 2015; Morelli, Bianchi, Baiocco, Pezzuti & Chirumbolo, 2016; Gámez-Guadix, de Santisteban & Resett, 2017). Reyns, Burek, Henson & Fisher (2011) defined sexting as *"the sending of sexually explicit messages or pictures to someone else, mainly through mobile phones but also via email, instant messaging or other technological means"*.

Some authors such as McLaughlin (2010) and Agustina (2010) use a definition of sexting which only contemplates the involvement of teens. In her study, McLaughlin (2010) refers to sexting as *"the practice among teens of taking nude or partially nude digital*

images of themselves or others and texting them to other teens, emailing them to other teens or posting them on web sites such as Myspace.com or Facebook.com". Similarly, Lenhart (2009) had defined sexting as *"the creating, sharing and forwarding of sexually suggestive nude or nearly nude images by minor teens"*. However, most authors consider sexting to be a behavior in which both teens and adults engage, being that sexting has been seen to increase with age (Klettke, Hallford & Mellor, 2014; Gámez-Guadix, Almendros, Borrajo & Calvete, 2015).

Furthermore, some authors consider that sexting is a voluntary behavior by definition, and define the phenomenon as *"the creation and voluntary delivery of texts, photos or videos with a sexual or erotic content, through the internet or mobile devices"*, considering that any sexting behavior associated with coercion or victimization should be categorized as a separate behavior (Gámez-Guadix et al., 2015); whilst other researchers consider that coercive and victimizing behaviors related to sexting are part of the phenomenon (Englander, 2012; Drouin, Ross & Tobin, 2015). In this sense, Englander defined sexting as *"taking nude pictures of oneself"*, but when measuring the phenomenon, she differentiated between pressured-sexters and non-pressured-sexters. Similarly, Drouin et al. (2015) defined sexting as the sending of sexually explicit messages or images by cell phone, but indicated that coercion can be a part of the sexting behavior dynamic (Drouin et al., 2015).

On the other hand, even broader definitions of sexting have been used, defining the phenomenon as the production and sending of provocative and suggestive messages with the intent to awaken sexual attraction on the receptor (Martínez-Otero, 2013). In the same line, and combining these different definitions, Weisskirch & Delevi (2011) have

included in the definition of the concept both sending and receiving via cell phone of a) text messages with erotic or sexual content, b) sexually suggestive pictures or videos, and c) nude or semi-nude pictures or videos. The difficulty in concealing a unified definition of the term sexting has several consequences, such as a limitation in the comparison of results across studies, the use of different measures and methodologies when studying the phenomenon, and, in essence, a clear and consensuated definition is crucial to assess the phenomenon accurately and adapt prevention strategies (Barrense-Dias et al., 2017).

Although broad definitions of sexting include text messages as part of the phenomenon, for the purpose of this investigation sexting will be defined as *"creating, sending and/or forwarding, nude or sexually explicit images or videos through any electronic devices"*. For the purpose of this research text messages are excluded from the definition of the phenomenon of sexting because when examining the relationship with poorer mental health it has been previously reported that sending *"sexy"* text messages is not comparable to sending nude or sexually explicit images or videos in terms of how the content might impact the person's mental health (Van Ouytsel, Van Gool, Ponnet, & Walrave, 2014).

Furthermore, the conceptual debate on sexting, has driven the community to an even broader and more challenging debate, in which two clear arguing lines can be differentiated (Döring, 2014). Proponents of the first position argue that sexting is a normative behavior as a part of sexual expression and intimate communication in relationships. According to Döring (2014) 34% of the examined papers regarding teen sexting and 63% regarding adult sexting considered this behavior to be a normal form of sexual expression. This line of the discourse is supported by the popularity of the behavior

in young adults, which cannot be explained by bad adolescent judgment or peer pressure, and by the fact that those cases where the sexual content is disseminated are a minority (Döring, 2014). Furthermore, authors like Ferguson (2011) and Gordon-Messer, Bauermeister, Grodzinski & Zimmerman (2013) affirm that sexting is not correlated with risky behaviors or poorer mental health. In this sense, Ferguson (2011) amongst an undergraduate female sample found that sexting was not related to high-risk sexual behaviors with the exception of having sex without use of birth control methods, and Gordon-Messer et al., (2013) using a sample of 3447 U.S. young adults found no differences across sexting groups (non-sexters, two-way sexters, receivers and senders) in the number of sexual partners or the number of unprotected sex partners. Furthermore, they found no relationship between sexting and psychological well-being. Villacampa (2017) using a sample of 489 Spanish adolescents found that sexting was not related to the suffering of harassment or cyberbullying, but on the contrary, most adolescents considered sexting to be part of a joking-flirting dynamic. Somewhat contradictory results have been reported. A recent study carried out by Klettke, Hallford, Clancy, Mellor & Toumbourou (2019) found that consensual sexting was not associated with depression, anxiety or stress symptoms. However, their results showed an association between unwanted but consensual sexts and coerced sexts and poorer mental health.

The second discourse of the scientific debate considers sexting a risky behavior that generally requires intervention and prevention (Döring, 2014). According to Agustina & Gómez-Durán (2016), sexting is a risky behavior since engaging in this behavior *"sets the sexter in a risky position, since the receiver of the sexual content has the possibility of using the sexual content to threaten or victimize the sender"*, and Döring's (2014) research suggests that 66% of the examined papers address sexting as a problematic and

unhealthy behavior both in teens and in adults. There are three main blocks of reasons supporting the deviance discourse: the association between sexting and poorer mental health (which will be discussed further ahead in this dissertation), the relationship between sexting and other offline sexual risky behaviors such as unprotected sex, and the relationship with other forms of victimization derived from the engagement in sexting behaviors, such as cyberbullying or sextortion.

Following diverse theoretical frameworks, there have been different categorizations of the phenomenon sexting. According to Wolak & Finkelhor (2011)'s typology, sexting behaviors among teens can be divided into two broad categories: aggravated sexting and experimental sexting. Aggravated sexting behaviors encompass all types of sexting that may involve criminal or abusive elements beyond the creation, sending or possession of youth-produced sexual content, including (1) adult involvement; or (2) criminal or abusive behavior by minors. On the other hand, experimental sexting behaviors comprise those instances that do not include abuse or coercion, whereby teens voluntarily took pictures of themselves to create flirting or romantic interest in others.

Another categorization of sexting divides it into active sexting and passive sexting. Active sexting would refer to the creation and distribution of self-produced sexual content, while passive sexting would refer to receiving sexual content produced by others (Agustina, Montiel & Gámez-Guadix, 2020). However, it is frequent to find an engagement in reciprocal sexting, meaning that those who create and send sexual content often receive it from others as well (Agustina, Montiel & Gámez-Guadix, 2020).

Agustina & Gómez-Durán (2016) distinguish between soft sexting and hard sexting. Soft sexting would refer to those behaviors of creating, sending and/or sharing of sexually suggestive content, while hard sexting would refer to those same behaviors but regarding images with explicit sexual content.

Moreover, Villacampa (2017) distinguished between primary sexting and secondary sexting, meaning that the first typology would refer to the production or self-production of the sexual content, while the second category would refer to the transmission of the sexual content. Finally, recent research following Wolak & Finkelhor's typology, has started to differentiate sexting into two different behaviors: consensual sexting and coercive sexting (Villacampa, 2017; Ross, Drouin & Coupe, 2016; Klettke et al., 2019).

2. Sexting Prevalence

Sexting prevalence figures vary widely depending on its definition. The existing literature on sexting also differs in the population samples used for the research (teens vs adults), and in the items used to measure sexting, which might be some of the reasons for the lack of a unified body of research and homogeneous results around this topic, especially regarding prevalence rates. Measuring the prevalence of a particular behavior poses many challenges, but with regards to sexting, measuring and comparing prevalence rates across studies is arduous, since the academic community has not agreed on a single definition of the term that unifies measurement criteria. For this reason, many of the reported prevalence rates might vary, even between categories (teenagers vs adults).

2.1 Sexting Prevalence in adolescents

Informed sexting prevalence rates vary considerably in teenage populations, due to differences in the conceptualization and operationalization of the term, and the methodologies used to measure the phenomenon. Prevalence rates in the US range 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). Initial studies in the field suggested prevalence rates around 20% of adolescent population engaging in sexting behaviors (AP & MTV, 2009), with subsequent research pointing towards lower prevalence rates, with 4% of minors having engaged in such behaviors in Lenhart's research (2009). Further research in the US has reported varied and higher prevalence rates. A study conducted in the US by Dake, Price, Maziarz & Ward (2012) with a sample that comprised 1289 teenagers aged 2-18 years old, reported that 17% of participants acknowledged engaging in sexting behaviors,

similarly to Brinkley, Ackerman, Ehrenreich & Underwood (2017)'s results, who found that 18% of their teenage participants had engaged in or received sex talk over digital communications. In the same line a research carried out by Englander (2012) showed that 30% of the sample had sent nude pictures to someone else, and 45% had received nude pictures, and Frankel, Bass, Patterson, Dai & Brown, (2018) reported similar prevalence rates, with 29% of their sample responding that they had engaged in consensual sexting. Temple, Le, Van Den Berg, Ling, Paul & Temple (2014) in an American study reported sexting rates between 15 and 28%, similarly to Chaudhary, Peskin, Temple, Addy, Baumler & Ross (2017) who surveyed 1760 sixth and seventh graders and found prevalence rates between 11.8% and 12%. Ybarra & Mitchell (2014)'s research indicated that 7% of the 3715 surveyed teenagers had sent or shown sexual pictures of themselves, showing lower prevalence rates than most prevalence studies.

In Europe, a study carried out by Livingstone, Haddon, Görzik & Olafsson (2011) showed that 15% of minors between 11 and 16 years old had received sexual messages or images, and 3% had sent them. Van Ouytsel et al., (2014)'s results showed that 11.1% of their teenage participants had sent sexually explicit pictures of themselves, and a study conducted across Europe with 4564 adolescents aged between 14 and 17 showed that minors had sent sext messages in the following proportion: 38% in England, 30% in Norway, 28% in Bulgaria, 22% in Italy, and 10% in Cyprus (Wood, Barter, Stanley, Aghtaie & Larkins, 2015).

In Spain, prevalence rates regarding teen sexting show similar results to those in other countries. For instance, a research conducted with 489 teens reported that 7.9% of the participants had created and sent sexual content, while 28.6% had received sext messages, and 8.2% had forwarded sexts (Villacampa, 2017). Gámez-Guadix et al., (2017) found that the overall prevalence for sexting in a sample of 3223 adolescents was 13.5%, being

prevalence rates lower for younger adolescents (3.4% at 12 years old) and increasing with age (36.1% at 17 years old), and a posterior longitudinal research has shown that at first time of measurement (T1) 10.7% of teenagers had reported producing and sending sexual content, while prevalence rates reported at second time of measurement (T2) by the same teenagers had increased to 19.2% (Gámez-Guadix & de Santisteban, 2018). A summary of the results regarding prevalence rates in teen sexting can be found in Table 1.

Table 1. Prevalence rates of teen sexting

Author	Country	Sample N (% women)	Sexting Prevalence Rates
AP-MTV (2009)	EEUU	1247 (50.8) Age: 14-17/ 18-24	14-17: Sent pictures: 24% Received sexts: 29%
Brinkley, et al. (2017)	EEUU	181 (46.9) Age: 15-16	18% of participants engaging in or receiving sex talk
Chaudhary, et al. (2017)	EEUU	1760 (52.4) Age:	11.8-12% sexting
Cox Communications (2009)	EEUU	655 (49) Age: 13-18	Sent sexts: 9% Received sexts: 17%
Dake, et al. (2012)	EEUU	1329 (48) Age: 12-18	Sending or receiving sexts: 17%
Englander, (2012)	EEUU	617 (/) Age: 18	Sent sexts: 30% Received sexts:45%
Frankel, et al. (2018)	EEUU	6021 (49.4) Age: 14-18	Consensual sexting: 29% Non-consensual sexting: 3%
Gámez-Guadix, et al. (2017)	Spain	3223 (49.9) Age: 12-17	Overall sexting:13.5%
Gámez-Guadix & De Santisteban, (2018)	Spain	1208 (52.8) Age: 12-16	Sent sexts at time 1 of measurement (T1): 10.7% Sent sexts at time 2 of measurement (T2): 19.2%
Hinduja & Patchin (2010)	EEUU	4365 (49.5) Age: 11-18	Sent pictures: 7.7% Received pictures: 12.9%
Lenhart (2009)	EEUU	800 (48.7) Age: 12-17	Sent sexts: 4% Received sexts: 15%
Livingstone et al. (2011)	25 countries	25142 (/) Age: 9-16	Sent sexts: 3% Received sexts: 15%
Mitchell, et al. (2012)	EEUU	1560 (50) Age: 10-17	Sent pictures: 1% Received pictures: 7.1%
Morelli, et al. (2016)	Italy	1334 (68) Age: 13-30	Sent sexts: 63.1% Received sexts: 78% Posted sexts: 8.77%

Ojeda, Del Rey, Walrave & Vandebosch, (2020)	Spain	3.314 (48.6) Age: 12-16	Sent sexts: 8.1% Received sexts: 21.2% Received forwarded sexts: 28.4% Forwarding sexts: 9.3%
Rice et al. (2012)	EEUU	1839 (48.1%) Age: 14-17	Sent sexts: 15%
Strassberg, McKinnon, Sustaíta & Rullo (2013)	EEUU	606 (45.8) Age: /	Sent pictures: 17.8% Received pictures: 41%
Temple, Paul, Van den Berg, Le, McElhany & Temple (2012)	EEUU	948 (55.9) Age: 14-19	Sent sext: 27.6% Asked for a sext: 31% Was asked for a sext: 57%
Van Ouytsel, et al. (2014)	Belgium	1028 (58) Age: 15-18	Sent pictures: 11.1%
Villacampa (2017)	Spain	489 (50.1) Age: 14-18	Sent sexts: 7.9% Received sexts: 28.6% Forwarded sexts: 8.2%
Wood et al., (2015)	Different countries	4564 (/) Age: 14-17	Sending sexts by country: Bulgaria: 28% Cyprus: 10% England: 38% Italy: 22% Norway: 30%
Ybarra & Mitchell, (2014)	EEUU	3715 (56.6) Age: 13-18	Sent pictures: 7%

2.2 Sexting Prevalence in adults

Sexting prevalence tends to increase with age, showing that older teenagers engage more in sexting behaviors than younger teenagers. The literature review carried out by Klettke et al. (2014) shows that the estimated mean prevalence regarding the engagement in general sexting behaviors was 53.3%, while studies looking specifically into the sending of sexts with sexual photos showed an estimated mean prevalence of 48.6%, with slightly higher rates for receiving sexts, 56.6%.

When looking at individual studies, similar prevalence rates are disclosed. Boulat et al., (2012) found that 48.8% of participants aged 21-25 reported sending sexts, while 54.3% reported receiving sexual content, and adults aged more than 26 years old reported lower rates both for sending (34.9) and receiving (41%). Benotsch, Snipes, Martin and Bull (2013) surveyed 763 undergraduate students and their results indicated that 44% of the sample had either sent or received a sext, while similar data was reported by Dir, Cyders & Coskunpinar (2013), who's sample responded that 46.6% had sent a sexual picture and 64.2% had received a sexual picture. Other studies carried out during the same time period and using undergraduate samples found similar results (Henderson & Morgan, 2011; Hudson, 2011; Gordon-Messer et al., 2013).

Posterior studies highlight similar prevalence rates in adults. Drouin et al. (2015) found that 47% of their adult population had engaged in sexting behaviors, and Hudson & Fetro (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. Morelli et al. (2016) found similar results in an Italian sample, in which 82.2% of the participants had engaged in sexting behaviors at least once, and Gaméz- Guadix et al. (2015)'s results showed

that 66.8% of their adult Spanish sample had engaged in sexting at least once, whilst 46.7% of the sample had sexted three or more times.

According to Agustina & Gómez-Durán's findings (2016), sexting prevalence amongst a Spanish college sample varied between 2.1 and 20% for soft sexting, and between 7.5 and 21.7% for hard sexting. Their results, in line with other literature, showed that sexting engagement increases with age, being that participants aged 23-29 years old had engaged more actively in both hard and soft sexting than younger participants (aged 18-22). More recent research has shown slightly higher prevalence rates. Jasso, Lopez-Rosales & Gámez-Guadix, (2018) found that 32.7% of their sample had participated in sexting behaviors at least once. International prevalence rates show somewhat higher engagement in sexting behaviors. Klettke et al. (2019) recently reported that 56.5% of their sample had sent sexts and 72.1% had received them, while Walker, Sleath, Hatcher, Hine & Crookes (2019) surveyed 391 young adults in the UK and found that 57% of the sample had voluntarily sent their sexual pictures and 59% had received them, whilst lower rates were found for sending and receiving sexually explicit videos, with 27.6% of their sample having voluntarily sent sexual videos, and 29.9% having received them. A summary of results regarding prevalence rates in adult sexting can be found in Table 2.

Table 2. Prevalence rates of adult sexting

Author	**Country**	**Sample N (% women)**	**Sexting Prevalence Rates**
Agustina & Gómez-Durán (2016)	Spain	149 (68.5) Age: 18-29	18-22: - Hard sexting: 7.5% - Soft sexting: 2.1% 23-29: - Hard sexting: 21.7% - Soft sexting: 20%

AP-MTV (2009)	EEUU	1247 (50.8) Age: 14-17/ 18-24	18-24: Sent pictures: 33% Received sexts: 29%
Benotsch et al., (2013)	EEUU	763(66) Age: 18-25	sending or receiving sexts: 44%
Boulat et al., (2012)	Australia	1012 (60.67) Age: 21-25/ 26+	21-25: - Sent sexts: 48.8% - Received sexts: 54.3% 26+: - Sent sexts: 34.9% - Received sexts: 41%
Dir et al., (2013)	EEUU	278 (53.8) Age: 18-43	Sent pictures: 46.6% Received pictures: 64.2%
Drouin & Landgraff (2012)	EEUU	744 (68.7) Age: 18-36	Sent pictures: 54%
Drouin et al., (2013)	EEUU	253 (58.5) Age: 18-26	Sent pictures: - Committed partner: 49% - casual partner: 37% - Cheating partner: 45%
Drouin et al., (2015)	EEUU	480 (66.7) Age: /	Sent pictures: 47% Unwanted sexting: 19%
Ferguson (2011)	EEUU	207 (100) Age: 16-25	Sent sexts: 20.5% Received sexts: 34.5%
Gámez-Guadix et al. (2015)	Spain	873 (65.4) Age: 18-60	Sent pictures to partner: 27.8% Sent pictures to friend: 12% Sent pictures to internet acquaintance: 11.1% Total engagement: 66.8%
Gordon-Messer et al., (2013)		760 (50.4) Age: 18-24	Sent sexts: 30.1% Received sexts: 40.8%
Henderson & Morgan (2011)	EEUU	468 (50.2) Age: 18-30	Sent pictures: 60%
Hudson (2011)		697 (44) Age: 18-27	Sent pictures: 48.2% Received pictures: 63.8%
Hudson & Fetro (2015)	EEUU	697 (50.2) Age: 18-26	Sent sexts (lifetime): 80.9% Sent sexts (past month): 48.5%
Jasso et al., (2018)	Mexico	303 (59.1) Age: 18-24	Sent sexts: 32.7%

Klettke et al., (2019)	Australia	444 (50.7) Age: 18-21	Sent sexts: 56.5% Received sexts: 72.1%
Morelli, et al. (2016)	Italy	1334 (68) Age: 13-30	Sent sexts: 63.1% Received sexts: 78% Posted sexts: 8.77%
Walker et al. (2019)	United Kingdom	391 (82.1) Age: 18-25	Sent pictures: 57% Received pictures: 59.1%
Wysocki & Childers (2011)	EEUU	5187 (39) Age: +18	Sent pictures: 51.1%

2.3 Gender differences

Results regarding gender differences in sexting behaviors are incongruent and heterogeneous both amongst adults and teenage samples. Differences in results across studies might be due to the different measured behaviors (sending vs receiving sexts) and to sample differences. Strassberg, McKinnon, Sustaíta & Rullo (2013) in a survey with 606 high school students in the United States found that boys were more likely to engage in sexting that girls, in line with other results (Hudson, 2011; Gámez-Guadix et al., 2017). Morelli et al. (2016) found that males were more likely to be moderate users (6.1%) and high users of sexting (14.1%) than females (respectively 2% and 4.1%). Other results showed that men were more likely to report being involved in consensual sexting, which might indicate that women were more likely to be the victim of non-consensual sexting (Frankel et al., 2018).

Contrary findings indicate higher female engagement in sexting behaviors. According to Mitchell et al. (2012) girls showed higher prevalence rates than boys (58% vs 42%), similarly to Englander (2012) who found higher sexting engagement rates among females, and a study carried out with 3715 randomly selected youth aged between 13 and 18 years old showed that girls were more likely to share sexual photos than boys (Ybarra & Mitchell, 2014).

Other research has found no gender differences in sexting engagement. Agustina & Gómez-Durán (2016) found no differences between male and female participants amongst a college sample in line with Lenhart (2009), Gámez-Guadix et al. (2015), and Englander & McCoy (2017).

Finally, Ojeda, Del Rey & Hunter (2019) showed that boys reported engaging more in receiving sexts and third-party forwarding of sexual content than girls, and girls seemed to be more involved as victims in sexting, suffering the negative consequences of the phenomenon. According to the authors, their results might be explained because boys are more likely to participate in sexting in ways which are riskier for their partner than for themselves, i.e. receiving and third-party forwarding of sexual content. The fact that boys receive and forward sexual content to a greater extent supports the proposal that exchange of this type of material may facilitate status and popularity among boys, a perspective supported by previous research that highlights that sexting is not a gender-neutral behavior (Burén & Lunde, 2018; Wood et al., 2015).

3. Sexting and online sexual victimization

Despite the debate on whether sexting is a normal form of sexual expression or a risky behavior that needs to be prevented, most authors agree that engaging in sexting behaviors can entails future risks, and that it can be considered a threshold for other forms of online and offline victimization, especially for minors and teenagers (Agustina, 2012; Reyns et al., 2011). Sexting has been associated to multiple negative consequences, both legal and psychological. From a legal perspective, many countries and legislations consider that minors engaging in sexting behaviors could be committing a crime of creation and distribution of child pornography, and teenagers who engage in sexting can end up in sex offender records, with all of the educational and developmental implications that this might have (Ngo, Jaishankar & Agustina, 2017). Furthermore, when creating and sharing sexually explicit or nude content, the sexter loses control of the shared content, and thus is exposed to different types of victimization and to an unlimited number of receivers (Van-Ouytsel, Van-Gool, Walrave, Ponnet, & Peeters, 2017). Offline victimization derived from sexting behaviors can include: traditional bullying or stalking; online victimization derived from sexting can include: sexting coercion, cyberbullying, cyberstalking, sextortion, online grooming and online dating violence (Montiel, 2015).

Following Wolak and Finkelhor's theoretical framework (2011), and as previously mentioned, sexting behaviors can be divided into two broad categories: aggravated sexting and experimental sexting. Aggravated sexting behaviors encompass all types of sexting that may involve criminal or abusive elements beyond the creation, sending or possession of self-produced sexual content. Regardless of the self-produced sexual content's origin (voluntary - experimental sexting or coerced - aggravated sexting), sending oneself sexual pictures and/or videos necessarily implies a great risk for the sender. Once the sender shares the sexual

photos or videos, the images can be used by the receiver as a way to online sexually victimize the sender. In that sense, the receiver can then distribute the sexual content without the person's consent, threaten the person to distribute them in exchange for money or economic retribution, or threaten them in exchange for more sexual content. Engaging in sexting behaviors can undoubtedly become a threshold for other forms of online sexual victimization such as sexting coercion, the non-consensual dissemination of sexual content, revenge porn, sextortion, and, in minors, it can relate to becoming a victim of online grooming (Agustina et al., 2020).

3.1 Non-consensual dissemination of sexting and IBSA

One of the forms of online sexual victimization derived from sexting can be the non-consensual dissemination of sexual content. The non-consensual dissemination of sexual content refers to the distribution of a person's sexually explicit photos or videos (taking into account both voluntarily self-produced content and non-voluntarily produced content) without the person's consent (Walker . This behavior is criminalized in most countries, and in Spain it is criminalized under the article 197.7 of the Spanish Penal Code. Article 197.7 of the Spanish Penal code criminalizes those who, having created or directly received intimate or sexual content of a third person with his/her consent, disseminate, forward or give away those images or videos without the person's consent, and sets the punishment with up to one year in prison.

This behavior has recently started to receive different names such as revenge porn or Image-Based Sexual Abuse (Henry, Flynn & Powell, 2019; Agustina et al., 2020). Revenge porn is a term used to address the non-consensual dissemination of sexual content as a form of revenge in an intimate-partner or ex-partner relationship, however, it restricts the dissemination with intentions of revenge, and fails to include many other scenarios where

non-consensual dissemination can take place. Henry et al., (2019) state that the term revenge porn is not broad enough to explain the non-consensual dissemination of sexual images, taking into account that not all of the non-consensual dissemination happens in the context of revenge, and they recommend this term only to be used when the dissemination happens inside an intimate-partner dynamic and with the intention of getting revenge. Furthermore, these authors state that the term is not appropriate since it does not take into account those cases where images have been taken without the person's consent, and the negative impact of this form of abuse on the victims (Henry et al., 2019). For these reasons, recent research has started to use a new term known as Image-Based Sexual Abuse (IBSA), which refers to the production, dissemination and/or threat to disseminate sexual images of a person without their consent (McGlynn & Rackley, 2017).

According to Powell, Henry, Flynn (2018), IBSA can include different behaviors according to the perpetrator's motivation:

- Relationship retribution or *revenge porn*: when a perpetrator distributes sexual images of a current or former partner in order to seek revenge or cause distress after a break-up
- *Sextortion*: when a perpetrator threatens to create or distribute sexual images in order to obtain further images, money or unwanted sexual acts
- *voyeurism:* when a perpetrator seeks to create or distribute images as a form of sexual gratification
- *sexploitation*: when the primary goal is to obtain an economic retribution through the trade of non-consensual sexual images
- *sexual assault*: when the perpetrator and/or bystanders record sexual assaults and/or distribute those images

Regarding the prevalence rates of non-consensual dissemination of sexual content or IBSA, results up to date are mixed taking into account the different sample sizes, definitions and instruments used to measure the phenomenon (Powell et al., 2018). Gámez-Guadix et al. (2015) conducted a study with 873 Spanish adults and assessed sexting behaviors and online victimization by non-consensual dissemination of their nude imagery or sexual content, and their results showed that 1.1% of their total sample had had their sexual content disseminated by someone without their consent. A study conducted by Borrajo, Gámez-Guadix & Calvete (2015) found that 5.1% of their sample had had intimate information or compromising images disseminated without their consent, and in a sample comprised of 8581 high school students, Pampati, Lowry, Moreno, Rasberry & Steiner (2020) found that 5.7% of boys and 4.8% of girls had been victims of non-consensual dissemination of their sexual content in the past 30 days, without finding any differences between male and female participants. Wolak, Finkelhor & Mitchell (2012) carried out a national study with sexting cases handled by law enforcement agencies between 2008 and 2009. Out of all the cases they examined, sexual images of minors were distributed using mobile phones in 84% of all cases. Their results show that out of the total number of aggravated sexting cases (67% of all cases), 57% were non-consensual distribution of someone else's sexual content. More specifically, they investigated how the images were distributed, and their results indicate that in 22% of the cases the images were distributed without the knowledge of the subject, and, in 6% of the cases, over the objection of the subject appearing in the images. Drouin, Vogel, Surbey & Stills (2013) found that 15% of their sample reported having their sex pictures forwarded without their consent by their casual partners, and 3% by their committed partners. Morelli et al. (2016) found that 13% of their sample regarding sexting and dating violence among teens and young adults had shared sexual images without the other person's consent at least

once, while García, Gesselman, Siliman, Perry, Coe, & Fisher (2016) found that approximately 23% of their American adult sample reported sharing a sexual picture without the person's consent. Furthermore, the first research to examine the non-consensual sharing of sexually explicit messages in the UK surveyed 391 young adults, and found that 16.37% of the sample had perpetrated non-consensual sharing of pictures and 21.51% of their participants had experienced victimization of non-consensual sharing of messages (Walker et al., 2019). Henry et al. (2019) surveyed 4274 Australian adults and reported that 1 out of 10 participants had sent sexual images to someone, and the content had then been distributed without their consent, and Powell et al. (2018)'s results showed that 11% of their 4053 Australian sample had reported some form of IBSA perpetration at least once in their life. It is possible that IBSA prevalence rates might be even higher, given that victims may not be aware that their sexual images have been distributed (Clancy, Klettke & Hallford, 2019).

3.2 Sexting coercion

Another form of victimization regarding the engagement in sexting behaviors is sexting coercion (i.e., experiencing coercion to send sexually explicit content). In this sense, many authors have suggested that teens and young adults who engage in sexting can either engage in voluntary sexting, engage in unwanted but consensual sexting or engage in non-consensual or coercive sexting (Drouin & Tobin, 2014; Drouin et al., 2015; Klettke et al., 2019). Sexting coercion has been defined by Drouin et al. (2015) as the use of *"coercive tactics to solicit sexually explicit photos and videos"*. Englander (2015) showed that 70% of her college student sample was pressured to sext, whilst a recent study showed that 1 out of 5 young adults were victims of sexting coercion with their current partner or most recent partner (Drouin et al., 2015). Furthermore, a study using Spanish adults found that 30% of the sample had been victims of some form of online sexual victimization (Gámez-Guadix et al., 2015). Kernsmith, Victor & Smith-Darden (2018) found that 12% of their teen sample had been

victims of sexting coercion in the past year, whilst 8% of the sample acknowledged pressuring a partner to sext.

With regards to gender, recent research has analyzed sex differences in sexting coercion. Ross et al. (2016) reported that women were more likely to be coerced into sexting than male, in line with Englander (2012), who referred that females were more likely to report being pressured to sext than males. However, Englander (2012) argues that this difference is explained because females have a higher reporting rate than males, and not due to real differences in sexting activities. In a Spanish sample, approximately 28.2% of participants self-reported having been victims of sexting coercion by being pressured to sext, and females self-reported being pressured to sext significantly more than males (Gámez-Guadix et al., 2015). Research has shown that women experience more pressure than men to create and send sexting content (Englander, 2015; Jasso et al., 2018) and suffer more victimization from revenge porn from their partners or ex-partners than men (Branch et al., 2017). Finally, the study carried out by Kernsmith et al. (2018) showed that girls were 1.69 times more likely to suffer sexting coercion victimization than boys.

Additionally, literature regarding sexting coercion perpetration indicates that men are more likely to pressure someone to sext than women (Kernsmith et al., 2018). Kernsmith et al. (2018) found that boys in their sample were significantly more likely to pressure a partner to sext than girls, and Drouin et al. (2015) found that in opposite-sex relationships women are more victimized than men, meaning that men are necessarily the perpetrators of this sexting coercion victimizations. These data would be consistent with offline sexual victimization results, that suggest that male engage more in perpetration of sexually aggressive behaviors than women (Gámez-Guadix, Straus & Hershberger 2011; Hines & Saudino, 2003).

3.3 Sextortion

The term *sextortion* comes from the words sex- and -extorsion, and refers to the behavior of threatening someone to disseminate their sexual images without their consent to obtain economic benefits, more sexual images or unwanted sexual acts (Wolak, Finkelhor, Walsh & Treitman, 2017). Wolak et al. (2017) report that other behaviors such as coercive sexting and revenge pornography may include sextortion; however, sextortion is essentially the *threat* to expose sexual content to coerce or extort the victim into doing something, even if the exposure of the sexual content does not actually occur. However, up to date sextortion has not been included in the criminal legislation codes from most countries. In Spain, sextortion is not criminalized in the Spanish Penal Code, and the behavior is contemplated by the law as a sum of different felonies, such as:

- Extortion
- Threats
- Blackmail
- Sexual exploitation
- Reputational damage
- Disclosure of intimate secrets

And if the victim is a minor, it could also be contemplated as:

- Child sexual abuse
- Minor corruption
- Possession, production and/or distribution of child pornography

Despite the lack of legal regulation of the phenomenon, sextortion has been getting an increased attention, due the rapid increase of cases (NSCEPI, 2016). According to Wolak et al. (2017), sextortion has been described in two main contexts: online victims, and victims

of cyber dating violence or abuse. The online victims' context refers to when the perpetrator targets a victim they had only met online. Wolak et al. (2017) inform of elaborated online scams created by perpetrators to hack remote computers or use fake person's profiles to obtain sexual images from the victims and then threaten them. According to the NSCEPI (2016) carried out by the US department of Justice, sextortion was the most significantly increased type of online child exploitation based on the responses given by over 1000 law officers and practitioners.

The other context where sextortion takes place most frequently is in the co-occurrence with online dating violence, especially in teenage population. Cyber dating abuse is getting increased attention, especially amongst teenage population, since the number of cases has been rapidly increasing in the past few years (Zweig, Dank, Yahner & Lachman, 2013). Over 25% of teenagers reported being victims of cyber dating abuse in the past year, with over 22% being victims on non-sexual cyber abuse, and 11% being victims of sexual cyber abuse. The sexual cyber abuse category included behaviors such as pressuring partners to send sexual or naked pictures of themselves, sending partner's sexual of naked pictures of him/herself that he/she knew the partner did not want, threatening partners if they did not send a sexually explicit picture of themselves, and sending messages to have sex or engage in sexual acts (Zweig et al., 2013; Wolak et al., 2017). Although sextortion does not necessarily have to go hand in hand with cyber dating abuse, Wolak et al. (2017) found that almost 70% of respondents reported that sextortion took place when they were in a wanted romantic or sexual relationship with the perpetrator, whilst only two out of five sextortion reported incidents happened with a person they had only met online. Up to date results indicate that approximately 5% of adolescents are being victims of sextortion, and about 3% of teenagers are being perpetrators (Patchin & Hinduja, 2018).

3.4 Online sexual solicitations and online grooming

As it has been seen, engaging in sexting behaviors can be a threshold for being a victim of other forms of online sexual victimization, as is the case of online sexual solicitations or online grooming. Many authors describe online sexual solicitations has an online request for a minor to participate in sexual activities or conversations or to provide sexual information of a personal nature, and, although authors agree that online sexual solicitations can be made both by other minors or by adults, those made by adults generate deeper alarm due to the differences in age, sexual development, maturity and the greater risks that sexual intercourse implies for minors (Mitchell, Wolak & Finkelhor, 2007; Ybarra & Mitchell, 2008; Gámez-Guadix & Mateos-Pérez, 2019). For teenagers between 13 and 15 years old, first studies reported prevalence rates up to 21% of teens having received online sexual solicitations (Mitchell et al., 2007). More recently, sexual solicitations have been conceptualized as a component of Online Grooming, known as the process where adults use new technologies to gain access to and the confidence of a child, in order to maintain sexual interactions of some kind, online, offline or both (Gámez-Guadix & Mateos-Pérez, 2019).

Regarding online grooming and online sexual solicitations, Montiel, Carbonell & Salom (2014) recently elaborated a theoretical framework and classification for different types of online sexual victimization behaviors regarding minors. Their model includes as forms of online sexual victimization: commercial sexual exploitation, online sexual solicitations which can have two different modalities (cyber harassment and cyber abuse), and exposure to sexual content. According to these authors, online sexual solicitations that take place following the use of violence, intimidation, insults, coercion and/or threats should be categorized as sexual cyber harassment, and those online sexual solicitations that are made using subtle manipulation, seduction or swindle should be categorized as sexual cyber abuse.

Following their theoretical framework, online grooming would be the preparatory act in the dynamic of sexual cyber abuse and not necessarily a sexual activity (Montiel et al., 2014).

With regards to the relationship between online sexual solicitations and sexting, sexting had been identified as an online behavior that increases participants' exposure to online victimization, since, once the sexual content has been sent (voluntarily or not) the sender loses complete control of their sexual content, and, contact between the victim and the perpetrator could increase and escalate towards other unwanted contacts and sexual solicitations (Gámez-Guadix & Mateos-Pérez, 2019).

Conversely, Gámez-Guadix & Mateos-Pérez (2019) argue that online sexual solicitations could also increase the likelihood of sexting over time, since being a victim of any kind of sexual abuse (online or offline) is associated with increased sexual behavior. The results of their longitudinal study showed that both behaviors predict each other after one year. They found that the voluntary creation of sexual content (i.e. sexting) predicted receiving sexual solicitations by an adult after one year, thus concluding that sexting precedes online sexual solicitations from adults, arguing that engaging in sexting increases online exposure to perpetrators, and, that sexual solicitations predicted participation in sexting after one year (Gámez-Guadix & Mateos-Pérez, 2019).

4. Sexting and online non-sexual victimization

The concept of sexting as a threshold for other forms of online victimization is being extensively investigated, because of the impact not only of the individual forms of victimization, but because research has shown that the sum of victimizations, known as poly-victimization, has more severe consequences and a bigger impact on a person's psychosocial health than individual forms of victimization (Finkelhor, Shattuck, Turner, Ormrod & Hamby, 2011; Álvarez-Líster, Pereda, Abad & Guilera, 2014; Pereda, Guilera & Abad, 2014; Montiel, Carbonell & Pereda, 2016). As previously stated, sexting has not only been associated to different and multiple forms of cybervictimization, but engaging in sexting has shown to increase the chances of being poly-victimized (Reyns et al., 2011). In this sense, recent research regarding sexting and other forms of online victimization have found a direct association between engaging in sexting and being a victim of non-sexual online victimization, such as cyberbullying, cyberstalking, and dating violence. Conversely, data shows that being a victim of those forms of victimization also increases the probabilities of engaging in sexting behaviors (Agustina & Gómez-Duran, 2016; Jasso et al., 2018; Machimbarrena, Calvete, Fernández-González, Álvarez-Bardón, Álvarez-Fernández & González-Cabrera, 2018; Ojeda et al., 2019).

4.1 Cyberbullying

Cyberbullying is a form of victimization derived from traditional forms of bullying, which was defined by Olweus (1993) as *"being exposed, repeatedly and over time, to negative actions on part of one or more persons, and having difficulty defending himself or herself"*. Cyberbullying has been defined by Patchin & Hinduja (2006) as *"willful and repeated harm inflicted through the medium of electronic text"*, and there is an intense debate in the scientific community regarding its conceptualization and definition. On one side, authors

argue that cyberbullying is a differentiated phenomenon from traditional bullying, and, on the other, authors defend that cyberbullying is a modernized or technologized form of traditional bullying (Miró, 2012; Kowalski, Giumetti, Schroeder & Lattaner, 2014). However, most authors agree the cyberbullying is an online violent behavior directed to victimize a peer, and based on unbalanced power between the victim and the perpetrator, which enables the perpetrator to systematically and deliberately abuse the victim. The main difference between both forms of victimization (bullying and cyberbullying) refers to the specific characteristics that new technologies bring into the way people interact with each other (García-Fernández, Romera-Félix & Ortega-Ruiz, 2016). According to Kowalski et al. (2014) the main differences between bullying and cyberbullying are:

- Anonymity: cyberbullying allows the perpetrator to hide his/her identity behind a screen, which allows him/her to carry out actions that most likely they would not execute in person. Furthermore, anonymity increases the sense of helplessness in the victim.
- Decrease of empathy and remorse: distance between victim and perpetrator allows the later to not recognize the pain they are causing the victims.
- Accessibility of the victim: traditional bullying usually occurs during school time; however, cyberbullying can be carried out at any time, at any place, and constantly throughout the day.
- Major audience: online, information is rapidly and easily shared with one another, and this allows for cyberbullying actions to have potentially unlimited repercussion online, that would otherwise in the offline world not have.
- Delay in rewards: because of the nature of new technologies, perpetrator cannot see the immediate effects of their cyber-aggression, and, at the same time, victims can withhold or delay their online responses to the aggression.

However, and despite differences, bullying and cyberbullying are behaviors that overlap and that commonly co-occur with other forms of victimization (Pereda et al., 2014; Montiel et al., 2016). In general, results show an existing association between sexting and cyberbullying. A study carried out with 3212 Spanish adolescents found that cyberbullying victimization was the most prevalent risk behavior, whilst the most prevalent two-risk associations were cyberbullying-online grooming (with 12.6% of the sample being victims of both forms of victimization), followed by cyberbullying-sexting (with 5.8% of minors being victims of both behaviors) (Machimbarrena, et al., 2018). Other results indicated that rates of sexting engagement were higher for those teenagers who reported engaging in either bullying or cyberbullying behaviors (Dake et al., 2012).

Englander and McCoy (2017) found that over half of respondents who had engaged in sexting during high school reported they experienced some form of pressure or bullying to engage in sexting, while Woodward, Evans & Brooks (2017) highlighted a relationship between sending and receiving sexts (images) and cyberbullying and offline bullying perpetration and victimization, respectively. A study carried out in Pennsylvania, using a sample comprised of 6021 American teenagers, looked into the relationship between both consensual and non-consensual sexting and cyberbullying behaviors (Frankel et al., 2018). Their results showed that engaging in consensual sexting was significantly more likely in students who reported cyberbullying, and being cyberbullied was associated with a 46% increased OR (1.46 times more likely to) of sending or receiving sexts. Out of all students who reported engaging in consensual sexting, 21.9% had been electronically bullied, compared to students who did not report engaging in consensual sexting (13.9%). With regards to non-consensual sexting, they found that out of all students who reported engaging in non-consensual sexting, 37.1% had

been electronically bullied, compared to students who did not report engaging in non-consensual sexting (13.9%). Thus, their results indicate that although both forms of sexting (consensual and non-consensual) are associated to cyberbullying, engaging in non-consensual sexting showed a stronger association to cyberbullying than consensual sexting (Frankel et al., 2018). Similarly, Gámez-Guadix & Mateos-Pérez (2019) surveyed 1497 Spanish teenagers between the ages 12 and 14 years old in a longitudinal study, and reported that the sending of sexting messages (texts, images or videos) was significantly associated with cyberbullying victimization the following year. Another longitudinal study carried out with adolescents from Texas explained that sexting was cross-sectionally associated with cyberbullying victimization at each time point, as well as longitudinally associated with subsequent cyberbullying victimization between time points (Van Ouytsel, Lu, Ponnet, Walrave & Temple, 2019). Their data provided empirical evidence that youth engaged in sexting were at heightened risk for cyberbullying victimization, and, conversely, their results also showed that cyberbullying behaviors predicted a higher engagement in sexting (Van Ouytsel et al., 2019). Their results point out that sexting and cyberbullying might be reciprocal behaviors, with the engagement in one of them predicting the engagement in the other. However, they did not find an association between traditional bullying and sexting. In fact, their results showed that traditional bullying victimization did not predict sexting behavior overtime (Van Ouytsel et al., 2019). On the other hand, Ojeda et al., (2019) carried out a study with 1736 Spanish teenagers, and found somewhat contradictory results. Their data indicated that sexting at the first time of measurement (T1) did not predict for engaging in bullying or cyberbullying at the second time of measurement (T2). However, their results showed that forwarding a third person's sexts predicted earlier bullying behaviors (Ojeda et al., 2019).

4.2 Cyberstalking

Taking into account that cyberstalking is a harassing behavior with many similarities to bullying and cyberbullying behaviors, it would be expected that its relationship with sexting is similar to that of cyberbullying.

Stalking is a social behavior that started to get attention in the United States around the 1990s, and since then, most countries have criminalized it (Villacampa & Pujols, 2017). In Spain, it was first introduced as a felony in the Spanish Penal Code in 2015 under article 172 ter, and it is defined as *"whoever harasses someone insistently and repeatedly, and without being authorized to do so, carries out any of the following behaviors, and, in doing so, gravely alters the normal development of the person's life will be punished with 3 months to two years in prison:*

- *Whoever watches, follows or looks for physical closeness*
- *Whoever establishes or tries to establish contact through any mean of communication or a third party*
- *Whoever uses a person's personal data/information to acquire products or services, or makes a third party get in touch with the victim*
- *Whoever attempts against the victim's freedom or assets, or again the freedom or assets of a person close to the victim"*

Academically, stalking has been defined as *"a repeated course of conduct that causes the victim to feel fear or a comparable emotional response"*, and up-to-date research has established prevalence rates that range from 1.4% to 40% (Villacampa & Pujols, 2017; Reyns, 2018). Research has shown that prevalence rates increase among young adult population, and, especially, amongst college students (Villacampa & Pujols, 2017).

Furthermore, a study carried out with 1162 college students revealed that sending offensive or threatening emails, text messages or instant messages was the most common stalking behavior, thus concluding that cyberstalking constituted the most frequent form of staking amongst college population (Villacampa & Pujols, 2017). In the same way as with bullying and cyberbullying behaviors, experts do not agree on weather cyberstalking is a new and different phenomenon than offline stalking, or if it's a modified/technologized version of the same behavior. According to Reyns (2018) cyberstalking is defined as *"the behavior that occurs when an individual uses electronic devices to engage in a pattern of repeated behavior that causes the victim to fear for his/her safety"*. Estimates of cyberstalking prevalence suggest that approximately 25% of young adults experience cyberstalking, while a national US study reported that 7-8% of adults who use the internet have been stalked online at some point (Duggan, 2017; Reyns, 2018).

With regards to the relationship between cyberstalking and sexting, Reyns (2018) found that sending sexts was associated with a significantly higher likelihood of cyberstalking perpetration, in comparison to those who did not engage in sexting in both males and females. Specifically, the author highlighted that engaging in sexting behaviors increased by four the likelihood of cyberstalking. According to Reyns (2018), sexting and cyberstalking might share underlying mechanisms in which people with low self-control initiate contact by asking for, and receiving, nude pictures, which might then result in pursuit behaviors. On the other hand, Hudson (2011) suggested that cyberstalking might be a victimization behavior that might result from engaging in sexting. Thus, people who engaged in sexting behaviors would be at a higher risk of being cyberstalked than those who did not engage in sexting behaviors (Hudson, 2011).

4.3 Online dating violence

Online dating violence or cyber dating abuse has been defined as the combination of behaviors that aim at watching, controlling, harassing, isolating, intimidating or abusing a romantic partner using electronic devices, and many different terms have been used to conceptualize the phenomenon such as: intimate partner violence, online dating violence, cyber dating abuse, digital dating abuse or cyber abuse in romantic relationships (Temple et al., 2015; Calvete, Gámez-Guadix & Borrajo, 2019). Calvete et al. (2019) have identified five main types of online dating violence:

1. Direct aggression: this type of violence includes insults, threats, blackmails or texts that are aimed at hurting and undermining the victim.
2. Cyber Control: the most common forms of cyber control include a) watching and/or monitoring a partner's online behavior on social networks or instant messaging platforms, b) using a partner's password to monitor his/her online communications, c) using more sophisticated spying software such as keyloggers to control a partner's online behavior, or d) using hidden webcams, spyware or geolocalization apps to secretly watch and monitor a partner's behavior.
3. Interpersonal abuse: this behavior aims at publicly humiliating a romantic partner online. Public humiliation online can be done either a) by excluding or isolating the victim from online groups, and limiting the person's social interactions, or b) by posting information or pictures of the victim in a compromising or humiliating situation. This latter option has many negative connotations and outcomes, since it can be difficult for the victim to delete images or intimate content from the internet, and, thus, every time the pictures circulate online, the victim can be revictimized.
4. Excessive or insidious online communication: this behavior might be expressed through an enormous number of calls, messages or other types of online

communications. These insistent communication attempts are perceived by the victim as an invasion of their privacy and intimacy.

5. Online sexual abuse or harassment: the form of online dating violence includes behaviors such as sending texts or pictures with sexual content that the victim does not want to receive, and, the persistence or coercion to obtain sexual pictures or videos from the partner.

Prevalence estimates suggest that online dating violence is a very common behavior. Victimization prevalence rates range from 2.5 to 75%, whilst perpetration prevalence rates range from 1.8 to 83.5% (Zweig et al., 2013; Borrajo et al., 2015; Temple et al., 2015; Quesada, Fernández-González & Calvete, 2018). Research shows that online dating violence is a reciprocal behavior, with results indicating that those who perpetrate cyber dating abuse are also victimized online by their partners (Borrajo et al., 2015). Furthermore, and similarly to bullying and cyberbullying or stalking and cyberstalking dynamics, there is still no consensus on whether only dating violence is an independent construct or whether it is an online extension of traditional intimate partner violence. However, online dating violence has specific characteristics inherent to the online behaviors following Suler's theoretical approach (2004), such as:

- Online permanency: texts, images or videos that have been used to humiliate or hurt the victim, and content that has been posted or uploaded without the victim's consent might be very difficult to delete from the internet (Gámez-Guadix et al., 2015).
- Online re-victimization: due to the online permanency effect, and because online content can be taken by a third party and reposted or re-uploaded, victims that have had their content posted or disseminated online might be vulnerable to constant re-victimization processes (Stonard, Bowen, Lawrence & Price, 2014).

- Open access: due to the inherent characteristics of cyberspace, most online abuse is not carried out privately, but openly on social networks or social media. Being publicly abused and/or humiliated makes victimization especially harmful for victims (Suler, 2004)
- Physical distance and lack of empathy: having a screen between the perpetrator and the victim during the online aggression facilitates and enables forms of violence that most likely would not occur face-to-face. Not seeing the victim's reaction to the aggression might mitigate and decrease a natural empathic response towards the victim (Suler, 2004).

With regards to the relationship between sexting and online dating violence, results highlight and existing association between the two variables. A study carried out with 466 secondary school students found that young people's engagement in online risk behaviors was the most important predictor of becoming a victim of their partner's digital controlling behavior, and sexting with a romantic partner was significantly related to victimization (Van Ouytsel, Ponnet & Walrave, 2016). Furthermore, a study carried out with 1334 Italian adolescents and young adults showed that individuals who are high and moderate users of sexting (vs. low) engaged in more victimization, and more perpetration of dating violence, including online dating violence (Morelli et al., 2016).

Similarly, Quesada et al. (2018)'s results showed a significant association between sexting and both cyber dating abuse and offline intimate partner violence. However, when controlling for gender, their results only showed a significant association between sexting and online dating violence for girls. Frankel et al. (2018) distinguished between consensual and non-consensual sexting when establishing associations with dating violence. Their results

indicated that among high-school students who reported consensual sexting, a higher-than-expected proportion reported experiencing sexual dating violence (13.9% vs 6.1%), whilst for non-consensual sexting, data showed that 25.4% of students who engaged in non-consensual sexting reported being a victim to sexual dating violence in comparison to 6.1% of students who did not report engaging in non-consensual sexting (Frankel et al., 2018). Finally, Hinduja & Patchin (2020) found that students who reported having sent a sext were significantly more likely to have been targeted for digital dating abuse. These authors argue that it may be that sending explicit images to others opens one up for extortion, manipulation, or coercion, or that threats of distribution to a third party might force a partner to endure abuse or to resist reporting such abuse to the authorities (Hinduja & Patchin, 2020).

5. Sexting and Psychopathology

5.1 Psychopathology and cyberspace

Cyberspace, as a space where people interact, has also become a psychological space (Suler, 2004). As human beings, we interact and communicate with each other, in the physical world by face-to-face interactions, and, more recently, in the virtual word, by screen-to-screen interactions. This new space of social interaction has its own characteristics, and human psychology has adapted to it, developing new strategies of social behavior (Suler, 2004). In 2004, Suler developed a psychological theory known as the Online Disinhibition Effect, which aims at explaining why people behave differently in the online word than they do in the offline world.

Suler states that people behave and interact differently in the online world due to a disinhibition effect. This disinhibition can be benign, when people share their personal emotions or personal information about themselves and they receive social acceptance and support, or it can be toxic, when the disinhibition drives people to act in ways they would never do in the offline world (pornography, violence, hate, crime, etc.) (Suler, 2004).

According to Suler's theoretical approach (2004), there are at least six factors that contribute to the disinhibition effect, and that facilitate or drive people to act differently in the online world:

- Dissociative anonymity: the internet allows people to hide behind a fake identity or even have multiple identities by not having to use their real names and information to access online platforms. This anonymity helps people separate their online actions and online self from the offline identity, allowing the person to avert responsibility for their deviant or antisocial behaviors.

- Invisibility: besides the possibility of being anonymous online, cyberspace's architecture allows people to be invisible online, meaning that, especially through text-driven communications, people cannot see each other. Not being able to see the person/group you interact with cuts down on nonverbal messages that often regulate human behavior. Thus, invisibility facilitates or enables deviant behaviors that most probably would not happen with face-to-face interactions.
- Asynchronicity: this factor relates to the fact people do not interact with each other in real time in the online world. Online communications and responses do not have to take place immediately, and thus, one does not have to cope with someone else's immediate reaction. According to the author, moment-by-moment responses from others shape self-disclosure and behavioral expression, usually in the direction of social norms, while delays in that feedback can allow for toxic disinhibitions that avert social norms.
- Solipsistic introjection: due to the lack of face-to-face interactions, and together with asynchronous text communications, self-boundaries can be altered in the online world. This can lead to mentally representing how others are and how they would act or respond, thus developing an introjected character of the other person. When this happens, behaviors can become disinhibited, because it can seem as if communications are happening within us, and not actually reading and responding to someone else's real communication.
- Dissociative imagination: the particular characteristics of cyberspace might allow a person to believe that the online identity they have created, together with the online identity of others, live or exist only in the online world, being a separate self from the one in the offline world. This separates the online self from the demands and

responsibilities of the offline world, thus facilitating to act in ways that one would refrain from in the real world.

- Minimization of status and authority: in the offline world, a person's status and authority can be expressed through their dress, body language and the environmental settings. However, those cues are absent in the online world, and others might not know or care about the status or authority in the online world. Thus, the lack of authority can act as a facilitator for deviant behaviors online.

According to Suler (2004), these factors interrelate and interact with each other and with other predisposing factors, such as personality traits, individual differences, cultural differences or modality of online communication. For instance, a person with histrionic personality traits will feel more inclined to share emotional and personal content online than a person without histrionic traits, and, most likely the level of disinhibition will be different if chatting with a close friend than if writing a post on twitter.

Having seen how cyberspace and psychology can interact in order to adapt to one another, the particular characteristics of the online world can also affect the psychological wellbeing of individuals who surf it. In this sense, the first studies on cyberspace and psychopathology started to describe how an extended use of internet could negatively affect a person's mental health. The first psychological pathology related to internet use was the phenomenon now known as Internet Related Psychopathology (IRP), which includes internet addiction, cybersex addiction, online gambling or multi -user role-playing game addiction (Cantelmi & Talli, 2009). More recent research has conceptualized this phenomenon as Problematic Internet Use (PIU), and defined it as *"excessive time spent online that is linked to significant downstream impairment and negative consequences"* (Volpe, Dell'Osso, Fiorillo, Mucic &

Aboujaoude, 2015). Estimates of PIU have shown relatively low prevalence rates (below 1%), however, this phenomenon has shown to have high comorbidity rates with other psychiatric disorders such as mood disorders, anxiety disorders, impulse control disorders or substance abuse disorders (Aboujaoude, 2010; Carli et al., 2013). Furthermore, a recent systematic review found four social and psychological factors that affect mobile phone users: social anxiety, depression, stress and addiction (Prabhu, 2017).

Besides the referred internet-related psychopathology, which has mainly focused on addiction problems, there is scare literature on the association between internet use and psychopathology. Most research has focused on the negative impact of specific sites, networks or social media on emotional or psychological wellbeing. In this line, first studies showed that the frequency of social network use had an indirect effect on teenager's social self-esteem and wellbeing, and more specific results indicated that those teenagers that received negative feedback on social networks reported lower self-esteem and poorer well-being (Valkenburg , Peter & Schouten, 2006) than teenagers who received positive feedback. Another study carried out with 1143 teens, young adults and adults to explore the link between clinical symptoms and technology use, found that those participants who spent more time online and more time on Facebook evidenced more clinical symptoms for major depression (Rosen, Whaling, Rab, Carrier & Cheever 2013). Furthermore, their results established a link between more Facebook usage and more Facebook friends and five personality disorders: narcissistic, histrionic, obsessive-compulsive, antisocial, and paranoid personality disorder. The schizoid personality disorder was the only one that did not show a significant relationship with Facebook usage and Facebook friends. However, being online more hours per day did predict signs of schizoid disorder (Rosen et al., 2013). Further research has found a direct association between use of social networking sites and

psychological distress, suicidal ideation and suicidal attempts in adolescents, however, this association was partially mediated by cyberbullying victimization, and other research has established an association between social media, anxiety, depression, sleep alteration and alteration of body image (Sampasa-Kanyinga & Hamilton, 2015; Royal Society for Public Health, 2017). Finally, a survey conducted in the UK with 1479 teenagers and young adults, looked into the association between five popular social media platforms and the impact on health and well-being. The surveyed social media platforms were: Facebook, Instagram, Snapchat, Twitter and Youtube. Results showed that participants rated Instagram as the SMP with the most negative impact on their health and wellbeing, followed by Snapchat, Facebook and Twitter. Youtube was the only SMP that was rated has having some positive impacts on participant's health and wellbeing (Royal Society for Public Health, 2017). Results for each particular social media were disclosed as follows. Youtube had a very negative impact on sleep, but very low negative impact on body image, bullying or real word relationships; Twitter had a moderate negative impact on sleep, and low negative impact on anxiety, depression and body image; Facebook had a high negative impact on sleep, a moderate negative impact on body image, bullying, Fear of Missing Out, and anxiety and a low negative impact on depression and loneliness; Snapchat had a moderate negative impact on sleep, Fear of Missing out, bullying and body image, and a low negative impact on anxiety, depression and loneliness; and, finally, Instagram had a moderate negative impact on sleep, body image, anxiety, bullying and Fear of Missing Out, and a low negative impact on depression and loneliness (Royal Society for Public Health, 2017).

As it has been previously stated, sexting can be an online risky behavior and a threshold for other forms of victimization, both online and offline, and it has been highly associated with frequency of internet use and engagement in social media platforms (Peek, 2014;

Machimbarrena et al., 2018). A recent review carried out by Van Ouytsel, Walrave, Ponnet & Heirman (2015) showed that several studies found relationships between sexting and offline risky sexual behaviors, offline health risk behaviors (such as smoking, substance abuse and alcohol abuse), and online and offline aggressive behaviors, and cybervictimization behaviors have been related to poorer mental health or lower psychological wellbeing (Morelli et al., 2016; Reyns et al., 2011). Although most results regarding the relationship between sexting and mental health are inconclusive, an existing relationship between mental health or psychological health and sexting has been highlighted (Dake et al., 2012; Klettke et al., 2014; Jasso et al., 2018).

Taking into account the increasing number of suicide cases related to sexting, 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., 2018). Because teenagers and adults seem to behave differently regarding sexting and online victimization behaviors, and, due to the difference in mental health measures used between both populations, sexting and psychopathology will be explored separately for each age group.

5.2 Sexting and Psychopathology in adolescent population

Taking into account how differently psychological variables are measured across studies, it was decided to categorize variables into psychosocial health variables and psychopathology variables. The first will include results from research regarding the relationship between sexting and emotional well-being, substance abuse, personality disorders and other psychosocial variables; psychopathology variables will include those studies that have looked into the association between sexting, depression and anxiety. A summary of results regarding psychopathology and teen sexting can be found in Table 3.

Table 3. Teen sexting and psychopathology

Author	Country	Sample N (% women)	Sexting and Psychopathology
Sexting and psychosocial health			
Brinkley, et al. (2017)	EEUU	181 (46.9) Age: 15-16	Sexting and personality traits
Döring (2014)	-	Literature Review	Sexting, impulsivity, bad judgement, sensation seeking, problematic alcohol and substance abuse and suicide
Englander, (2012)	EEUU	617 (/) Age: 18	Sexting and problems with alcohol and/or drugs
Gámez-Guadix, et al. (2017)	Spain	3223 (49.9) Age: 12-17	Sexting and personality traits
Livingstone & Görzig (2014)	Europe	18709 (50) Age: 11-16	Sexting and psychological difficulties
Mitchell, et al. (2012)	EEUU	1560 (50) Age: 10-17	Sexting and feelings upset, embarrassed and afraid
Mori, Temple, Browne & Madigan, (2019)	-	Literature review	Sexting, anxiety, depression and substance abuse
Ševčíková (2016)	Czech Republic	17016 (50) Age: 11-16	Sexting and emotional problems
Woodward et al. (2017)	EEUU	2134 (58.2) Age: /	Sexting, alcohol and marijuana use
Ybarra & Mitchell, (2014)	EEUU	3715 (56.6) Age: 13-18	Sexting, self-esteem and substance abuse
Sexting and Psychopathology			
Bauman (2015)	-	Literature Review	Sexting and suicidal thoughts
Chaudhary, et al. (2017)	EEUU	1760 (52.4) Age: /	Sexting, depression and anxiety

Cooper, Quayle, Jonsson & Svedin, (2016)	-	Literature Review	Sexting, feelings of sadness, anger and anxiety disorders
Dake, et al. (2012)	EEUU	1329 (48) Age: 12-18	Sexting, depression and suicide
Englander, (2012)	EEUU	617 (/) Age: 18	Sexters, depression and anxiety
Frankel, et al. (2018)	EEUU	6021 (49.4) Age: 14-18	Sexting and depressive symptoms, suicide attempt and self-harm
Gámez-Guadix & De Santisteban, (2018)	Spain	1208 (52.8) Age: 12-16	Sexting and depression
Morelli et al. (2016)	Italy	1334 (68) Age: 13-30	No relationship between sexting and psychological distress
Temple et al. (2014)	EEUU	937 (57) Age: 14-18	Sexting and depression, impulsivity and substance abuse. Not significant when controlled for other variables.
Van Ouytsel, et al. (2014)	Belgium	1028 (58) Age: 15-18	Sexting and depression

Results shown by Mitchell et al. (2012) revealed that 21% of teens appearing or creating sexually explicit images and 25% of teens that had received such images reported feeling very or extremely upset, embarrassed or afraid as a result of their actions. Livingstone & Görzig's (2014) research focused on explaining the incidence of risk and harm reported by children and adolescents regarding sexting. Of 2036 European 11 to 16 year-olds reporting that they had received a sexual message on the Internet in the last 12 months, 24% responded "yes" when asked: ''In the last 12 months, has any sexual message that you have seen or received bothered you in any way? For example, made you feel uncomfortable, upset, or feel that you should not have seen it?''. Subjects who were younger, female, less sensation seeking, had pre-existing psychological difficulties, and used the Internet less, were more likely to experience harm from the messages (Livingstone & Görzig, 2014).

A study carried out by Ybarra & Mitchell (2014) evaluating psychosocial problems from a sample of 3715 teens aged 13-18 years old, found that psychosocial problems were more frequently observed in teens who had sent or shown sexual photos of themselves. In addition, they found that high self-esteem was negatively associated with having sent or shown sexual pictures, and for female teens, results showed a significant association between sexting and depressive symptomatology. Along the same line, Ševčíková (2016) found that sexting was associated with emotional problems, and explored the possibility that this correlate might be both a predictor and an outcome of sexting behavior.

Regarding sexting and personality, the research carried out by Gámez-Guadix et al. (2017) showed an existing significant positive relationship between sexting and higher scores in Extraversion and Neuroticism and a negative relationship between sexting and Conscientiousness and Agreeableness in Spanish adolescents. Brinkley et al. (2017) conducted a study with a sample of 181 adolescents in order to evaluate the relationship between sexting and Borderline Personality Disorder (BPD), amongst other variables. Their results supported the hypothesis that sexting at age 16 would be associated with borderline personality feature at age 18. In addition, their findings suggested that sexting may contribute to psychological distress for adolescents.

Following these results, many investigations have linked sexting behaviors to impulsivity and substance abuse problems. Döring (2014) pointed out that sexting is related to impulsivity, bad judgement, sensation seeking and problematic alcohol and drug use, as well as to suicide. This author considered sexting to be either a manifestation or a moderator of problematic sexual behavior. On the other hand, Judge (2012) defined sexting as an

emotionally-driven behavior, that is often related to impulsivity and a lack of anticipation of adverse consequences.

Temple et al. (2014), did not find sexting to be a marker of mental health. In their study, they evaluated 937 teens from Texas public high schools on rating scales for depression, anxiety, impulsivity, and a positive response for a history of substance use. Their results showed that subjects who had sent naked pictures of themselves to someone else through text or email were more likely to score higher on scales of depression and impulsivity, as well as more likely to report a history of substance use. However, when the results were adjusted for prior sexual behavior, age, gender, race/ethnicity and parent education, sexting was only related to impulsivity and high-risk behaviors, but not to depression symptoms. In the same line, Englander (2012) found that sexters were more likely to report having problems with alcohol and/or drugs during high school than non sexters.

When specifically considering research regarding teen sexting and depression, the majority of studies found a positive association between depressive symptoms and sexting behaviors, even though results are mixed. Some research has found no association between mental health symptoms and sexting behavior. Morelli et al. (2016) conducted a study with 1,334 teens and young adults between the ages of 13 and 30 years old, trying to assess the relationship between sexting, psychological distress and online dating violence. Their results showed no differences in psychological distress between people who sexted frequently and those who did not. Furthermore, no relationship was found between sexting behaviors and symptoms of anxiety or depression.

However, Dake et al. (2012) found a significant association between sexting and mental health. More specifically, Dake et al. (2012) conducted a research with 1,289 middle school and high school students. Their results showed that being depressed, having contemplated or attempted suicide in the past year or having been cyber or indirectly bullied were significantly correlated to sexting. Similarly, Van Ouytsel et al. (2014) found a significant association between teen sexting and depressive symptoms and Bauman (2015) stated that young people involved in sexting have higher rates of suicidal thoughts than those who are not involved in sexting behaviors, and they also show higher rates of high-risk behaviors.

Frankel et al. (2018) collected data from a sample comprised of 6021 US students between 9th and 12th grade, in order to examine the relationship between consensual sexting, non-consensual sexting and mental health. Their results showed a correlation between consensual sexting and alcohol and tobacco use, being cyber-bullied and reporting both depressive symptoms and previous suicide attempts, especially frequent among male respondents. On the other hand, they found that non-consensual sexting was more prevalent among students who reported serious depressive symptoms, attempting suicide and self-harm. These results are in line with those found by Chaudhary et al. (2017), who found that youth who reported sexting were significantly more likely to report symptomatology of depression and anxiety, as compared to those who did not report sexting. Specifically, their results showed that between 20% and 27% of youth who sexted had depressive symptoms (Chaudhary et al., 2017).

Finally, Gámez-Guadix & De Santisteban (2018) in a recent study carried out with 1208 Spanish adolescents between ages 12 and 16, found that more depressive symptoms predicted more sexting, and they found that teens presenting more depressive symptoms tended to

participate more in sexting over time. Findings suggest a significant association between sexting behaviors and suicidal thoughts, suicide attempts, depressive symptoms, and feelings of sadness (Dake et al., 2012).

On the other hand, research exclusively investigating the relationship between sexting and anxiety is scarce; however, some studies have found an existing relationship between the two variables. Chaudhary et al. (2017), for instance, found that youth who reported sexting in their study were significantly more likely to report anxiety symptoms. Their results showed that between 57% and 61% of adolescents who sexted had symptoms of anxiety. Similarly, Cooper, Quayle, Jonsson & Svedin (2016) reported that sexting victimization correlated with negative psychological outcomes, including feelings of sadness, anger and anxiety disorders. Finally, Englander (2012), distinguished between pressured-sexters and non-pressured sexters, and her results showed that pressured-sexters were significantly more likely to report having problems during high school with excessive anxiety than non-pressured sexters and non-sexters.

5.3 Sexting and Psychopathology in adult population

As research has highlighted, there is a link between sexting and online victimization, both sexual and non-sexual (Agustina, 2012; Reyns et al., 2011). Literature has shown that those who engage in sexting can be more likely, not only to experience cybervictimization, but also to be victimized by different types of cybervictimization (Reyns et al., 2011). Research has highlighted an existing relationship between mental health or psychological health and online non-sexual victimization behaviors such as cyberbullying, cyberstalking and online dating violence, and also, between mental health and online sexual victimization behaviors, such as revenge porn, sexting or online grooming (Dake et al., 2012; Mori, Temple, Browne & Madigan, 2019; Klettke et al., 2014; Drouin et al., 2015).

As it has been previously highlighted in adolescent samples, results regarding the association between sexting and mental health are mixed in adults. There are some studies that have related sexting behaviors with poorer psychosocial health variables such as distress, drug use, impulsivity or personality traits (Ferguson, 2011; Benotsch et al., 2013; Valiukas et al., 2019; Turban, Shirk, Potenza, Hoff & Kraus, 2019), others have found a link between sexting and depressive and anxiety symptoms (Drouin et al., 2015; Jasso et al., 2018; Klettke et al., 2019), and others have found no relationship between sexting and mental health variables (Gordon-Messer et al., 2013; Klettke, Mellor, Silva-Myles, Clancy & Sharma, 2018; Turban et al., 2019). Results are summarized in Table 4.

Table 4. Adult sexting and psychopathology

Author	Country	Sample N (% women)	Sexting and psychopathology
Sexting and psychosocial health			
Brenick et al. (2017)	-	Literature Review	Sexting, anxious and avoidant attachment and rejection sensitivity
Benotsch et al., (2013)	EEUU	763(66) Age: 18-25	Sexting and substance use
Carrotte, Vella, Hellard & Lim, (2015)	Australia	1345 (63.4) Age: 15-29	Sexting and poor mental health
Currin, Hubach, Sanders & Hammer, (2016)	EEUU	1069 (75.3) Age: +18	Sexting, loneliness and alcohol consumption
Dir & Cyders (2014)	EEUU	611 (77.3) Age: 18-51	Sexting, sensation seeking, lack of planning and impulsivity
Ferguson (2011)	EEUU	207 (100) Age: 16-25	Sexting and histrionic personality traits

Klettke et al. (2018)	Australia & India	Australian sample: 298 (75.5) Age: 18-21 Indian sample: 300 (56.3) Age: 17-20	Sexting and stress
Morelli et al. (2016)	Italy	1334 (68) Age: 13-30	No relationship between sexting and psychological distress
Perkins, Becker, Tehee & Mackelprang, (2014)	EEUU	287 (66.9) Age: 18-24	Sexting and illegal drug use
Turban et al. (2019)	EEUU	283 (/) Age: /	Sexting and impulsivity
Valiukas et al. (2019)	Australia	776 (63.7) age: 18-30	Sexting and distress
Sexting and Psychopathology			
Bates (2016)	EEUU, Canada & England	18 (100) Age: 21-54	Non-consensual sexting and posttraumatic stress disorder, anxiety and depression
Drouin et al. (2015)	EEUU	480 (66.7) Age: /	Sexting coercion and anxiety, depression and generalized trauma
Galovan, Drouin & McDaniel, (2017)	EEUU & Canada	615 (62.1) Age: 18-85	No association between sexting and depression
Gordon-Messer et al. (2013)	EEUU	3447 (58) Age: 18-24	No association between sexting anxiety, depression or self-esteem
Jasso et al. (2018)	Mexico	303 (59.1) Age: 18-24	Sexting, depression and suicidal ideation
Klettke et al. (2018)	Australia & India	Australian sample: 298 (75.5) Age: 18-21 Indian sample: 300 (56.3) Age: 17-20	No association b/w sexting, anxiety and depression
Klettke et al. (2019)	Australia	444 (50.7) Age: 18-21	Sexting coercion, depression, anxiety, stress and self-esteem
Ross et al. (2016)	EEUU	885 (66) Age: /	Sexting coercion, anxiety, depression and trauma

A cross-sectional study conducted with a non-clinical sample comprised of 1345 Australian young adults measured the relationship between sexting and poor mental health, using non-validated measures (Carrotte, Vella, Hellard & Lim, 2015). Participants were asked two mental health questions ("have you had any mental health problems in the last 6 months" and "rate your overall mental health" with a five option answer scale). Answers to these questions gave a yes/no variable named Recent Poor Mental Health. Their data showed that having ever sexted was associated to recent poor mental health (Carrotte et al., 2015). Furthermore, results from a recent investigation carried out by Klettke et al. (2018) comparing Indian and Australian young adults showed a significant relation between sending sexts and higher levels of stress, especially for the Indian sample. When looking into gender, results indicated no association between sexting and mental health variables for females (Klettke et al., 2018). Regarding levels of distress, Valiukas et al. (2019) surveyed 776 young adults and found no relationship between distress and consensual sexting, however, a significant association was found between receiving unsolicited or unwanted sexts and high levels of distress. In fact, their data showed that the higher the number of unwanted or unsolicited sexts received, the higher distress they showed (Valiukas et al., 2019).

Other research has found a link between engaging in sexting behaviors and substance abuse. For instance, Benotsch et al. (2013) surveyed 763 young adults regarding cell phone use, sexting, substance use and sexual risk behaviors, and found that participants who engaged in sexting were more likely to report recent substance use, including alcohol, marijuana, cocaine, ecstasy and other recreational drugs. Another study with 287 university students, asked participants to answer about their engagement in sexting behaviors in the past 6 months, about their lifetime use of alcohol, marijuana, MDMA, cocaine and other drugs, and about lifetime visit to therapists, psychologists or psychiatrists (Perkins, Becker, Tehee &

Mackelprang, 2014). Their results showed that psychiatric history did not differ significantly based on the type of sexting (non-sexters, vs semi-nude sexters, vs nude sexters), however, significant relations were established between type of sexts sent and history of illegal drug use. In this sense, Perkins et al. (2014) found that 71% of participants who had sent nude sexts had a history of illegal drug use, in comparison to 44% of participants who had not engaged in sexting behaviors. Their data also revealed that women felt significantly more upset about receiving unrequested sexts than men (Perkins et al., 2014). Finally, Currin, Hubach, Sanders & Hammer (2016) surveyed a non-university based adult sample regarding engagement in sexting behaviors in the past year, alcohol usage, loneliness and depression amongst other measures. Their results indicated a relationship between sexting and loneliness and sexting and alcohol consumption. Finally, their data showed that high scores in the loneliness scale predicted for engagement in sexting behaviors in singles, and an increase in alcohol consumption predicted higher probabilities of engaging in sexting in committed relationships (Currin et al., 2016).

With regards to personality traits and sexting in adult samples, research is heterogeneous and inconclusive. Ferguson (2011) carried out a study with 207 predominantly Hispanic women regarding sexting behaviors (sending and receiving sexts) and histrionic personality traits. This author argued that individuals with histrionic personalities tend to be more sexually seductive and outgoing, impulsive and attention-calling, and that, therefore, people with histrionic traits would tend to engage more in sexting behaviors. The obtained results revealed that in women, histrionic traits were a significant predictor of engagement in sexting behaviors (Ferguson, 2011). Similarly, Dir & Cyders (2014), using a sample comprised of 611 undergraduate students, explored the relationship between engaging in sexting behaviors and impulsivity-related traits. Their results showed a significant association between

sensation seeking, lack of planning and sexting, and engaging in sexting behaviors was significantly correlated to personal negative sexting experiences. Furthermore, their data revealed that 12% of the participants who had engaged in sexting had experienced negative outcomes directly associated to sexting behaviors, with 2.3% feeling "used" by the sexting partner, and 1.1% feeling "disgusted" (Dir % Cyders, 2014). Finally, a recent study conducted by Turban et al. (2019) measured engagement in sexting and in "posting sexual images" together with various measures of psychopathology such as impulsivity, depression, anxiety and substance abuse in a military veteran American adult sample (n=283). Their results indicated that neither sexting nor "posting sexual images" were associated to any of the psychopathological measures, however, "posting sexual images" was associated with higher measures of impulsivity (Turban et al., 2019).

First results regarding sexting and mental health variables in adult population were exposed by Gordon-Messer et al. (2013). They examined 3447 young adults, and asked participants about their engagement in sexting, sexual behaviors and psychological well-being (depression, anxiety and self-esteem). They divided participants into four categories: non-sexters, receivers, senders and two-way sexters (both receivers and senders), and found no differences across sexting groups for either of the psychological variables, thus finding no association between sexting, anxiety, depression or self-esteem (Gordon-Messer et al., 2013).

Similarly, and in line with other research, Klettke et al. (2018) in a study based on 598 young adults did not find an association between the sending of sexts, depression or anxiety. Their results showed that for males overall, higher levels of stress and lower levels of depression were associated with sending sexts, whilst for females, no associations with mental health variables and sexting were found. In terms of cultural differences, higher levels of stress were

associated with sending sexts for participants overall, and for Indian respondents, but not for Australians when analyzed separately (Klettke et al., 2018; Morelli et al., 2016; Galovan, Drouin & McDaniel, 2017).

On the contrary, Jasso et al. (2018) surveyed 303 young adults regarding sexting, cybervictimization, depression and suicidal ideation, and found that sexting was associated with depressive symptoms when mediated by cyber victimization, and that both sexting and cybervictimization were directly associated with more suicidal ideation.

Other research has found a relationship between mental health variables and coercive forms of sexting, but not with consensual or non-pressured sexting. Klettke et al. (2019) collected data from a sample comprised of 444 young adults and found that receiving unwanted sexts and sending sexts under coercion was associated with poor mental health; they found that, especially, when receiving or sending unwanted but consensual sexts, respondents reported higher depression, anxiety, stress and lower self-esteem (Klettke et al., 2019). A study conducted with 480 undergraduate students found a significant association between sexting coercion and more symptoms of anxiety, depression and generalized trauma (Drouin et al., 2015), and another study carried out using a female revenge porn survivor sample found that the non-consensual dissemination of sexual content was associated to official medical diagnoses of posttraumatic stress disorder, anxiety and depression (Bates, 2016). Finally, Ross et al. (2016) surveyed 885 undergraduate students and found that sexting coercion was significantly and independently associated with anxiety, depression and trauma.

6. Research justification

After having outlaid the state of the question regarding sexting and mental health research both in adolescent and adult populations, it seems clear that a deeper understanding of the association between sexting, online sexual victimization and psychopathology is needed, especially in the Spanish scenario. Up to date, there have been no investigations studying the association between sexting, online sexual victimization and psychopathology using clinically validated measures for global psychopathology, anxiety and depression, and given the importance of this issue with regards to clinical and educational interventions, we believed it was relevant to design an investigation to cover this research gap. Finally, we decided to conduct our research using a university sample since previous prevalence rates indicate that young adults show the highest sexting engagement rates and higher psychopathology rates when compared to general population.

In order to do so, we divided our research in four empirical research articles. The first article was an exploratory study using part of the total sample, in order to explore sexting and mental health prevalence rates, and to analyze if our first hypotheses regarding the association between sexting and psychopathology were confirmed. The second article was a deeper analysis carried out using the total sample, aimed at analyzing prevalence rates, and the association between sexting, online sexual victimization and psychopathology by sex, after seeing that males and females respond and engage differently both to sexting and mental health. After analyzing the results obtained by our first two investigations, our third article examined how males and females engage in sexting coercion perpetration and victimization behaviors, and how that related to psychopathology. The third article also shed light on the scarceness of data regarding sexting coercion perpetration, and, thus, our fourth article was carried out in order to examine the psychopathological profile of sexting coercion

perpetrators. We believe the conjunction of the four articles will allow for a deep analysis of the reality regarding sexting, online sexual victimization and psychopathology in a Spanish university sample, and will set grounds for the development of future prevention and intervention programs.

2. Objectives and Hypotheses

Following the theoretical premises that have been stated throughout the review of literature, this chapter will deal with the general and specific aims of the present investigation followed by the suggested hypotheses.

2.1 Objectives

The general aim of this doctoral dissertation is to examine sexting and online sexual victimization behaviors amongst a Spanish college sample, and their association with psychopathology. In order to reach the laid out general objective of this investigation, the following specific objectives have been proposed:

1. To determine the prevalence of sexting behaviors among a Spanish college sample
2. To determine the prevalence of online sexual victimization and perpetration among a Spanish college sample
3. To determine the prevalence of global psychopathology, depression and anxiety among a Spanish college sample
4. To explore if there is an association between sexting behaviors, online sexual victimization and psychopathology
5. If there is a relationship between sexting behaviors, online sexual victimization and psychopathology, to analyze if the association differs by sex

6. To analyze if college students who engage in sexting behaviors report more psychopathology than those who do not engage in sexting behaviors
7. To explore the relationship between sexting coercion and psychopathology
8. If there is a relationship between sexting coercion and psychopathology, to analyze if the association differs by sex
9. If there is a relationship between sexting coercion and psychopathology, to examine the psychopathological profile of sexting coercion perpetrators

Each specific objective has been included in at least one research article presented in the results section. Thus, the layout of specific objectives and articles is as follows:

- Article 1: answers objectives 1, 2 and 3
- Article 2: answers objectives 4, 5 and 6
- Article 3: answers objectives 7 and 8
- Article 4: answers objective 9

2.2 Hypotheses

Following the previously stated aims, we have formulated four main hypotheses based on the idea that sexting can be an online risky behavior that has been previously related to different mental health measures. This dissertation intends to confirm or reject each of the formulated hypothesis with each of the included research articles.

The first hypothesis postulates that, in general, those college students that engage in sexting behaviors will report more psychopathology than those college students that do not engage in sexting behaviors. This hypothesis is based on the reviewed literature that has shown an association between sexting engagement, depression and anxiety. According to the recent longitudinal data, depression might be a predictor for engagement in risky behaviors, and

particularly in sexting, since sexting might be a way for people who are depressed to feel considered and desired, and, people with depression might have fewer coping skills when pressured into sexting. Thus, the first hypothesis will be formulated as follows:

A. *College students who engage in sexting behaviors will report more psychopathology than those who do not engage in sexting behaviors, and, depression will be associated with engagement in sexting behaviors.*

The second hypothesis is based on the premise that in adult population, consensual sexting is a normative form of sexual expression, and that up to date, conclusive results regarding sexting and mental health in adult population have only highlighted an existing association between psychopathology and coerced sexting and online sexual victimization. This hypothesis is also based on the idea that men and women engage and respond differently to sexting behaviors and online sexual victimization. Thus, the second hypothesis will be formulated as follows:

B. *Online sexual victimization will be significantly associated with psychopathology, and this association will be different for men and women.*

The third hypothesis is based on the premises of the second hypothesis, understanding that results are going to differ by sex (men and women) and by level of coercion in sexting behaviors (non-coerced sexting and coerced sexting). Furthermore, it is based on the idea that those college students who engage in non-coerced sexting, who perpetrate sexting coercion and those who are victims of sexting coercion will show different psychopathological measures. Thus, the third hypothesis is formulated as follows:

C. *The association between psychopathology and sexting in college students will differ by level of coercion and sex, finding significant associations between psychopathology and victimizing behaviors.*

Our fourth hypothesis is based on the premises of the third hypothesis, understanding that depending on the level of consent related to the sexting behavior, psychopathology measures will differ. Furthermore, it is based on the idea that sexual coercion perpetrators differ from non-perpetrators, and that those university students who perpetrated sexting coercion will show a different psychopathological profile than those who were not perpetrators. Thus, the fourth hypothesis is formulated as follows:

D. *University students who engage in sexting coercion perpetration will have a different psychopathological profile in comparison to university students who do not engage in sexting coercion perpetration.*

3. Methodology

3.1 Sample

The sample comprised 1370 Spanish college students including 999 women (72.9%) and 359 men (26.2%) and 12 participants (.9%) who did not specify their gender and were excluded from the analyses. Ages ranged from 18 to 64 years old, with a mean of 21.43 years (SD = 4.85).

Figure 1. Sex of participants

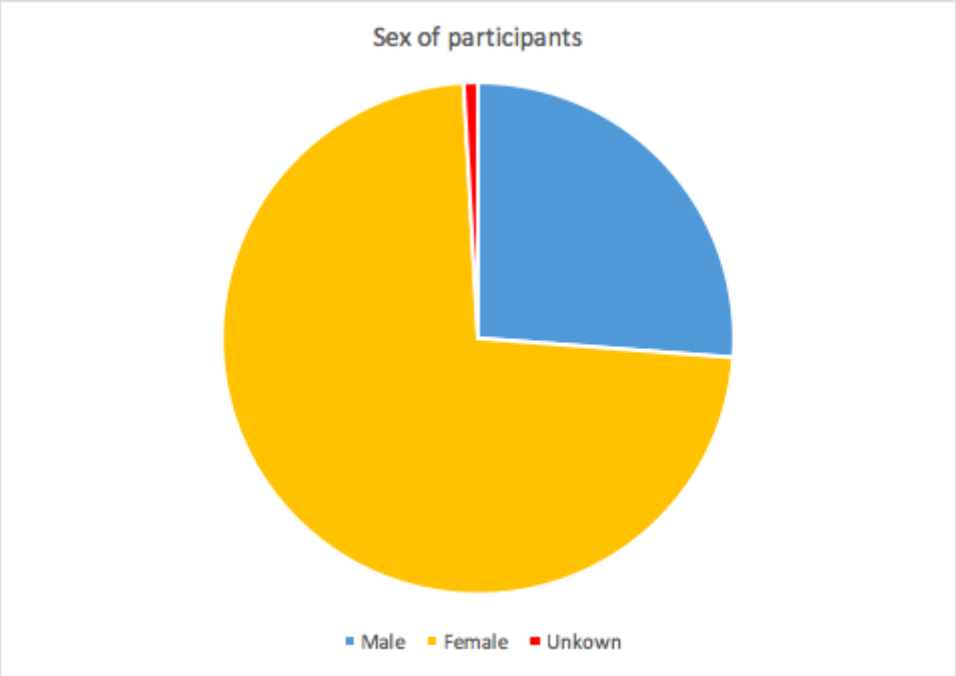

Table 5. Descriptive statistics of age of participants

Descriptive statistics	
Mean	21.43
Standard Deviation	4.85
Minimum	18
Maximum	64

Figure 2. Age distribution

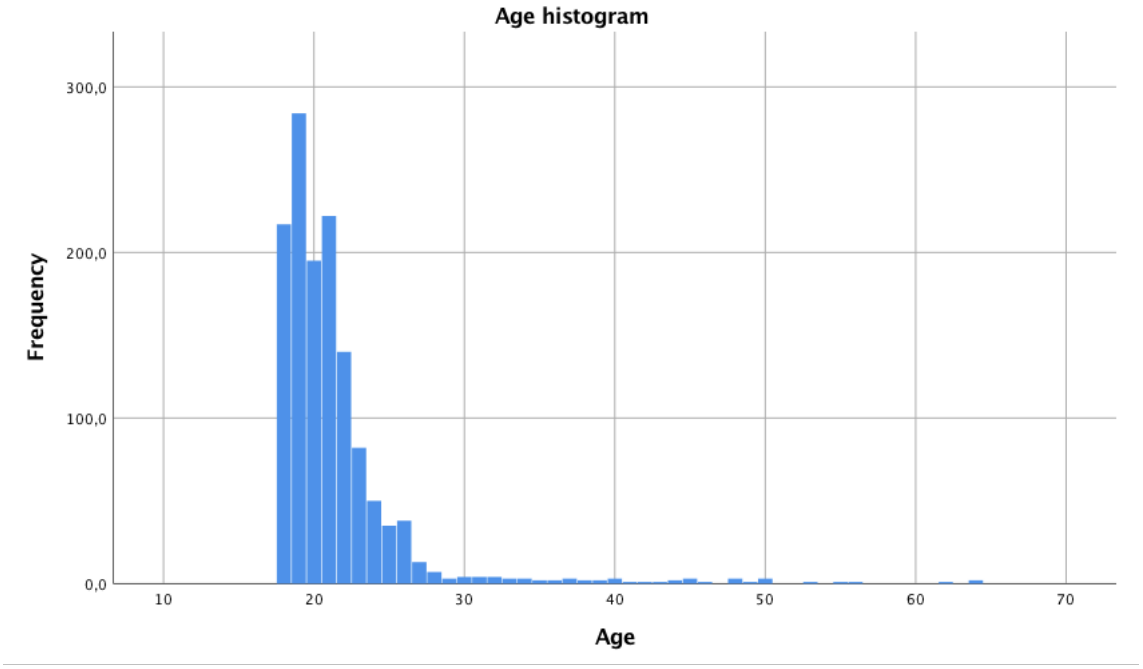

Table 6. Descriptive statistics of demographic and background variables.

	Total sample % (N=1370)	Men % (N=359)	Women % (N=999)
Demographic Variables			
Gender			
Male	26.20		
Female	72.90		
Age	21.43 (4.85)	21.98 (5.51)	21.23 (4.58)
Marital Status			
Single	54.60	61.80	52.10
In relationship	42.00	33.70	44.80
Married	1.20	1.40	1.20
Common Law Partner	1.30	1.70	1.20
Divorced/separated	.90	1.40	.70
Parental Marital Status			
Married	71.30	74.70	70.40
Divorced/Separated	22.50	17.60	23.90

Widow	4.40	5.10	4.10
Other	1.80	2.60	1.50
Academic Situation			
Undergraduate	92.40	94.10	91.70
Master's Degree	4.00	2.50	4.50
Erasmus	1.50	.80	1.70
Other	2.20	2.50	2.10
Living Situation			
With parents	62.40	71.10	59.10
Student Apartment	22.40	15.60	24.90
Off Campus student residence	4.60	3.40	4.90
On Campus student residence	.70	.60	.80
Alone	3.80	4.20	3.50
With partner	6.20	5.10	6.70
Employment Status			
Unemployed	67.40	65.70	67.90
Employed Full Time	5.10	7.30	4.30
Employed Partial Time	27.40	27.00	27.70
Own Smartphone	98.0	98.60	
Age of first phone	13.86 (3.42)	97.80	
Age of first Internet Access	12.01 (3.83)		
Internet Access			
Mobile Phone	89.80	81.60	92.70
Laptop	27.80	26.50	28.3
Desktop PC	6.00	13.40	3.40
Tablet	30.90	27.70	32.50
PlayStation	5.70	7.00	5.30
Frequency of Internet Access			
Once a week	.10	.30	0
2-3 times a week	.40	.60	.30
Everyday	33.0	33.00	32.90

2-3hrs per day	16.7	16.50	16.60
More than 3hrs per day	48.0	47.60	48.40
Social Media Use	97.80	96.60	98.20

3.2 Instruments

For the purpose of this research, we defined sexting as creating, sending and/or forwarding nude or sexually explicit images or videos through any electronic device (i.e. excluding texts messages), and online sexual victimization was defined as experiencing some type of pressure or threats through the Internet or mobiles phones to obtain the victim's sexual content, or/and the dissemination of sexual content without the victim's consent (Van Ouytsel et al., 2014; Gámez-Guadix et al., 2015). The full survey used for the purpose of this investigation can be found in Annex 1.

3.2.1 Sexting Questionnaire

We used a modified Spanish version of the Juvenile Online Victimization – Questionnaire (JOV-Q; Montiel & Carbonell, 2012) to assess different types of sexting behaviors. The items were the following:

1. He creado y enviado a otra persona fotos/vídeos de contenido sexual de mí mismo/a
2. He grabado o captado fotos/vídeos de contenido sexual de otra persona y las he enviado a terceros sin su consentimiento
3. He reenviado a alguien una foto/vídeo de contenido sexual que he recibido donde salen terceras personas
4. He presionado a alguien (insistir repetidamente) para que me enviara fotos/vídeos suyos de contenido sexual
5. He amenazado a alguien para que me enviara fotos/vídeos suyos de contenido sexual
6. He recibido, sin solicitarlo, fotos/vídeos de contenido sexual de terceras personas

7. Alguien ha difundido sin mi consentimiento fotos/vídeos míos de contenido sexual
8. Alguien me ha presionado (insistir repetidamente) para que le enviara fotos/vídeos de mí mismo de contenido sexual
9. Alguien me ha amenazado para que le enviara fotos/vídeos de mí mismo de contenido sexual

The nine items were divided into two categories: active sexting, which included the first five items and assessed active sexting and sexting coercion perpetration, and passive sexting, which included the last four items and assessed passive sexting and sexting coercion victimization. For each of the active sexting items we measured: frequency of behavior, age of first behavior, perceived risk of the behavior, who the behavior was done to, intensity of sexual content and motive. For each of the passive sexting items we measured: frequency of behavior, age of first behavior, distress caused by the behavior, who was the perpetrator, intensity of sexual content and motive.

3.2.2 Mental Health questionnaire

In order to measure mental health, we used the Spanish version of the Listado de Síntomas Breve (Brief Symptom Checklist) (LSB-50; Abuín & Rivera, 2014), which is a revised and shorter version of the SCL-90. This instrument consists of 50 items that assess psychopathological symptomatology. Responses to the items were collected on a 4-point Likert scale (0= never and 4= extremely). For the three first articles, we used the global subscale, the depression subscale and the anxiety subscale and for the fourth article, we used all of the psychopathological measures. 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 coded as 0, and those who obtained 85 or higher were considered as symptomatology present and were coded as 1. This threshold was used following author's guidelines (Abuín & Rivera, 2014). For the fourth article, we used all of the psychopathological measures, with their concrete scores, no matter if the diagnostic threshold was reached or not.

3.2.3 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 internet and social media.

3.3 Procedure and sample selection

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 and offline. The online administration was carried out sending the survey link using the Qualtrics platform 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 offline administration was carried out by physically going to universities and administering the paper questionnaire to students. 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.

Out of the total population in Spain, 1575579 people were registered as university students during the 2017-2018 academic year; with a confidence interval of 95%, and a 3% margin of error. In order to obtain representative results, we needed a total sample of 1067 university students. At the end of the data collection, 1401 students had answered the online survey, and 726 students had answered the offline survey, with a final total sample of 2127 Spanish university students. Exclusion criteria were: not answering three of the fifty LSB-50 questions, and not answering the sexting questionnaire. A total of 757 participants were excluded for data analysis for meeting the exclusion criteria, with a final total sample of 1370 participants, with a balanced number of online vs offline surveys (48.1% online; 51.9% offline).

3.3.1 Data analysis

For each of the sexting behaviors, frequency of behavior was recoded as lifetime prevalence (Yes, at least once/No, never engaged in the behavior). The sexting items were recoded as follows:

- Active Sexting (item 1) referred to creating and sending nude pictures of oneself or sexual content
- Passive Sexting (item 6) referred to receiving sexts
- Online sexual perpetration/aggression included items 2, 3, 4 and 5
- Online sexual victimization included items 7, 8 and 9
- Sexting coercion perpetration included items 4 and 5, which referred to having pressured someone to sext and/or having threatened someone to sext

- Sexting coercion victimization included items 8 and 9, referred to having been pressured to sext and/or having been threatened to sext

New measures were also created to asses global sexting behaviors: Active-Passive Overlap Sexting encompassed only those people who engaged in both active and passive sexting, and Any Sexting behavior included all of the participants who engaged at least once in any of the measured sexting behaviors.

Table 7. Summary of the variables included in this study

Variable name	Variable label	Coding
	Sexting variables	
Sexting1_Frequency	How frequently have you created and sent your sexual photos/videos to someone else?	1= 0 2= 1 3= 2-3 times 4= 1-2 a month 5= 1-2 a week 6= everyday
Sexting1_Dich		1=0 (no sexting) 2-6= 1 (yes sexting)
Sexting2_Frequency	How frequently have you recorded or taken photos/videos of someone else, and sent them to a third person without consent?	1= 0 2= 1 3= 2-3 times 4= 1-2 a month 5= 1-2 a week 6= everyday

Sexting2_Dich		1=0 (no sexting) 2-6= 1 (yes sexting)
Sexting3_Frequency	How frequently have you forwarded to someone a sexual photo/video that you have received?	1= 0 2= 1 3= 2-3 times 4= 1-2 a month 5= 1-2 a week 6= everyday
Sexting3_Dich		1=0 (no sexting) 2-6= 1 (yes sexting)
Sexting4_Frequency	How frequently have you pressured someone to send you sexual photos/videos of themselves?	1= 0 2= 1 3= 2-3 times 4= 1-2 a month 5= 1-2 a week 6= everyday
Sexting4_Dich		1=0 (no sexting) 2-6= 1 (yes sexting)
Sexting5_Frequency	How frequently have you threatened someone to send you sexual photos/videos of themselves?	1= 0 2= 1 3= 2-3 times 4= 1-2 a month 5= 1-2 a week 6= everyday
Sexting5_Dich		1=0 (no sexting) 2-6= 1 (yes sexting)

Sexting1_Who	Who did you send it to?	1=never done it 2= friend 3= partner 4= expartner 5= internet acquaintance 6= stranger
Sexting2_Who	Who did you take the sexual photo/video from?	1=never done it 2= friend 3= partner 4= expartner 5= internet acquaintance 6= stranger
Sexting3_Who	Who did you forward the sexual picture/video to?	1=never done it 2= friend 3= partner 4= expartner 5= internet acquaintance 6= stranger
Sexting4_Who	Who did you pressure?	1=never done it 2= friend 3= partner 4= expartner 5= internet acquaintance 6= stranger
Sexting5_Who	Who did you threaten?	1=never done it 2= friend 3= partner 4= expartner 5= internet acquaintance 6= stranger

Sexting6_Frequency	How frequently have you received unsolicited sexual photos/videos from a third person?	1= 0 2= 1 3= 2-3 times 4= 1-2 a month 5= 1-2 a week 6= everyday
Sexting6_Dich		1=0 (no sexting) 2-6= 1 (yes sexting)
Sexting7_Frequency	How frequently has someone disseminated your sexual photos/videos without your consent?	1= 0 2= 1 3= 2-3 times 4= 1-2 a month 5= 1-2 a week 6= everyday
Sexting7_Dich		1=0 (no sexting) 2-6= 1 (yes sexting)
Sexting8_Frequency	How frequently have you been pressured to send your sexual photos/videos?	1= 0 2= 1 3= 2-3 times 4= 1-2 a month 5= 1-2 a week 6= everyday
Sexting8_Dich		1=0 (no sexting) 2-6= 1 (yes sexting)

Sexting9_Frequency	How frequently have you been threatened to send your sexual photos/videos?	1= 0 2= 1 3= 2-3 times 4= 1-2 a month 5= 1-2 a week 6= everyday
Sexting9_Dich		1=0 (no sexting) 2-6= 1 (yes sexting)
Sexting6_Who	Who did you receive the photos/videos from?	1=never done it 2= friend 3= partner 4= expartner 5= internet acquaintance 6= stranger
Sexting7_Who	Who disseminated your sexual photos/videos without your consent?	1=never done it 2= friend 3= partner 4= expartner 5= internet acquaintance 6= stranger
Sexting8_Who	Who pressured you to send your sexual photos/videos?	1=never done it 2= friend 3= partner 4= expartner 5= internet acquaintance 6= stranger

Sexting9_Who	Who threatened you to send your sexual photos/videos?	1=never done it 2= friend 3= partner 4= expartner 5= internet acquaintance 6= stranger
Active-Passive Overlap sexting		0= never 1= yes (sexting 1 + sexting 6)
Any sexting		0= never 1= yes in at least 1 of the 9 sexting items
Online sexual Perpetration (sexting 2 + sexting 3 + sexting 4 + sexting 5)		0= never 1= has ever done any or more than 1 of the behaviors
Online sexual Victimization (sexting 7 + sexting 8 + sexting 9)		0= never done any of the 6-9 behaviors 1= has ever done any or more than 1 of the behaviors
Sexting coercion perpetration (sexting 4 + sexting 5)		0= never 1= has ever done any or more than 1 of the behaviors
Sexting coercion victimization (sexting 8 + sexting 9)		0= never 1= has ever done any or more than 1 of the behaviors

Psychopathology variables

Global psychopathology (IGS)	0= No (< 85) 1= Yes (> 85)
Depression	0= No (< 85) 1= Yes (> 85)
Anxiety	0= No (< 85) 1= Yes (> 85)

4. Results

Article 1. Original research

Sexting and Mental Health among a Spanish College Sample: an exploratory analysis.

Gassó A. M., Mueller-Johnson K., Agustina J. R., Montiel I.

International Journal of Cyber Criminology. 2019;13(2):534-547.

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Author contribution: 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.

Article 2. Original research

Sexting, Online Sexual Victimization, and Psychopathology Correlates by Sex: Depression, Anxiety, and Global Psychopathology

Gassó A. M., Mueller-Johnson K., Montiel I.

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Article 3. Original research

Mental Health Correlates of Sexting Coercion Perpetration and Sexting Coercion Victimization by gender.

Gassó A. M., Mueller-Johnson K., Agustina J. R., Gómez-Durán E.

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Author contribution: Gassó, A. collected the data, analyzed the results and wrote the first draft of the article with inputs from the rest of authors. More specifically, Müller-Johnson, K. contributed to the methodology and data analysis and Agustina, J. R. and Gómez-Durán, E. to the final version of the paper.

Article 4. Original research

Psychopathological Profile of Sexting Coercion Perpetrators.

Gassó A. M. & Gómez-Durán E.

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Author contributions: Gassó, A. M collected and analyzed the data, and wrote the first draft of the paper. Gómez-Durán, E. conceived the paper, reviewed the statistical analysis and contributed to the final version of the paper.

4.1 Article 1. Sexting and Mental Health among a Spanish College Sample: an exploratory analysis.

Gassó AM, Mueller-Johnson K, Agustina JR, Montiel I.

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SEXTING AND MENTAL HEALTH AMONG A SPANISH COLLEGE SAMPLE: AN EXPLORATORY ANALYSIS.

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ABSTRACT

Background: *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

1. 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 threating 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., 2018). Taking into account the increasing number of suicide cases related to sexting (Jasso et al., 2018), 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., 2018).

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).

2. METHODS

2.1 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.

2.2 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 were 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.

2.3 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.

3. RESULTS

3.1 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 (5.6)	7	60
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			

3.2 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 mores 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.

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	χ^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	χ^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	χ^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	χ^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	χ^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	χ^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	χ^2= (1,n=118)= .311, p= .577, OR= 1.28, 95% CI [.54, 3.01]
Receiving sexts	55.5	57.7	54.8	χ^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	χ^2= (1,n=109)= .918, p= .338, OR= 0
Being pressured to sext	31.2	20	34.5	χ^2= (1,n=109)= 1.89, p= .169, OR= .47, 95% CI [.16, 1.39]
Being threatened to sext	4.6	0	6.0	χ^2= (1,n=109)= 1.56, p= .212, OR= 0
Active and Passive Sexting overlap	31.0	48.3	24.7	χ^2= (1,n=118)= 5.73, p= .017, OR= 2.84, 95% CI [1.19, 6.81]

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%).

3.3 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

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

3.4 Mental Health and Sexting

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).

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

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

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					

4. 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 and 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 Gaméz-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 Gaméz-Guadix et al. (2015) might relay 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.

(2018) 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.

5. CONCLUSIONS

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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4.2 Article 2. Sexting, Online Sexual Victimization, and Psychopathology Correlates by Sex: Depression, Anxiety, and Global Psychopathology

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Sexting and Mental Health Correlates by sex: depression, anxiety and global psychopathology.

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Abstract

Recent research on sexting highlights a relationship between this new technology-mediated behavior and mental health correlates, although up to date results are mixed, and so far, studies have often used simple and not clinically validated measures of mental health. This study aimed to investigate sexting behaviors and related mental health correlates by sex, using clinically validated measures for global psychopathology, anxiety and depression. The sample consisted of 1370 Spanish college students (73.6% female; 21.4 mean age; SD =4.85) who took part in an online survey about their engagement in sexting behaviors, sexting-related victimizations and psychopathological symptomatology, measured by a sexting scale and the Listado de Síntomas Breve (Brief Symptom Checklist) (LSB-50), respectively. Out of our total sample, 37.1% of participants had created and sent their own sexual content (active sexting), 60.3% had received sexual content (passive sexting), and 35.5% had both sent and received sexual content, finding significant differences between male and female engagement in passive sexting. No differences have been found between male and female for being a victim of non-consensual dissemination of sexual content; however, women were more pressured and threatened to sext than men. Sex differences in psychopathology were found only for depression prevalence rates. Furthermore, for male participants, our results showed a significant association only between sexting-related victimization and

psychopathology, but not for consensual active and passive sexting. However, for the female participants, active sexting, passive sexting and sexting-related victimization were all associated with poorer mental health. Implications for prevention and intervention are discussed.

Keywords: sexting, mental health, psychopathology, victimization, sex.

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, Snipes, Martin & Bull, 2012; Gassó, Klettke, Agustina & Montiel, 2019; 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).

Regarding to the nature of sexting, there is a conceptual debate in the scientific community that distinguishes between two clear arguing lines (Döring, 2014): the first one moves towards a normalizing discourse whereby authors believe sexting to be a normative behavior as a part of sexual expression in relationships (Gordon-Messer, Bauermeister, Grodzinski & Zimmerman, 2013; Villacampa, 2017), whilst the other argues that sexting is a risky behavior that requires intervention and prevention (Agustina & Gómez-Duran, 2016; Rice et al., 2012; Dake, Price, Maziarz & Ward, 2012). However, Klettke, Hallford, Clancy, Mellor & Toumbourou (2019) move towards an integrative discourse, which argues that sexting behaviors can be placed on a continuum ranging from consensual sexting behaviors as part of a normative exploratory sexual behavior, to non-consensual or consensual but unwanted sexting (under pressure), associated with negative mental health consequences (sexting-related victimization).

One of the main issues with sexting research is that there is no consensus around its definition, and some authors use broader definitions that include any kind of erotic or sexual communication (Klettke, Mellor, Silva-Myles, Clancy & Sharma, 2018; Gámez-Guadix, Almendros, Borrajo & Calvete, 2015) whilst others use narrower definitions which only

include image-based content (Barrense-Dias, Berchtold, Surís & Akre, 2017). Furthermore, some authors understand sexting to be only a voluntary behavior (Gámez-Guadix et al. 2015), whilst other include sexting coercion as part of general sexting behaviors (Englander, 2012). The existing literature on sexting also differs in the population samples used for the research (teens vs adults), and in the items used to measure sexting, which might be some of the reasons for the lack of a unified body of research and homogeneous results around this topic. Accordingly, 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, Finkelhor, Jones & Wolak, 2012; Englander, 2012). The literature review carried out by Klettke, Hallford & Mellor (2014) shows that out of all the examined studies, the mean prevalence for sexting in adults was 53.3%, and when looking only at the sending of sexts with photo content, the mean prevalence was 48.6%. Posterior studies highlight similar prevalence rates in adults: Drouin, Ross & Tobin (2015) found that 47% of their adult sample had engaged in sexting behaviors, Hudson & Fetro (2015) found that 48.5% of their sample was engaging in sexting behaviors at the time they were questioned, whilst 80.9% of their sample had engaged in sexting at least once in their lifetime. Following this line of reasoning, Morelli, Bianchi, Baiocco, Pezzuti & Chirumbolo (2016) found similar results in an Italian sample of ages ranging from 13 to 30 years old, in which 82.2% of the participants had engaged in sexting behaviors at least once at the moment they were questioned; Gaméz-Guadix et al. (2015)'s results showed that 66.8% of their adult Spanish sample had engaged in sexting at least once in their lifetime, and 46.7% of the sample had sexted three or more times.

With regards to sex, Wysocki & Childers (2011) found that women were more likely to engage in active sexting than men: 60.0% of female reported having sent nude photos of themselves versus 45.4% of male who reported having sent nude pictures of themselves. According to Gordon-Messer et al. (2013), male from their sample (17%) were more likely to receive sexts than female (8.7%), however, when looking at both sending and receiving sexts, no difference between sex was found. Hudson (2011) reported that male engaged significantly more in sexting behaviors than female, without specifying what items were included in the *sexting behaviors* category. Finally, regarding sexting-related victimization, Englander (2012) reported that females were more likely to report being pressured to sext

than males, however they argue that this difference is explained because female have a higher reporting rate, and not due to real differences in sex.

As research has shown, there is a link between sexting and online personal victimization. Sexting among adults is not necessarily a criminal behavior, however, it could lead to online sexual victimization such as sextortion or non-consensual dissemination of sexual content (Agustina, 2012; Brenick, Flannery & Rankin, 2017; Gassó et al., 2019). Among a sample of college students, those who engaged in sexting were more likely to be victimized by different types of cybervictimization (Reyns, Burek, Henson & Fisher, 2011). Englander (2015) informed that 70% of her college student sample was pressured to sext, whilst Branch, Hilinski-Rosick, Johnson, & Solano (2017) found that approximately 10% of their sample had been victims of revenge porn (having your intimate and sexual content disseminated without consent). In the same line, Henry, Flynn & Powell (2019) surveyed 4274 Australian adults and found that 1 out of 10 participants had sent sexual content to someone, and this content had then been disseminated without the person's consent.

In Spain, approximately 4% of 18-60 years old adults have been victims of non-consensual dissemination of sexual content, although being pressured to sext (28.2%), being pressured to share intimate or sexual information (24.5%), being pressured or threatened to perform a sexual act on the internet (22.2%) or being threatened online to maintain sexual intercourse with someone (18.7%), were more prevalent forms of victimization than the non-consensual dissemination of sexual content (Gámez-Guadix et al., 2015). Finally, research has shown that women experience more pressure than men to create and send sexting content (Englander, 2015; Jasso et al., 2018) and suffer more victimization from revenge porn from their partners or ex-partners than men (Branch et al., 2017).

For the purpose of this study, sexting-related victimization (SRV) has been investigated as part of the sexting dynamics. The sexting-related victimizations (SRV) include: being a victim of non-consensual dissemination of oneself nude imagery or sexual content, being pressured to sext and being threatened to sext.

With regards to mental health, research shows significant differences between male and female. According to Nolen-Hoeksema (2001) and Reisner, Katz-Wise, Gordon, Corliss & Austin (2016), women are twice as likely as men to experience depression. For Spanish population, Haro et al., (2006)'s results indicate that 4.37% of the population suffered from

some type of depression disorder in the last year, whilst 5.71% suffered from some type of anxiety disorder in the last year. Their results also showed that 6.25% of Spanish women suffered from depression disorders in the last year versus 2.33% of Spanish men, and 7.61% of Spanish women suffered from anxiety disorders versus 2.53% of Spanish men.

Research also highlights an existing relationship between mental health or psychological health and online victimization behaviors such as cyberbullying, online dating violence, revenge porn and sexting (Dake et al., 2012; Mori, Temple, Browne & Madigan, 2019; Klettke et al., 2014; Fahy, Stansfeld, Smuk, Smith, Cummins & Clark 2016; Drouin et al., 2015; Gassó et al., 2019). In this sense, Klettke et al. (2014) in their literature review found significant relationships between sexting and risky sexual behavior, and with several other adverse outcomes such as: (a) the sharing of sexual content without consent, (b) legal consequences, and (c) negative mental health repercussions. Taking into account the increasing number of suicide cases related to sexting (Jasso et al., 2018), the relationship between sexting and mental health seems of particular interest, even though results up to date are mixed (Klettke et al., 2014; Jasso, López & Gámez-Guadix, 2018).

A significant association between depressive symptoms and impulsivity and sexting was found by Temple, Le, Van Den Berg, Ling, Paul & Temple (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, Van Gool, Ponnet & Walrave (2014)'s findings point towards a significant relationship between depressive symptoms and engagement in sexting behaviors, and Gordon-Messer et al. (2013) did not find significant differences in depression levels, anxiety levels and self-esteem between subjects who had received sexts, those who had sent and received sexts and participants who had neither sent nor received sexts. Some of the inconsistencies in the literature regarding the relationship between sexting and mental health variables may be related to heterogeneity in concept definition and operationalization of sexting behaviors, use of different data collection instruments and measures, use of differing survey methods, and diverse samples in terms of age range and nationalities. Moreover, these inconsistencies might appear due to the fact that most empirical studies on sexting do not segregate the data by sex or do not control for this variable, given that men and women relate differently to both sexting behaviors, sexting-related victimization and mental health.

Recent research points towards a more solid relationship between sexting and mental health variables, however, no results have been found segregated by sex. An association between sexting and emotional problems in a sample over 17.000 participants was reported by Ševčíková (2016), whilst Brinkley. Ackerman, Ehrenreich & Underwood (2017)'s results showed that sending sexts at 16 years old predicted for Borderline Personality traits at age 18. Finally, Gámez-Guadix & De Santisteban (2018) in their longitudinal study found that Depression at T1 predicted for Sexting at T2, and Frankel, Bass, Patterson, Dai & Brown (2018) found a significant relationship between consensual sexting and depressive symptoms, suicide attempts and suicidal behaviors, even though depressive symptoms were more prevalent in participants who had reported non-consensual sexting. With regards to sex, no results have been found concerning the relationship between sexting and mental health taking into account this variable, and thus, we considered this research gap needed to be filled.

Therefore, the general aim of this study is to analyze sexting and mental health correlates by sex. Taking into account that men and women experience sexting behaviors, sexting-related victimization and mental health in different ways, we hypothesize that the association between these variables will be different by sex. Therefore, the specific aims of this study are a) to report sexting prevalence rates in a Spanish college sample by sex; b) to analyze with what frequency college students engage in each of the sexting behaviors and sexting-related victimization and if there is a difference between sex; c) to examine psychopathology prevalence by sex using clinically validated mental health measure, and d) to explore if college students who engage in sexting behaviors and who suffer sexting-related victimization have higher prevalence rates of psychopathology than those who don't engage in sexting behaviors and those who don't suffer SRV, separately by sex.

Methods

Participants

The sample comprised 1370 Spanish college students including 999 women (73.6%) and 359 men (26.2%). Ages ranged from 18 to 64 years old, with a mean of 21.40 years (SD = 4.90). The descriptive statistics for the demographic variables for the total sample can be found in Table 1.

Instruments

Sexting questionnaire. 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).

We used a modified version of the JOV-Q (Montiel & Carbonell, 2012) to assess five different types of sexting behaviors. For each of the measured sexting behaviors, we asked how many times they engaged in the behavior in the past year. This then was recoded as lifetime prevalence (Yes, at least once/ No, never engaged in this behavior). Sexting behaviors were categorized into Active Sexting and Passive Sexting. Active Sexting referred to creating and sending your own nude pictures or sexual content; Passive Sexting included receiving sexts, and sexting-related victimization (SRV) included a) being a victim of non-consensual dissemination of your nude images or sexual content, b) being pressured to sext and c) being threatened to sext. New measures were also created to asses global sexting behaviors: Active-Passive Overlap Sexting englobes only those people who have engaged in both active and passive sexting, and Any Sexting behavior includes all of the participants who have engaged at least once in any of the measured behaviors.

Mental Health questionnaire. In order to measure mental health, we used the Spanish version of the Listado de Síntomas Breve (Brief Symptom Checklist) (LSB-50; Abuín & Rivera, 2014), which is a revised and shorter version of the SCL-90. This instrument consists of 50 items that assess psychopathological 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 for this study. 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.

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. 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.

Results

Sample demographic characteristics.

Table 1 shows the descriptive statistics of demographic and background variables for the total sample, men and women. In the sample, 54.6% of the participants were single, 92.4% were undergraduate students, and the greater majority was living with their parents (62.4%) and did not hold any job in addition to being a student (67.4%). Out of the total sample, 98% of participants owned a smartphone and 97.8% used social media, using their mobile phones as the most frequent form of internet access (89.8%). The mean age of having their first phone was 13.9 years old, and the mean age for the first internet use was 12.01 years old. Finally, the greater majority of participants used the internet more than 3 hours per day (48.0%).

Table 1. Descriptive statistics of demographic and background variables.

	Total sample % (N=1370)	**Men % (N=359)**	**Women % (N=999)**
Demographic Variables			
Sex			
Male	26.40		
Female	73.60		
Age	21.43 (4.85)	21.98 (5.51)	21.23 (4.58)
Marital Status			
Single	54.60	61.80	52.10
In relationship	42.00	33.70	44.80
Married	1.20	1.40	1.20
Common Law Partner	1.30	1.70	1.20
Divorced/separated	.90	1.40	.70
Parental Marital Status			
Married	71.30	74.70	70.40

Divorced/Separated	22.50	17.60	23.90
Widow	4.40	5.10	4.10
Other	1.80	2.60	1.50
Academic Situation			
Undergraduate	92.40	94.10	91.70
Master's Degree	4.00	2.50	4.50
Erasmus	1.50	.80	1.70
Other	2.20	2.50	2.10
Living Situation			
With parents	62.40	71.10	59.10
Student Apartment	22.40	15.60	24.90
Off Campus student residence	4.60	3.40	4.90
On Campus student residence	.70	.60	.80
Alone	3.80	4.20	3.50
With partner	6.20	5.10	6.70
Employment Status			
Unemployed	67.40	65.70	67.90
Employed Full Time	5.10	7.30	4.30
Employed Partial Time	27.40	27.00	27.70
Own Smartphone	98.0	98.60	
Age of first phone	13.86 (3.42)	97.80	
Age of first Internet Access	12.01 (3.83)		
Internet Access			
Mobile Phone	89.80	81.60	92.70
Laptop	27.80	26.50	28.3
Desktop PC	6.00	13.40	3.40
Tablet	30.90	27.70	32.50
PlayStation	5.70	7.00	5.30
Frequency Internet Access			
Once a week	.10	.30	0
2-3 times a week	.40	.60	.30
Everyday	33.0	33.00	32.90
2-3hrs per day	16.7	16.50	16.60
More than 3hrs per day	48.0	47.60	48.40
Social Media Use	97.80	96.60	98.20

Prevalence and frequency of sexting behaviors and sexting-related victimization (SRV) by sex

The prevalence of the measured sexting behaviors for the total sample and by sex are shown in Table 2. For the active sexting behaviors, 37.1% of participants had created and sent their nude images or sexual content to someone voluntarily, without finding any differences between sex. For the passive sexting behavior, prevalence rates for receiving sexts was 60.3% for the total sample, however, men, were 1.45 times more likely to receive sexts than women.

The prevalence rates for SRV showed that for being a victim of non-consensual dissemination of sexting, 3.3% of the total sample reported having been victimized, and no differences were found between sex. However, our results showed that 37.1% of women reported being pressured to sext, in comparison to 19.2% of men. For this victimization behavior, women were 2.49 times more likely to be pressured to sext, than men, and they were 5.06 times more likely to be threatened to sext than men (4.4% vs 0.9%).

Finally, for the global measures of sexting, for the Active-Passive sexting overlap, our results showed that 35% of the participants engaged in both active and passive sexting, being men more likely than women to engage in both behaviors (*p= .000,* OR= 1.80). Ultimately, 72% of the sample reported ever engaging in any of the sexting behaviors, with a closely equal participation between men and women.

Table 2. Prevalence of sexting behaviors by sex

	Total Sample % (N=1370)	Men % (N=359)	Women % (N= 999)	Sig. Test, OR
Active Sexting Behavior				
Creating and sending nude or sexual imagery of oneself	37.1	36.5	36.9	X2(1,n=1325)=.0.19, p=.890, OR= 1.018, 95% CI [0.79, 1.31]
Passive Sexting Behavior				
Receiving sexts	60.3	66.9	58.2	X2(1,n=1313)= 7.96,p=.005, OR= 1.45, 95% CI [1.12, 1.88]
Sexting-Related Victimization				
Being a victim of non-consensual dissemination	3.3	3.2	3.3	X2(1,n=1298)=.007,p=.935, OR= .97, 95% CI [0.48, 1.95]
Being pressured to sext	32.7	19.2	37.1	X2(1,n=1312)=36.9, p= .000, OR= 2.49, 95% CI [1.84, 3.36]
Being threatened to sext	3.4	0.9	4.4	X2(1,n=1299)= 8.96,p=.003, OR= 5.06, 95% CI [1.56, 16.44]
Global sexting behaviors				
Active-Passive Sexting overlap	35.5	45.5	31.6	X2(1,n=1358)=21.9,p=.000, OR= 1.80, 95% CI [1.40, 2.30]

Any sexting behavior	72.0	73.8	71.4	X2(1,n=1358)=.78,p=.376, OR= 1.13, 95% CI [0.86, 1.48]

We next analyzed the frequency of the measured sexting behaviors for both men and women in order to see if there were any differences between the two groups (Table 3). The most prevalent sexting behavior appeared to be receiving sexts 2-3 times in the last year for both men (37%) and women (33.6%). For the active sexting behavior, our results showed that there were no differences between sex for creating and sending sexual content.

For the passive sexting behavior, significant differences were found between men and women, with male receiving sexts more frequently (z= -4.373, p= .000), than female. No significant differences were found between male and female for the sexting-related victimization item of being a victim of non-consensual dissemination of sexting, but most of the victims reported being victims 1 time (2.8% women; 1.2% men), or 2-3 times (0.5% women, 2.1% men) in the last year. For being pressured to sext and being threatened to sext, significant differences were found between sex. Women were more likely to be more frequently pressured (z= 6.054, p= .000) and threatened to sext (z= 3.000, p= .003) than men, with the most frequent form of victimization being to be pressured to sext 2-3 times in the last year for female participants (23.2% vs 10.9%).

Finally, for the global measures of sexting, significant differences were found between male and female for the frequency of those who engage in both active and passive sexting, with men (45.4%) reporting higher sexting frequency rates than women (31.6%). No significant differences were found for the frequency of engaging in any sexting behavior between sex.

Table 3. Distribution of frequencies of sexting behaviors in percentages by sex

	Women % (N=999)						Men % (N= 359)						Sig. Test (Mann-whitney U-test)
	0	x1	x2-3	x1-2 month	x1-2 week	x1 day	0	x1	x2-3	x1-2 month	x1-2 week	x1 day	
Active Sexting Behavior													
Creating and sending nude or sexual imagery of oneself	63.1	7.3	18.9	7.3	3.3	0.1	63.5	7.0	21.4	4.9	2.9	0.3	z=.320, p=.749
Passive Sexting Behavior													
Receiving sexts	41.8	16.0	33.6	6.4	1.9	0.1	33.1	12.7	37.0	9.5	5.3	2.4	z= -4.373, p= .000
Sexting-Related victimization													
Being a victim of non-consensual dissemination	96.7	2.8	0.5				96.8	1.2	2.1				z= .035, p= .972
Being pressured to sext	62.9	10.7	23.2	2.1	.7	0.4	80.8	6.5	10.9	1.2	0.6		z= 6.054, p= .000
Being threatened to sext	95.6	2.0	2.2	0.1		0.1	99.1	0.6	0.3				z= 3.000, p= .003
Global sexting behaviors													
Active-Passive Sexting overlap			68.4		31.6			54.6		45.4			z= -4.682, p= .000
Any sexting behavior			28.6		71.4			26.2		73.8			z= -.885, p=.376

Prevalence of psychopathology by sex

The prevalence rates of psychopathology for the total sample, and by sex, are shown in table 4. Our results indicate that, out of the total sample, almost 40% of participants presented global psychopathology, almost 50% of participants suffered from anxiety, and almost 30% suffered from depression. Looking at the differences between sex, our results show that there were no significant differences between male and female for presenting global psychopathology, nor for anxiety. However, results showed a significant difference between men and women for suffering from depression, with men being 1.46 times more likely to present it than women.

Table 4. Prevalence of psychopathology by sex

	Total Sample % (N=1370)	Men	Women	Sig. Test, OR
IGS	39.9	43.1	38.8	x2(1,n=1322)= 1.97, p= .160, OR= 1.19, 95% CI [.93, 1.53]
Anxiety	49.6	49.7	49.7	x2(1,n=1322)= .000, p= .995, OR= 1.00, 95% CI [.78, 1.28]
Depression	29.9	35.9	27.7	x2(1,n=1322)= 8.23, p= .004, OR= 1.46, 95% CI [1.23, 1.90]

Association between psychopathology and sexting behaviors by sex

Furthermore, we investigated the relationship between psychopathology and the different types of sexting behaviors and sexting-related victimization for men and women separately. Results are laid out in Table 5. Our results showed that, for men, psychopathology prevalence rates were higher for those participants who engaged in sexting behaviors, than for those who did not engage in sexting behaviors, however not significantly so. No significant differences in any of the psychopathology measures were found for the active sexting behavior nor for the passive sexting behavior. Regarding sexting-related victimization, men who reported being victims of non-consensual dissemination of sexting were 5.54 times more likely to present global psychopathology than those who did not report being a victim of non-consensual dissemination of sexting. No significant differences were found between the rest of sexting-related victimization and psychopathology for the male sample. Finally, male participants who reported engaging in both active and passive sexting behaviors, reported significantly higher

prevalence rates for depression than those participants who did not engage in both active and passive sexting behaviors.

On the other hand, for the female sample, results established a relationship between active sexting and psychopathology. More specifically, female who had created and sent their sexual content were 1.47 times more likely of showing global psychopathology and were 1.63 times more likely of suffering from depression than the female participants who had not engaged in active sexting. Significant differences were found for all of the psychopathology measures and the passive sexting behavior. More specifically, women who received sexts were 1.53 times more likely to present global psychopathology, 1.53 times more likely to report anxiety and 1.43 times more likely to show depression than women who had not received sexts. Furthermore, female participants who had been victims of non-consensual dissemination of their sexual content were 2.60 times more likely to show global psychopathology, 2.20 times more likely to show anxiety, and 2.95 times more likely to show depression than those women who had not been victims of non-consensual dissemination of sexting. Moreover, those female students who had been pressured to sext reported higher prevalence rates for all of the psychopathology measures, being 1.56 times more likely to present global psychopathology, 1.55 times more likely to report anxiety, and being 2.08 times more likely to suffer from depression. Those women who reported being threatened to sext were 3.04 times more likely to suffer from global psychopathology, 2.12 times more likely to suffer from anxiety, and 1.85 times more likely to suffer from depression that women who had not been threatened to sext.

Finally, for the global sexting behaviors, results showed that women who engaged in both active and passive sexting were 1.64 times more likely to show global psychopathology, 1.51 times more likely to present anxiety, and 1.91 times more likely to report depression. Ultimately, for those women who reported engaging in any type of sexting behavior, prevalence rates were higher for the three psychopathology measures (global, anxiety and depression) than for those women who did not report engaging in any type of sexting behavior and sexting-related victimization.

Table 5. Prevalence of psychopathology by sexting behaviors and sexting-related victimization

		Men		
		IGS (%)	Anxiety (%)	Depression (%)
Active sexting behavior				
	No	41.3	47.9	33.8
	Yes	46.0	53.2	38.7
Creating and sending nude or sexual imagery of oneself	Sig. Test, OR	x2(1,n=337)=.692, p= .405, OR=1.21, 95% IC [.77, 1.89]	x2(1,n=337)=.893, p= .345, OR=1.24, 95% IC [.79, 1.93]	x2(1,n=337)= .823, p= .364, OR=1.24, 95% IC [.78, 1.96]
Passive sexting behavior				
	No	40.0	50.9	30.9
	Yes	44.8	50.2	38.9
Receiving sexts	Sig. Test, OR	x2(1,n=331)= .689, p= .407, OR= 1.22, 95% CI [.76, 1.94]	x2(1,n=331)= .014, p= .907, OR= .97, 95% CI [.62, 1.54]	x2(1,n=331)= 2.04, p= .154, OR= 1.42, 95% CI [.88, 2.32]
Sexting-Related Victimization				
	No	41.9	49.7	34.8
	Yes	80.0	70.0	60.0
Being a victim of non-consensual dissemination	Sig. Test, OR	x2(1,n=332)= 5.73, p= .017, OR= 5.54, 95% CI [1.16, 26.51]	x2(1,n=332)= 1.60, p= .206, OR= 2.36, 95% CI [.60, 9.30]	x2(1,n=332)= 2.69, p= .101, OR= 2.81, 95% CI [.78, 10.17]
Being pressured to sext	No	42.7	49.1	35.6

	Yes	46.2	56.9	36.9
	Sig. Test, OR	x2(1,n=332)= .254, p= .641, OR= 1.15, 95% CI [.68, 1.98]	x2(1,n=332)= 1.29, p= .256, OR= 1.37, 95% CI [.79, 2.37]	x2(1,n=332)= .041, p=.840, OR= 1.06, 95% CI [.60, 1.86]
Being threatened to sext	No	43.3	50.6	35.6
	Yes	66.7	66.7	66.7
	Sig. Test, OR	x2(1,n=329)= .663, p= .415, OR= 2.62, 95% CI [.24, 29.23]	x2(1,n=329)= .306, p= .580, OR= 1.95, 95% CI [.18, 21.73]	x2(1,n=329)= 1.25, p= .264, OR= 3.62, 95% CI [.32, 40.36]
Global sexting behaviors				
	No	40.2	49.2	36.7
	Yes	46.5	50.3	42.1
Active-Passive Sexting overlap	Sig. Test, OR	x2(1,n=348)= 1.41, p= .235, OR= 1.29, 95% CI [.85, 1.98]	x2(1,n=348)= .042, p= .837, OR= 1.05, 95% CI [.69, 1.59]	x2(1,n=348)= 4.92, p= .027, OR= 1.64, 95% CI [1.06, 2.56]
	No	37.1	41.6	29.2
	Yes	45.2	52.5	38.2
Any Sexting	Sig. Test, OR	x2(1,n=348)= 1.77, p= .183, OR= 1.40, 95% CI [.85, 2.29]	x2(1,n=348)= 3.17, p= .075, OR= 1.55, 95% CI [.95, 2.53]	x2(1,n=348)= 2.34, p= .126, OR= 1.50, 95% CI [.89, 2.52]

		Women		
	%	IGS	Anxiety	Depression
Active sexting behavior				
Creating and sending nude or sexual imagery of oneself	No	35.2	48.3	23.7
	Yes	44.5	51.3	33.7

	Sig. Test, OR	x2(1,n= 955)= 8.05, p= .005, OR= 1.47, 95% IC [1.13, 1.93]	x2(1,n= 955)= .767, p= .381, OR= 1.12 95% IC [.86, 1.46]	x2(1,n= 955)= 11.08, p= .001, OR= 1.63, 95% CI [1.22, 2.18]
Passive sexting behavior				
	No	33.1	43.6	23.6
	Yes	43.1	54.2	30.6
Receiving sexts	Sig. Test, OR	x2(1,n= 954)= 9.73, p= .002, OR= 1.53, 95% CI [1.17, 2.00]	x2(1,n= 954)= 10.48, p= .001, OR= 1.53, 95% CI [1.18, 1.99]	x2(1,n= 954)= 5.80, p= .016, OR= 1.43, 95% CI [1.07, 1.92]
Sexting-Related victimization				
	No	37.8	48.8	26.6
	Yes	61.3	67.7	51.6
Being a victim of non-consensual dissemination	Sig. Test, OR	x2(1,n= 938)= 6.97, p= .008, OR= 2.60, 95% CI [1.25, 5.43]	x2(1,n= 938)= 4.28, p= .038, OR= 2.20, 95% CI [1.02, 4.72]	x2(1,n= 938)= 9.45, p= .002, OR= 2.95, 95% CI [1.44, 6.05]
	No	34.7	45.5	22.0
	Yes	45.4	56.3	36.9
Being pressured to sext	Sig. Test, OR	x2(1,n= 951)= 10.58, p= .001, OR= 1.56, 95% CI [1.19, 2.04]	x2(1,n= 951)= 10.51, p= .001, OR= 1.55, 95% CI [1.19, 2.02]	x2(1,n= 951)= 24.82, p= .000, OR= 2.08, 95% CI [1.55, 2.77]
	No	37.2	48.5	26.9
Being threatened to sext	Yes	64.3	66.7	40.5

	Sig. Test, OR	x2(1,n= 943)= 12.47, p= .000, OR= 3.04, 95% CI [1.59, 5.80]	x2(1,n= 943)= 5.30, p= .021, OR= 2.12, 95% CI [1.10, 4.09]	x2(1,n= 943)= 3.74, p= .053, OR= 1.85, 95% CI [.98, 3.49]
Global sexting behaviors				
	No	35.0	48.6	23.5
	Yes	46.9	52.1	36.9
Active-Passive Sexting overlap	Sig. Test, OR	x2(1,n= 974)= 12.56, p= .000, OR= 1.64, 95% CI [1.25, 2.16]	x2(1,n= 974)= 1.05, p= .085, OR= 1.51, 95% CI [.88, 1.51]	x2(1,n= 974)= 19.00, p= .000, OR= 1.91, 95% CI [1.42, 2.56]
	No	29.2	43.1	22.6
	Yes	42.6	52.3	29.7
Any Sexting	Sig. Test, OR	x2(1,n= 974)= 14.83, p= .000, OR= 1.80, 95% CI [1.33, 2.43]	x2(1,n= 974)= 6.70, p= .010, OR= 1.45, 95% CI [1.09, 1.92]	x2(1,n= 974)= 4.94, p= .026, OR= 1.45, 95% CI [1.04, 2.00]

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*. Up to date research shows that consensual and voluntary sexting among adults is becoming part of a normal sexual expression (Döring, 2014; Klettle et al., 2019); however, sexting has been associated with different types of victimization and is understood by many authors to be a risky behavior as it increases the chances of suffering sexual victimization (Döring, 2014; Villacampa, 2017; Agustina & Gómez-Durán, 2016). Taking into account that men and women experience sexting behaviors and mental health in different ways, we hypothesized that the association between sexting and mental health would be different for men and women, so the general aim of this study was to analyze this issue. Therefore, the specific aims of this study were to report sexting prevalence rates by sex, to analyze with what frequency college students engaged in each of the sexting behaviors and suffered from sexting-related victimizations and if there was a difference between sex, and to examine psychopathology prevalence by sex. Finally, this study aimed at exploring if college students who engage in sexting behaviors and who suffer sexting-related victimization have higher prevalence rates of psychopathology than those who don't engage in sexting behaviors and those who don't suffer SRV, by sex.

Overall, our results showed that more than one third of college students had engaged at least once in the past year in active sexting, consistently with the results obtained by many studies with adult and college samples, in which prevalence rates range from 27.8% to 49% for this behavior (Gámez-Guadix et al., 2015; Englander, 2012; Frankel et al., 2018; Morelli et al., 2016; Delevi and Weisskirch, 2013; Gordon-Messer et al., 2013; and AP-MTV, 2009; Drouin, Vogel, Surbey & Stills, 2013). For the passive sexting behavior, our results showed that out of our total sample, almost two thirds of participants had received sexts at least once in the past year, 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).

No significant differences between prevalence rates for male and female participants were found for the active sexting behavior (creating and sending sexual content), in line with results found by Benotsch et al., (2013), Dir, Cyders & Coskunpinar (2013), Drouin and

Landgraff (2012), Gordon-Messer et al., 2013, Hudson et al., (2011) and Klettke et al. (2019). However, our results are in direct contradiction to those found by AP-MTV (2009) and Englander (2012) who's findings indicated that females were more likely to send sexts than male. As Englander (2012) suggests, the differences in prevalence rates found between men and women for this studies might be due to the fact that girls are more likely to report being pressured, coerced, blackmailed or threatened into sexting than boys.

Significant differences were found between male and female for prevalence rates of passive sexting behavior (receiving sexts), indicating that male are more likely to receive sexts than female, corroborating the results showed by AP-MTV (2009), Dir et al., (2013), Gordon-Messer et al., (2013) and Klettke et al., (2019). As Gordon-Messer et al., (2013) point out, these differences found between male and female might be attributable to the fact that male are more used to receiving sexual content from their peers without sending content back, and more used to pressuring women to sext and thus, to receiving their sexts.

With regards to the SRV our results showed that 3.3% of the total sample had been a victim of non-consensual dissemination of their sexual content, in line with Gámez-Guadix et al. (2015)'s findings, and further away from Henry, Powell & Flynn (2017)'s results, which state that around 11% of their Australian sample (16-49 years old) were victims of non-consensual dissemination of their sexual content. These differences in prevalence rates might be explained by cultural differences or a broad age range in Henry et al., (2017)'s sample.

Moreover, one out of three participants from our sample had been victimized by being pressured to sext, and 3.4% had been victimized by being threatened to sext. Gámez-Guadix et al., (2015) found similar results, with 28.2% of the total sample being pressured to send sexual pictures, 3.3% being victimized by non-consensual dissemination of sexting images and 1.9% of the total sample being threatened to send sexual pictures. With regards to sex, no significant difference was found between men and women for the SRV of being a victim of non-consensual dissemination of their sexual content, but, on the contrary, women were more likely to be pressured to sext than men, in line with Gámez-Guadix et al. (2015) and with Henry et al., (2017). Festl, Reer & Quandt (2019) surveyed 1033 German internet users (14-20 years old) with regards to online sexual victimization, and found that women suffered from more victimization experiences than men. These results indicate that, even though both men and women experience sexting-related victimization, rates are higher for women, as

offline sexual victimization literature has also shown (Gámez-Guadix et al., 2011; Hines & Saudino, 2003).

Similarly to Dir et al., (2013)'s findings, our results showed that the most college students engage in sexting behaviors only occasionally or rarely, and that those who engage in sexting behaviors weekly or daily are a rare minority. Our results indicated that women experience higher prevalence rates of being pressured and being threatened to sext and with a higher frequency than men.

Our results confirmed a difference in psychopathology prevalence rates between male and female for depression, although contrary to what we expected. Our results regarding psychopathology prevalence showed that men were more likely to suffer from depression than women, in line with Klettke et al., (2019)'s results; our findings did not show a significant differences between male and female for anxiety and global psychopathology. These results are contrary to other literature findings, where significant differences between male and female have been found for depression and anxiety. According to Nolen-Hoeksema (2001) and Reiser et al. (2016) women are twice as likely as men to experience depression. For Spanish population, Haro et al., (2006)'s results indicated that anxiety disorders were more prevalent than depression disorders. Furthermore, results showed that Spanish women were almost three times as likely to suffer from depression disorders in the past year than men, and they were three times more likely to report anxiety disorders than men (Haro et al., 2006).

Regarding the association between sexting and mental health in men, we did not find significant differences between those who engaged in active sexting behaviors and those who did not, for any of the psychopathology measures. However, male who had been victims of non-consensual dissemination of their sexual content showed higher rates of global psychopathology than those who were not victims. These higher psychopathology rates for this behavior suggest that for male, psychopathology is not related to consensual sexting behaviors nor to being pressured or threatened to sext, but only to suffering victimization by non-consensual dissemination of sexual content.

On the other hand, we did find an association between sexting behaviors and psychopathology for the female sample. Our results showed that for women, creating and

sending their own sexual content was related to higher global psychopathology and depression prevalence rates than for women who did not engage in this behavior. People who suffer from depressive symptoms might lack coping strategies when they are pressured by their peers to create and send sexual content, resulting in a higher engagement in coercive sexting (Barrense-Dias et al., 2017).

However, our results are contrary to Klettke et al., (2019)'s results, showing that not only non-consensual and unwanted sexting is associated with poorer mental health, but in female also to consensual active sexting. One of the reasons for this discrepancy might be due to the fact that when we asked participants if they had created and sent their own sexual content we did not specify it had to be voluntarily, so some of the female participants who have responded affirmatively to being pressured to sext might be the same ones who have responded affirmatively to creating and sending their own sexual content. This would explain why in our study female participants showed a relationship between active sexting and poorer mental health.

Furthermore, for female participants, receiving sexts was associated with higher prevalence rates for all of the psychopathology measures than those women who had not received sexts. Similarly, women who had been victims of sexting-related victimizations also reported higher psychopathology prevalence rates for all of the psychopathology measures than those women who had not been victims of sexting-related victimization. These results show that although active sexting is associated with higher rates of global psychopathology and depression, receiving sexts and victimizing sexting behaviors are associated with more psychopathological symptoms than active sexting. These results could be explained because victimizing behaviors might trigger grater psychopathological symptomatology or because female who suffer from psychopathology, anxiety or depression might be more vulnerable to being pressured to sext and to different forms of victimization (Gámez-Guadix and De Santisteban, 2018). The negative consequences of these behaviors are intimately related with gender, since women experience more negative outcomes due to gender myths and traditional expectancies regarding sexual norms for women in particular (Henry & Powell, 2015). A qualitative study regarding emotional and mental health outcomes of non-consensual dissemination of intimate images in revenge porn carried out by Bates (2017) reveals a higher presence of posttraumatic stress disorder, anxiety, depression and suicidal ideation in women, finding similar consequences to physical sexual aggressions.

Our results indicate that the relationship between sexting and mental health is different for men and women. In this sense, for male, poorer mental health is associated only to victimization by non-consensual dissemination of sexual content, whilst for female, poorer mental health is associated with all of the sexting behaviors and sexting-related victimizations. The inconsistencies that literature shows regarding the relationship between sexting and mental health could be partially explained because those studies might not have taken into account that male and female engage and respond differently to sexting behaviors and sexting-related victimization. Our evidence shows that there is a strong relationship between sexting and mental health, however, this relationship is not equal for men and women, being females more vulnerable to sexting, sexting-related victimizations and psychopathology. These results contribute to a deeper understanding of how men and women relate to sexting behaviors and sexting-related victimizations, in order to design effective sexting and mental health prevention and intervention campaigns. In this line, our results point out that mental health practitioners should look into sexting-related victimization experiences in male who suffer from psychopathology, and look into sexting behaviors and sexting-related victimization experiences in female who suffer from psychopathology, anxiety and depression.

Conclusions

The aim of this study was to explore sexting and mental health correlates by sex. We hypothesized that sexting behaviors and sexting-related victimization prevalence rates, and similarly, psychopathology rates, would be different for male and female, and thus, we expected the relationship between sexting and mental health to be different for male and female.

In conclusion, this is the first study to examine the relationship between sexting behaviors, sexting-related victimization and mental health by sex using clinically validated mental health measures amongst a Spanish college sample. As the body of research regarding sexting keeps growing, more findings highlight that it is not necessarily a deviant behavior (Drouin et al., 2017; Englander, 2019), however, they point towards an association between non-consensual or coerced sexting and risky behaviors, negative consequences and poorer mental health (Klettke et al., 2019; Van Ouytsel et al., 2019; Englander, 2019; Gassó et al., 2019).

Our results contribute to a deeper understanding of the relationship between sexting behaviors, sexting-related victimization and psychopathology, anxiety and depression, specially taking into account sex differences. Our evidence suggests that sexting-related victimization is associated with poorer mental health for men and women, however, for female, poorer mental health is also associated with consensual sexting (sending sexts and receiving sexts). These findings can be useful when designing prevention and intervention strategies, for the educational community and mental health practitioners. When attending young male adults with psychopathology symptoms and female with psychopathology symptoms, anxiety and depression, professionals should inquire about sexting-related victimization experiences, and the engagement in sexting behaviors. This study has several limitations that should be taken into account when interpreting the results. First, the sample used was non probabilistic and comprised of only college students, rather than the general population, so generalization of results should be cautiously done. Second, 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, clinically validated, psychometric questionnaire, with other mental health 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.

Highlights

- Both creating and sending, and receiving sexts are highly prevalent behaviors amongst Spanish college students, in line with most of the literature.
- There are differences in the prevalence rates for passive sexting behaviors and SRV between male and female, except for being a victim of non consensual dissemination of sexual content.
- Engaging in sexting behaviors is not very frequent (most prevalent frequency is engaging in sexting 2-3 times). Engaging in sexting behaviors weekly or daily is not frequent either with male nor female.
- There are no significant differences between male and female for psychopathology prevalence. Men and women have similar rates for global psychopathology and anxiety; however, men were more likely to show depression in our sample.

- Sexting and psychopathology:
    - For male, a significant association between sexting-related victimization (non-consensual dissemination) and psychopathology was found. No significant association between active sexting behaviors and poorer mental health.
    - For female, significant associations between active sexting behaviors and psychopathology and significant associations between passive and victimizing sexting behaviors and psychopathology were found.
    - For men, mental health is only related with sexting when there is a sexting-related victimization; however, for female, mental health is associated with sexting even if it is not a victimizing behavior.

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4.3 Article 3. Mental Health Correlates of Sexting Coercion Perpetration and Sexting Coercion Victimization by gender.

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Mental Health Correlates of Sexting Coercion Perpetration and Victimization in university students by gender.

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Abstract

Research on sexting has highlighted the association between sexting coercion and mental health correlates. This study aimed to investigate the psychopathological correlates of different sexting coercion behaviors using clinically validated measures, analyzing

differences by gender. The sample comprised 1370 Spanish university students (73.6% female; Mage = 21.4, SD = 4.9). Significant differences between males and females were found for engagement in sexting, sexting coercion and sexting victimization. Males were significantly more likely to engage in sexting coercion perpetration and females were significantly more likely to be victimized by sexting coercion. Female students showed a significant association for all of the sexting behavior forms and poorer mental health. Implications for prevention and intervention policies are discussed.
Keywords: Sexting coercion, victimization, perpetration, psychopathology, mental health

Introduction

Sexting is becoming a common form of online sexual interaction (Klettke, Hallford, Clancy, Mellor, & Toumbourou, 2019; Wolak & Finkelhor, 2011). Sexting coercion is understood as the use of coercive tactics (pressure or threats) to solicit sexually explicit photos and videos from someone (Ross, Drouin & Coupe, 2016).

A literature review carried out by Klettke and colleagues reported high prevalence rates in sexting both for adolescents (12.0% for sending and 11.9% for receiving sexts) and adults (48.6% for sending and 56.0% for receiving sexts) (Klettke, Hallford & Mellor, 2014). Some authors suggest that sexting is a risky behavior, as intimate sexual content can be disseminated and forwarded without the person's consent and can become part of cyber-harassment behaviors or intimate partner violence (AP-MTV, 2009; Drouin, Ross & Tobin, 2015; Gassó, Klettke, Agustina & Montiel, 2019; Walker, Sleath, Hatcher, Hine & Crookes, 2019). Sexting is considered by some authors as a threshold for victimization, including victimization by sexting coercion, revenge porn or cyberstalking, and some research evidences the need for deeper research in this field (Agustina, 2012). Different types of cyber-victimization behaviors have been associated with sexting engagement (Branch, Hilinski-Rosick, Johnson, & Solano, 2017; Drouin et al., 2015; Englander, 2015; Henry, Flynn & Powell, 2019; Kernsmith, Victor & Smith-Darden, 2018; Reyns, Burek, Henson & Fisher, 2011; Ross et al., 2016; Walker et al., 2019), especially with sexting coercion.

From a victimization perspective, sexting behaviors not only have been linked to cyber victimization but also to depression, feelings of sadness, suicide attempts, or anxiety (Dake, Price, Maziarz & Ward, 2012; Englander 2012; Jasso, López & Gámez-Guadix, 2018; Klettke et al., 2014). Klettke et al., (2019) reported that mental health issues were only related to consensual but unwanted sexting (i.e. people who do not want to sext but are eventually persuaded to consent to do so anyway) and sexting coercion, but not to consensual sexting,

which has been supported by later studies (Drouin et al., 2015; Frankel, Bass, Patterson, Dai & Brown, 2018; Ross et al., 2016). Finally, sexting coercion has also been linked to offline victimization, specifically to intimate partner violence (Drouin et al., 2015; Ross et al., 2016). With regard to gender differences in sexting, the literature shows heterogeneous findings. While research has found no differences between males and females in frequency of sexting (Dake et al., 2012; Madigan, Rash, Van Ouytsel, & Temple, 2018) many studies find gender differences regarding types of sexting behaviors, and, more particularly, regarding sexting coercion (Burén & Lunde, 2018; Gassó, Mueller-Johnson & Montiel, 2020; Reed, Boyer, Meskunas, Tolman & Ward, 2020). Burén & Lunde (2018) and Reed et al., (2020) suggest that sexting is a gendered phenomenon, and that males and females relate and engage differently in general sexting and sexting coercion behaviors. Reed et al., (2020) found that girls were more likely to be pressured to sext than boys. A study carried out with 885 undergraduate students also reported that females are more likely to be coerced into sexting than males (Ross et al., 2016). Furthermore, a recent study showed that twice as many females than males reported receiving unwanted sexts, however, receiving unwanted sexts was more strongly related to psychological distress for males than for females (Klettke et al., 2019). Finally, Kernsmith et al., (2018) reported that teenage girls were more likely to be victimized than boys, and, teenage boys were significantly more likely to pressure a partner to sext than girls.

Most research on sexting coercion has measured mental health correlates of sexting coercion victimization. However, less is known about sexting coercion perpetration and the possibly differential relation these two variables have with psychopathology. The mental health correlates of sexting coercion perpetration and victimization by gender have not been previously analyzed, which might be an important issue as such research could reveal relevant information for gender targeted prevention strategies in safe use of technologies and sex education programming for youths.

The Current Study

Taking into account that males and females experience sexting behaviors, sexting coercion and mental health in different ways, we hypothesize that the association between these variables will be different by gender, and we expect to find sexting coercion victimization to be more strongly correlated to psychopathology than sexting coercion perpetration. Therefore, the specific aims of this study are a) to report sexting prevalence rates by level of sexting coercion and gender; b) to analyze the frequency with which adult university students engage in each of the sexting coercion behaviors and if there are gender differences; c) to

examine who is the most frequent receiver/perpetrator of each of the sexting coercion behaviors and if there are differences between males and females; and d) to explore if there is a difference in psychopathology prevalence rates for sexting behaviors by levels of coercion.

Methods

Participants

The sample comprised 1370 Spanish adult university students including 999 females (73.6%) and 359 males (26.2%) and 12 participants (.2%) who did not specify their gender and were excluded from the analyses. The final sample comprised 1358 participants, with a mean of 21.4 years (SD = 4.9). In the sample, 54.6% of the participants were single, 92.4% were undergraduate students, and the greater majority were living with their parents (62.4%) and did not hold any job in addition to being a student (67.4%). Out of the total sample, 98% of participants owned a smartphone and 97.8% used social media, using their mobile phones as the most frequent form of internet access (89.8%). The mean age of having their first phone was 13.9 years old, and the mean age for the first internet use was 12 years old. The descriptive statistics for the demographic variables for the total sample can be found in Table 1.

Table 1
Descriptive statistics for demographic and background variables

Demographic Variables	Total sample % (N=1370)	Men % (N=359)	Women % (N=999)
Gender			
Male	26.40		
Female	73.60		
Age	M= 21.43 (Sd= 4.85)	M= 21.98 (Sd= 5.51)	M= 21.23 (Sd= 4.58)
Marital Status			
Single	54.60	61.80	52.10
In relationship	42.00	33.70	44.80
Married	1.20	1.40	1.20
Common Law Partner	1.30	1.70	1.20
Divorced/separated	.90	1.40	.70
Parental Marital Status			
Married	71.30	74.70	70.40
Divorced/Separated	22.50	17.60	23.90
Widow	4.40	5.10	4.10
Academic Situation			
Undergraduate	92.40	94.10	91.70
Master's Degree	4.00	2.50	4.50
Erasmus	1.50	.80	1.70
Living Situation			

With parents	62.40	71.10	59.10
Student Apartment	22.40	15.60	24.90
Off Campus student residence	4.60	3.40	4.90
On Campus student residence	.70	.60	.80
Alone	3.80	4.20	3.50
With partner	6.20	5.10	6.70
Employment Status			
Unemployed	67.40	65.70	67.90
Employed Full Time	5.10	7.30	4.30
Employed Partial Time	27.40	27.00	27.70
Own Smartphone	98.0	98.60	
Age of first phone	M= 13.86 (Sd= 3.42)	97.80	
Age of first Internet Access	M= 12.01 (Sd= 3.83)		
Internet Access			
Mobile Phone	89.80	81.60	92.70
Laptop	27.80	26.50	28.3
Desktop PC	6.00	13.40	3.40
Tablet	30.90	27.70	32.50
PlayStation	5.70	7.00	5.30
Frequency Internet Access			
Once a week	.10	.30	0
2-3 times a week	.40	.60	.30
Everyday	33.0	33.00	32.90
2-3hrs per day	16.7	16.50	16.60
More than 3hrs per day	48.0	47.60	48.40
Social Media Use	97.80	96.60	98.20

Procedure

The study was approved by the Ethics Committee of XX University [name omitted for peer review]. For the purpose of this study, participants were recruited using an online survey. 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. Participation was voluntary and responses were anonymous to promote openness and honesty. 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. In order to consent, participants had to explicitly agree to take the survey, by accepting the survey conditions.

Measures

For the purpose of this research, we defined sexting as creating, sending and/or forwarding nude or sexually explicit images or videos through any electronic device. Sexting coercion

is defined as the use of coercive tactics to solicit sexually explicit photos and videos from someone; sexting coercion perpetration is defined as the action of pressuring and/or threating someone to obtain their sexual content, and sexting coercion victimization as the experience of being pressured and/or threatened by someone to send them sexual content.

Sexting Questionnaire

To measure sexting, sexting coercion perpetration and sexting coercion victimization we used five sexting items from the Juvenile Online Victimization – Questionnaire (JOV-Q; Montiel & Carbonell, 2012) to assess five different types of sexting behaviors. The surveyed sexting items were: 1) *I have created and sent to someone else photos or videos with sexual content of myself*; 2) *I have pressured someone (repeatedly insisted) so they would send me photos or videos of sexual content of themselves*; 3) *I have threatened someone so they would send me photos or videos of sexual content of themselves*; 4) *Someone has pressured me (repeatedly insisted) to send them photos or videos of my sexual content*; and 5) *Someone has threatened me to send them photos or videos of my sexual content*. The sexting items were then categorized into new variables: sexting (creating and sending nude pictures or sexual content), Sexting Coercion Perpetration (SCP), which encompassed two sexting items: pressuring someone to sext and threatening someone to sext, and Sexting Coercion Victimization (SCV), which included two sexting items: being pressured to sext and being threatened to sext. For each of the measured sexting behaviors, we asked how many times participants had suffered or engaged in the behavior in the past year. These variables were recoded dichotomously to capture the essence of the data (Yes, at least once in the past year/ No, I did not engage in this behavior in the past year). Furthermore, we asked participants to state who they had sent the sexual content to, whom they had pressured/threatened or by whom they had been pressured/threatened. The response options were: 1) I never engaged in this action; 2) Friend/s; 3) Partner; 4) Ex-partner; 5) Internet Acquaintance; and 6) Stranger.

Mental Health Questionnaire

In order to measure mental health, we used the Spanish version of the Listado de Síntomas Breve (Brief Symptom Checklist) (LSB-50; Abuín & Rivera, 2014), which is a revised and shorter version of the SCL-90. This instrument consists of 50 items that assess psychopathological symptomatology. Responses to the items were collected on a 5-point Likert scale (0= never and 4= extremely). We used the global subscale, the depression subscale and the anxiety subscale for this study. 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). An 85 cutoff point was used as

suggested by Abuín & Rivera (2014), meaning that any participant who scored 85 or higher was considered symptomatic, thus, recoded as a 1. Conversely, all participants whose total score was below 85 were considered asymptomatic and, thus, coded as a 0.

Socio-demographic Questionnaire

We included questions about age, gender, marital status, parental marital status, place of residence, employment situation, educational qualifications, and, questions about frequency and use of phones and social media.

Data Analysis

All analyses were conducted using IBM SPSS V.25. Prevalence rates were calculated using two by two crosstables and differences between variables using Chi-square tests, and posteriorly calculating the odds ratios (see Tables 2 and 6). In order to analyze the differences in frequency of sexting engagement and receiver of the sext/ victimization outcome between males and females, and due to the difference in sample sizes, non-parametric Mann-Whitney U tests were used (Tables 3, Table 5). Where multiple tests were conducted, Bonferroni adjustments to the alpha level were undertaken to decrease the risk of type I errors.

Results

Prevalence of Sexting behaviors, perpetration and victimization

The prevalence rates of sexting behaviors for the total sample and by gender are shown in Table 2. Out of the total sample, 37.1% of participants had created and sent their nude images or sexual content to someone, without finding any differences between gender. Out of all the participants, 6.4% had engaged in sexting coercion perpetration, and 32.7% had been victims of sexting coercion. For sexting coercion perpetration (SCP), results showed that males were 7.56 times more likely to pressure someone to sext than females ($p < .001$), and there were no significant differences for threatening someone to sext. For sexting coercion victimization (SCV), 32.7% of the total sample had been pressured to sext at least once in the past year and 3.4% of participants had been threatened to sext, being females 2.49 times more likely to be pressured to sext than males ($p < .001$), and 5.06 times more likely to be threatened to sext, than males ($p=.003$). Results are also depicted in Figure 1.

Table 2. Prevalence of sexting behaviors by gender

	Total Sample %	Men % (N=359)	Women % (N= 999)	Sig. Test, OR

	(N=1370)			
Sexting				
Creating and sending nude or sexual imagery of oneself	37.1	36.5	36.9	χ^2 (1,n=1325)= 0.19, p =.890, OR= 1.018, 95% CI [0.79, 1.31]
Sexting coercion perpetration	6.4	15.0	3.1	χ^2 (1, n=1307)= 60.9, p = <.001, OR= 5.49, 95% CI [3.43, 8.78]
Pressuring someone to sext	5.5	14.4	2.2	χ^2 (1, n=1308)= 74.1, p = <.001, OR= 7.56, 95% CI [4.46, 12.8]
Threatening someone to sext	1.3	1.5	1.2	χ^2 (1,n=1309)=.101, p =.751, OR= 1.19, 95% CI [0.41, 3.39]
Sexting coercion victimization	32.7	19.0	37.2	χ^2 (1, n=1298)= 37.5, p = <.001, OR= 2.52, 95% CI [1.86, 3.41]
Being pressured to sext	32.7	19.2	37.1	χ^2 (1,n=1312)=36.9, p = <.001, OR= 2.49, 95% CI [1.84, 3.36]
Being threatened to sext	3.4	0.9	4.4	χ^2 (1,n=1299)= 8.96, p =.003, OR= 5.06, 95% CI [1.56, 16.44]

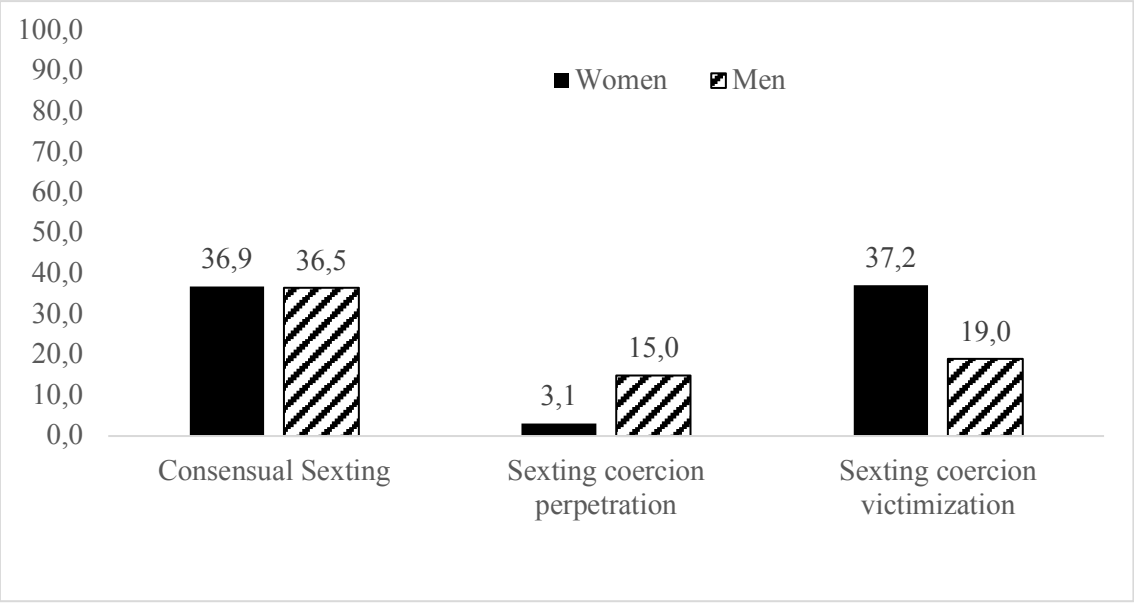

Figure 1. Prevalence of sexting behaviors by levels of consent and gender

Frequency of sexting behaviors, perpetration and victimization

We also examined the frequency of the measured sexting behaviors for both males and females, in order to see if there were any differences between the two groups. Results are shown in Table 3. Engaging in sexting appeared to be the most frequent behavior in both males and females, with prevalence rates decreasing as the frequency of the behavior

increased. With this, the most frequent form of engagement was creating and sending one's own sexual content 2-3 times in the last 12 months similarly for males (21.4%) and females (18.9%). For SCP, pressuring someone to sext showed higher engagement frequencies for both sexes than threatening someone to sext. With regards to gender differences, male participants reported to pressure someone more frequently than female participants ($p < .001$), with no differences between gender found for threatening someone to sext.

For the SCV, being victimized by being pressured to sext was frequent amongst both sexes, however, females were significantly more frequently pressured to sext than males ($p < .001$). With this, being pressured to sext 2-3 times in the past year was the most recurrent frequency of victimization for both male (10.9%) and female (23.2%). As for being victimized by being threatened to sext, overall frequencies are lower than for being pressured to sext. Females reported being more frequently threatened to sext than males ($p = .003$).

Table 3. Distribution of frequencies of sexting behaviors in percent for differing levels of consent by gender

	Women % (N=999)						Men % (N= 359)						Sig. Test (Mann-Whitney U-test)
	0	x1	x2-3	x1-2 month	x1-2 week	x1 day	0	x1	x2-3	x1-2 month	x1-2 week	x1 day	
Sexting													
Creating and sending nude or sexual imagery of oneself	63.1	7.3	18.9	7.3	3.3	0.1	63.5	7.0	21.4	4.9	2.9	0.3	z=.320, p =.749
Sexting coercion perpetration													
I have pressured someone to sext	97.7	1.1	0.9	0.1			85.4	6.4	7.3	0.6			z= -8.351, p = <.001[1]
I have threatened someone to sext	98.7	0.2	0.7	0.1	0.1	0.1	98.2	0.9	0.6				z= -.36, p = .972
Sexting coercion victimization													
Being pressured to sext	62.9	10.7	23.2	2.1	.7	0.4	80.8	6.5	10.9	1.2	0.6		z= 6.054, p = <.001[1]
Being threatened to sext	95.6	2.0	2.2	0.1		0.1	99.1	0.6	0.3				z= 3.000, p = .003[1]

Note: [1] : significant after Bonferroni adjustment for alpha inflation. The new alpha level after adjusting for 7 tests was .007.

Perpetrator-victim relationship

Furthermore, we wanted to examine who the participants sexted with, who they coerced and who they were coerced by. Our results are shown in Table 4. Our data shows that for sexting, participants sexted more frequently with their partners (30.8%), followed by their ex-partners (9.9%). For sexting coercion perpetration, out of our total sample, 2.2% pressured a friend, 3.7% pressured their partner and 1.2% pressured an internet acquaintance; 1% of the sample threatened their partner to sext, and .4% threatened a friend. With regards to sexting coercion victimization, our results indicate that 12.0% of the participants were pressured to sext by a friend, 11.1% by an internet acquaintance, 8.5% by their ex-partner and 7.4% by their partner. Finally, 1.4% of the sample was threatened to sext by a stranger, 1.2% by a friend and 1.0 by an ex-partner.

Table 4. Prevalence percentage of who they have victimized/been victimized by

	Friend	Partner	Ex-partner	Internet Acquaintance	Stranger
Consensual sexting					
Creating and sending nude or sexual imagery of oneself	5.2	30.8	9.9	4.9	.4
Sexting Coercion Perpetration					
Pressuring someone to sext	2.2	3.7	.8	1.2	.2
Threatening someone to sext	.4	1.0	0	.1	0
Sexting Coercion Victimization					
Being pressured to sext	12.0	7.4	8.5	11.1	4.6
Being threatened to sext	1.2	.6	1.0	.7	1.4

We were also interested in examining whether the receiver of the sexting action differed between male and female participants. For this reason, we conducted a Mann-Whitney U test in order to compare differences between male and female participants, with regards to whom it was more frequent to sext with or to be victimized by. Frequencies are laid out in Table 5. No significant difference were found between males and females when analyzing with whom they sexted more frequently, being in both cases most frequent to sext with their partner (p= .373). For SCP, significant differences were found between males and females: the person women reported pressuring the most to sext is their partner (2.5%), whilst males report pressuring more frequently a friend to sext (7.4%), followed by their partner (6.1%) (p <

.001). Furthermore, for SCV, significant differences were found between males and females in the level of acquaintance with the person who coerced them to sext. Females in our sample were most frequently pressured to sext by a friend (13.8%), followed by an internet acquaintance (12.9%), and males were equally pressured by their partner (5.9%) and by an internet acquaintance (5.9%) ($p < .001$). Finally, we found significant differences between males and females regarding who they were threatened by most frequently, with females being most frequently threatened to sext by a stranger (1.7%) followed by a friend (1.5%), and males being equally threatened by a stranger (.5%) and by a friend (.5%) ($p = .003$).

Table 5. Distribution of frequencies of receiver

	Women % (N=999)					Men % (N= 359)					Sig. Test (Mann-Whitney U-test)
	Friend	Partner	Ex-partner	Internet Acquaintance	Stranger	Friend	Partner	Ex-partner	Internet Acquaintance	Stranger	
Sexting											
Creating and sending nude or sexual imagery of oneself	5.0	30.8	10.6	3.7	.3	5.8	30.2	7.0	8.9	.8	z=-.891, *p* =.373
Sexting coercion perpetration											
I have pressured someone to sext	.2	2.5	.2	.2	.2	7.4	6.1	2.6	3.9	.4	z= -8.220, *p* = <.001
I have threatened someone to sext	.3	1.3	0	0	0	.5	0	0	.5	0	z= .275, *p* = .783
Sexting coercion victimization											
Being pressured to sext	13.8	7.5	9.6	12.9	5.0	5.5	5.9	5.0	5.9	3.6	z= 5.266, *p* = <.001
Being threatened to sext	1.5	.8	1.4	1.0	1.7	.5	0	0	0	.5	z= 2.984, *p* = .003

Association between Psychopathology and Sexting behaviors

We investigated the association between psychopathology and the different sexting behaviors by levels of coercion for the total sample and by gender. Results for the total sample are laid out in Table 6. Our results show that for the total sample, participants who engaged in sexting behaviors showed more global psychopathology and more depression than those participants who didn't engage in sexting (p = .004; p = .001, respectively*)*. Similarly, participants who pressured and/or threatened someone to sext also showed more global psychopathology and depression than those participants who didn't pressure and/or threaten someone to sext (p = .020; p = 005, respectively*)*. After Bonferroni adjustment for multiple testing these differences did however not meet the new alpha level threshold (adjusting for 27 tests, p = .002). However those students who were victims of SCV (being pressured and/or being threatened to sext) showed more presence of the three psychopathological measures than those students who were not victims of SCV (global psychopathology p = .001; depression p < .001; anxiety p = .001), which remained significant even after adjustment.

Table 6. Percentage of sample that met psychopathology threshold for absence and presence of different types of behavior or victimization

TOTAL SAMPLE			
	Sexting	**Sexting coercion perpetration**	**Sexting coercion victimization**
		IGS	
No	36.8	38.8	36.6
Yes	44.7	51.9	45.9
Sig. Test, OR	χ^2 (1, N= 1304)= 8.12, P= .004, OR= 1.39, 95% CI [1.11, 1.75]	χ^2 (1, n= 1290)= 5.41, p= .020, OR= 1.70, 95% CI [1.08, 2.67]	χ^2 (1, n=1282) = 10.27, p= .001[1] , OR= 1.47, 95% CI [1.16, 1.86]
		Depression	
No	26.4	28.5	25.8
Yes	35.1	43.2	37.4
Sig. Test, OR	χ^2 (1, n=1304)= 11.01, p= .001[1], OR= 1.50, 95% CI [1.18, 1.92]	χ^2 (1, N= 1290) = 7.87, P= .005, OR= 1.91, 95% CI [1.21, 3.01]	χ^2 (1, n= 1282) = 18.00, p< .001[1] OR= 2.75, 95% CI [2.11, 3.59]
		Anxiety	
No	48.1	48.8	46.1
Yes	51.5	54.3	56.3
Sig. Test, OR	χ^2 (1, n=1304) = 1.44, p= .230,	χ^2 (1, n=1290) = .926, p= .336, OR= 1.25, 95% CI [.79, 1.96]	χ^2 (1, n=1282) = 11.72, p= .001, OR=

	OR= 1.15, 95% CI [.92, 1.45]		1.42, 95% CI [1.12, 1.79]

MEN			
	Sexting	**Sexting Coercion Perpetration**	**Sexting Coercion Victimization**
		IGS	
No	41.3	41.0	43.0
Yes	46.0	54.0	45.3
Sig. Test, OR	χ^2 (1, N= 337)= .692, P= .405, OR= 1.21, 95% CI [.77, 1.89]	χ^2 (1, n= 333)= 2.94, p= .087, OR= 1.69, 95% CI [.92, 3.09]	χ^2 (1, n=329) = .110, p= .740, OR= 1.10, 95% CI [.63, 1.90]
		Depression	
No	33.8	34.3	35.8
Yes	38.7	42.0	35.9
Sig. Test, OR	χ^2 (1, n=337)= .823, p= .364, OR= 1.24, 95% CI [.78, 1.96]	χ^2 (1, N= 333) = 1.11, P= .292, OR= 1.39, 95% CI [.75, 2.56]	χ^2 (1, n= 329) = .000, p= .989, OR= 1.00, 95% CI [.57, 1.77]
		Anxiety	
No	47.9	49.1	49.4
Yes	53.2	56.0	56.3
Sig. Test, OR	χ^2 (1, n=337) = .893, p= .345, OR= 1.24, 95% CI [.80, 1.93]	χ^2 (1, n=333) = .805, p= .370, OR= 1.32, 95% CI [.72, 2.42]	χ^2 (1, n=329) = .958, p= .328, OR= 1.32, 95% CI [.76, 2.28]

WOMEN			
	Sexting	**Sexting Coercion Perpetration**	**Sexting Coercion Victimization**
		IGS	
No	35.2	38.2	34.0
Yes	44.5	50.0	45.9
Sig. Test, OR	χ^2 (1, N= 955)= 8.05, P= .005, OR= 1.47, 95% CI [1.13, 1.93]	χ^2 (1, n= 945)= 1.61, p= .205, OR= 1.62, 95% CI [0.76, 3.44]	χ^2 (1, n=942) = 13.29, p< .001[1], OR= 1.65, 95% CI [1.26, 2.16]
		Depression	
No	23.8	26.7	21.6
Yes	33.7	46.4	37.4
Sig. Test, OR	χ^2 (1, n=955)= 11.08, p= .001[1], OR= 1.63, 95% CI [1.22, 2.18]	χ^2 (1, N= 945) = 5.32, P= .021, OR= 2.38, 95% CI [1.12, 5.07]	χ^2 (1, n= 942) = 27.75, p < .001[1], OR= 2.17, 95% CI [1.62, 2.91]
		Anxiety	

No	48.1	48.9	45.0
Yes	51.3	53.6	56.4
Sig. Test, OR	χ^2 (1, n=955) = .767, p= .381, OR= 1.13, 95% CI [.87, 1.46]	χ^2 (1, n=945) = .242, p= .623, OR= 1.21, 95% CI [.57, 2.57]	χ^2 (1, n=942) = 11.44, p = .001[1], OR= 1.58, 95% CI [1.21, 2.06]

With regards to gender, no association was found between psychopathology and sexting by levels of coercion for male participants. For female participants, females who engaged in sexting showed more depression than females who did not engage in sexting (p = .001*)*. For SCP, which includes pressuring someone to sext and threatening someone to sext, there were, after adjusting for multiple testing, no differences in levels of psychopathology. For SCV, that is, for being victimized by being pressured and being threatened to sext, female participants who had been victims showed higher prevalence rates for all of the psychopathology measures: global psychopathology, depression and anxiety (p < .001*; p* < .001; p = .001, respectively) than females who had not been victimized.

As the Odd Ratio in Table 6 show, depression was most related to sexting coercion victimization, making it 2.75 more likely to be beyond the depression threshold for those who had been victimized than for those who hadn't, whilst those who perpetrated sexting coercion were 1.91 times more likely to meet the depression threshold, and those who only engaged in general sexting were 1.50 times more likely to make the depression threshold. That effect found for victimization was mainly driven by the female sample, who were 2.17 times more likely to reach the depression threshold after reporting being victims of sexting coercion than women who were not victimized. For women who were perpetrators, it was 2.38 times more likely to reach the depression threshold, whilst for men, there was no association between perpetrating sexting coercion and psychopathology.

Discussion

Up to date research shows that consensual and voluntary sexting is becoming part of normal sexual expression (Döring, 2014; Van Ouytsel, Walrave, Lu, Temple & Ponnet, 2018). However, sexting coercion has been associated with different types of victimization and is understood by many authors to be a risky behavior as it increases the chances of suffering sexual victimization (Agustina & Gómez-Durán, 2016; Döring, 2014; Villacampa, 2017). We hypothesized that the association between mental health and sexting coercion would

differ depending on whether it was a perpetration or victimization behavior, and that we would find gender differences.

Overall, our results showed that 37.1% of our sample engaged in sexting without finding any differences between males and females. These results are in line with Englander's (2012), who found that 30% of her sample had sent sexting content, and with Klettke et al., (2019) who did not find significant differences between male and female for sending sexts. However, our prevalence rate is slightly lower than most rates found in the literature in similar samples: Drouin et al., (2015) found that 47% of their adolescents' sample had send a sexting picture in the past year, Hudson & Fetro (2015) found that 48.5% of undergraduate students were engaging in sexting behaviors at the time they were questioned.

With regard to sexting coercion victimization, our results indicate that females have a higher prevalence of being victimized than men, both by being pressured and by being threatened to sext. They are also victimized on more occasions than men. Ross et al., (2016) previously reported that females were more likely to be coerced into sexting than males, and Englander (2012) referred that females were more likely to report being pressured to sext than males, however she argues that this difference is explained because females have a higher reporting rate than males, and not due to real differences in sexting activities. Research has shown that teenage and undergraduate female students experience more pressure than males to create and send sexting content (Englander, 2015; Jasso et al., 2018) and suffer more victimization from revenge porn from their partners or ex-partners than males (Branch et al., 2017). Finally, a recent study carried out by Kernsmith et al., (2018) showed that girls were 1.69 times more likely to suffer sexting coercion victimization than boys.

On the other hand, sexting coercion perpetration data is very scarce up to date. Our results showed that males were significantly more likely to pressure someone to sext than females, in line with Kernsmith et al., (2018), who found that boys were significantly more likely to pressure a partner to sext than girls. Although most literature hasn't looked at the prevalence of sexting coercion perpetration, some studies have looked at sexting coercion as part of intimate partner violence in opposite-sex relationships (Drouin et al., 2015), and they have found that females are more victimized than males. These data would be consistent with offline sexual victimization results, that suggest that university male students engage more in perpetration behaviors than females (Gámez-Guadix, Straus & Hershberger 2011; Hines & Saudino, 2003).

Furthermore, our results regarding frequency of behaviors show that for both sexting coercion perpetration and sexting coercion victimization pressuring someone/being

pressured to sext showed higher engagement frequencies for both genders, than threatening someone/being threatened to sexts. These results would be predictable, since we would expect that as the severity of the behavior increases, frequency of occurrence decreases. Similar results were found by Gámez-Guadix, Almendros, Borrajo & Calvete (2015), who found lower prevalence rates for more severe forms of online sexual victimization (i.e. threatening someone to maintain sexual intercourse), versus higher prevalence rates for less severe forms of online sexual victimization (i.e. insisting you send erotic information about yourself).

With regards to the receiver/perpetrator of the different sexting behaviors, most research informs about sexting coercion as part of a romantic partner dynamic. Our results indicated that in sexting, the most frequent receiver of the sexts is a partner. Moreover, our data suggests that in sexting coercion perpetration it is more frequent to pressure and threaten a partner to sext, than other people such as a friend, an ex-partner or a stranger. These results would support previous findings in which authors categorize sexting coercion as a form of intimate partner violence, or digital dating abuse (Drouin et al., 2015; Reed, Tolman & Ward, 2016; Ross et al., 2016). However, our data indicates that in sexting coercion victimization, university students are more frequently victimized by a friend, a stranger or an internet acquaintance than by a partner or ex-partner. These results suggest that SCP and SCV might be related to intimate partner violence, but they can also be part of other forms of cyber abuse, such as cyberbullying, cyber harassment, revenge porn or sextortion.

Finally, Krieger's (2016) and Klettke et al., (2019)'s results support that consensual sexting and non-consensual sexting have different outcomes, as only unwanted and non-consensual sexting was associated with poorer mental health, but not consensual sexting. In our total sample, sexting, sexting coercion perpetration and sexting coercion victimization were all associated with higher psychopathology prevalence rates for all three measures (global psychopathology, depression and anxiety), than the prevalence rates found for participants who did not sext, did not coerce anyone into sexting and were not coerced to sext. One of the reasons for these findings might be due to the fact that when we asked participants if they had created and sent their own sexual content we did not specify it had to be voluntarily, so some of the female participants who responded affirmatively to being pressured to sext might be the same ones who responded affirmatively to creating and sending their own sexual content. This would explain why in our study female participants showed an association between sexting and poorer mental health but male participants did not.

Moreover, our results regarding a significant association between sexting and poorer mental health confirm previous literature. A significant association between depressive symptoms and sexting in teenagers was found by Temple, Le, Van Den Berg, Ling, Paul & Temple (2014), but the relation was not significant once they controlled for previous sexual behaviors. Englander's (2012) results indicate that teenagers who engaged in sexting were less likely to have depression-related issues, but more likely to have anxiety-related problems; by contrast, Van Ouytsel, Van Gool, Ponnet & Walrave (2014)'s findings point towards a significant relation between depressive symptoms and engagement in sexting behaviors among adolescents. Gámez-Guadix & De Santisteban (2018) in their longitudinal study found that Depression at T1 predicted for Sexting at T2, and Frankel et al., (2018) found a significant association between consensual sexting and depressive symptoms, suicide attempts and suicidal behaviors, even though depressive symptoms were more prevalent in adolescents who had reported non-consensual sexting.

Despite the association found between the three sexting forms of behavior and poorer mental health for the total sample, results reported by our male sample reveal that neither of the sexting behaviors (sexting, SCP and SCV) are associated to poorer mental health. On the other hand, data from our female sample indicates a strong and significant relation between all three forms of sexting behaviors (sexting, SCP and SCV) and poorer mental health. Females engaging in sexting reported more global psychopathology and more depression than those female students who did not engage in sexting; females who reported having coerced someone into sexting showed more depression than their colleagues who did not coerce someone into sexting, and female students who had been victims of sexting coercion suffered from more global psychopathology, depression and anxiety than those who had not been coerced. Finally, although all three forms of sexting behavior showed a significant association with poorer mental health, sexting coercion victimization showed a stronger correlation with psychopathology symptoms than sexting and sexting coercion perpetration. Our findings are consistent with previous literature, which suggests a clear association between sexting coercion, anxiety and depression (Drouin et al., 2015; Klettke et al., 2019; Ross et al., 2016), but they differ from Klettke et al., (2019)'s, as they found that receiving unwanted sexts was more strongly related to psychological distress for males than for females, and from Drouin et al., (2015)'s, as they found a significant relation between sexting coercion, anxiety, depression and trauma for both males and females.

The most frequent and most strongly correlated mental health outcome was depression in our sample, given that it was present in female who engaged in sexting, in sexting-coercion

perpetration, and who were victims of sexting coercion victimization. The cross-sectional nature of this study does not allow for causal relationship conclusions, so these data might be explained by different arguing lines. A reason why depression might be related to sexting coercion for females is that perhaps they are depressed because of the coercion or related victimization experiences. However, another explanation could be that females who suffer from depressive symptoms might lack coping strategies and might be more vulnerable when they are pressured by their peers to create and send sexual content, resulting in a higher engagement in coercive sexting (Barrense-Dias et al., 2017). Gámez-Guadix & de Santisteban (2018) argued that adolescents who were depressed tended to engage more in sexting behaviors; they suggested that teenagers with depressed mood could be using sexting behaviors as a way to get attention, or, that suffering from depression might reduce their negotiating skills and coping strategies in front of pressure or coercion to sext. The negative consequences of these behaviors are intimately related with gender, since females experience more negative outcomes due to gender myths and traditional expectancies regarding sexual norms for females in particular (Henry & Powell, 2015). A qualitative study regarding emotional and mental health outcomes of non-consensual dissemination of intimate images in revenge porn carried out by Bates (2017) revealed a higher presence of posttraumatic stress disorder, anxiety, depression and suicidal ideation in females, finding similar consequences to physical sexual aggressions.

Our results showed that males engage significantly more in sexting coercion perpetration and females are more victims of sexting coercion. This data suggests that current existing protocols and educational programs might not be useful in terms of reducing sexting coercion prevalence or gender myths, and it indicates that new prevention and intervention programs should target young females as victims and young males as perpetrators. It has also been suggested that for females, the sharing of their sexual content might be experienced as a type of violation or victimization, causing more fear and distress, whilst in men, the sharing of their sexual content might be seen as a reflection of their sexual desirability or masculinity (Drouin et al., 2015), meaning that specifically for young females it might be useful to have explicit information on the topic of sexting coercion, as part of broader educational programs (Ross et al., 2016).

Lastly, our study reveals that sexting coercion should not only be considered as a manifestation of intimate partner aggression, but also as form of cyber abuse, since our findings show that sexting coercion victimization is not perpetrated most frequently by a partner or ex-partner, but by a friend or a stranger, indicating that prevention strategies should

not only alert about the dangers of intimate partner aggression or digital dating abuse, but also about the risks of engaging in these behaviors with anyone online.

We strongly believe our results are useful, as they highlight mental health issues in females who experience both sexting and sexting coercion. This information should be integrated into existing sex education programming, helping them to adhere to their own sexual boundaries, and inclination toward sexting should be considered a signal of the need for differential prevention programming. Further, educational and healthcare authorities should develop accessible and timely mental health referral paths for youths who engage in sexting behaviors of any kind and show signs of suffering, particularly females.

Limitations and discussion on diversity

This study has several limitations that should be taken into account when interpreting the results. First, the sample used was non probabilistic and comprised of only adult university students, rather than the general population, so generalization of results should be cautiously done. Second, this study is cross-sectional, and not longitudinal, so no temporal relations 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 other, clinically validated, mental health instruments. Further research should explore the temporal association between psychopathology and sexting coercion, and should look into the motivations of perpetrators in order to further understand the dynamic of online sexual coercion.

For the purpose of this research a national Spanish university sample was used. When taking the survey, participants were asked to answer questions regarding their age, their gender (male/ female) and their civil status (single, partner, married, divorced or widow). As a limitation, we did not ask participants to answer questions on sexual orientation or gender identity and did not take into account differences between homosexual and heterosexual groups. This issue should be addressed in further research, as some research on sexting has established that homosexual and heterosexual participants tend to engage differently in sexting behaviors. Furthermore, we did not ask participants directly about their socioeconomic status. However, we surveyed who they lived with (parents, friend, on-campus) and their employment situation (no job, part-time job, full-time job). The results regarding sociodemographic variables can be found in Table 1. Race and religion were aspects that we did not consider and thus they were not asked about. Finally, this body of research revolves around gender differences, taking only into account males and females. We

did find significant differences between males and females with regards to their engagement in sexting behaviors, their role as coercion perpetrators and as coercion victims, and there were also gender differences in mental health outcomes. According to our data, future research should use gendered studies for developing useful and specific prevention programs, since results strongly suggest differences in sexting, SCP and SCV engagement and mental health correlates.

Conclusions

In conclusion, to our knowledge this is the first study to examine the association between sexting, sexting coercion perpetration, sexting coercion victimization and mental health correlates by gender, and our results contribute to a deeper understanding of how young adults relate to different sexting behaviors and how they are associated to negative outcomes such as poorer mental health. Our findings support previous literature that suggests that male and female relate differently to sexting behaviors, and they demonstrate a clear association for females between all sexting behaviors and poorer mental health, but especially, for sexting coercion victimization. Furthermore, they contribute into evidencing that sexting coercion might not only be a manifestation of digital dating abuse, but also a form of sexual victimization or cyber abuse that needs to be addressed as an independent entity. We consider our findings to be of interest since they can be useful when designing prevention and intervention strategies for the educational communities and mental health authorities.

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4.4 Article 4. Psychopathological profile of sexting coercion perpetrators
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Psychopathological profile of sexting coercion perpetrators

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Abstract: Introduction: In the past years, research regarding sexting behaviors and online sexual victimization has been rapidly growing, with literature examining the social, legal, psychological and psychopathological consequences of being coerced into sexting. However, up to date, there is little evidence exploring the psychopathological profile of sexting coercion perpetrators. The aim of this study was to examine differences in the psychopathological profile of sexting coercion perpetrators vs non-perpetrators, and, additionally, examining sex differences. Methods: The original sample comprised 1370 college students (including 74% females, mean age= 21.40). The non-perpetrator subsample comprised 1247 participants (76% females, mean age 21.39) and the sexting coercion perpetration subsample comprised 75 participants (30% females, mean age= 21.38). Results: data indicated significant differences in the psychopathological profile between perpetrators and non-perpetrators, with the first group showing higher scores for different psychopathology scales. When examining sex differences intragroup, results showed significant differences between perpetrator males and non-perpetrator males for scales related with dysfunctional attachment, anger, frustration and social skills. Significant differences between female samples were only found for hostility. Finally, no differences were found between sexting coercion perpetrator males and females, with both groups showing similar psychopathological profiles. Conclusions: People who engaged in sexting coercion perpetration show a different psychopathological profile than those who did not report coercing someone into sexting, however, males and females coercers show similar

psychopathological profiles. Further results and implications regarding psychopathological differences between examined groups are discussed.

Key words: Sexting, sexting coercion, online sexual victimization, psychopathology, perpetrators, profile

Resumen: Introducción: En los últimos años, la investigación sobre sexting y victimización sexual online ha ido incrementado rápidamente, con literatura que examina las consecuencias sociales, legales, psicológicas y psicopatológicas de la victimización causada por el sexting coercitivo. A pesar de ello, hasta la fecha no hay estudios empíricos que hayan examinado el perfil psicopatológico de los perpetradores de sexting coercitivo. El objetivo de este estudio ha sido examinar las diferencias en el perfil psicopatológico de los perpetradores de sexting coercitivo vs los no-perpetradores, y, adicionalmente, examinar las diferencias entre sexo. Métodos: La muestra original estaba compuesta por 1370 estudiantes universitarios (74% mujeres,media de edad= 21.40). La submuestra de no-perpetradores estaba compuesta por 1247 participantes (76% mujeres, media de edad= 21.39) y la submuestra de perpetradores de sexting coercitivo se compuso por 75 participantes (30% mujeres, media de edad= 21.38). Resultados: Los resultados indican diferencias significativas entre los perfiles psicopatológicos de los perpetradores y los no perpetradores de sexting coercitivo, con los del primer grupo obteniendo puntuaciones mayores en las diversas escalas psicopatológicas. Cuando se examinaron las diferencias por sexo intragrupo, los resultados mostraron diferencias significativas entre hombres perpetradores y hombres no perpetradores para las escalas relacionadas con el apego disfuncional, la ira, la frustración y la ausencia de habilidades sociales. Entre mujeres perpetradoras y no perpetradoras, solo se encontraron diferencias significativas en la escala de hostilidad. Finalmente, no se encontraron diferencias significativas entre perpetradores hombres y mujeres, indicando que ambos grupos presentan perfiles psicopatológicos similares. Conclusiones: Las personas que han perpetrado sexting coercitivo presentan un perfil psicopatológico distinto a las personas que no han sido perpetradoras, sin embargo, los perpetradores hombres y mujeres presentan perfiles psicopatológicos similares. Resultados ampliados y las implicaciones de los mismos se discuten en más detalle en el artículo.

Palabras clave: sexting, sexting coercitivo, victimización sexual online, psicopatología, perpetradores, perfil

Introduction

As smartphones and the Internet keep increasing their presence into our everyday lives, social interaction is being transferred to the online world, including online sexual interactions. In the past few years, sexting has become a common form of online sexual interaction, known as creating, sending and/or forwarding nude or sexually explicit images or videos through any electronic device[1, 2].

Sexting is considered by some authors as a threshold for victimization, and different types of cyber-victimization behaviors such as revenge porn, non-consensual dissemination of sexting, image-based sexual abuse or cyberbullying, have been associated with sexting engagement, especially with sexting coercion[3, 4, 5, 6, 7, 8, 9, 10, 11,]. Sexting coercion is understood as the use of coercive tactics to solicit sexually explicit photos and videos from someone[9].

Englander[4] showed that 70% of her college student sample was pressured to sext. It has been reported that 1 out of 5 young adults are victims of sexting coercion by their current partner or most recent partner[8]. With regards to gender, a study carried out with 885 undergraduate students reported that women were more likely to be coerced into sexting that men[9]. These results are in line with Englander[12], who referred that females were more likely to report being pressured to sext than males. Research has shown that women experience more pressure than men to create and send sexting content and suffer more victimization from revenge porn from their partners or ex-partners than men[4, 5, 13]. In Spain, it has been reported that approximately 28.2% of adults have been pressured to sext, with females significantly being more pressured to sext than males[14]. Results using adolescent samples are in line with previous research[15].

With regards to online sexual behavior perpetration, there is scarce literature on general online sexual behavior perpetration and, up to date, there are few studies examining sexting coercion perpetration. Examining general online sexual behavior perpetration, in a sexting study of American adults aged between 21 and 75 years (n=5.805), Garcia et al.[16] found that more than one in five participants (23%) reported sharing a 'sexy' photo with someone else without consent. Another recent study carried out in Australia with 4053 participants showed that 11% of their sample had reported engaging in image-based sexual abuse perpetration[17]. Results indicated that men were significantly more likely to report IBSA perpetration than women. With regard to the nature of perpetration, participants reported targeting men and women at similar rates, and were more likely to report perpetrating against intimate partners or ex-partners, family members and friends than strangers or acquaintances[17]. Findings also

suggested that participants who had been victims of online sexual victimization were also more likely to report engagement in perpetration behaviors[17]. Finally, a recent study carried out in Spain reported that 6.4% of participants had engaged in sexiting coercion perpetration, with males being 7 times more likely to be perpetrators than females[18]. Other studies examining adolescent samples indicated similar rates of online sexual behavior perpetration [15, 19].

Furthermore, sexting and sexting coercion have been linked to depression, cyber victimization, feelings of sadness, suicide attempts, or anxiety [12, 13, 20, 21]. Klettke and colleagues[2] reported that consensual but unwanted sexting (i.e. people who do not want to sext but consensually do it anyway) and sexting coercion are related to mental health issues, but not to consensual sexting, which has been supported by other studies [8, 9, 22].

Up to date, most research on sexting coercion has measured mental health correlates of sexting coercion victimization. However, there is scarce data regarding the psychopathological profile of sexting coercion perpetrators. We hypothesize that the psychopathological profile of participants who have coerced others into sexting will differ from the profile of participants who have not coerced others into sexting. Thus, the aim of this study was to analyze the psychopathological profile of sexting coercion perpetrators and non-perpetrators.

Materials and methods

Participant

The total sample recruited for the research comprised 1,370 Spanish college students (both undergraduate and postgraduate students, such as Master students), including 999 women (73.6%) and 359 men (26.2%). Ages ranged from 18 to 64 years old, with a mean age of 21.40 years (SD = 4.90).

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, it included information about the nature and objectives of the study at the beginning of the questionnaire and informed consent was collected explicitly. 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, and no compensation was offered for participating. 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. The same online survey included all of the instruments mentioned in the following section.

Instruments

Sexting coercion perpetration. We created a Sexting Scale based on the JOV-Q (Montiel & Carbonell, 2012) to assess different sexting behaviors. For the purpose of this study, only sexting coercion items were analyzed. We assessed sexting coercion perpetration by asking participants how many times they had pressured someone to sext in the past year. The question was formulated in the following way: "I have pressured someone to send me their sexual content". This then was recoded as yearly prevalence (Yes, at least once in the past year/ No, never engaged in this behavior in the past year).

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-R. This instrument consists of 50 items that assess psychopathological symptomatology. Responses to the items were collected on a 4-point Likert scale (0= never and 4= extremely). 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[23].

Statistical analysis

All analyses were conducted using IBM SPSS V.25. Intergroup and intragroup differences in psychopathology scores were calculated using *t student* analysis.

Results

Out of the total sample (N= 1370) 5.7% of participants perpetrated sexting coercion (n=75). Of those participants who were sexting coercion perpetrators, 66.7% (n=50) were males, 29,3% were females (n=22), and 3 participants did not disclose their sex, and thus were excluded from the analyses. Ages ranged from 18 to 55 years old, with a mean age of 21.38 years (SD = 4.75).

Results from comparing sex, age and the means of the psychopathology scores between participants who had not pressured someone to sext and those who had perpetrated sexting coercion are shown in Table 1. Males were significantly more likely to perpetrate sexting coercion, but no differences were found regarding age. Overall, sexting coercion perpetrators reported higher psychopathology scores in all of the measured items than non-perpetrators,

with results showing significant differences in the mean scores of psychoreactivity, hypersensitivity, hostility, somatization and depression.

Table 1
Means and SD for psychopathology scores of the total sample

Demographic Variables	Non-perpetrators (N= 1247; 94.3%)	Sexting Coercion Perpetrators (n= 75; 5.7%)	Sig. Test
Gender	48 sex not reported	3 sex not reported	
Male	359; 23.40 %	50; 66.7%	p=.000, OR = 7.36, CI 95% [4.39, 12.36]
Female	999; 75.90 %	22; 29.3%	
Age	M= 21.39 (Sd= 4.73)	M= 21.38 (Sd= 4.75)	t(.199)= .012, p= .990
Psychopathological profile			
Psychoreactivity	74.96 (Sd= 35.40)	82.10 (Sd= 18.92)	t(4.00)= -2.93, p= .004
Hypersensitivity	70.53 (Sd= 28.11)	78.63 (Sd= 20.25)	t(10.92)= -3.24, p= .002
Obsessive-compulsive	76.78 (Sd= 22.14)	81.82 (Sd= 19.20)	t(3.33)= -1.90, p= 0.57
Anxiety	75.21 (Sd= 32.02)	78.71 (Sd= 22.57)	t(.224)= -.92, p= .357
Hostility	65.95 (Sd= 23.01)	73.62 (Sd= 23.50)	t(.000)= -2.76, p= .006
Somatization	60.29 (Sd=25.99)	66.79 (Sd= 25.79)	t(.089)= -2.08, p= .038
Depression	57.70 (Sd= 28.97)	71.14 (Sd=25.24)	t(4.31)= -4.38, p= .000)
Sleep alteration	55.77 (Sd=27.49)	61.52 (Sd= 26.97)	t(.201)= -1.74, p=.083

When analyzing differences by sex, results showed significant differences between male perpetrators and non-perpetrators. Specifically, men who had coerced someone into sexting showed higher psychopathology scores for hypersensitivity, obsessive-compulsive symptoms, hostility and depression than men who denied coercing someone into sexting. For women, significant differences between the two samples were only found for hostility scores. Results are shown in table 2.

Table 2
Means and SD for psychopathology scores of the total sample by sex

	MEN		
Demographic Variables	Non-perpetrators (N= 285)	Sexting Coercion Perpetrators (N= 49)	Sig. Test
Psychopathological profile			
Psychoreactivity	76.69 (Sd= 57.75)	82.98 (Sd= 18.51)	t(1.84)= -.754, p= .451
Hypersensitivity	69.79 (Sd= 23.15)	77.53 (Sd= 20.25)	t(4.26)= -2.53, p= .014

Obsessive-compulsive	75.74 (Sd= 23.01)	83.18 (Sd= 18.24)	t(4.57)= -2.53, p= 0.13
Anxiety	74.08 (Sd= 22.92)	79.06 (Sd= 21.21)	t(1.94)= -1.42, p= .357
Hostility	64.71 (Sd= 24.15)	72.20 (Sd= 24.50)	t(.026)= -2.00, p= .046
Somatization	60.74 (Sd=26.57)	64.98 (Sd=26.92)	t(.084)= -1.03, p= .304
Depression	61.33 (Sd= 29.13)	72.88 (Sd= 22.38)	t(11.69)= -3.18, p=.002
Sleep alteration	62.43 (Sd=26.32)	64.43 (Sd=25.91))	t(.810)= -.492, p=.623

WOMEN

Demographic Variables	Non-perpetrators (N= 1247)	Sexting Coercion Perpetrators (N= 75)	Sig. Test
Psychopathological profile			
Psychoreactivity	74.45 (Sd= 24.91)	80.24 (Sd= 20.96)	t(.816)= -1.06, p= .291
Hypersensitivity	70.80 (Sd= 29.48)	80.43 (Sd= 23.54)	t(2.25)= -1.49, p= .138
Obsessive-compulsive	77.15 (Sd= 21.90)	79.62 (Sd= 22.12)	t(.005)= -.511, p= .609
Anxiety	75.76 (Sd= 34.27)	81.05 (Sd= 22.58)	t(0.17)= -.704, p= .482
Hostility	66.35 (Sd= 22.72)	76.95 (Sd= 22.35)	t(.557)= -2.12, p= .035
Somatization	60.19 (Sd=25.80)	70.81 (Sd= 23.78)	t(.900)= -1.87, p= .062
Depression	56.66 (Sd= 28.79)	68.67 (Sd=30.82)	t(.765)= -1.89, p= .059
Sleep alteration	53.61 (Sd=27.53)	55.67 (Sd= 29.22)	t(.330)= -.339, p= .735

Finally, when comparing within the sexting coercion perpetrator sub-sample by sex, no significant differences have been found between male and female perpetrators. Results are shown in Table 3.

Table 3
Means and SD for psychopathology scores of sexting coercion perpetrators by sex

Demographic Variables	Men (N=49)	Women (N=21)	Sig. Test
Psychopathological profile			
Psychoreactivity	82.98 (Sd= 18.51)	80.24 (Sd= 20.96)	t(1.95)= -.546, p= .587
Hypersensitivity	77.53 (Sd= 19.19)	80.43 (Sd= 23.54)	t(.463)= -.540, p= .591
Obsessive-compulsive	83.18 (Sd= 18.24)	79.62 (Sd= 22.12)	t(1.33)= -.702, p= .485
Anxiety	79.06 (Sd= 21.21)	81.05 (Sd= 22.58)	t(.180)= -.352, p= .726

Hostility	72.20 (Sd= 24.50)	76.95 (Sd= 22.35)	t(1.29)= -.762, p= .449
Somatization	64.98 (Sd=26.92)	70.81 (Sd= 23.78)	t(.622)= -.859, p= .394
Depression	72.88 (Sd= 22.38)	68.67 (Sd=30.82)	t(7.70)= .565, p= .576
Sleep alteration	64.43 (Sd=25.91)	55.67 (Sd= 29.22)	t(1.21)= 1.25, p= .216

Discussion

Literature has shown that sexting and sexting coercion victimization are associated with depression, feelings of sadness, suicide attempts, or anxiety[12, 13, 20, 21]. However, so far no data has been reported on the association between sexting coercion perpetration and psychopathology. To our knowledge, this is the first study to compare the psychopathological profile of sexting coercion perpetrators and non-perpetrators, further assessing differences by sex.

Our results confirmed the hypothesis that the psychopathological profile of participants who had coerced others into sexting would differ from the profile of participants who had not coerced others into sexting. Thus, results from comparing the psychopathological profile of non-perpetrators and sexting coercion perpetrators showed significant differences between both groups, with perpetrators reporting higher scores on all of the measured scales and significantly higher scores in psychoreactivity, hypersensitivity, hostility, somatization and depression, although they do not necessarily reach the diagnostic threshold for mental health disorders. According to Abuín & Rivera[23], higher scores in psychorreactivity, hypersensitivity, obsessive-compulsive symptoms and hostility correlate positively with dysfunctional attachment, which could explain why participants with higher scores on those scales are the ones who have coerced others into sexting. Specifically, higher scores in psychorreactivity and hypersensitivity reflect mental and emotional distress due to vulnerability related with one-self and with others[23], meaning that people who score high on this scale might have trouble establishing adaptative relationships with others. It has been previously suggested that poorer social skills might be associated with problematic internet use[24] , and that people who find it hard to establish relationships with others might find it easier to perform sexual activities online[25], thus increasing the risk of becoming a perpetrator. This could also be related with higher depression scores, as previous research has found an association between sexting and depression, with results showing that people who are depressed engage more in sexting than those who are not depressed, probably because they need attention for others[25]. Following this line of reasoning, it could also be that those who

show higher depression scores have less social skills, and end up pressuring someone to send them a sext. Additionally, higher scores in hostility indicate cholera and both verbal and non-verbal anger[23]. Anger might also be a triggering emotion for sexting coercion, since people who might start off as "just" asking for sexual content, might end up pressuring the victim as a frustrated response to rejection. These results are in line with previous literature, which found that males perpetrate sexual coercion more frequently than females, and that sexual coercion in both sexes was associated with antisocial traits and behaviors[26].

When analyzing intergroup sex differences, results showed significant differences both in males and females. For the male participants, results showed that men who had coerced someone into sexting reported significantly higher scores for hypersensitivity, obsessive-compulsive symptoms, hostility and depression. These results would again be supported by the idea that these scales are related with dysfunctional attachment[23], and that people in general, and men in particular, might engage in sexting coercion perpetration as a result of frustration, anger and a lack of social skills, in line with previous research[26]. Although the psychopathological profile could be considered similar, male sexting coercion perpetrators did not differ in psychoreactivity and somatization, which was significant for the general comparison between sexting coercion perpetrators and those who had not coerced others. Yet, according to our results, those men who perpetrate sexting coercion scored significantly higher regarding obsessive-compulsive symptom. It has been previously reported that internet sexual offenders are lonelier and more obsessive-compulsive than physical sexual offenders[27].

Regarding female samples, results are different. Female participants from both groups only differed in hostility scores, with female perpetrators reporting higher scores in this scale than non-perpetrators. Previous research has found that female sexual offenders report higher scores for dominance and aggression[28]. These results might indicate that anger-related issues are preeminent for female engagement in sexting coercion perpetration, whilst more complex psychological variables would be modulating male sexting coercion perpetration. Furthermore, when comparing sex differences within the sexting coercion perpetrator group, results indicate that there are no significant differences in psychopathology scores between males and females. These results indicate that sexting coercion perpetration might be sex-related in terms of prevalence (males are more likely to be perpetrators than females), but that perpetrators share a similar psychopathological profile independently of their sex. Our results regarding similarities between sexting coercion perpetrators, no matter their sex, and about hostility-based differences between females who coerced and those who did not, differ

with previous knowledge about sex-related differences in offenders. It has been reported that prevalence of psychopathological conditions is higher among female offenders[29]. Nevertheless, it has also been previously highlighted that there is significant heterogeneity amongst the population of female sexual offenders. According to our results, a gender-specific approach should be made the rule not only for victims but also for offenders.

This study has several limitations that should be considered when interpreting the results. First, the sample used was non-probabilistic and relied on self-reported data, and the sample was composed of only university students, rather than the general population, so generalization of results should be cautiously done. In this sense, the sample used was self-selected using an online survey, which would explain why the total sample is unbalanced regarding female and male participants. Furthermore, it should be taken into account that the subsample of sexting coercion perpetrators was small (n= 75) thus some of the findings might not be extrapolable, due to the small size of the sample. Additionally, the sexting coercion perpetration was measured by a direct question, which can create defensivity and rejection to answer the question with openness and honesty. Finally, this study is a cross-sectional investigation, and not longitudinal, so no temporal relationships can be established between the examined variables.

Conclusions

In conclusion, we believe this to be the first study examining the psychopathological profile of sexting coercion perpetrators, and examining sex differences between and within samples. We hypothesized that the psychopathological profile of participants who had coerced others into sexting would differ from the profile of participants who had not coerced others into sexting and our results confirm our hypothesis. Overall, significant differences were found between both groups, with sexting coercion perpetrators showing higher psychopathology scores for all of the scales related to interpersonal and social vulnerability, and attachment dysfunctionality, which might explain why they become perpetrators of such behavior. Yet, hostility scores were also significantly higher. Furthermore, significant differences in sex were found intergroup, with male perpetrators showing higher psychopathology scores than non-perpetrators, with the same scales as the total sample, again reinforcing the idea that anger, frustration, dysfunctional attachment and lack of social skills might be modulating variables for sexting coercion perpetration. However, significant differences between the female samples were only found for hostility, suggesting anger-related motivation in sexting

coercion by women. Finally, when examining sex differences between sexting coercion perpetrators, results indicate that male and female perpetrators have similar psychopathological profiles. These overall results contribute to a deeper understanding of sexting coercion dynamics in the adult population, and more specifically, of sexting coercion perpetration. These findings should be taken into consideration when designing prevention and intervention strategies, for the educational community and mental health practitioners. When interacting with young men with psychopathological symptoms, dysfunctional attachment or lack of social skills and both men and women with high hostility, mental health professionals should inquire about online sexual perpetration experiences and the engagement in sexting behaviors. Further research should also explore the reasons for these psychopathological differences and what additional factors might be influencing psychopathological differences in sexting coercion perpetration practices.

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5. Discussion

The general aim of this doctoral dissertation was to study sexting and online sexual victimization behaviors amongst a Spanish college sample, and their association with psychopathology. In order to do that, we measured different sexting behaviors divided into two categories:

1. Active sexting (refers to all of the behaviors where the person actively engages in sexting-related behaviors)
    a. Creating and sending sexts
    b. Creating and sending someone's sexts
    c. Forwarding someone's sexual content
    d. Pressuring someone to sext
    e. Threatening someone to sext
2. Passive sexting (refers to all of the behaviors where the person passively gets involved in/is victimized by sexting related-behaviors)
    a. Receiving sexts
    b. Being a victim of non-consensual dissemination of sexting
    c. Being pressured to sext
    d. Being threatened to sext

The discussion will be laid out following the order of categorization of sexting behaviors.

5.1 Sexting prevalence

Overall, our results suggested that prevalence rates are higher for non-victimizing sexting behaviors (i.e. creating and sending own sexual content) than for victimizing behaviors or perpetration behaviors, and, no significant differences were found between male and female engagement rates for sending sexts. For those behaviors included under sexting coercion perpetration (i.e. having pressured someone to sext and having threatened someone to sext), lower prevalence rates were reported in comparison to non-aggressive sexting behaviors, in line with other literature that suggests that coercive forms of sexting are less prevalent than non-coercive sexting behaviors (Walker et al., 2019), and significant sex differences were reported, with males showing higher engagement rates than females. For those behaviors included under sexting coercion victimization (i.e. being pressured to sext and being threatened to sext), significant sex differences were found, with victimization being more prevalent amongst females than males. Overall, our results on prevalence rates showed that sexting coercion, specially more severe forms, are less frequent than normative non-victimizing sexting behaviors, and that sexting is most likely a gender-based phenomenon, similar to other sexual behaviors.

This investigation had various specific objectives, and this section, organized by subheadings of the different kinds of sexting behaviors, aims at giving response to the following ones: to determine the prevalence of sexting behaviors among a Spanish college sample and to determine the prevalence of online sexual victimization and perpetration among a Spanish college sample

5.1.1 Active sexting prevalence

In general terms, our results regarding active sexting prevalence are in accordance with previous research. Thus, scientific literature reports similar rates of sending sexts between males and females, which was confirmed by our results. However, for any other kind of active sexting (forwarding sexts, pressuring someone to sext and threatening someone to sext) males consistently report higher frequencies of these behaviors, both in previous literature and in our research.

5.1.1.1 Sending sexts

More specifically, results from the preliminary study suggested that 30.9% of the total sample had created and sent their own nude imagery or sexual content at least once, similar to the results obtained in the full-sample analysis (37.1% of participants had created and sent nude images of themselves to someone). These findings are consistent with 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 and Weisskirch, 2013; Gordon-Messer et al., 2013; and AP-MTV, 2009). However, it is slightly lower to other reported prevalence rates. Drouin et al. (2015) found that 47% of their sample had send a sexting picture in the past year, Hudson & Fetro (2015) found that 48.5% of participants were engaging in sexting behaviors at the time they were questioned, and Gámez-Guadix et al. (2015) found that 66.8% of their adult Spanish sample had engaged in sexting at least once in their lifetime. Results from authors that report higher frequencies can be explained by their research methodology using a broader conceptualization of sexting (Agustina & Gómez-Durán, 2012). As it has been previously outlined, differences in prevalence rates might be due to differences in the conceptualization

of the phenomenon, differences in the samples, and in the measures used to collect sexting data (Barrense-Dias et al., 2017), Overall, our study confirms high prevalence rates of sexting among young population. This highlights its relevance in current days' sexual interactions, supporting the idea that active sexting and, more specifically, sending sexts is a normalized form of sexual expression, although we will further discuss how it could increase the associated-risks of victimization.

Regarding sex differences results from the preliminary study and the full-sample analysis, both showed no significant differences between males and females for engagement in sending sexts, similarly to other investigations (Gámez-Guadix et al., 2015; Benotsch et al., 2013; Dir et al., 2013; Drouin & Landgraff, 2012; Gordon-Messer et al., 2013). However, our analysis showed a slightly higher percentage of sending sexts in females, although no statistical significance was reached. AP-MTV (2009) and Englander (2012), already reported that females were more likely to send sexts than males. As Englander suggests, the differences in prevalence rates found between men and women for her study might be due to different reporting bias, with girls being more open in reporting and more likely to report being pressured, coerced, blackmailed or threatened into sexting than males, rather than real differences (Englander, 2012). Regarding our results, active sexting figures may be including non-consensual prevalence rates since our question regarding active sexting did not specify that it had to be consensual or voluntary active sexting.

Overall differences between our results and results obtained by other investigations with regards to sex differences, might be due to the different samples used. Both AP-MTV (2009) and Englander (2012) used adolescent samples, whilst the majority of studies that have reported no sex differences used adult samples (Klettke et al., 2019; Gámez-Guadix et al.,

2015; Benotsch et al., 2013; Dir et al., 2013; Drouin & Landgraff, 2012; Gordon-Messer et al., 2013; Henderson & Morgan, 2011). University population samples are usually in between adolescence and all-ages adult samples, and the abovementioned results might suggest that prevalence rates for sending sexts might get even between males and females as age increases. Many factors could be contributing to this age-associated sex difference rates: different patterns of sexual maturity between males and females, differences in relationship dynamics, assertiveness, age differences between both members of the interaction maybe including older males with younger females, etc. All of these factors regarding age and sex-differences in sending sexts should be further explored.

Furthermore, we analyzed who active sexters sent their sexual content to most frequently, and found that 30.8% of females had sent their sexual content to their partners, followed by an ex-partner (10.6%) and a friend (5%); whilst males sent their content more frequently to their partners (30.2%), followed by an internet acquaintance (8.9%), and an ex-partner (7%). These results would be in line with other literature that suggests that sexting has become a normative sexual behavior and a form of sexual expression between adults, especially, between those who are in a romantic relationship (Delevi & Weisskirch, 2013; Drouin & Landgraff, 2012; Drouin et al., 2013). According to our results sexting certainly predominates within romantic relationships but not exclusively, so we would rather consider it as a broader form of sexual interaction which can take place within a traditional relationship or not.

5.1.1.2 Forwarding someone else's sexts

For the active sexting behavior of forwarding to others sexual content received from someone else, results from the preliminary study showed a prevalence rate for the total sample of

13.8%. For this behavior, there was a significant difference between males and females, with men (34.6%) being 6.79 times more likely to forward someone else's sexual content than women (7.2%). These figures differ from those reported by García et al. (2016), who surveyed 5805 single adults and found that 22.9% of the sample reported sharing with others sexting images they had previously received. They reported higher engagement rates in this behavior for men (25.3) than for women (19.6%), however, they did not find any significant difference (García et al., 2016). A possible explanation for these results might be that men forward sexts more frequently than women because they receive sexts more frequently than women. This explanation would be supported by recent results that showed that in a teenage sample, 25.1% of boys received sexts versus 17.1% of girls, and, consequently, 12.2% of boys forwarded sexts, whilst only 6.3% of girls reported forwarding sexts (Ojeda et al., 2020).

5.1.1.3 Pressuring and threatening someone to sext

Our results regarding frequency of behaviors showed that for sexting coercion perpetration, pressuring someone to sext showed higher engagement frequencies for both sexes, than threatening someone to sext. These results would be predictable, since we would expect that as the severity of the behavior increases, frequency of occurrence decreases. Similar results were found by Gámez-Guadix et al. (2015), who found lower prevalence rates for more severe forms of online sexual victimization (i.e. threatening someone to maintain sexual intercourse), versus higher prevalence rates for less severe forms of online sexual victimization (i.e. insisting you send erotic information about yourself).

For the active sexting behavior of pressuring someone to sext, results from the preliminary study showed a total sample prevalence of 4.6%, with significant differences between males and females, in line with results obtained from the full-sample study, which reported a total

sample prevalence of 5.5%. Our findings show lower prevalence rates for this behavior in comparison to previous literature. A recent study carried out in Australia with 4053 participants showed that 11% of their sample had reported engaging in image-based sexual abuse perpetration (Powell et al., 2018). Differences in the reported rates might be explained by differences in conceptualization. Whilst our study measured two specific behaviors of sexting coercion perpetration (pressure to sext and threats to sext), the investigation carried out by Powell et al. (2018) used a broader concept that included all forms of image-based sexual abuse.

Our findings also showed significant differences between males and females in pressuring someone to sext, showing that males are 7.56 times more likely to pressure someone to sext than females. Furthermore, our results showed that males not only reported higher prevalence rates for pressuring someone to sext, but they also reported engaging in the behavior more frequently than females. These results are in line with Kernsmith et al. (2018), who found that boys were significantly more likely to pressure a partner to sext than girls and with Powell et al. (2018) who's results indicated that men were significantly more likely to report IBSA perpetration than women. Although most literature hasn't looked at the prevalence of sexting coercion perpetration, some studies have looked at sexting coercion as part of intimate partner violence in opposite-sex relationships (Drouin et al., 2015), and they have found that women are more victimized than men, being men the perpetrators of this sexting coercion victimizations. These data would be consistent with offline sexual victimization results, that suggest that males engage more in perpetration of victimizing behaviors than females (Gámez-Guadix et al., 2011; Hines & Saudino, 2003). Our results regarding higher pressure to sext from male participants is supported by the idea that men might engage in

sexting coercion perpetration as a result of frustration, anger and a lack of social skills, in line with previous research (Gámez-Guadix et al., 2011).

When analyzing who our participants pressured to sext more frequently, we also found significant differences between males and females. Our results showed that females most frequently pressured their partners to sext (2.5%) with low frequencies for all of the other figures (0.2% friend, 0.2% ex-partner, 0.2% internet acquaintance and 0.2% stranger), whilst males reported most frequently pressuring a friend to sext (7.4%), followed by their partner (6.1%), an internet acquaintance (3.9%), an ex-partner (2.6%) and a stranger (0.4%). Our findings are in line with results from Powell et al., (2018) who reported that IBSA perpetration was more likely to be perpetrated against intimate partners or ex-partners, family members and friends than strangers or acquaintances. Although other authors consider sexting coercion as a form of intimate partner violence, or digital dating abuse (Drouin et al., 2015; Ross et al., 2016; Reed, Tolman & Ward, 2016), our results show that sexting coercion can also be part of other forms of cyber abuse, such as cyberbullying, cyber harassment, revenge porn or sextortion.

Finally, for the preliminary study, threatening someone to sext showed a total sample prevalence rate of 1.8%, whilst the full-sample study reported a prevalence rate of 1.3%. Neither the preliminary study nor the full-sample study reported significant differences between males and females with regards to their engagement in threatening someone to sext, however, our analysis showed a higher percentage of threatening to sext in males, although no statistical significance was reached. The lack of statistical significance for this behavior might be explained by the small number of participants who reported threatening someone to sext, and probably, if assessed using a bigger sample, men would report being more likely

to threaten someone to sext than females, in line with previous research regarding male engagement in online sexual perpetration (Powell et al., 2018).

Finally, results regarding who our participants threaten to sext showed that males more frequently reported threatening a friend (0.5%) or an internet acquaintance (0.5%) rather than a partner (0%), ex-partner (0%) or stranger (0%), whilst females more frequently reported threatening a partner to sext (1.3%) rather than any other person (friend 0.3%, ex-partner 0%, internet acquaintance 0% and stranger 0%). These results might be indicating that sexting coercion, and, specifically, threatening someone to sext, happen differently for men and women. It seems that for males, these behaviors are not only circumscribed to an intimate partner dynamic, but also take place outside a romantic relationship, whilst for women sexting coercion perpetration takes place more frequently within more intimate relationships (such as partners and friends). These findings could be explained because we believe men might have less barriers for showing aggressive and coercive behaviors in general, whilst women tend to act more aggressively with people they have an attachment with. Overall, our results indicate that sexting coercion perpetration, and more specifically pressuring someone to sext and threatening someone to sext, are behaviors that can be included as forms of intimate-partner aggression but also as online sexual harassment behaviors or cybersexual abuse.

5.1.2 Passive sexting prevalence

In general terms, our results regarding passive sexting prevalence are in accordance with previous research. When examining gender differences, heterogeneous results have been found.

5.1.2.1 Receiving sexts

Results from the preliminary study suggested that 55.5% of the total sample had received nude imagery or sexual content at least once in the past year, similar to the results obtained in the full-sample analysis (60.3% of participants had received sexts). These findings are consistent with the results obtained by many studies with adult samples, in which prevalence rates for receiving sexts range from 54.3% to 62.4% (Klettke et al., 2014; Boulat et al., 2012; Dir et al., 2013). Significant differences were found between men and women for prevalence rates of receiving sexts, indicating that males are more likely to receive sexts than females, corroborating the results showed by AP-MTV(2009) and other studies (Gordon-Messer et al., 2013; Klettke et al., 2019; AP-MTV, 2009; Dir et al., 2013). As Gordon-Messer et al. (2013) point out, these differences found between males and females might be attributable to the fact that males are more used to receiving sexual content from their peers without sending content back, and more likely to pressure women to sext and thus, to receiving their sexts. Receiving sexts also appeared to be the most frequent sexting behavior, with 37% of males and 33.6% of females receiving sexts 2-3 times in the past year.

5.1.2.2 Being a victim of non-consensual dissemination of sexts

Regarding online sexual victimization behaviors, results from the preliminary study showed that 2.8% of the total sample had been victims of non-consensual dissemination of sexts, similarly to results obtained from the full-sample study (3.3%). Our results are similar to Gámez-Guadix et al. (2015)'s, who reported that 1.1% of their Spanish adult sample had been a victim of non-consensual dissemination of their sexual content, and with Borrajo et al. (2015)'s, who reported that 5.1% of their sample had been victims of non-consensual dissemination of their intimate images. However, our results differ from other studies. Dir & Cyders (2014) reported that 12% of their sample had been victims of non-consensual

dissemination of sexts, whilst 42.1% had a friend who had been a victim of non-consensual dissemination of sexts; Drouin et al. (2013) reported that 26% of their sample feared that a committed partner would disseminate their sexual content without their consent; Clancy et al. (2019) reported that 18.6% of their sample had disseminated sexts, and Henry et al., (2017) showed that 11% of their Australian sample were victims of non-consensual dissemination of their sexual content. Differences in the reported prevalence rates for the non-consensual dissemination of sexts might be, once again, due to differences in conceptualization, in samples and in measures (Walker & Sleath, 2017), since all of the reported studies used broad definitions of sexting that include text messages.

When looking at sex differences, our results did not show differences between males and females for being victims of non-consensual dissemination of sexts, similarly to Pampati et al. (2020), who surveyed 8581 high school students, and found that 5.7% of boys and 4.8% of girls had been victims of non-consensual dissemination of their sexual photo in the 30 days prior to the survey, and to additional research (Gámez-Guadix et al., 2015; Reed et al., 2016; Clancy et al., 2019). Despite the fact that differences between males and females were not significant, our analysis did show a higher percentage of women being victims of non-consensual dissemination of sexts both in the preliminary study (3.6% of women and 0% of men) and in the full-sample study (3.3% of women and 3.2% of men). As previous literature regarding sexual victimization has shown, it would be expectable that females were more sexually victimized than males (Walker et al., 2019). It is possible that for the current research, differences between men and women were not significant because of the small sample of victims of non-consensual dissemination of sexts (N=43). Nevertheless, we would like to suggest that, whilst from a general point of view females are more likely to be sexually

victimized, the dissemination of sexts happens somehow in a similar frequency for both females and males.

5.1.2.3 Being pressured or threatened by someone to sext

Furthermore, we examined prevalence rates for being pressured and being threatened to sext, as part of online sexual victimization behaviors. Results regarding being pressured to sext showed a total prevalence rate of 31.2% for the preliminary study with similar results in the full-sample study (32.7%). Our findings are in line with those reported by Gámez-Guadix et al. (2015) who found that 28.2% of their sample had been pressured to sext. The similarity in the results found by us and Gaméz-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 country and culture.

Regarding sex differences, our results showed significant differences between males and females for being pressured to sext, with males reporting much lower prevalence rates than females (19.2% vs 37.1%, respectively). Furthermore, they are aligned with Ross et al. (2016)'s findings, where they reported that women were more likely to be coerced into sexting than male, and with Englander (2012), who referred that females were more likely to report being pressured to sext than males, however she argues that this difference is explained because females have a higher reporting rate than males, and not due to real differences in sexting activities. In a Spanish sample, females were significantly more pressured to sext than males (31.5% vs 22% respectively) (Gámez-Guadix et al., 2015). Research has shown that women experience more pressure than men to create and send sexting content (Englander, 2015; Jasso et al., 2018) and suffer more victimization from revenge porn from their partners or ex-partners than men (Branch et al., 2017). Finally, a recent study carried

out by Kernsmith et al. (2018) showed that girls were 1.69 times more likely to suffer sexting coercion victimization than boys.

Sex differences regarding online sexual victimization might be explained by traditional gender myths and gender inequality still present in the Spanish culture or by other demographic factors. Besides cultural factors on sex differences, our results could also be explained by the routine activities theory, which draws attention to structural opportunities for victimization that converge in time and space (Cohen & Felson, 1979). More free time and independence may increase unsupervised time and the absence of informal control, thus increasing the likelihood of victimization. In comparison to males from our sample, females reported having less married parents and more divorced parents; parental divorce has been linked to some risky sexual behaviors, and perceiving high conflict in parents' marriages has also been related with more sexual activity and engaging in more risk practices (Orgilés, Carratalá & Espada, 2014). Females also reported living more frequently in student apartments or off-campus students' residences, whilst men reported living more frequently with their parents, and males reported more frequently being employed full time than females, which would be coincident with the theory that more independence and free time might be associated with a higher risk of victimization (Cohen & Felson, 1979). Finally, females also spent more time on the internet than males, and used more social media than males; higher frequency of internet use has been previously associated with higher risk of suffering online victimization, which would be in accordance with our findings (Klettke et al., 2014).

When analyzing who victims have been most frequently pressured by, results showed that women were most frequently pressured to sext by a friend (13.8%), followed by an internet

acquaintance (12.9%) and an ex-partner (9.6%); whilst men were equally pressured by a partner (5.9%) and an internet acquaintance (5.9%), followed by a friend (5.5%). These results would be different to those reported by Drouin et al. (2015), since they argued that sexting coercion is most likely part of an intimate partner violence dynamic. Our results would otherwise suggest that sexting coercion behaviors such as pressuring someone to sext would differ by sex, and, that partners are not the most frequent perpetrator figure. These results once again suggest sexting coercion behavior to be part of broader online sexual harassment behaviors, or forms of cyber sexual abuse, not necessarily linked to romantic relationships.

Finally, the last measured sexting behavior was being threatened to sext, which would be a more severe form of sexting coercion than being pressured to sext. As expected, prevalence rates regarding being threatened to sext were lower than those of being pressured to sext. In this sense, reported results from the preliminary study showed a prevalence rate of 4.6% for the total sample, whilst results from the full-sample study informed of a 3.4% prevalence rate, in line with those obtained by Gámez-Guadix et al. (2015), who reported a 1.9% prevalence rate for being threatened to sext. When looking into sex differences, females were significantly more victimized than males, in line with results obtained for other forms of sexting coercion (i.e. being pressured to sext). For this form of online sexual victimization similar hypothesis to the ones states previously could explain higher rates of female victimization.

5.2 Psychopathology prevalence

This thesis had various specific objectives and this section aims at giving response to the objective of determining the prevalence of global psychopathology, depression and anxiety amongst a Spanish college sample.

Overall results from our research showed high psychopathology prevalence rates amongst our university sample. Our results showed that out of the total sample, 39.9% of participants reported global psychopathology, 29.9% reported depression and 49.6% reported anxiety, with similar rates for the preliminary study (39.3% reported global psychopathology, 41.1% reported depression, and 52.7% reported anxiety). According to a recent survey carried out by the Spanish Ministry of Health and Healthcare using and adult sample comprised of 23.089 people, 6.7% of respondents reported depression and 6.7% reported anxiety, with females reporting significantly more psychopathology than males for both depression and anxiety (depression: 9.2% vs 4%; anxiety: 9.1% vs 4.3%) (Ministerio de Sanidad, 2017). With regards to "other mental health issues" both men and women reported identical rates (2.1%) (Ministerio de Sanidad, 2017). Furthermore, another recent study carried out with 21546 Spanish adults showed that 8% of females and 4.1% of males reported Major Depression (Arias de la Torre, Vilagut, Martín, Molina & Alonso, 2018). Differences between our psychopathology results and other literature results might be explained by the type of sample. A literature review investigating reported depression rates in Spain in the past 15 years revealed important differences between samples. In this sense, their results showed that almost 9% of the general population reported depression, whilst when exploring university samples, depression rates increased up to 55.6% (Cardila, Martínez, Martín, Pérez-Fuentes, Jurado & Linares, 2015). With regards to anxiety rates, a study carried out with 700 Spanish university students found that 47.1% of their sample reported anxiety, similarly to

our findings (Galindo, Moreno & Muñoz, 2009). Our evidence suggests that psychopathology is highly prevalent amongst Spanish university students, which should be taken into account for the elaboration of targeted prevention and intervention programs.

Our results confirmed a difference in psychopathology prevalence rates between males and females for depression, although in the opposite direction to what we expected. Our results regarding psychopathology prevalence showed that men were more likely to suffer from depression than women, and showed no significant differences between males and females for anxiety and global psychopathology. Our results are in line with Klettke et al. (2019)'s, who found depressive symptoms to be more prevalent amongst men than women. One reason for these results might be explained by self-selection among the men who took part in the survey, meaning that men who were depressed might've been more likely to take part in the survey than men who were not depressed. Our findings are contrary to most literature findings which state that depression is more prevalent amongst women than men (Nolen-Hoeksema, 2001; Haro et al., 2006; Reisner, Katz-Wise, Gordon, Corliss & Austin, 2016; Ministerio de Sanidad, 2017; Arias de la Torre et al., 2018), and are also 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). Furthermore, literature consistently reports that women are more likely to disclose mental health problems and seek for help than men (World Health Organization, 2019).

5.3 Association between sexting behaviors and psychopathology

Among the various specific objectives, this section aims at giving response to the following ones:

a) To explore if there is an association between sexting behaviors, online sexual victimization and psychopathology
b) If there is a relationship between sexting behaviors, online sexual victimization and psychopathology, to analyze if the association differs by sex
c) To analyze if college students who engage in sexting behaviors report more psychopathology than those who do not engage in sexting behaviors
d) To explore the relationship between sexting coercion and psychopathology
e) If there is a relationship between sexting coercion and psychopathology, to analyze if the association differs by sex
f) If there is a relationship between sexting coercion and psychopathology, to examine the psychopathological profile of sexting coercion perpetrators

Overall, our results showed an association between sexting engagement and reporting all of the studied psychopathology measures, with sexters being almost 3 times more likely to present global psychopathology, depression and anxiety.

5.3.1 Association between active sexting behaviors and psychopathology

5.3.1.1 Sending sexts and psychopathology

Findings from the preliminary study indicated that, in general, sexters showed more psychopathology than non sexters. Specific results showed 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 examined the relationship between sexting and mental health. For instance, Morelli et al. (2016), Gordon-Messer et al. (2013) and 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). Differences in the reported results and in previous literature might again be due to a different conceptualization of the measured sexting behaviors, and, to the instruments used to measure the different psychopathology items. Up to date, none of the examined studies have used the LSB-50, thus making it difficult to compare results.

More specific results obtained from the full-sample study showed interesting findings regarding different sexting behaviors and psychopathology. For sending sexts, a significant relationship was found between engagement in sexting behaviors, global psychopathology and depression for the total sample, but not for anxiety. These results are supported by previous literature. A significant association between depressive symptoms and sexting was found by Temple et al. (2014), but the association was not significant once they controlled for previous sexual behaviors, by contrast, Van Ouytsel, et al. (2014)'s findings point towards a significant association between depressive symptoms and engagement in sexting behaviors. Gámez-Guadix & De Santisteban (2018) in their longitudinal study found that Depression at

T1 predicted for Sexting at T2, and Frankel et al. (2018) found a significant association between consensual sexting and depressive symptoms, suicide attempts and suicidal behaviors, even though depressive symptoms were more prevalent in participants who had reported non-consensual sexting. According to previous literature, the relationship between sending sext and depression might be unidirectional, with higher scores in depression predicting a higher engagement in sexting. Different reasons could explain this phenomenon: people with depression might find it easier to relate to others online than in a face-to-face interaction, they might be using sexting behaviors to get more attention from others, or, they might have reduced coping skills to avoid peer pressure or pressure to sext (Gámez-Guadix & De Santisteban, 2018).

Despite the association found between sending sexts and poorer mental health for the total sample, results reported by our male sample revealed no significant differences between sexters and non-sexters for any of the psychopathology messures. Taking into account that our sample was unbalanced (359 men vs 999 women), it can be assumed that the results obtained for the total sample are a reflection of the female cohort.

On the other hand, we did find an association between sending sexts and psychopathology for the female sample. Our results showed that for women, sending sexts was related to higher global psychopathology and depression prevalence rates than for women who did not engage in this behavior. This might be explained because women who suffer from depressive symptoms might lack coping strategies when they are pressured by their peers to create and send sexual content, resulting in a higher engagement in coercive sexting (Barrense-Dias et al., 2017). Our results regarding the female sample are not completely in line with Klettke et al. (2019)'s results, showing that not only non-consensual and unwanted sexting are associated with poorer mental health, but our results indicated that in women, poorer mental health is also related to sending sexts. One of the reasons for this discrepancy might be due

to the fact that when we asked participants if they had created and sent their own sexual content we did not specify it had to be voluntarily, so some of the female participants who have responded affirmatively to being pressured to sext might be the same ones who have responded affirmatively to creating and sending their own sexual content. This would explain why in our study female participants showed an association between sending sexts and poorer mental health.

5.3.1.2 Sexting coercion perpetration and psychopathology

In general, our findings suggest that participants who engaged in sexting coercion perpetration reported overall higher rates of depression than non-perpetrators, yet no significant results were found for anxiety and global psychopathology. These results might be a reflection of the female cohort due to the unbalanced size of the sample, since sex differences showed that for men sexting coercion perpetration was not associated with any of the psychopathology measures. Furthermore, these general results could be again explained by the idea that people with depressive symptoms might have worse coping strategies and be less assertive, being it easier that they move from "asking for a sext" to coerce someone into sexting. It is important to note that when examining the psychopathological profile of sexting coercion perpetrators, results were obtained by comparing psychopathology scores, however it does not necessarily mean that they meet the threshold for diagnosis. In fact, we compared those who reached the depression diagnostic threshold and did not find significant differences between perpetrators and non-perpetrators, so we can only refer that perpetrators report more depressive symptoms but not necessarily more depression diagnosis.

Regarding other specific psychopathological differences between perpetrators and non-perpetrators, our findings showed significant differences in the reported psychopathological profiles of both groups, with perpetrators reporting higher scores on all of the measured scales and significantly higher scores in psychoreactivity, hypersensitivity, hostility, somatization and depression. The higher scores in the mentioned psychopathology items obtained by the sexting coercion perpetrators have been positively correlated with dysfunctional attachment, mental and emotional distress and with difficulties in establishing adaptive relationships with others which might help to understand why people with such traits might engage in sexting coercion behaviors more frequently (Abuín & Rivera, 2014). Furthermore, anger and hostility might also explain higher engagement in sexting coercion perpetration, since people who might start off as "just" asking for sexual content, might end up pressuring the victim as a frustrated response to rejection (Gámez-Guadix et al., 2011; Abuín & Rivera, 2014).

When examining intergroup gender differences, male perpetrators reported significantly different psychopathological traits than non-perpetrator males, with higher scores in those traits that have been associated with dysfunctional attachment and anger, whilst female perpetrators only differed from non-perpetrator females in reporting higher hostility scores, in line with previous research (Kimonis, Skeem, Edens, Douglas, Lilienfeld & Poythress, 2010; Miller & Marshall, 2019). These results might indicate that anger-related issues are preeminent for female engagement in sexting coercion perpetration, whilst more complex psychological variables would be modulating male sexting coercion perpetration (Marshall, O'Brien, Marshall, Booth & Davis, 2012). Furthermore, when comparing sex differences within the sexting coercion perpetrator group, results indicate that there are no significant differences in psychopathology scores between males and females. These findings show that sexting coercion perpetration might be sex-related in terms of prevalence (males are more

likely to be perpetrators than females), but that perpetrators share a similar psychopathological profile independently of their sex.

5.3.2 Association between passive sexting behaviors and psychopathology

5.3.2.1 Receiving sexts and psychopathology

Receiving sexts was significantly associated with more global psychopathology, more depression and more anxiety for the general sample. When analyzing differences by sex, results showed that receiving sexts was only significantly associated with psychopathology for the female sample. These results might be explained because we did not specifically ask participants to report if the received sexts were solicited or unwanted; high psychopathology rates for receiving sexts might mean that for women, receiving unwanted and unsolicited sexual content might be a distress-generating factor, but not for men (Klettke et al., 2019).

5.3.4 Online sexual victimization and psychopathology

Overall results for the total sample indicated a significant association between online sexual victimization behaviors and all of the psychopathology measures.

When examining gender differences and specific online sexual victimization behaviors, only males who had been victims of non-consensual dissemination of their sexual content showed higher rates of global psychopathology than those who were not victims. These higher psychopathology rates for this behavior suggest that for males, psychopathology is not related to consensual sexting behaviors nor to being pressured or threatened to sext, but only to suffering victimization by non-consensual dissemination of sexual content. A possible

explanation for these results might be that males do not perceive pressure and threats to sext as a form of harm or as a victimizing behavior, thus not developing any associated psychopathology, but, they do perceive harm from having their content disseminated without their consent.

On the other hand, our findings showed that women who had been victims of non-consensual dissemination of sexting and who had been victims of sexting coercion (pressured or threatened to sext) reported more psychopathology than women who had not been victims of online sexual victimization behaviors. These findings support previous literature, which suggests a clear association between sexting coercion, anxiety and depression (Drouin et al., 2015; Ross et al., 2016; Klettke et al., 2019). Our results clearly highlight a significant association between being online-sexually victimized and poorer mental health in female samples. These results could be explained by victimizing behaviors triggering greater psychopathological symptomatology or by women who suffer from psychopathology, anxiety or depression being more vulnerable to being pressured to sext and to different forms of online sexual victimization (Gámez-Guadix & De Santisteban, 2018). The negative consequences of these behaviors are intimately related with gender, since women experience more negative outcomes, probably in relation to gender myths and traditional expectancies regarding sexual norms for women in particular (Henry & Powell, 2015). A qualitative study regarding emotional and mental health outcomes of non-consensual dissemination of intimate images in revenge porn carried out by Bates revealed a higher presence of posttraumatic stress disorder, anxiety, depression and suicidal ideation in women, finding similar consequences to physical sexual aggressions (Bates, 2016).

Overall, our results indicated that the relationship between sexting and psychopathology is different for men and women. In this sense, for men, poorer mental health was associated only to victimization by non-consensual dissemination of sexual content, whilst for women,

poorer mental health was associated with any sexting behavior and any form of online sexual victimization. The inconsistencies in the literature regarding the relationship between sexting and mental health could be partially explained by those studies not having taken into account that males and females engage and respond differently to sexting behaviors and online sexual victimization. Our evidence showed that there is a strong relationship between sexting and psychopathology, however, this relationship is not equal for men and women, being females more vulnerable to sexting, online sexting victimizations and psychopathology.

5.4 Recommendations and insights on prevention programs

Our results highlight the prevalence and potential harm of different sexting behaviors. According to our results sexting should be considered a prevalent global public health issue with potential victimization correlates and negative consequences for mental health of the victims. In this context, women are at a higher risk of victimization.

According to our results males engage significantly more in sexting coercion perpetration behaviors, and females are victims of more sexting coercion behaviors. These data suggest that current existing protocols and educational programs might not be useful in terms of reducing sexting coercion prevalence or gender myths, and it indicates that new prevention and intervention programs should target young females as victims and young males as perpetrators regarding online sexual behaviors. It has also been suggested that for females, the sharing of their sexual content might be experienced as a type of violation or victimization, causing more fear and distress, whilst in men, the sharing of their sexual content might be seen as a reflection of their sexual desirability or masculinity (Drouin et al., 2015). Ross et al. (2016) stated that explicit information on the topic of sexting coercion could be especially useful for females, but we believe that this information should be provided for both males and females, as part of broader educational programs.

Lastly, our study reveals that sexting coercion and sexting victimization should not only be considered as manifestations of intimate partner aggression, but also as general forms of sexual violence, since our findings show that sexting coercion victimization is not perpetrated most frequently by a partner or ex-partner, but by a friend or a stranger, indicating that prevention strategies should not only alert about the dangers of intimate partner aggression

or digital dating abuse, but also about the risks of engaging in these behaviors with anyone online.

We strongly believe the results of this research are useful, as they highlight mental health issues regarding sexting, online sexual victimization and sexting coercion for both males and females. This information should be integrated into existing sex education programming, helping young adults discern their own sexual boundaries. In this regard, inclination toward sexting should be considered a signal of the need for differential prevention programming. Further, educational and healthcare authorities should develop accessible and timely mental health referral paths for youths who engage in sexting behaviors of any kind and show signs of suffering, particularly females.

6. Conclusions

Overall, in general terms, our findings have shown a high prevalence of engagement in sexting behaviors amongst Spanish university students, with significant differences between men and women for perpetration and victimization behaviors. Men are women sext with similar prevalence rates, but, afterwards, men are more prevalent perpetrators and women more prevalent victims.

With regards to the association between sexting behaviors, online victimization and psychopathology, our findings indicate a clear association between online sexual victimization and all measures of psychopathology, but significant differences have been found between males and females for psychopathology measures and engagement in the rest of sexting behaviors, meaning that the association between sexting, online sexual victimization and psychopathology is gender-related.

We believe that the present results in the form of different empirical articles have allowed us to respond to the formulated specific objectives, and, especially, to the main aim of this dissertation, which was to examine sexting and online sexual victimization amongst a Spanish university sample and their association with psychopathology.

Finally, in order to sum up all of the gathered information, our main findings will be summarized by directly responding to the formulated hypotheses:

1. *College students who engage in sexting behaviors will report more psychopathology than those who do not engage in sexting behaviors, and, depression will be associated with the engagement in sexting behaviors.*

College students who engaged in sexting behaviors reported significantly more psychopathology than those who did not engage in sexting behaviors, and depression was significantly associated with sexting engagement.

The first hypothesis was confirmed in both the preliminary study and the full-sample study, where results clearly indicated that those students who engaged in sexting reported higher psychopathology rates for the three measures (global psychopathology, depression and anxiety) than students who did not engage in sexting. Furthermore, our results revealed that both frequency of internet use and depression were associated with sending sexts.

2. *Online sexual victimization will be significantly associated with psychopathology and this association will be different for men and women.*

Online sexual victimization was significantly associated with psychopathology for the general sample. This association was different for men and women, with women showing a significant association between psychopathology and both active sexting and sexting-related victimization behaviors; and men showing only a significant association between psychopathology and non-consensual dissemination of sexting.

Our full-sample study measured three online sexual victimization behaviors: being a victim of non-consensual dissemination of sexting, being pressured to sext and being threatened to sext. Our hypothesis was partially confirmed and showed that online sexual victimization behaviors were significantly associated with psychopathology for the general sample. However, they showed important gender differences. Online sexual victimization behaviors were strongly associated with psychopathology for females, but, no sexting

behaviors were associated with psychopathology for the male sample, except for being a victim of non-consensual dissemination of sexting.

3. *The association between psychopathology and sexting in college students will differ by level of coercion and sex, finding significant associations between psychopathology and victimizing behaviors.*

The association between psychopathology and sexting in college students differed by level of coercion and sex, finding significant associations between psychopathology and victimizing behaviors.

The third hypothesis was also partially confirmed. In this sense, the association between psychopathology and sexting did differ by level of coercion, but more importantly, it differed by sex. For males, significant associations were found between psychopathology and being a victim of non-consensual dissemination of sexting, since no other behavior showed a significant relationship with psychopathology. On the other hand, for females, a relationship was found between psychopathology and all of the sexting behaviors, but, more strongly, between psychopathology and online sexual victimization behaviors (being a victim of non-consensual dissemination of sexting, being pressured to sext and being threatened to sext).

4. *University students who engage in sexting coercion perpetration will have a different psychopathological profile in comparison to university students who do not engage in sexting coercion perpetration.*

University students who engaged in sexting coercion perpetration had a different psychopathological profile in comparison to university students who did not engage in sexting coercion perpetration.

Lastly, the fourth hypothesis was confirmed, with results indicating that sexting coercion perpetrators have different psychopathological profiles than non-perpetrators, with the first reporting higher scores in all of the measured traits. Furthermore, findings from this analysis showed that sexting coercion perpetration might be sex-related in terms of prevalence (males are more likely to be perpetrators than females), but perpetrators share a similar psychopathological profile independently of their sex which is different from the psychopathological profile of non-perpetrators.

To our knowledge, this is the first investigation to examine the relationship between sexting behaviors, online sexual victimization, sexting coercion and psychopathology by sex using clinically validated mental health measures amongst a Spanish college sample.

As the body of research regarding sexting keeps growing, our results add to those findings that support sexting is not necessarily a deviant behavior (Drouin, Coupe & Temple, 2017; Englander, 2019), although psychopathological findings should be highlighted, especially in females who sext actively. Furthermore, our research also points towards an association between non-consensual or coerced sexting and risky behaviors, negative consequences and poorer mental health, as previously stated (Englander, 2019; Klettke et al., 2019; Gassó, Klettke, Agustina & Montiel, 2019).

Our results contribute to a deeper understanding of the relationship between sexting behaviors, online sexual victimization, sexting coercion and psychopathology, anxiety and depression, specially taking into account sex differences, and provides new findings regarding this sociological phenomenon.

7. Limitations and further research

This study has several limitations that should be taken into account when interpreting the results. First, the sample used was non probabilistic and comprised of only college students, rather than the general population, so generalization of results should be cautiously done. Our results rely on self-reported data of a self-selected sample, so our results could be considered biased in nature. In this sense, the sample used was self-selected using an online survey, which could explain why the total sample is unbalanced regarding female and male participants, since participants were the ones who decided to take part in the survey. Taking this into account, data analysis was conducted separately for males and females, in order to decrease the impact of the sample bias.

Furthermore, this study is cross-sectional, and not longitudinal, so no temporal relationships or causal effects can be established between mental health variables and sexting behaviors. Regarding the research design, there are some limitations that need to be stated. When asking participants about their engagement in sending sexts we did not specify if this behavior was voluntary and consensual, which might have caused that people who responded affirmatively to this item were the same ones who responded affirmatively to being victims of sexting coercion. In the same line, when we asked participants about receiving sexts we did not specify if they were voluntary and consensual or not, which could have had the same effect, thus reporting biased results.

Further research is specially needed regarding sexting and online sexual victimization: our results should be confirmed by other studies that also explore if there are differences in mental health between consensual and non-consensual sexters and analyze the relationship between sexting and non-consensual dissemination of sexual content. In order to increase

cross measurement validity of our findings, other studies should also try to replicate our results obtained with other, clinically validated, mental health instruments.

Future steps in sexting research should include sexual orientation and gender identity variables. For the purpose of this research a national Spanish university sample was used. When taking the survey, participants were asked to answer questions regarding their age, their sex (male/female) and their civil status (single, partner, married, divorced or widow). As a limitation, we did not ask participants to answer questions on sexual orientation or gender identity and did not take into account differences between homosexual and heterosexual groups. This issue should be addressed in further research, as some research on sexting has established that homosexual and heterosexual participants tend to engage differently in sexting behaviors. Our questionnaire asked participants for their sex and made participants choose between male and female. Recently, in response to calls for recognition of sex and gender diversity, surveys have begun to test alternative measures of sex and gender which could also be suggested for sexting-related research.

Longitudinal studies are scarce and further research should explore the temporal association between psychopathology and sexting, online sexual victimization and sexting coercion; furthermore it should look into the motivations of perpetrators in order to further understand this dynamic. Additionally, qualitative research should be worth performing in a phenomenon as sexting that includes intimate issues and involves a complex motivational structure. Finally, future research could be directed at creating protocols on how to act when the sexual content has been non-consensually disseminated and what the psychological consequences might be for the victim, and transfer that knowledge to all of the legally-related parties (such as police officers, prosecutors and judges).

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9. ANNEXES

Annex 1. Questionnaire: Sexting Victimization Survey

Inicio del bloque: Información Sociodemográfica

Q1 Edad (Si eres menor de edad, no puedes participar en este estudio)

_____

Q2 Sexo

- ○ Masculino
- ○ Femenino

Q3 ¿Cuál es tu nacionalidad?

_____
_____
_____
_____
_____

Q4 ¿Cuál es tu situación civil actual?

- ○ Soltero/a
- ○ Tengo novio/a
- ○ Casado/a
- ○ Pareja de hecho
- ○ Divorciado/a o Separado/a
- ○ Viudo/a

Q5 ¿Cuál es la situación civil de tus padres?

- ○ Casados
- ○ Divorciados/Separados
- ○ Viudo/a
- ○ Otra - Especificar _____

Q6 ¿Eres estudiante universitario?

- ○ Sí
- ○ No

Q6.1 ¿Cuál es tu situación académica actual?

- ○ Estudiante de Grado
- ○ Estudiante de Máster
- ○ Estudiante de Erasmus (Grado)
- ○ Estudiante de Máster extranjero de intercambio
- ○ Otra -Especificar _____

Q6.2 ¿Cuál es tu centro de estudios?

_____

Q7 ¿Dónde vives actualmente?

- ○ Vivo con mis padres
- ○ Vivo en un piso de estudiantes
- ○ Vivo en una residencia fuera del campus universitario
- ○ Vivo en una residencia/piso en el campus universitario
- ○ Vivo sólo
- ○ Vivo en pareja

Q8 ¿Cuál es tu situación laboral acutal?

- ○ No tengo empleo
- ○ Trabajo a tiempo completo
- ○ Trabajo a tiempo parcial

Fin del bloque: Información Sociodemográfica

Inicio del bloque: Información sobre sexting

A continuación encontrarás una serie de situaciones que puedes haber realizado o vivido en el último año. Por favor, responde con la mayor sinceridad posible, y recuerda que toda la información que aportes será estrictamente confidencial.

Q56 ¿Tienes teléfono móvil propio?

- ○ Sí
- ○ No

Q57 ¿Tienes un Smartphone?

- ○ Sí
- ○ No

Q58 ¿Con qué edad tuviste tu primer teléfono móvil?

- ○ Especificar _____

Q59 ¿Desde qué edad utilizas internet?

- ○ Especificar _____

Q60 ¿Cuál es tu forma de acceso a internet más habitual?

- ☐ Teléfono móvil
- ☐ Tablet
- ☐ Ordenador portatil
- ☐ Ordenador fijo
- ☐ Videoconsola

Q61 ¿Con qué frecuencia utilizas internet?

- ○ Una vez a la semana o menos
- ○ 2-3 veces a la semana
- ○ Cada día
- ○ 2-3horas al día cada día
- ○ Más de 3 horas al día cada día

Q62 ¿Utilizas redes sociales?

- ○ Sí
- ○ No

Q63 ¿Con que frecuencia usas cada una de las siguientes redes sociales? siendo 0 "no la uso" y 5 "la uso constantemente" Si utilizas otra red social que no aparece, especifica cuál es y con qué frecuencia la usas.

	0	1	2	3	4	5
Instagram	○	○	○	○	○	○
Facebook	○	○	○	○	○	○
Whatsapp	○	○	○	○	○	○
Twitter	○	○	○	○	○	○
Youtube	○	○	○	○	○	○
Otra	○	○	○	○	○	○

Q64 Las siguientes preguntas hacen referencia a la realización de diversas conductas, responde en función de aquellas situaciones que más se aproximen a tu realidad.

	Frecuencia ¿Cuántas veces en el último año?	¿Qué riesgo crees existe al hacerlo?	¿Qué edad tenías cuando lo hiciste por primera vez?	¿a quién se lo has enviado/ hecho?	Motivo ¿por qué?	Intensidad del contenido sexual de las fotos/vídeos
			Edad			

1. He creado y enviado a otra persona fotos/vídeos de contenido sexual de mí mismo/a	▼ 0 ... Todos o casi todos los días	▼ No lo he hecho ... 10= Mucho riesgo		▼ No lo he hecho ... completo desconocido	▼ No lo he hecho ... Presión o amenazas	▼ No lo he hecho ... 10= claramente sexual
2. He grabado o captado fotos/vídeos de contenido sexual de otra persona y las he enviado a terceros sin su constimiento	▼ 0 ... Todos o casi todos los días	▼ No lo he hecho ... 10= Mucho riesgo		▼ No lo he hecho ... completo desconocido	▼ No lo he hecho ... Presión o amenazas	▼ No lo he hecho ... 10= claramente sexual
3. He reenviado a alguien una foto/vídeo de contenido sexual que he recibido donde salen terceras personas	▼ 0 ... Todos o casi todos los días	▼ No lo he hecho ... 10= Mucho riesgo		▼ No lo he hecho ... completo desconocido	▼ No lo he hecho ... Presión o amenazas	▼ No lo he hecho ... 10= claramente sexual
4. He presionado a alguien (insistir repetidamente) para que me enviara fotos/vídeos suyos de contenido sexual	▼ 0 ... Todos o casi todos los días	▼ No lo he hecho ... 10= Mucho riesgo		▼ No lo he hecho ... completo desconocido	▼ No lo he hecho ... Presión o amenazas	▼ No lo he hecho ... 10= claramente sexual

5. He amenazado a alguien para que me enviara fotos/vídeos suyos de contenido sexual	▼ 0 ... Todos o casi todos los días	▼ No lo he hecho ... 10= Mucho riesgo		▼ No lo he hecho ... completo desconocido	▼ No lo he hecho ... Presión o amenazas	▼ No lo he hecho ... 10= claramente sexual

Q65 Las siguientes preguntas hacen referencia a la vivencia de diversas conductas, responde en función de aquellas situaciones que más se aproximen a tu realidad.

	Frecuencia ¿Cuántas veces en el último año?	¿Qué grado de malestar has sentido al vivirlo?	¿Qué edad tenías cuando lo viviste por primera vez?	¿Quién lo ha hecho?	Motivo ¿por qué?	Intensidad del contenido sexual de las fotos/ vídeos
			Edad			

6. He recibido, sin solicitarlo, fotos/vídeos de contenido sexual de terceras personas	▼ 0 ... Todos o casi todos los días	▼ No me ha pasado ... 10= Mucho malestar		▼ No lo he vivido ... completo desconocido	▼ No me ha pasado ... Presión o amenazas	▼ No me ha pasado ... 10= claramente sexual
7. Alguien ha difundido sin mi consentimiento fotos/vídeos míos de contenido sexual	▼ 0 ... Todos o casi todos los días	▼ No me ha pasado ... 10= Mucho malestar		▼ No lo he vivido ... completo desconocido	▼ No me ha pasado ... Presión o amenazas	▼ No me ha pasado ... 10= claramente sexual
8. Alguien me ha presionado (insistir repetidamente) para que le enviara fotos/vídeos de mí mismo de contenido sexual	▼ 0 ... Todos o casi todos los días	▼ No me ha pasado ... 10= Mucho malestar		▼ No lo he vivido ... completo desconocido	▼ No me ha pasado ... Presión o amenazas	▼ No me ha pasado ... 10= claramente sexual
9. Alguien me ha amenazado para que le enviara fotos/vídeos de mí mismo de contenido sexual	▼ 0 ... Todos o casi todos los días	▼ No me ha pasado ... 10= Mucho malestar		▼ No lo he vivido ... completo desconocido	▼ No me ha pasado ... Presión o amenazas	▼ No me ha pasado ... 10= claramente sexual

Si has respondido afirmativamente a la pregunta 7 *"Alguien ha difundido sin mi consentimiento fotos/vídeos míos de contenido sexual"*, por favor, contesta a la siguiente pregunta. Marca aquellas respuestas que mejor describan tu realidad.

Q66 A raíz de la difusión inconsentida de imágenes tuyas de carácter íntimo, ¿has sufrido alguna de la siguientes situaciones?

	Medio		¿Quién?			
	Online	En persona	Desconocido	un amigo	mi pareja	mi expareja
No he sufrido ninguna consecuencia	☐	☐	☐	☐	☐	☐
Se han burlado/reído de mi	☐	☐	☐	☐	☐	☐
Me han insultado	☐	☐	☐	☐	☐	☐
Me han humillado	☐	☐	☐	☐	☐	☐
Me han agredido físicamente	☐	☐	☐	☐	☐	☐
Me han acosado	☐	☐	☐	☐	☐	☐

Fin del bloque: Información sobre sexting

Inicio del bloque: Información sobre cómo te sientes

Q67 Lee atentamente la siguiente lista. Son problemas o molestias que casi todo el mundo ha sentido en algún momento. Indica en qué medida has experimentado cada uno de ellos durante las últimas semanas, incluido el día de hoy:

		0	1	2	3	4
1	Mi corazón palpita o va muy deprisa					
2	Me siento triste					
3	Tengo ganas de romper o destruir algo					
4	Siento nerviosismo o agitación interior					
5	Tengo mareos o sensaciones de desmayo					
6	Me preocupa la dejadez y el descuido					
7	Tengo que comprobar una y otra vez todo lo que hago					
8	Me cuesta tomar decisiones					
9	Me irrito o enfado por cualquier cosa					
10	Siento miedo en la calle o en espacios abiertos					
11	Tengo dolores de cabeza					
12	Me siento decaído o falto de fuerza					

13	Me despierto de madrugada					
14	Duermo inquieto o me despierto mucho por la noche					
15	Doy vueltas a palabras o ideas que no consigo quitarme de la cabeza					
16	Me siento incómodo o vergonzoso cuando estoy en reuniones con gente					
17	Me vienen ideas de acabar con mi vida					
18	Tengo miedo sin motivo					
19	Tengo molestias digestivas o náuseas					
20	Siento hormigueo o se me duerme alguna parte del cuerpo					
21	Veo mi futuro sin esperanza					
22	Me da miedo estar sólo					
23	Tengo ataques de ira que no puedo controlar					
24	Me siento incomprendido					
25	Me da miedo salir de casa solo					
26	Me parece que otras personas me observan o hablan de mí					
27	Me cuesta dormirme					
28	Tengo sentimientos de culpa					
29	Me siento incómodo comiendo o bebiendo en público					
30	Me siento herido con facilidad					
31	Me siento incapaz de hacer las cosas o terminar las tareas					
32	No siento interés por nada					
33	Tengo manías como repetir cosas innecesariamente (tocar algo, lavarme, comprobar algo, etc)					
34	Me vienen ideas o imágenes que me dan miedo					
35	Me siento temeroso					
36	Tengo que hacer las cosas muy despacio para estar seguro de que las hago bien					
37	Me siento solo					
38	Me siento inferior a los demás					
39	Lloro con facilidad					
40	Me siento solo aunque tenga compañía					
41	Me da por gritar o tirar cosas					
42	Me siento inútil o poco valioso					
43	Me duelen los músculos					
44	Discuto con frecuencia					
45	Tengo dolores en el corazón o el pecho					
46	Me dan ahogos o me cuesta respirar					
47	Tengo que evitar ciertas cosas, lugares o actividades porque me dan miedo					
48	Me dan ganas de golpear o hacer daño a alguien					
49	Siento que todo requiere un gran esfuerzo					
50	Tengo presentimientos de que va a pasar algo malo					

Fin del bloque: Información sobre cómo te sientes

Annex 2. Article images

Article 1. Sexting and Mental Health among a Spanish College Sample: An Exploratory Analysis

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.

Article 2. Sexting, Online Sexual Victimization, and Psychopathology Correlates by Sex: Depression, Anxiety and Global Psychopathology

International Journal of *Environmental Research and Public Health*

MDPI

Article

Sexting, Online Sexual Victimization, and Psychopathology Correlates by Sex: Depression, Anxiety, and Global Psychopathology

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Abstract: Recent research on sexting highlighted a relationship between this new technology-mediated behavior and psychopathology correlates, although up to date results are mixed, and so far, studies have often used simple and not clinically validated measures of mental health. This study aimed to investigate sexting behaviors, online sexual victimization, and related mental health correlates using clinically validated measures for global psychopathology, anxiety, and depression; and doing so separately for men and women. The sample consisted of 1370 Spanish college students (73.6% female; 21.4 mean age; SD = 4.85) who took part in an online survey about their engagement in sexting behaviors, online sexual victimization behaviors, and psychopathological symptomatology, measured by a sexting scale and the Listado de Síntomas Breve (brief symptom checklist) (LSB-50), respectively. Out of our total sample, 37.1% of participants had created and sent their own sexual content (active sexting), 60.3% had received sexual content (passive sexting), and 35.5% had both sent and received sexual content, with significant differences between male and female engagement in passive sexting. No differences were found between men and women in the prevalence of their victimization by nonconsensual dissemination of sexual content; however, women were more pressured and threatened into sexting than men. Sex differences in psychopathology were found only for depression prevalence rates but not for global psychopathology or anxiety. Furthermore, for male participants, our results showed a significant association only between online sexual victimization and psychopathology but not for consensual active and passive sexting. However, for the female participants, active sexting, passive sexting, and online sexual victimization were all associated with poorer mental health. Implications for prevention and intervention are discussed.

Keywords: sexting; mental health; psychopathology; victimization; sex

Article 3. Mental Health Correlates of Sexting Coercion Perpetration and Victimization in university students by gender

This article was accepted for publication on the 18th of February 2021 but has not been published yet, thus we will include the image of the acceptance letter.

Journal of Sexual Aggression

Decision Letter (TJSA-2020-0023.R2)

From: A.Pina@Kent.ac.uk
To: ainagasso@uic.es
CC:
Subject: Journal of Sexual Aggression - Decision on Manuscript ID TJSA-2020-0023.R2
Body: 18-Feb-2021

Ref: Mental Health Correlates of Sexting Coercion Perpetration and Victimization in university students by gender.

Dear Mrs Aina M. Gassó,

Our referees have now considered your paper and have recommended publication in Journal of Sexual Aggression. We are pleased to accept your paper in its current form which will now be forwarded to the publisher for copy editing and typesetting.

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Given the nature of the topic at hand we would like to put you in touch with the Chair of NOTA's Policy and Practice Sub-Committee, Stuart Allardyce

The Policy and Practice Sub-Committee helps develop policy and good practice within the organisation and in the wider professional community, including drafting policy documents relating to key aspects of sexual offending and promoting 'good practice' both within the organisation and externally. This includes the formulation of formal responses to proposed government legislation, guidance and consultation papers.

If you consent to being contacted please respond to the Editor Dr Afroditi Pina at a.pina@kent.ac.uk or Stuart Allardyce directly at StuartAllardyce@stopitnow.org.uk
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The reviewer comments are listed as attachments below, along with those of the editor who coordinated the review of your paper. To view any listed comments, please go to your Author Centre > My Manuscripts > Manuscripts with Decisions queue, where you will be able to access these comments. Further instructions on viewing the listed comments are available on the Author Dashboard.

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The publisher also requests that proofs are checked and returned within 48 hours of receipt.

Thank you for your contribution to Journal of Sexual Aggression and we look forward to receiving further submissions from you.

Sincerely,

Dr Afroditi Pina
Associate Editor

on behalf of
Dr Nadine McKillop
Editor in Chief, Journal of Sexual Aggression
nmckillo@usc.edu.au

Article 4. Psychopathological Profile of Sexting Coercion perpetration.

This article was accepted for publication on the 25th of February 2021 but has not been published yet, thus we will include the image of the acceptance letter.

Fecha: 25/02/2021
A: "Aina Gassó" ainagasso@gmail.com
De: "Revista Española de Medicina Legal" mlegal@elsevier.com
Asunto: REML-D-21-00011R2: decisión de los editores / editorial decision

Apreciado/a Gassó:

Le comunicamos que su manuscrito "Perfil psicopatológico de los perpetradores de sexting coercitivo" (Ref. REML-D-21-00011R2) ha sido aceptado para su publicación en Revista Española de Medicina Legal.

Recuerde que en su momento le remitiremos las pruebas de autor en formato pdf a esta misma dirección electrónica.

Reciba un cordial saludo,

Comité editorial
Revista Española de Medicina Legal

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