Sexting behaviour among adolescents: Do friendship quality and social competence matter?

Mairéad Foody [a,b,*], Seffetullah Kuldas [b,c], Aikaterini Sargioti [b], Angela Mazzone [b], James O'Higgins Norman [b]

[a] School of Psychology, National University of Ireland, Galway, Ireland
[b] DCU Anti-Bullying Centre, Dublin City University, Ireland
[c] Department of Media and Communication, University of Oslo, Norway

A B S T R A C T

Sexting is fast becoming a common activity among adolescents, and an important issue of concern to adults. Previous literature suggests that the sending and/or receiving of sexual images, videos or texts within the peer network is a normative part of adolescent development. Much of the emerging work on sexting has focused on the peer network and emphasised that peer relationships are important contributing factors. Two under-studied elements in this regard relate to social competence and friendship; however, the association between sexting, social competence and friendship quality is difficult to determine based on previous literature alone. As such, this study performed two hierarchical regression models to identify which one best explains the relationships between these variables. Results suggest that Model 2, where social competence and sexting were predictors of friendship quality, explained more variance (25%) than Model 1, where social competence and friendship quality predicted sexting behaviour (16%). These results, as well as prevalence rates for sending sexts are discussed in detail. Recommendations for future research that considers the role of the peer group to understanding adolescent sexting are also outlined.

1. Introduction

1.1. Adolescent sexting

Sexting ("sex" + "texting"), is broadly defined as the sending and/or receiving of sexually suggestive text messages or self-made nude or nearly nude images, and/or videos, via electronic devices (Mori et al., 2020; Van Ouytsel & Dhoest, 2022). Sexting is a relatively common phenomenon among adolescents (Hinduja & Patchin, 2012; Madigan et al., 2018). With many aspects of their lives happening online, from education to interaction with friends, it is no surprise that aspects of adolescent relationships are also being mediated or facilitated by technology. While definitional and conceptualisation issues make it difficult to determine the prevalence of sexting among teenagers, a recent meta-analysis including samples recruited mostly in Western countries (United States, Canada, Australia and Europe) put the rate between 14.8% for sending and 27.4% for receiving intimate images (Madigan et al., 2018). Recent figures from Ireland, where the present study was

conducted, showed that about 24% of adolescents have sent self-made intimate images once or more often, whereas about 30% received intimate images once or more often after asking for them (Foody et al., 2021). Existing research has shown that the rates of sexting have increased across time (Bianchi et al., 2021) and that adolescents increasingly engage with sexting with increasing age (Madigan et al., 2018).

For many, sexting is considered a normative behaviour among adolescents (York et al., 2021), and arguments have been made for its positive impact in aiding self-expression (Setty, 2021), passion and intimacy in adolescent relationships (Van Ouytsel et al., 2019b, 2020). However, the phenomenon is a contentious one whereby sexting, particularly pressured sexting, has been presented in the literature as a risky behaviour with a potential to lead to cyberbullying (e.g., Gámez-Guadix & Mateos-Pérez, 2019; Van Ouytsel et al., 2019a), dating violence (e.g., Van Ouytsel et al., 2021a), romantic partner abuse (Huntington & Rohoades, 2021) and offline sexual coercion (Ross et al., 2016).

Sexting has been explained in relation to several individual predictors, among which age, gender, internet use, sensation seeking, attachment, motivation to sext, subjective norms, religiosity (Baumgartner et al., 2014; Currin, 2022; Reed et al., 2020; Walrave et al., 2014). Yet, placing a strong focus on individual factors predicting sexting behaviours could discount the broader issues at play, such as peer and social norms (Maheux et al., 2020). Given the centrality of belonging to a peer group during adolescence, looking at the role played by the social context might be more appropriate when investigating this phenomenon as it allows one to consider the role of peer relationships in relation to sexting.

A trend in this direction is beginning to emerge in the literature, which appears to be less concerned with the prevalence of sexting and more concerned with the social factors (e.g., attitudes) that facilitate or motivate it (Bianchi et al., 2016, 2017, 2021; Gewirtz-Meydan et al., 2018; Rodríguez-Castro et al., 2017). One theme that has emerged along these lines, is that sexting is related to the peer network and social dynamics therein. Recent studies have started to look at well-known factors related to peer relationships, such as the need for popularity and peer pressure (Vanden Abeele et al., 2014), and sexual arousal/intimacy needs (Maes & Vandenbosch, 2022) as providing explanations for engagement with sexting. There is some longitudinal evidence showing that sexting behaviour is associated with adolescents' perceptions of what peers do, or approve of, whereby their perceptions of peer norms are predictors of, rather than consequences, of sexting behaviour (Baumgartner et al., 2011; Walrave et al., 2015). Social competence and friendship are also important factors that should be studied in this context, especially when one considers the wider role they play in successful or unsuccessful peer relations. Parsing out the role of such facilitating factors will increase our understanding of adolescent sexting and provide some guidance for education initiatives promoting 'safe' or 'consensual' practices (Patchin & Hinduja, 2020).

1.2. Social competence, friendship quality and sexting

Social competence relates to the ability to foster positive relationships with peers and to successfully navigate social situations (Flannery & Smith, 2017; Ford, 1982). Social competence can be understood as a multidimensional construct comprising of distinct dimensions, including emotion regulation and social skills, such as *prosocial behaviour* (offering help and comforting other people) and *cognitive reappraisal* (an emotional regulation strategy involving the ability to reinterpret a potentially emotion-eliciting situation in a way that changes its meaning and emotional impact on the individual; Gómez-Ortiz et al., 2019). Moreover, it encompasses the ability to adjust and follow social norms (*normative adjustment*), the ability to engage in socially competent behaviours and being accepted by others (*social adjustment*), and the perception of being effective in social interactions (*social efficacy*; Gómez-Ortiz et al., 2017). The distinct components of social competence contribute in different ways to interpersonal relationships, indicating that looking at different dimensions of social competence might offer a more fine-grained picture of adolescents' social behaviours (Zych et al., 2018).

Research investigating the association between social competence and sexting is limited; however, there is some evidence to suggest that social competence may play a role in sexting, particularly the forwarding of content as it involves skills needed in a social context (e.g., Casas et al., 2019). . Indeed, Casas et al. (2019) found that higher social competence (especially higher prosocial behaviour) meant lower involvement in sexting. However, this study did not look at the associations between the distinct dimensions of social competence and sexting. Given the importance of social competence in relation to sexting, it is surprising that this construct has not been investigated more extensively in the context of sexting.

Literature shows that friendship and peer-acceptance promote social competence (Cillessen & Bellmore, 2011; Rose-Krasnor, 1997; Glick &

Rose, 2011), which can be a predictor of positive peer relationships (e.g., Boling et al., 2011; Kaeppler & Erath, 2017). Thus, social competence and friendship seem to be driving forces of each other, and both might be associated with sexting. Friendship quality involves different aspects that are necessary for building positive and high-quality relationships (Flannery & Smith, 2017). For example, some of the aspects described in previous literature involve intimate conversations that result in both partners acquiring extensive knowledge of the other, responsiveness to the other's needs, similarity among friends, and friendship stability over time (Berndt, 1982). Some other qualities of friendship involve being comfortable with closeness, being trustworthy, and possessing good conflict resolution skills (Larson et al., 2007).

Adolescents could feel pressured to engage in sexting, especially when they perceive that sexting is approved in their group and that their peers are also involved in sexting (Walrave et al., 2014). Moreover, adolescents might engage themselves in sexting based on the perceived benefits of such behaviours, which include being accepted and making friends (Walrave et al., 2014). Indeed, existing research studies have shown that teenagers' motivations for engaging in sexting include a pleasurable/enjoyable experience, which can be aimed at forming and maintaining friendships (Goggin & Crawford, 2010), or having an intimate relationship (Ghorashi, 2019; Parker et al., 2013; Salter et al., 2013) with current or prospective partners (Burkett, 2015). However, existing research studies have shown that sexting also poses a number of challenges to adolescent friendship (White et al., 2016). For example, requests of nude pictures from friends can take the form of unwanted harassment or challenge an existing friendship relationship (White et al., 2016).

Despite some existing studies touching on the link between sexting and social competence and friendship, there is no clear articulation of the relationship between these three important variables for adolescent social development. An investigation of these three factors and their potential associations within a developmental context are the focus of this study.

1.2.1. Individual factors: age, gender, sexual orientation and nationality

Demographic factors, including age, gender, sexual orientation and nationality are important variables to take into consideration when investigating teenage sexting (Casas et al., 2019; Foody et al., 2021; Gil-Llario, Morell-Mengual, Jiménez-Martínez, et al., 2020; Van Ouytsel et al., 2018, 2020). Thus, we saw the need to consider the role that these variables might play in the complex relationships between sexting, social competence, and friendship quality. For example, it has been argued that a focus on the experiences of sexual minority youth is essential in this type of research as their sexting experiences might have some distinctive features compared to those who identify as heterosexual (Van Ouytsel et al., 2018). Recent research by Van Ouytsel et al. (2021b) confirmed this and found that lesbian, gay and bisexual (LGB) adolescents were more likely to have created, sent or received sexts than those heterosexuals. In terms of age differences, previous research has shown that older adolescents are more likely to engage in sexting behaviours (Baumgartner et al., 2014). In addition, considering that friendship quality evolves throughout development (Bagwell & Schmidt, 2011) and that social competence is a 'dynamic construct, requiring increasingly complex skills as youth age' (Monahan & Steinberg, 2011, p. 576), we felt it important to include age in this analysis. Gender and nationality play an important role when considering sexting within the developmental lens (Gil-Llario, Morell-Mengual, Jiménez-Martínez, et al., 2020), whereby different meanings are attached to sexting depending on the gender of the person participating in sexting and the social norms within cultures (Baumgartner et al., 2014; Ricciardelli & Adorjan, 2019). Moreover, both social competence and friendship are subjected to cultural influences (Bagwell & Bukowski, 2018; Chen & French, 2008), which again, calls for the need to control for the role played by nationality.

1.2.2. The current study

The current study attempted to further advance our knowledge of sexting and its relationship to important areas for adolescent development such as social competence and friendship quality.

As the literature did not investigate extensively the role of social competence, friendship quality, and sexting, it was difficult for us to determine detailed research questions and hypothesis. The challenge related to the complex associations between social competence and friendship quality discussed in the literature. Particularly, it was difficult to accurately determine which variable was the outcome and which one was the predictor. We opted instead for an exploratory approach and aimed to perform two Hierarchical Multiple Regression models, respectively with sexting and friendship quality as the outcome variables. We reasoned that this approach would allow us to explore the reciprocal associations between our main variables of interest (sexting, friendship quality, and social competence), while also controlling for important demographic factors such as age, gender, sexual orientation, and nationality. As such, there are two broad research questions that are investigated using a quantitative approach.

(1) Do distinct social competence components and friendship quality predict sexting behaviour?
(2) Do distinct social competence components and sexting behaviour predict friendship quality?

2. Materials and methods

2.1. Participants

This study utilised a cross-sectional design where a quantitative survey with questions related to sexting, friendship quality, and social competence were given to a sample of adolescents aged 15–18 years in post-primary schools across Ireland. Recruitment was a process of convenience. Pre-service teachers enrolled in the teacher training programme from the authors' university were asked to administer the survey while on teaching placement in schools at various locations across Ireland. School principals received an email including relevant information about this study. Upon receiving approval from school principals, parents received information about the study and were asked to sign a consent form if they agreed for their children to take part in the study. The survey was delivered online using computer rooms/labs in the schools and took place in-person during the period of October 2018–March 2019. The sample included 620 students (7 of which declined to participate) from 12 participating schools. This resulted in a final sample of 613 adolescents with a mean age of 15.9 (*sd* = 1.4). Responses were completely anonymous at both the pupil and school level. Students were informed that they did not have to complete the survey and were free to stop participating at any time. This study received ethical approval from the authors' university ethics review board.

2.2. Measures

2.2.1. Demographics

Demographic information relating to sex, age, sexual orientation, and nationality was obtained. Participants were asked to select 'female' 'male' or 'other' in response to the question 'What is your gender?'. Only one participant selected the 'other' option and was removed from analysis. Participants were asked to select their nationality, sexual orientation/identity, and age from a drop-down list. Responses were later recoded as 'Irish' and 'Other' for the nationality question and 'Heterosexual; and 'Other' for the sexual identity question. The majority of the sample identified as being female (71.8%), heterosexual (90.7%) and Irish (83%).

2.2.2. Sexting

The sexting items administered in this study were adjusted from previous literature (Foody et al., 2021; Patchin & Hinduja, 2019; Wolak et al., 2018). A definition of sexting was not provided to participants, but the following explanation was provided before the relevant questions were asked: '*The following questions relate to the sharing of sexual images. These can be nude or semi-nude pictures that you may have taken yourself or someone else may have taken.*' We initially conceptualised the questions into those relating to *sending sexts* (i.e., 'Have you sent a sexual image, sext or video (nude or semi-nude) of yourself to someone else in the past?) and receiving sexts (i.e., 'Have you ever received a sexually explicit image or video (nude or semi-nude)? However, as outlined in the supplementary materials, the item difficulty and discrimination parameters (IRT) analysis did not allow for the 'receiving' category to be created. As such, this study will focus only on the 'sending' of sexual images. Answer options for the '*sending question*' were 'Never', 'Once', 'A few times' and 'Many times'.

2.2.3. Social competence

The Adolescent Multidimensional Social Competence Questionnaire (AMSC -Q; Gómez-Ortiz et al., 2017) contained 26 items measuring the five factors underlying social competence: cognitive re-appraisal (e.g., '*When faced with a stressful situation, I try to think about it in a way that helps me to keep calm")*, social adjustment (e.g., "*My classmates and friends come to me when they have a problem")*, prosocial behaviour (e.g., '*I react to defend a classmate who gets made fun of or picked on')*, social efficacy (e.g., '*In relationships with my teachers, I feel that I do things well')*, and normative adjustment (e.g., '*I respect other people's opinions even if I don't share them*). A five-point Likert-type scale was used for answer options that ranged from 'Strongly disagree' to 'Strongly agree'. Benefits of this scale include its previous focus on the adolescent period and its former validation with an Irish sample (Gómez-Ortiz et al., 2019). An Exploratory Factor Analysis was computed to test the psychometric properties of the Adolescent Multidimensional Social Competence Questionnaire. The findings of the EFA can be found in the supplementary materials (Table S1).

2.2.4. Friendship quality

A modified version of the Cambridge Friendship Questionnaire (Goodyer et al., 1989, 1990) was included to investigate the friendship quality. This questionnaire contains six questions with different answer options. Initially, response options to the second and fourth question required simple YES/NO answers (e.g., 'Are you happy with the number of friends you have?'), while responses to the first, third and fifth questions (e.g., "*Overall how happy are you with your friends?*' required Likert type answers (i.e., (1) very happy, (2) quite happy, (3) quite unhappy, and (4) unhappy). Regardless of the question type, the response options were re-coded as binary. For example, the answer to the question "Do your friends know what makes you happy or sad?" were recoded as 0 for 'No' and 1 for 'Yes'. For question 6 (*Overall, how happy are you with your friends?),* answer options were recorded as 0 ("unhappy' and "quite unhappy') and 1 ('quite happy and very happy). A two-parameter logistic (2 PL) model of Item Response Theory (IRT, i.e., item difficulty and discrimination parameters), using the latent trait model (*ltm*) package in R (Rizopoulos, 2006), was used to test construct validity of the *Friendship Quality Scale*. The findings of the IRT-PL 2 can be found in the supplementary materials (Table S2).

2.3. Data analyses

IBM SPSS v.27 statistical software and R programming language were used to perform the statistical analyses. Descriptive statistics were calculated for all study variables (Table 1). Two Hierarchical Multiple Regression models were tested to investigate the associations between adolescent sexting behaviour (i.e., sending sexual images) (Model 1) and friendship quality (Model 2). The first model included sexting behaviour

Table 1
Descriptive statistics for the demographic variables.

Variables	n	%	M	SD	Min. - Max.
Gender					
Males	169	28.2			
Females	430	71.8			
Sexual Orientation					
Heterosexual	545	90.7			
Other	56	9.3			
Nationality					
Irish	499	83.0			
Other	102	17.0			
Age			15.9	1.4	12–18

Notes. N = 613.

as an outcome variable, and social competence and friendship quality as predictor variables. The second model included friendship quality as an outcome variable and social competence and sexting behaviour as predictors. Gender, age, sexual orientation, and nationality were controlled for in both models.

3. Results

3.1. Descriptive statistics of demographic, independent, and dependent variables

Table 2 presents descriptive statistics of the independent and dependent variables. The majority of the sample reported never sending a sext (70.4%), 8.1% reported sending once, 15.2% a few times and 6.3% many times. The mean scores for social competence ranged from 3.5 to 3.9, which is slightly above the midpoint, indicating relatively high levels of social competence among adolescents participating in this study. Similarly, the mean score for friendship quality was above the midpoint ($M = 4.5$), indicating high levels of friendship quality in our sample.

3.2. Model 1: A hierarchical multiple regression analysis of adolescent sexting behaviour

A three-step hierarchical multiple regression was performed to estimate the prediction of sending sexts, after controlling for demographic variables including gender, sexual orientation, age, and nationality (Step 1). Moreover, Model 1 included the five social competence factors, namely social adjustment, cognitive reappraisal, normative adjustment, prosocial behaviour, and social efficacy (Step 2); and friendship quality (Step 3). As shown in Table 2, demographic variables (included in Step 1) accounted for 11% of the variation in sexting behaviour, $R^2 = 0.11$, F (4, 515) = 15.99, $p < .001$. Step 2 added the five social competence factors to the model, which increased 4% of variation in sexting behaviour, $R^2 = 0.15$, F (9, 510) = 9.96, $p < .001$. Friendship quality

Table 2
Descriptive statistics of independent and dependent variables.

Variables	n	%	M	SD	Min. - Max.
Sexting Behaviour (Senders of a sexual image, sext, or video)					
Never sent	380	70.4			
Sent once	44	8.1			
Sent a few times	82	15.2			
Sent many times	34	6.3			
Social Competence					
Cognitive Reappraisal			3.5	0.8	1–5
Social Adjustment			3.8	0.7	1–5
Prosocial Behaviour			3.8	0.7	1–5
Social Efficacy			3.9	0.7	1–5
Normative Adjustment			3.8	0.7	1–5
Friendship Quality			4.5	1.3	0–6

Notes. N = 613.

(included in Step 3) increased only 1% of variation in the model. As a result, all together the 10 predictor variables accounted for 16% in the variation in sexting behaviour, $R^2 = 0.16$, F (10, 509) = 9.48, $p < .001$. The results indicate that age, prosocial behaviour, and friendship quality positively predicted sexting behaviour, while social and normative adjustment negatively predicted the sending of sexts.

3.2.1. Age and gender in sexting

Gender was non-significant in all the three steps of the regression analysis. This same result was also obtained when applying a χ^2 test, where $p = .086$. Age was significant in all the steps of the model, indicating that sexting behaviour changes within the age groups. The coefficient was positive (with $p < .001$), indicating that the older the participants get, the more they are involved in sexting behaviour.

3.3. Model 2: a hierarchical multiple regression analysis of friendship quality

A three-step hierarchical multiple regression was conducted to estimate the prediction of friendship quality, after controlling for demographic variables, including gender, sexual orientation, age, and nationality (Step 1); Model 2 included the five factors of social competence, i.e., social adjustment, cognitive reappraisal, normative adjustment, prosocial behaviour, social efficacy (Step 2); and sexting behaviour (Step 3). As shown in Table 3, the demographic variables (included in Step 1) accounted for 2% of the variation in friendship quality, $R^2 = 0.02$, F (4, 515) = 2.86, $p < .05$. Step 2 added the five dimensions of social competence, which increased 22% of the variation in friendship quality, $R^2 = 0.24$, F (9, 510) = 17.90, $p < .001$. The last step (Step 3) included sexting behaviour and increased only 1% of variation in the model. As a result, all together the 10 independent variables accounted for 25% of the variation in friendship quality, $R^2 = 0.25$, F (10, 509) = 16.67, $p < .001$. The results of this model indicate that while gender, sexual orientation, and nationality (as control variables) were significantly associated with friendship quality in Step 1, after adding the social competence dimensions and sexting behaviour, friendship quality was positively predicted only by social adjustment and sending of sexts (see Table 4).

3.3.1. Age and gender in friendship quality

Age was non-significant in all the three steps of the regression analysis. Gender was a significant predictor in Step 1 of the model, indicating that females were more likely to report higher levels of friendship quality. However, after including all the variables (Step 3), gender became non-significant.

4. Discussion

Previous research has suggested that adolescents' motivations for sharing intimate images with their peers (creating and editing sexts) are associated with the formation, and maintenance of friendships and intimate relationships (Holla, et al., 2018). Indeed, the sharing of intimate images is more likely to happen among adolescents who perceive that their peers approve of this behaviour (Baumgartner et al., 2011). In parallel, existing research suggests that adolescents with high levels of social competence (especially high levels of prosocial behaviour) are less likely to engage in the (consensual and non-consensual) sharing of intimate images (Casas et al., 2019). Despite a small number of studies emerging in this area, it is unclear to what extent friendship quality and/or social competence play a role in sexting. It is just as unclear what role sexting could play in relation to social competence and friendship quality. As such, this study sought to parse out the complex relationship between these three key variables in adolescent development. We adopted an explorative approach and performed two regression models to investigate which one might provide a better idea of the complex relationship between social competence, friendship, and sexting.

Table 3

Hierarchical multiple regression results for predictors of sexting behaviour.

Variables	B	95% CI for B		SE B	B	R^2	ΔR^2
		LL	UP				
Step 1						.11	.11***
Constant	.56***	0.22	0.90	0.17			
Sexual orientation	.21	−0.06	0.47	0.14	0.06		
Nationality	−.07	−0.28	0.13	0.11	−0.03		
Gender	−.09	−0.27	0.08	0.09	−0.04		
Age	.21***	0.15	0.27	0.03	0.31		
Step 2						.15	.04***
Constant	1.39***	0.73	2.05	0.33			
Sexuali orientation	.22	−0.05	0.48	0.14	0.07		
Nationality	−.10	−0.31	0.10	0.10	−0.04		
Gender	−.04	−0.22	0.14	0.09	−0.02		
Age	−.21***	0.16	0.27	0.03	0.31		
Cognitive Reappraisal	−.02	−0.13	0.08	0.05	−0.02		
Social Adjustment	−.18*	−0.33	−0.03	0.08	−0.13		
Prosocial Behaviour	.17*	0.02	0.33	0.08	0.12		
Social Efficacy	.08	−0.08	0.23	0.07	0.06		
Normative Adjustment	−.28***	−0.42	−0.15	0.07	−0.20		
Step 3						.16	.01*
Constant	1.25***	0.58	1.92	0.34			
Sexual orientation	.23	−0.04	0.49	0.14	0.07		
Nationality	−.09	−0.30	0.11	0.10	−0.04		
Gender	−.30	−0.21	0.15	0.09	−0.01		
Age	.22***	0.16	0.27	0.03	0.32		
Cognitive Reappraisal	−.03	−0.13	0.08	0.05	−0.02		
Social Adjustment	−.24**	−0.40	−0.08	0.08	−0.18		
Prosocial Behaviour	.18*	0.03	0.33	0.08	0.13		
Social Efficacy	.07	−0.08	0.22	0.08	0.05		
Normative Adjustment	−.27***	−0.41	−0.14	0.07	−0.20		
Friendship Quality	.07*	0.01	0.14	0.04	0.10		

Note. N = 520; CI = confidence interval; LL = lower limit; UL = upper limit.
*p < .05, **p < .01, ***p < .001.

The design of this study allowed us to gather some prevalence rates for the answer to the item *'Have you sent a sexual image, sext or video (nude or semi-nude) of yourself to someone else in the past?'*. The majority of this sample of 15–18 years olds answered 'Never' to this, while nearly 30% reported doing so once or multiple times (i.e., this rate includes respondents who indicated that they were sending sexts once, a few times or many times). As shown above, this is a similar prevalence rate for the sending of sexts to another study conducted in Ireland with the same age group of adolescents (Foody et al., 2021).

This study focused on the broader role the action of sending sexts might have in terms of adolescent social behaviour. As mentioned, it was difficult to decipher a hypothesis as to the direction of the relationships between sending sexts, friendship quality and social competence based on previous literature. A such, we performed two investigative hierarchical regression models, the first of which was designed to answer the question: *Do distinct social competence components and friendship quality predict sexting behaviour?* This allowed us to focus on both social competence and friendship quality and their predictive value for sending sexts. The results showed that two components of social competence, namely social adjustment and normative adjustment were negatively associated with sending sexts. Social adjustment can be defined as the degree to which adolescents engage in socially competent behaviours, which leads to being socially accepted (Gómez-Ortiz et al., 2019). Adolescents who are socially adjusted may not turn to sexting to be accepted in the peer group (Walrave et al., 2014). In fact, these adolescents may already be part of a peer group and feel accepted by their peers. Moreover, adolescents who show high levels of normative adjustment (adherence to social rules) might perceive sending sexts as inappropriate or might feel that their peers might not approve of sexting (Kurup et al., 2022). The findings of the regression analysis (Model 1) showed a positive association between prosocial behaviour and sexting. This finding is in contrast with previous research documenting a negative association between prosocial behaviour, sending, receiving, and forwarding of sexts (Casas et al., 2019). Sending sexts could be

interpreted as an intimacy-seeking behaviour aimed at fostering relational bonds (Gil-Llario, Morell-Mengual, Jiménez-García, & Ballester-Arnal, 2020). Similarly, prosocial behaviour encompasses a number of social behaviours that are intended to benefit others (e.g., sharing; being concerned and helping others; Brittian & Humphries, 2015). Although sending sexts and showing prosocial behaviour may be related to distinct motivations, yet they could share some underlining aspects. For example, both sending sexts and showing prosocial behaviour could be expression of the motivation to strengthen relational bonds. However, given the limited evidence in the existing literature, further research is needed to corroborate these speculations.

The addition of friendship quality in step 3 slightly changed the R^2 explaining the variance in sending sexts (from 15% to 16%). Taken together, these results indicate little difference between social competence and friendship quality in terms of predicting the action of sending sexts in a sample of adolescents. Adolescents who report high levels of friendship quality are more likely to have close relational bonds with their peers, entailing social and emotional support (Wagner, 2018). Close relationships with friends could provide a prototype for romantic relationships, while sustaining adolescents' positive self-image (Kochendorfer & Kerns, 2018). This, in turn, could serve as a safe avenue in terms of expressing romantic interest and engaging in sexting.

The second hierarchical regression model was designed to answer the question: *Do distinct social competence components and sexting behaviour predict friendship quality?* The variance explained by the second model was slightly higher at 25%. This model also controlled for demographic variables in Step 1; however, it included social competence and sexting in step 2 and step 3 respectively to explore whether these variables predicted adolescents' scores on the friendship quality scale. Findings showed that social adjustment and sexting behaviour predict friendship quality. However, similar to the previous model, there was little change in the R^2 value from step 2 to step 3, indicating a small role for sending sexts in predicting friendship quality.

In line with previous research, adolescents negotiate social norms

Table 4
Hierarchical multiple regression results for predictors of friendship quality.

Variables	B	95% CI for B		SE B	β	R²	ΔR²
		LL	UP				
Step 1						.02	.02*
Constant	4.90***	4.42	5.38	0.25			
Sexual orientation	−.39*	−0.76	−0.02	0.19	−0.09		
Nationality	−.30*	−0.59		0.15	−0.09		
Gender	.17**	−0.23	−0.01	0.13	0.01		
Age	−.05	−0.13	0.26	0.04	−0.06		
Step 2						.24	.22***
Constant	1.91***	1.07	2.74	0.42			
Sexual orientation	−.13	−0.47	0.20	0.17	−0.03		
Nationality	−.14	−0.40	0.12	0.13	−0.04		
Gender	−.12	−0.35	0.11	0.12	−0.04		
Age	−.05	−0.12	0.02	0.04	−0.05		
Cognitive Reappraisal	.07	−0.07	0.20	0.07	0.04		
Social Adjustment	.83***	0.64	1.02	0.10	0.47		
Prosocial Behaviour	−.11	−0.30	0.08	0.10	−0.06		
Social Efficacy	.10	−0.09	0.30	0.10	0.06		
Normative Adjustment	−.11	−0.28	0.06	0.09	−0.06		
Step 3						.25	.01***
Constant	1.74***	0.90	2.59	0.43			
Sexual orientation	−.16	−0.50	0.18	0.17	−0.04		
Nationality	−.13	−0.39	0.13	0.13	−0.04		
Gender	−.12	−0.35	0.11	0.12	−0.04		
Age	−.07	−0.15	0.00	0.04	−0.08		
Cognitive Reappraisal	.07	−0.06	0.20	0.07	0.05		
Social Adjustment	.85***	0.66	1.04	0.10	0.48		
Prosocial Behaviour	−.13	−0.32	0.62	0.10	−0.07		
Social Efficacy	.09	−0.10	0.29	0.10	0.05		
Normative Adjustment	−.08	−0.25	0.10	0.09	−0.04		
Sexting Behaviour	.12*	0.01	0.23	0.06	0.09		

Note. N = 520; CI = confidence interval; LL = lower limit; UL = upper limit.
*p < .05, **p < .01, ***p < .001.

with their peers, and are more likely to be accepted when they conform to the peer group norms (Nesi et al., 2018), which could explain the positive association between social adjustment and friendship quality. In parallel, sexting behaviour could be framed as a normative behaviour in some peer groups, in terms of adolescents bonding with peers through engaging in sexting (Goggin & Crawford, 2010; Strassberg et al., 2013). Although the sexting items administered in this study did not inquire about the nature of the relationship between the sender and the recipient of the intimate images, it is likely that adolescents tend to share sexts with their friends and not just with their real or potential romantic partners. In this respect, previous qualitative research has shown that sexting might occur between genuinely platonic friends (White et al., 2016). Moreover, sharing intimate images could be a source of humour or a type of joke among friends (Burkett, 2015). Adolescents may also share intimate images with their friends to gain feedback on their physical appearance (Burkett, 2015). Thus, sending sexts could strengthen relational bonds and improve friendship quality (Holla et al., 2018; Rodríguez-Castro et al., 2017).

Finally, tthere was no significant association between gender and sending sexts, a result also found in previous research (Foody et al., 2021). Findings also showed that gender did not predict friendship quality. This finding could be attributed to the sample being quite unbalanced in terms of gender, as most respondents identified themselves as girls. However, the results from the first model did point to a change in frequency of sending sexts such that the older the participants get, the more they are involved in sexting behaviour, which resonates with previous research (Baumgartner et al., 2014). This is not surprising, given the trajectory of sexual development across the adolescent years, while it does point to the need to consider engagement with sexting within the developmental profile of the adolescent years (Campbell & Park, 2014).

The lack of significant findings for sexual orientation may be attributable to the small subsample (N = 56) of adolescents belonging to sexual minorities participating in this study, which may have precluded any significant effects to emerge. Unfortunately, the present study did not disentangle between different nationalities or migration status. Adolescents who indicated that they had a nationality other than Irish, may have lived in Ireland for quite a long time or may have been born in Ireland. As a result, they may easily assimilate and conform to the peer group norms (O'Sullivan-Lago & de Abreau, 2010). In other words, the lack of significant findings in terms of respondents' nationality may be attributable to the fact that Irish respondents and those with a non-Irish nationality might be quite similar in terms of how they conceive sexting within their peer groups.

4.1. Limitations and future directions

This work is limited in the conclusions that can be drawn from cross-sectional research. In addition, the results cannot be considered generalisable to all adolescents in Ireland considering that recruitment was facilitated by pre-service teachers in the teaching training programme at the authors' university. Also, sending and receiving sexual images were assessed by administering only one item respectively. The use of questionnaires to assess sexting is recommended for further research. The adoption of questionnaires would also allow to differentiate between sending self-made intimate images and sharing images of others without consent. Indeed, existing research has shown that distinct meanings and motivations are attached to these distinct behaviours, whereby sending self-made intimate images can be framed as a form of sexual exploration, whereas sharing intimate images without consent can be understood as a form of sexual abuse (Doyle et al., 2021). Also, it is hoped for future research to collect data with samples including a larger number of sexual and ethnic minority respondents. Longitudinal research is warranted as a next step for both investigations of sexting and the developmental and social factors associated with social competence and the peer group more widely. Approaching a similar study from a longitudinal perspective would be worthwhile as it would also allow for the untangling of the causal associations between social competence, friendship and involvement in sexting.

5. Practical implications

The findings of this study have implications for policy, practice, and educational programmes. Given its implications for adolescent social development, sexting should be addressed in the context of adolescent offline and online peer relationships. Existing evidence suggests, indeed, that offline and online behaviours are inextricably related (Finkelhor et al., 2021). Thus, adopting an integrated approach that addresses both online (safe sexting) and offline behaviours (peer relationships) could support adolescent social and sexual development. In this respect, practitioners and policy makers should be aware of the different functions that sexting may serve within adolescent groups among which, its role in relation to friendship. Thus, it is paramount to make a distinction between sexting behaviour that is related to normative sexual and social development (Campbell & Park, 2014) and that could even foster friendship, as suggested in the present study, from abusive forms of sexting (Doyle et al., 2021). Finally, based on the findings of this study, sending sexts could be associated with low social competence skills (in

terms of social adjustment and normative adjustment). Adolescents with poor social competence skills may benefit from a social competence training, which could help them to connect with peers in ways that are socially acceptable (Kurup et al., 2022).

6. Conclusions

Findings of this study underscore the importance of investigating teenage sexting in conjunction with different aspects of adolescent social development, including social competence and friendship quality. Importantly, findings point to the need to consider distinct components of social competence separately, as each of them could play a specific role in relation to teenage sexting. This study corroborates previous research showing the importance of considering social development factors when investigating teenage sexting (Casas et al., 2019). Together with placing sexting in the context of adolescent sexual development (Campbell & Park, 2014), investigating this phenomenon in relation to social development could provide important insights into the functions and role of sexting during adolescence.

Credit author statement

MF, Conceptualisation, Methodology, Investigation, Project administration, Funding acquisition, Writing – original draft. SK, Conceptualisation, Formal analysis, Data curation, Writing – original draft, Writing – review & editing. AS, Formal analysis, Data curation, Writing – original draft, Writing – review & editing. AM, Conceptualisation, Writing – original draft, Writing – review & editing. JOHN, Supervision.

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Declaration of competing interest

None'

Data availability

Data will be made available on request.

Appendix A. Supplementary data

Supplementary data to this article can be found online at https://doi.org/10.1016/j.chb.2023.107651.

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