Full length article

"It's not just sexy pics": An investigation into sexting behaviour and behavioural problems in adolescents

Mairéad Foody [a],[1],[**], Angela Mazzone [a],[1],[*], Derek Alan Laffan [a], Magnus Loftsson [b], James O'Higgins Norman [a]

[a] National Anti-Bullying Research and Resource Centre, Institute of Education, Dublin City University, Dublin, Ireland
[b] FRIENDS, Stockholm, Sweden

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ABSTRACT

Sexting has been identified as an emerging online phenomenon among adolescents. However, research investigating its behavioural correlates and the sexting behaviours (i.e., sending and/or receiving) is still scarce. The present study investigated the association between different sexting behaviours and various behavioural problems among Irish adolescents. A sample of 848 students aged 15–18 participated in the study (M_{age} = 16.4 years). A self-report measure assessing the sharing of sexual images among teenagers was created and administered for the purpose of this study. The Strengths and Difficulties Questionnaire was adopted to detect emotional and behavioural problems. Findings showed that senders of sexts are more likely to be girls, whereas receivers are more likely to be boys. Two-way sexting (i.e., sending and receiving sexts) was more prominent among boys, LGBTQ adolescents, and positively associated with peer problems. Findings are discussed in terms of their theoretical and practical relevance.

Author contributions

Mairead Foody, Conceptualisation, Methodology, Investigation, Project administration, Funding acquisition, Writing – original draft. Angela Mazzone, Conceptualisation, Writing – original draft, Writing – review & editing. Derek Alan Laffan, Formal analysis, Data curation, Writing – original draft, Writing – review & editing. Magnus Loftsson, Supervision. James O'Higgins Norman, Supervision.

1. Introduction

1.1. Teenage sexting

Sexting is defined as the "sending or receiving of sexually explicit or sexually suggestive nude or semi-nude images or video", usually via mobile devices (Hinduja & Patchin, 2012, p. 50; Patchin and Hinduja, 2019a). Sexts might also include text messages with suggestive words and images, such as emojis (Challenor, Foody, & O'Higgins Norman, 2018) emails, or other forms of computer-based medium (O'Sullivan, 2014). Sexting is increasingly common among adolescents and might be viewed as a way of flirting to express or confirm interest in another person. Mostly, adolescents exchange sexual images of themselves with their romantic partners or with someone they would start a relationship, in order to flirt, attract, arouse or initiate sexual activity (Bianchi, Morelli, Baiocco, & Chirumbolo, 2016). Suggestive messages are also sent either to platonic friends, desired, or established partners, as a way of joking around (Lippman & Campbell, 2014).

As an expression of adolescent sexuality, sexting has been proposed to contribute to adolescents' social identity development (Campbell & Park, 2014; Patchin & Hinduja, 2019). As children enter into adolescence, they experience a process of social emancipation, in that the peer group becomes increasingly important to them (Campbell & Park, 2014). Mobile communication plays an integral role in the emancipation process, providing teenagers with the opportunity to experience autonomy to connect with their peers (Campbell & Park, 2014). From the emancipation perspective, sexting is associated with a degree of

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** Corresponding author.
* Corrresponding author.
E-mail addresses: mairead.foody@dcu.ie (M. Foody), angela.mazzone@dcu.ie (A. Mazzone).
[1] National Anti-Bullying Research and Resource Centre, Institute of Education, Dublin City University, Saint Patrick's Campus, Drumcondra Road Upper, D9, Dublin, Ireland

autonomy that adolescents have over technology.

Sexting behaviour involving the sharing of sexually explicit images is relatively common among adolescents. According to a recent-meta-analysis, 14.8% of adolescents worldwide send sexts, while 27.4% of adolescents receive sexts (Madigan, Ly, Rash, Van Ouytsel, & Temple, 2018).

Sexting behaviours can take different forms and might be triggered by different motivations. Previous literature distinguished between aggravated and experimental incidents (Wolak & Finkelhor, 2012). Aggravated incidents involve some criminal or abusive elements (e.g., adult involvement; extortion), whereas experimental incidents involve the sharing of sexual images with established partners with the goal of creating a romantic interest. Although experimental sexting does not involve any criminal or abusive elements, adolescents might be at risk of experiencing negative emotional consequences from sending and receiving unwanted sexually explicit images (e.g., feeling angry and annoyed) (Reed, Boyer, Meskunas, Tolman, & Ward, 2020). This might be true especially for girls, who are expected to be responsive to sexting requests (Klettke, Hallford, & Mellor, 2014) and might even feel pressured to send sexts (Burén & Lunde, 2018). However, girls who engage in sexting may be viewed as unrespectable, and could risk their reputation (Casas, Ojeda, Elipe, & Del Rey, 2019; Ringrose et al., 2013). Also, they might be the target of negative behaviours, such as cybervictimisation (Smith, Thompson, & Davidson, 2014). This could in turn, explain their negative feelings after engaging in sexting (Burén & Lunde, 2018). For boys, it could be normative to ask and receive sexual images (Walrave, Heirman, & Hallam, 2014) and those who receive sexts might gain popularity by sharing them with their male peers (Casas et al., 2019).

Beyond gender, sexual orientation is another variable to consider when exploring teenage sexting. In a study conducted with a sample of Italian adolescents and young adults (Morelli, Bianchi, Baiocco, Pezzuti, & Chirumbolo, 2016), non-heterosexual participants were found to engage in sexting more than their heterosexual counterpart. Unfortunately, this study did not disentangle the distinct sexting behaviours. Overall, research suggests that sending sexts is more common among LGBTQ youth, as compared to heterosexual young people (Gámez-guadix, Almendros, Borrajo, & Calvete, 2015; Gámez-Guadix & de Santisteban, 2018; Rice et al., 2012; Van Ouytsel, Walrave, & Ponnet, 2020). Along with sending sexts, adolescents belonging to sexual minorities are more likely to have asked for and received sexts as compared to their heterosexual peers (Van Ouytsel, Walrave, & Ponnet, 2019). Previous research has indicated that more frequent sexting behaviours among LGBTQ adolescents might reflect the more frequent use of social media and online tools (Chong, Zhang, Mak, & Pang, 2015). Sexting behaviours may also facilitate communication among sexual minorities youth, and in doing so, contribute to their wellbeing (Chong et al., 2015). In other words, sexting behaviour may be playing a role as a protective factor against perceived discrimination for LGBTQ adolescents.

Although much previous research generally offers advances in understanding teenage sexting, it could be argued that contrasting research findings warrant further investigations into the role of gender and distinctive sexting behaviours (Gámez-Guadix & Pérez, 2019). A detailed exploration of the contribution given by gender to the distinct sexting behaviours can give new insight into the role of sexting in young people's social lives. Also, more research is needed regarding LGBTQ adolescents' involvement in different sexting behaviours. Exploring such issues can provide new insight into various sexting behaviours and inform educational programs aimed at promoting a healthy sexual life and discourage risky sexual online behaviours among adolescents.

1.2. Sexting behaviours and behavioural problems

Previous research has attempted to investigate the link between sexting and mental health issues, indicating a link between engagement in sexting and emotional problems, such as depression (Dake, Price, Maziarz, & Ward, 2012). Emotional difficulties may play a crucial role in sexting, as adolescents with emotional problems might be more likely to be pressured to send sexts (Ševčíková, 2016). Some studies showed that adolescents involved in sexting as senders are at greater risk of being cyber-victimised, and in turn, of suffering from depression and manifesting suicidal ideation (Jasso Medrano, Lopez Rosales, & Gámez-Guadix, 2018). On the opposite, some other research findings did not indicate any differences between high and low/moderate users of sexting (i.e., combination of sending and receiving), in terms of symptoms of depression and anxiety (Morelli et al., 2016).

The few longitudinal evidence indicates that adolescents showing depression symptoms are more likely to engage in sexting as senders over time (Gámez-Guadix & de Santisteban, 2018). A possible explanation for this association could be that depressed adolescents might find it difficult to be assertive when pressured by their peers. Adolescents who engage in sexting show more negative emotions (feeling hopeless and sad) (Dake et al., 2012), and emotional regulation problems compared to non-sexters (Houck et al., 2014). Also, adolescents who send sexting messages are more fearful about the consequences of sexting, as compared to those who only receive sexting messages (Mitchell, Finkelhor, Jones, & Wolak, 2012).

In contrast, no association between sexting behaviour i.e., being a sender, receiver, two-way sexter (i.e., both sending and receiving) and non-sexter and psychological wellbeing (i.e., anxiety, depression, self-esteem) has been found among young adults (Gordon-Messer, Bauer-meister, Grodzinski, & Zimmerman, 2013). However, the mental health correlates of sexting might be different for young adults as compared to adolescents.

In a retrospective study conducted with College students, Englander (2012) found that those who had sexted either under pressure from others or not under pressure during high school were less likely to be depressed compared to those who had never sexted in high school However, those who sexted under pressure were more likely to report anxiety problems as compared to non-sexters.

Taken together, previous research findings appear to be mixed and more research into the association between sexting behaviours and behavioural problems among adolescents is needed (Klettke et al., 2014). Importantly, some scholars have argued that sexting should not be seen as a risky and unhealthy behaviour (O'Sullivan, 2014), as it could be interpreted as a new way for young people to explore sexuality-related issues (Levine, 2013). However, there is a lack of empirical support for these assumptions. In addition, the inconsistencies in previous literature, call for more investigation of the link between behavioural problems and distinct sexting behaviours.

2. The present study

It is worthwhile to differentiate between distinct sexting behaviours, rather than grouping them together (Casas et al., 2019), as adolescents engaging in various sexting behaviours might show a distinct profile in terms of behavioural problems. Therefore, the present research aims at adding new knowledge to the literature by looking at the link between distinct sexting behaviours and behavioural problems while controlling for the role of gender and belonging to the LGBTQ community.

Given the lack of studies investigating sexting in the Irish context, this study will primarily adopt an explorative nature and will look at the rates of sexting among Irish adolescents, while differentiating for the sexting behaviour. Also, the study aims at testing the following hypotheses:

3. Materials and methods

3.1. Participants

This study sampled adolescents aged 15–18 years ($M_{age} = 16.4$ years,

H1. Girls are more likely to be asked to send sexts and to be the senders of sexts. Also, it is expected that girls would be more likely to receive unwanted sexts. Boys are expected to be both senders and receivers (i.e., two-way sexters).

H2. Senders and receivers are expected to show higher levels of behavioural problems (conduct problems; peer problems; hyperactivity; emotional problems) as compared to the non-involved group. Two-way sexters are expected to show more behavioural problems as compared to senders, receivers and to the non-involved group.

H3. Senders are expected to be girls and to show high levels of emotional problems. Receivers are expected to be male and to show low levels of emotional problems. Two-way sexters are expected to be male and to belong to the LGBTQ community. They are also expected to show high levels of behavioural problems.

SD = 0.98), attending fourth to sixth year in post-primary schools across Ireland. The study aimed at collecting data from a national sample. Firstly, all post-primary schools in the country (N = 811) were initially contacted by email asking them to take part in the study. Only four schools responded and agreed to participate through this method. The other recruitment method was to engage pre-service teachers enrolled in the teacher training programme from the authors' university to administer the survey while on placement in schools across Ireland (N = 15 schools).

After principals were contacted and parental consent was obtained, the sample contained 941 students from 17 participating schools. Fifteen of these schools were in the State's free education scheme, 12 of these were co-educational, 1 was a boys' single-sex school, and 2 were girls' single-sex schools. There were also 2 fee paying private schools both of which were co-educational. In terms of school ethos, 7 of the schools belonged to the Community/Comprehensive sector, which is largely denominational but publicly funded, 8 schools were voluntary secondary schools all of which were denominational and, in this case, Roman Catholic, and 2 of the schools were Protestant fee-paying/private schools. Of the participants, 848 students completed the survey and their data was included for analysis (45.8% male, 52.7% female 1.5% other). The majority of the sample reported their nationality as Irish (n = 630, 74.3%). Other nationality demographics were reported as: Dual Irish (e.g., Irish-English nationality; n = 68; 8.0%), Irish Traveller (n = 3, 0.4%), and other nationalities (e.g. English; n = 147, 17.3%). We categorised the data into Irish (Irish and dual-Irish citizens, 82.3%) and non-Irish (17.1%). Participants were asked to report their sexual identity and were given the following options: Gay, bisexual, heterosexual, asexual, lesbian and pansexual. The majority of the sample reported being heterosexual (n = 757, 90.8%), while 50 participants identified as bisexual (5.9% of the entire sample). Small numbers of respondents identified as the other categories; thus, they were combined together with the group reporting as bisexuals to form one category (i.e., LGBT) which represented 9.2% of the sample.

3.2. Ethical issues

School principals were contacted initially and written information about the study was provided by email. Once consent was obtained at this level, parental information and consent forms were provided to parents by the participating schools. The survey was delivered online and took place during one class sitting. Students were informed that they did not have to complete the survey and were free to stop participating at any time. Responses were completely anonymous at both the pupil and school level. Data collection took place from October 2017-Feburary 2018. This study received ethical approval from the authors' university ethics review board.

3.3. Instruments

3.3.1. Sexting items

The participants were provided with the following definition of sexting 'sending a sexually explicit text message, picture, or video of yourself to someone else using a mobile phone or the internet'. Participants were asked two specific questions relating to sending sexual images and two related to receiving images. For sending, the questions were: (1) Have you been asked to send naked pictures (or a sext) of yourself through text, email or applications like snapchat? and (2) Have you sent naked pictures (or a sext) of yourself through text, email or applications like that? For receiving, the questions were: (1) Has someone sent a sexually explicit image (or a sext) of themselves to you when you have asked for them? And (2) Have you ever received a sexually explicit image (or a sext) when you really didn't want to? The response options were as follows: Never, Once and Frequently. These items were adapted from previous work (Patchin & Hinduja, 2019; Wolak, Finkelhor, Walsh, & Treitman, 2018) and for current purposes. A follow-up question came after each question which was designed to find out who the image was sent to (e.g., girlfriend or boyfriend), why they sent it (e.g., they were in a relationship) and if they had met the person in real life.

3.3.2. Strengths and difficulties

The Strengths and Difficulties Questionnaire (SDQ) (Goodman, 1997; 2001) was administered to investigate prosocial behaviour and various behavioural problems (www.sdqinfo.com). This instrument includes five subscales which relate to conduct problems (e.g., I get very angry), emotional problems (e.g., I worry a lot), peer problems (e.g., I am usually on my own) and hyperactivity problems (e.g., I am easily distracted), as well as prosocial behaviour (e.g., I try to be nice to other people). Higher scores indicate higher levels of each category. Information about how the SDQ was coded and analysed is provided in the Data Analysis section. The Cronbach's Alpha internal consistency scores for the subscales and the total difficulties scale are as follows: Emotional problems (α = 0.76), conduct problems (α = 0.58), hyperactivity (α = 0.70), peer problems (α = 0.59), prosocial behaviour (α = 0.71) and total difficulties (α = 0.79).

3.4. Data Analysis

The rates for sending and receiving sexts were calculated for the whole sample and for boys and girls separately. Chi square analyses were used to determine gender differences between the responses to the sexting items. Due to the Chi square test being sensitive to large sample size, the Cramer's V coefficient was used to detect the strength of the associations between the variables (Lin, Lucas, & Shmueli, 2013). The values from this test range from 0 to 1, with larger values indicating stronger associations between the variables.

In order to have a more comprehensive sub-sample in terms of considering the distinct sexting behaviours, the two items assessing sending and receiving sexts were collapsed in the subsequent analyses. The makeup of the sexting behaviours were coded as (i) senders: the participants who reported to have sent sexts (after having been asked and without being asked), (ii) receivers: participants who frequently received sexts (wanted and unwanted), and (iii) two-way sexters: the participants who reported to both send (after having been asked and without being asked) and receive (wanted and unwanted) sexts frequently.

ANOVAs with Tukey post-hoc tests were used to investigate cross-sectional differences between the sexting behaviours. The p value was set to .01 to try to avoid a type 1 error in multiple ANOVA analysis. Hierarchical multiple regression analysis was performed to test the associations between 'two-way sexters', 'senders' and 'receivers' (outcome variables) after controlling for age, nationality, gender, sexual orientation and scores on the SDQ subscales. Participants' age, nationality, gender and sexual orientation were entered in the first step as control variables. The total score on the SDQ subscales (i.e., emotional problems, conduct problems, peer problems, hyperactivity and prosocial behaviour) were entered into the second step for both models.

4. Results

4.1. Prevalence of sending and receiving sexts

4.1.1 Sending sexts. Two questions were designed to separate the individuals who had been asked to send sexual images from those who sent sexts without being asked. Table 1 outlines the prevalence of these questions for the total sample and for each gender. Coherently with H1, the findings of the chi square analysis indicated a significant difference for gender where females were generally more likely to be asked to send sexts compared to males [x^2 (2, n = 810) = 37.24, p < .001); η2 = 0.05]. The Cramer's V coefficient (<0.20) indicated a strong association between the variables (see Table 1) (Akoglu, 2018). However, there were no significant gender differences for those who reported sending sexts (p > .19).

4.1.2 Receiving sexts. Significantly more males than females reported receiving sexts after they had requested them [x^2 (2, n = 805) = 77.17, p < .001, η2 = 0.01; see Table 1], while significantly more females received unwanted sexual images [x^2 (1, n = 808) = 75.14, p < .001; η2 = 0.09; see Table 1]. In both cases, the Cramer's V coefficients (<0.25) indicated very strong associations between the variables (see Table 1).

Adolescents who reported sending or receiving at least one sext were presented with follow-up questions to determine who they were engaging in this manner with. Mostly, participants exchanged sexual images of themselves with their partners. Details are provided in Table 2.

4.1.3 Sexting Behaviours. The responses to the questions in Table 1 were categorised to represent four groups depending on the sexting behaviours the young people engaged with. These groups included adolescents who only sent sexts (n = 35, 4.3%), only received sexts (n = 76, 9.4%), two-way sexters (n = 102, 12.6%), and those who did not engage in any sexting behaviours (n = 594, 73.6%).

4.2. Sexting behaviours, and behavioural problems

In order to test H2, a series of one-way ANOVAs were performed to determine if there were differences between the sexting behaviours and the SDQ subscales (see Table 3).

The ANOVA for conduct problems was significant [(F (3, 806) = 27.12, p = .000] and post-hoc tests revealed a significant difference between senders and two-way sexters, with senders showing lower conduct problems as compared to two-way sexters (p = .004).

A one-way ANOVA showed an overall difference across the groups for emotional problems [(F (3, 806) = 5.02, p = .002] and post-hoc tests revealed that receivers had significantly higher emotional problems as compared to all other groups (i.e., non-involved, p = .01; senders, p = .005; two-way sexters, p = .01). Receivers and two-way-sexters scored significantly higher on conduct problems as compared to the non-involved group (p = .000).

The ANOVA for hyperactivity was significant [(F (3, 806) = 9.77, p = .000] and post-hoc tests indicated a further significant difference, indicating that the two-way sexters showed higher hyperactivity problems as compared to the non-involved group (p = .000).

For total difficulties, the ANOVA was significant [(F (3, 806) = 10.13, p = .000], with two-way sexters showing higher total difficulties as compared to receivers (p = .008) and the non-involved subgroup (p = .000).

No significant differences between groups were found for peer problems and prosocial behaviour.

4.3. Predictors of sexting profiles

Three hierarchical multiple regression analyses were performed to test the associations between senders, receivers, and two-way sexters (outcome variables) and the behavioural problems, after controlling for

Table 1
Prevalence of sexting.

	Never N (%)	Once N (%)	Frequently N (%)	Cramer's V	Approx. Sig.
1. Have you been asked to send naked pictures of yourself (a sext) through text, email or applications like snapchat?					
Overall	352 (43.5)	98 (12.1)	360 (44.4)	.214	.000
Males	200 (24.7)	48 (5.9)	123 (15.2)		
Females	152 (18.8)	50 (6.2)	237 (29.3)		
2. Have you sent naked pictures of yourself (a sext) through text, email or applications like that?					
Overall	607 (76.2)	55 (6.9)	135 (16.9)		.194
Males	270 (33.9)	23 (2.9)	71 (8.9)		
Females	337 (42.3)	32 (4)	64 (8)		
3. Has someone sent a sexually explicit image (a sext) of themselves to you after you have asked for them?					
Overall	561 (69.7)	66 (8.2)	178 (22.1)	.310	.000
Males	201 (25)	40 (5)	128 (15.9)		
Females	360 (44.7)	26 (3.2)	50 (6.2)		
4. Have you ever received a sexually explicit image (a sext) when you really didn't want to?					
Overall	453 (56.1)	117 (14.5)	238 (29.5)	.277	.000
Males	267 (33)	42 (5.2)	61 (7.5)		
Females	186 (23)	75 (9.3)	177 (21.9)		

Note: Frequency is reported in brackets. The Cramer's V coefficient has been reported only for significant findings.

Table 2
Prevalence for who sent or received images.

	Asked by N (%)	Sent to N (%)	Received with request N (%)
My boyfriend/girlfriend	120 (25.8)	110 (53.9)	108 (42.9)
Someone I had a crush on	40 (8.6)	27 (13.2)	32 (12.7)
Someone in my class	15 (3.2)	4 (2)	12 (4.8)
A close friend	18 (3.9)	13 (6.4)	19 (7.5)
Someone my own age	175 (37.7)	27 (13.2)	63 (25)
An adult	8 (1.7)	3 (1.5)	5 (2)
A stranger	59 (12.7)	7 (3.4)	13 (5.2)
Other	30 (6.5)	13 (6.4)	*

Note. * Option not given for this item.

Table 3

Mean (M) and standard deviation (SD) scores for the SDQ subscales across different profiles of sexting behaviours.

	Receiver Only M (SD)	Sender Only M (SD)	Two-way Sexter M (SD)	Non-involved M (SD)
Emotional Problems	8.5* (2.7)	10.2 (2.3)	9.6 (3)	9.4 (2.6)
Conduct Problems	8.2** (2.2)	7.5[a] (1.5)	8.6**[a] (2)	7.1 (1.6)
Hyperactivity	9.7 (2.4)	9.7 (2.5)	10.5** (2.3)	9.1 (2.3)
Peer Problems	7.1 (1.8)	7.3 (1.7)	7.4 (2)	7.2 (1.8)
Prosocial Behaviour	11.9 (2.2)	12.9 (1.7)	12 (2.2)	12.7 (1.9)
Total Difficulties	33.3[a] (6.2)	34.5 (5)	36.1**[a] (6.5)	32.8 (5.5)

Note. *p < .01 Against all other groups; **p < .001 Against the non-involved group.

[a] p < 0.01 Significantly differ from each other.

age, nationality, gender and sexual orientation (i.e., H3).

For the sender group, the control variables of age, nationality, gender and sexual orientation explained 3.6% of the sending behaviour. This increased to 3.9% after entering the scores on the SDQ subscales. The final model was significant [R square change = 0.003, F change (1, 762) = 0.441, p < .001]. Table 4 outlines the significant variables for the final model.

For receivers, the control variables of age, nationality, gender and sexual orientation explained 3.0% of receiving sexually explicit images. This increased to 4.9% after entering the scores on the SDQ subscales. The final model was significant [R square change = 0.019, F change (1, 762) = 3.17, p < .001]. Table 4 outlines the significant variables for the final model.

In terms of the two-way sexters, the control variables of age,

Table 4

Hierarchical multiple regression analysis investigating the associations between sexting modalities, demographics and behavioural problems.

			Senders only			
Predictors	B	SE	ß	t	95% CI	Sig. (p)
Gender	.083	.016	.204	5.120	[.051, .114]	.000
Receivers only						
Predictors	B	SE	ß	t	95% CI	Sig. (p)
Gender	-.066	.023	-.115	−2.904	[-.111, −.021]	.004
Conduct problems	-.018	.007	-.112	−2.746	[-.031, −.005]	.006
Two-way sexters						
Predictors	B	SE	ß	t	95% CI	Sig. (p)
Gender	-.122	.025	-.186	−4.845	[-.171, −.072]	.000
Age	-.038	.011	-.114	−3.412	[-.059, −.016]	.001
Sexual orientation	-.091	.028	-.111	−3.242	[-.147, −036]	.001
Conduct problems	-.033	.007	-.179	−4.520	[-.047, −.018]	.000
Peer problems	.014	.007	.079	2.112	[.001, .028]	.035

Note: Gender coded as Boys = −1 and Girls = +1. Sexual orientation coded as Heterosexual = +1 and LGBTQ = −1.

nationality, gender and sexual orientation explained only 6.1% of sending and receiving sexually explicit images. This increased to 10.9% after entering the scores on the SDQ subscales. The final model was significant [R square change = 0.048, F change (1, 762) = 8.76, p < .001]. Table 4 outlines the significant variables for the final model.

5. Discussion

This study primarily investigated adolescent sexting and its prevalence and behavioural correlates in a relatively large sample of Irish students. Findings show that receiving sexts is more common (9.4%) than sending them (4.3%). These findings are comparable with previous international research showing that adolescents tend to report more passive than active sexting behaviour, which could be a reflex of social desirability (Morelli et al., 2016). Only a small rate of adolescents reported that they were two-way sexters (12.6%), whereas the majority was not involved in sexting (73.6%). Mostly, sexts were asked, sent and received by a romantic partner. This finding indicates that sexting could have the function of validating a romantic relationship and of sexual exploration (Lippman & Campbell, 2014). However, a minority of adolescents either asked for, sent or received sexts from adults, strangers or other people. Although it is not possible to rule out that the stranger or the other people were teenagers, these findings are worrisome and call for further investigation of adolescents exchanging sexual contents with adults.

Coherently with our hypothesis, findings show that more girls (29.3%) than boys (15.2%) were asked to send a sexually explicit image, while the prevalence for having sent sexual pictures was comparable between males and females (respectively 8.9% and 8%). More boys (15.9%) than females (6.2%) had received frequently a sexually explicit image after having asked for it. Taken together, these findings are in accordance with previous research showing that boys are more likely to ask for and receive sexually explicit images (Gordon-Messer et al., 2013; Ricciardelli & Adorjan, 2019). In accordance with our first hypothesis, the rates for having received unwanted sexually explicit images, was much higher for girls (21.9%) as compared to boys (7.5%). This finding indicates that, especially for girls, receiving unwanted sexts might be experienced as an intrusive experience.

As to the differences between the distinct sexting profiles in terms of behavioural problems, senders showed lower conduct problems compared to the two-way sexters. Hence, engaging in sexting as a sender seems to be less troublesome in terms of conduct problems, compared to the acts of both sharing and receiving sexually explicit images. One possible explanation for this finding is that the items detecting the sending of sexually explicit images might reflect a volitional action, taking place in the context of sexual exploration and desire for intimacy (Lippman & Campbell, 2014). Instead, both sending and receiving sexts could reflect more problematic behaviour as was indicated in this study.

Adolescents who received sexts showed more emotional problems compared to all other groups. Although based on the design of this study, no causal relationship between sexting and behavioural problems can be drawn, this finding shows that as compared to the other sexting profiles, receivers of sexts could be emotionally distressed by the explicit sexually images, which in some instances might be unwanted and as such, perceived as intrusive. This explanation also resonates with the finding that receivers showed higher conduct problems than the non-involved group.

Two-way sexters showed more conduct and hyperactivity problems in comparison to non-involved adolescents. This finding suggests that sending and receiving sexts could be associated with higher levels of impulsivity and self-regulation problems as compared to not being involved in any sexting activities (Kormas, Critselis, Janikian, Kafetzis, & Tsitsika, 2011). Two-way sexters showed a higher score on the total difficulties scale than receivers and non-involved adolescents. This finding further suggests that two-way sexters manifest more problematic behaviour compared to their peers who purely receive sexts and those

who are not involved in sexting. However, an alternative explanation could be that two-way sexting is a distressing experience at least for some adolescents who might not be equipped to deal with sexting and its potential negative consequences.

As previous research has signalled that females typically engage in more frequent sending of sexts (Ringrose et al., 2013), the study findings support such previous research assertions. Indeed, the regression analyses showed that sending sexts was associated with being a female. Adolescent girls might be sending sexts in order to feel considered and desired by others (Casas et al., 2019). Also, the expectation to send sexts to others could reflect a form of adolescent peer pressure. Prior research has indicated this possibility to be worthy of further consideration as the girls who send sexts appear to be attempting to please their peers (Ringrose et al., 2013) and enhance their own status in the peer group (Casas et al., 2019).

Receiving sexts was positively associated with being a boy. Overall, for boys receiving sexts could be a way to show that they have sexual experience and to bond with their male peers while affirming their masculinity (Casas et al., 2019) (Harvey & Ringrose, 2016). Receiving sexts was also negatively associated with conduct problems. Previous research found that adolescents with conduct problems (e.g. delinquent behaviour) are likely to participate in sexting, though as senders (Lee, Moak, & Walker, 2016). The link between conduct problems and sexting might differ depending on involvement in more or less active sexting behaviours (i.e., sending versus receiving). However, as shown above, receivers scored higher on conduct problems as compared to the non-involved subgroup. Hence, the link between receiving sexts and conduct problems needs to be further elucidated in future research.

Two-way sexters were more likely to be boys. Boys might be less likely to be judged for sending and receiving sexts, which might make them more inclined to engage in sexting both actively and passively (Lippman & Campbell, 2014). In addition, the sharing of sexual images is normalised among boys who are rewarded as machos and show little concern for public dissemination of their nude images (Ricciardelli & Adorjan, 2019). This finding shows that boys might tend to consider sexting as a test of their desirability (Casas et al., 2019).

Two-way sexting was negatively associated with conduct problems, but positively associated with peer problems. Taken together, these findings suggest that being involved in two-way sexting is not a problematic behaviour in terms of conduct problems. However, the positive association with peer problems could indicate that adolescents manifesting peer problems might use the sexually explicit images (i.e., both sent and received) to tease their peers. Nevertheless, as outlined above, given the cross-sectional nature of this study, it is not possible to determine that peer problems are either an antecedent or a result of adolescent sexting.

Coherently with our hypotheses, adolescents who identified themselves as LGBTQ were more likely to be two-way sexters. By virtue of being a minority, LGBTQ adolescents might feel freer to express their own sexuality through sexting, compared to the offline context, where they might be exposed to the eyes of their majority peers. Also, LGBTQ adolescents could perceive sexting as a form of self-expression or a way of exploring and establishing their own sexual identity (Dir, Coskunpinar, Steiner, & Cyders, 2013; Henderson & Morgan, 2009; Lenhart, 2009), while challenging heterosexual norms (Albury & Byron, 2014).

Although no hypotheses were formulated for age, findings showed a negative association between age and two-way sexting. Previous research has shown that involvement in sexting increases during adolescence (Baumgartner, Sumter, Peter, Valkenburg, & Livingstone, 2014), and that sexting is positively associated with sexual intercourse (Temple et al., 2012). It is likely that younger adolescents are scarcely involved in sending and receiving sexts, as they might also lack sexual experience.

5.1. Strengths, limitations and future directions

Although various forms of sexting behaviours were detected, this study did not assess adolescents' proneness to actively ask for sexts. Furthermore, the items assessing respectively receiving wanted and unwanted sexts and sending sexts spontaneously and after being asked, were collapsed in the main analysis. Future studies should address these limitations and detect the behavioural profile of teenagers involved in different forms of sexting.

The convenience sample that participated in this study may not be representative of the whole population. Unfortunately, most schools were unwilling to participate in this research project, which could be due to the sensitive topic investigated in this study. Future research studies should be conducted with representative samples. An additional limitation is related to the low internal consistency of two of the SDQ scales (i.e., Conduct Problems and Peer problems), which suggest that the significant findings for conduct and peer problems should be interpreted cautiously.

Despite these limitations, this study contributes to the growing need to understand sexting behaviour in the Irish context and helps to clarify the association between sexting and various behavioural correlates. Overall, the study shows the importance of considering gender and sexual orientation when investigating sexting, along with the need to look at the distinct sexting behaviours separately. Findings are in accordance with previous research showing that distinct sexting behaviours are associated with negative mental health outcomes and that adolescents not involved in sexting are better adjusted as compared to their peers who are involved in sexting (Gámez-Guadix & de Santisteban, 2018). It might be that adolescents who present behavioural problems are more vulnerable and impulsive (Dir et al., 2013; Temple et al., 2014) and might think less about the potential negative consequences of sexting (e.g., non-consensual sharing). This in turn, might increase their behavioural problems. However, whether behavioural problems are an antecedent or a consequence of being involved in different sexting behaviours remains to be clarified in future research adopting a longitudinal design.

Finally, although no significant findings were yielded for prosocial behaviour, recent research has shown that adolescents who score high on prosocial behaviour are scarcely involved in sexting (Casas et al., 2019). Prosocial behaviour can also reduce online risky behaviours such as the involvement in non-consensual sharing of sexts (Casas et al., 2019). Therefore, it is warranted for future research to deepen our understanding of prosocial behaviour and other potential protective factors in relation to various sexting behaviours.

5.2. Practical implications

Findings of this study also have practical implications for online safety education. Prohibiting sexting or providing fear-based messages outlining the legal implications of sexting has proved not to be effective (Strohmaier, Murphy, & Dematteo, 2014). Importantly, findings of this study show that sexting may be playing an important role in the sexual development of LGBTQ adolescents. For this subgroup, sending and receiving sexts might represent a new avenue to explore, particularly in relation to LGBTQ identity expression.

Based on these findings, it might be beneficial to develop educational programs providing students with the knowledge to make informed decisions when they engage in sexting (Patchin & Hinduja, 2019a). In line with a recent review (Finkelhor, Walsh, Jones, Mitchell, & Collier, 2020), it is suggested that intervention programs aimed to educate adolescents about sexting should be delivered as part of an overarching online safety program. Importantly, adolescents express the need to receive sexual education and wish to be taught by people whom they can

trust to deliver information accurately and confidentially (O'Higgins & Gabhainn, 2010). Hence, online safety programs could be integrated with sexual education programs, which should have an early onset, and preferably start before the beginning of sexual exploration (Madigan et al., 2018). Given the importance of the peer group throughout adolescence, a successful approach might involve challenging the peer group norms around the sharing of sexually explicit images (Jørgensen, Weckesser, Turner, & Wade, 2019). Enabling critical thinking in relation to sexual consent and sexual relationships, in contrast to forbidding sexting behaviour entirely (Albury, Hasinoff, & Senft, 2017) might also constitute a successful avenue to tackle the negative outcomes of sexting.

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