Presentation on Facebook and risk of cyberbullying victimisation

Rebecca Dredge *, John Gleeson, Xochitl de la Piedad Garcia

School of Psychology, Australian Catholic University, 115 Victoria Parade, Fitzroy, Melbourne 3065, Australia

ARTICLE INFO

ABSTRACT

Facebook is an environment in which adolescents can experiment with self-presentation. Unfortunately, Facebook can also be an environment in which cyberbullying occurs. The aim of the current study was to investigate whether specific self-presentation behaviours in Facebook were associated with cyberbullying victimisation for adolescents. The contents of 147 adolescent (15–24 years) Facebook profile pages were recorded and used to predict cyberbullying victimisation. Coded contents included the presence or absence of Facebook profile features (e.g., relationship status) and the specific content of certain features (e.g., type and valence of wall posts). Participants completed measures of cyberbullying victimisation and traditional bullying victimisation and perpetration. More than three out of four participants reported experiencing at least one victimisation experience on Facebook in the preceding 6 months. A series of Facebook features and experiences of traditional bullying victimisation/perpetration were found to be associated with an increased risk of cyberbullying victimisation. Number of Facebook friends and traditional bullying victimisation were also significant predictors of cyberbullying victimisation. These results support the hypothesis that self-presentation on Facebook can increase the likelihood of eliciting negative attention from potential perpetrators. This has important implications for the development of cyberbullying prevention and education programs that teach adolescents about measures they may take to decrease their risk for cyberbullying victimisation within social networking sites like Facebook.

© 2014 Elsevier Ltd. All rights reserved.

1. Introduction

The use of social networking sites (SNS) such as Facebook, Twitter and Instagram is prolific amongst young people (Duggan & Smith, 2014; Madden et al., 2013). Self-presentation is a central feature of SNS because their interface is based around the creation of visible personal profiles that display a friends list, personal information, and photos. Unfortunately, SNS have also become environments in which users can target and harass other users. This phenomenon is typically called cyberbullying (Smith et al., 2008). Consequently, the associations between the ways in which young SNS users manage their online self-presentation and risk of cyberbullying, has recently begun to attract the interest of researchers.

Cyberbullying has been defined in the research literature as "an aggressive, intentional act carried out by a group or individual, using electronic forms of contact, repeatedly and over time against a victim who cannot easily defend him or herself" (Smith et al., 2008, p. 376). Published reports of cyberbullying prevalence rates in teens (generally below 18 years of age) have ranged from 6%

to 30% (Sabella, Patchin, & Hinduja, 2013) and victimisation experiences have been associated with multiple emotional, cognitive and behavioural impacts such as social anxiety (Dempsey, Sulkowski, Nichols, & Storch, 2009), poor concentration (Beran & Li, 2005), suicidal thoughts and behaviours (Hinduja & Patchin, 2010), and lower school grades and poor school attendance (Price & Dalgleish, 2010).

Considering the associated negative outcomes, it is important to identify factors that influence the risk of cyberbullying victimisation. Victimisation has been defined as an individual's "self-perception of having been exposed, either momentarily or repeatedly, to aggressive actions emanating from one or more other persons" (Aquino & Bradfield, 2000, p. 172). There are multiple factors that may influence the risk of victimisation. Victimologists have suggested that these may include perpetrator characteristics, environmental factors, or victim behaviour (Elias, 1986). Identifying the role that victim behaviour may play in the likelihood of being targeted by others, as suggested by the victim precipitation model (Timmer & Norman, 1984), is as important as focusing on perpetrator and environmental factors. According to the victim precipitation model, victim behaviour may, whether intentionally or unintentionally, elicit a response in perpetrators that leads to victimisation (Kim & Glomb, 2010). It is important

* Corresponding author. Tel.: +61 421 642 298; fax: +61 3 9953 3205.
  E-mail address: Rebecca.dredge@acu.edu.au (R. Dredge).

to note that this perspective does not blame the victim for the victimisation; rather the model identifies behavioural factors that are related to an increased risk of being targeted. The victim precipitation model has been used extensively within the criminal victimology literature (Aquino & Byron, 2002) and has been applied empirically in studies investigating the role of personality characteristics (Coyne, Seigne, & Randall, 2000), conflict management style (Aquino & Bradfield, 2000), and other organisational variables (Aquino & Thau, 2009) on risk of workplace victimisation. Therefore the victim precipitation model may also provide a framework for the study of victim-specific risk factors that increase the likelihood of being cyberbullied.

To date, research investigating factors that influence the risk of cyberbullying victimisation has focused on individual differences of young information and communications technology (ICT) users. Conflicting results regarding the role of gender as a predictor of victimisation have been reported. While some studies have found no significant difference between males and females (e.g., Patchin & Hinduja, 2006; Slonje & Smith, 2008), other studies have found that females are more at risk than males (e.g., Li, 2007; Wang, Iannotti, & Nansel, 2009). Conflicting results have also been found regarding the relationship between age and victimisation with some studies finding no relationship (e.g., Patchin & Hinduja, 2006; Smith et al., 2008), and others a positive (Kowalski & Limber, 2007) or negative relationship (Slonje & Smith, 2008). Research has also focused on the relationship between the risk of cyberbullying victimisation in young people and the extent and nature of internet and computer use. For example, time spent online and computer proficiency were significant positive predictors of victimisation among participants under 18 years of age (Hinduja & Patchin, 2008). It has also been shown that likelihood of being a cyberbullying victim was higher for those who (1) were more dependent on the internet (e.g., would surf on the internet at the expense of other activities; Vandebosch & Cleemput, 2008), (2) were more likely to chat with older online acquaintances (Walrave & Heirman, 2011), or (3) who gave passwords to others and shared personal information on a blog (Walrave & Heirman, 2011).

Other studies have found a relationship between being a cyberbullying victim and being a traditional bullying victim or perpetrator in samples of young people. Cyberbullying victims (12–18 years old) have been found to be more than six and a half times more likely to have been a cyberbullying perpetrator (Walrave & Heirman, 2011) and more than two and a half times more likely to be a traditional bullying victim (under 18 years; Hinduja & Patchin, 2008). Results from other studies have confirmed the strong relationship between both cyber and traditional bullying victimisation in children and adolescent samples (e.g., Juvonen & Gross, 2008; Li, 2007; Twyman, Saylor, Taylor, & Comeaux, 2010; Vandebosch & Cleemput, 2009). One issue regarding previous research on cyberbullying victimisation risk factors is that samples have been recruited from different populations (e.g., under 18 years old, 12–15 years, middle school students only) which makes cross study comparisons of risk factors and prevalence rates difficult.

More recently, the role of 'risky SNS practices' in online risk was investigated in 9–16 year olds (Staksrud, Olafsson, & Livingstone, 2013). Participants were asked to report the time they spent online daily, how much they knew about the internet (digital competence), whether their SNS profile was set to public/private, whether they had more than 100 SNS contacts, and whether they included specific personal information on their profiles (e.g., last name, address, phone number, school, and correct age). Cyberbullying was measured dichotomously (yes/no) in the last 12 months. Results showed that overall, 8% of participants who use SNS had experienced cyberbullying, while 10% of participants who use

SNS *and* have more than 100 friends had experienced cyberbullying. Those with public SNS profiles and those who displayed their mobile phone number or address on SNS were also more likely to be cyberbullied. However, these differences were not statistically significant. These results support the victim precipitation model in that self-presentation behaviours account for some degree of the risk in cyberbullying victimisation. While the results are interesting, this study relied on participants' self-report of SNS behaviours, which is subject to potential memory and self-presentation biases. In an effort to avoid these problems, researchers who investigate self-presentation behaviour in SNS directly view and code users' profile pages. Numerous studies have implemented this approach (e.g., Boyle & Johnson, 2010; Mehdizadeh, 2010; Zhao, Grasmuck, & Marton, 2008).

The current study extended the Staksrud et al. (2013) study that investigated the role of only a small selection of self-presentation behaviours in SNS as predictors of cyberbullying victimisation, by coding each profile page feature and the content of specific features. This study also focused on risk in adolescence as this period is considered to be critical in the development of a personal, individuated identity (Erikson, 1968). Furthermore, how adolescents choose to present in SNS may be a key part of identity development (Gonzales & Hancock, 2011). The current study was exploratory due to a lack of previous related research. The main objective was to understand the victim related factors that increase the risk of cyberbullying victimisation so that successful interventions for the prevention of cyberbullying victimisation can be developed and safer SNS environments can be constructed. More specifically, this study aimed to determine the frequency that cyberbullying victimisation occurred in Facebook in the preceding 6 months and what specific features of a Facebook profile page, that when used or used in a certain way, were associated with an increased risk of cyberbullying victimisation in adolescents.

2. Methods

2.1. Participants

As part of a larger study, 316 15–24 year old participants completed a battery of online questionnaires. Of these, 147 agreed to provide the researchers with access to their Facebook profile pages for coding purposes. Of these 147 participants, 124 (18–24 year olds) were recruited from the Melbourne campus of Australian Catholic University (ACU), a public university in Australia, and 23 (15–17 year olds) were recruited from two secondary schools in Melbourne. Overall, 28 (19%) participants were male and 119 were female (81%). The age range was 15–24 years (M = 19.12, SD = 1.98). Frequency of SNS use on a typical day, context of SNS use, and the frequency of use of each Facebook profile feature are presented in Table 1.

2.2. Measures

2.2.1. Demographic questions

These included age, gender and occupation. Participants also reported their active SNS accounts (e.g. Twitter, Facebook, and Instagram), frequency of daily SNS use, and the environments in which SNS were used.

2.2.2. Cyberbullying victimisation

Cyberbullying victimisation was measured using a 14-item self-report questionnaire measuring the frequency of specific behaviours that may have been experienced by the participant on Facebook across the preceding 6 months. An example of an item is *Someone has posted cruel messages or threats on my social network*

Table 1
Frequency of daily SNS use, Facebook features used, and context of SNS use.

Characteristic	%	Characteristic	%
Daily SNS use		Use of Facebook profile feature[a]	
Once	2.1	Cover photo	93.9
2–3 times	21.4	Profile picture	100
4–6 times	33.1	School	83.7
7–10 times	22.1	University	79.8
11–15 times	6.9	Employment	59.9
More than 15 times	14.5	Current city	83.7
Where SNS accessed[a]		Relationship	73.5
At school/university	85.0	Family	85.0
At work	37.4	About me	36.7
Whilst socialising	68.7	Gender	82.3
During mealtimes	23.1	Interested in	47.6
When commuting	78.9	Languages	19.0
Whilst studying	56.5	Religion	31.3
Whilst watching TV	80.3	Political views	12.2
Before I go to bed	86.4	Email	0
When I wake up	70.1	Mobile phone	9.5
Sport/at the gym	5.4	Other phone number	0.7
		IM screen	7.5
		Address	6.1
		Website	3.4
		Networks	11.6
		Favourite quotation	27.2
		Following others	40.4

[a] Adds up to more than 100% because each participant could select more than one answer.

profile page about me. Respondents were asked to indicate the frequency with which they had experienced each behaviour on a 7-point response scale. Item responses were *never, less than once a month, once a month, 2–3 times a month, once a week, 2–3 times a week* and *daily*. Cronbach's alpha for the 14-item victimisation scale was .82. A complete list of items, along with prevalence rates, appears in Table 2.

2.2.3. Adolescents peer relations instrument

(APRI; Parada, 2000) is a questionnaire that entails two 18-item self-report scales measuring bullying victimisation (Cronbach's α = .94) and bullying perpetration (Cronbach's α = .93) over the past year (Finger, Yeung, Craven, Parada, & Newey, 2008). Each item (e.g., *In the last year, I was pushed or shoved*) is rated on a 6-point scale ranging from 1 (never) to 6 (everyday). Within each scale, there are three subscales representing the frequency of verbal, physical and social bullying as both the perpetrator and victim (Cronbach's α ranging from 0.84 to 0.94; Finger et al., 2008).

2.3. Procedure

Participants from ACU were provided with an information letter and the link to the online questionnaire through an online research participation system. Informed consent was obtained before questionnaire completion. Participants from secondary schools were given access to the online questionnaires after parental consent and participant assent was obtained. Upon completion of the questionnaires, participants were invited to add the purpose-made Facebook researcher account as a friend to their own Facebook account. The participants were "defriended" (i.e., Facebook friendship disconnected) from the researcher account once the coding of the participant's profile page was completed. The coding scheme developed in this study was similar to that used in previous studies (Amichai-Hamburger & Vinitzky, 2010; Moore & McElroy, 2012). However, the current coding scheme included additional features available on Facebook profiles (refer to online supplementary material for full Facebook Coding Manual).

First, the presence or absence of Facebook profile features (e.g. whether participants listed their relationship status or their

gender) were coded. Second, the specific content of specific features was coded (e.g. the characteristics of the cover and profile pictures). Finally, the type (e.g., status update, check in) and valence (positive, negative or neutral) of the 10 most recent wall posts (i.e., the posting of messages, photos, or links to websites) for each participant was also coded. For the cover photo and profile picture, the following details were coded: (a) content of picture (e.g., people, animals, scenery or other); (b) when it presented a person/people, whether the picture was a close up or full body picture; (c) when it presented a person/people, the gender of those pictured, their attire, presence/absence of alcohol, and affect (e.g., smiling, neutral). Two independent coders examined each profile page between April and November, 2013. To test inter-rater agreement, 20% of the profiles were randomly selected and coded independently by both coders. Ten items were randomly sampled from the items in the Facebook Coding Manual and assessed using two-way mixed intra-class correlations. Intra-class correlations ranged between .90 and 1 indicating high inter-rater reliability.

3. Results

3.1. Frequency of cyberbullying victimisation

In the preceding 6 months, 51% reported having experienced more than one of the 14 behaviours (M = 2.54, SD = 2.89), 25.9% reported having experienced one of the 14 behaviours, and 23.1% of participants reported that they had not experienced any of the SNS victimisation behaviours. Table 2 shows the observed frequencies of each target behaviour. The most prevalent reported behaviour was deliberate blocking of participants ("defriending") from a social networking site.

Participants also indicated the frequency with which they had experienced each behaviour in the preceding 6 months. A *total cyberbullying victimisation* score was computed by summing the total number of behaviours experienced weighted by their frequency. Therefore, *total cyberbullying victimisation* could range from 0 to 84. The observed range in the sample was 0–20 (M = 3.09, SD = 3.90) indicating that few participants had experienced multiple behaviours at high frequencies. No significant relationships between *total cyberbullying victimisation* and age, gender, or daily SNS use were found.

3.2. Relationships between Facebook features and cyberbullying victimisation

Due to positive skewness in most of the variables of interest, Spearman correlations between continuous Facebook features and *total cyberbullying victimisation* in the preceding 6 months were calculated. Point-biserial correlations were conducted between dichotomous (yes/no) Facebook features and *total cyberbullying victimisation*. Results are provided in Tables 3 and 4. Following other Facebook users, the number of days until first wall post, the number of negative wall posts, and traditional bullying victimisation and perpetration were significantly associated with cyberbullying victimisation.

The relationship between coded features with more than two possible values (e.g. type of relationship status and the content of profile/cover photos) and cyberbullying victimisation were examined through a series of one-way between groups analyses of variance (ANOVA). Cyberbullying victimisation in the preceding 6 months was significantly related to type of relationship status, $F(3, 143)$ = 3.78, p = .012, η^2 = .073. Post hoc analyses with Tukey's HSD (with α = .05) revealed that those who stated that their relationship status was 'married' reported significantly more cyberbullying victimisation (M = 20.80, SD = 5.96) than those who did not

Table 2
Frequency of specific cyberbullying behaviours experienced in preceding 6 months.

Behaviour	%
Someone has deliberately defriended/blocked me from their social networking site	48.3
Someone has hacked into my social networking page after I did not log out	37.4
Someone has sent me abusive or cruel emails/inbox messages on my social networking page	25.9
Someone has uploaded nasty or embarrassing images of me onto a social networking site without my consent	24.5
Someone has sent others abusive or cruel emails/inbox messages about me on their social networking page	17.7
Someone has posted false information about me on a social networking site page	15.0
Someone has used social networking sites to hurt or damage my reputation	15.0
Someone has posted cruel messages or threats on someone else's social network profile page about me	13.6
Someone has set up a social networking site page and excluded or ostracised me	12.2
Someone has posted cruel messages or threats on my social network profile page about me	12.9
Someone has hacked into my social networking page after attaining my login details	11.6
Someone has taken information I posted on a social networking site and used it against me	10.9
Someone has set up a social networking site page posing as me	6.8

report their relationship status (M = 16.31, SD = 2.95), those who reported they were 'single' (M = 16.88, SD = 4.24), and those who reported they were 'in a relationship' (M = 17.12, SD = 3.51), with no significant differences between the latter three groups.

3.3. Logistic regression analyses for cyberbullying victimisation

Because the *total cyberbullying victimisation* variable was positively skewed, it was dichotomised. Those who reported no experience with any of the 14 victimisation behaviours were given a score of zero and those who reported experiencing one or more of the victimisation behaviours were given a score of one. Point-biserial correlations were calculated to test the relationship between continuous Facebook features, APRI scores and the dichotomous cyberbullying victimisation variable. Phi-coefficients were calculated for dichotomous (yes/no) Facebook variables. Number of friends was standardised because there was a large disparity across participants (Range = 87–1064; M = 511, SD = 237.37). Variables with significant associations were included in a backward stepwise logistic regression to examine the risk factors for cyberbullying victimisation. These variables included number of friends, traditional bullying victimisation, and whether or

Table 4
Correlations between content of Facebook features, related concepts, and cyberbullying victimisation.

Variable	M (SD)	r
Number of friends	511.00 (237.37	.16
Number of photos	305.00 (297.80)	.01
Number of check-ins	103.00 (107.08)	.1
Number of liked pages	517.00 (700.87)	.15
Number of notes	.78 (4.69)	.09
Number of days to post 10 WPs	170.00 (210)	−.14
Number of days to first WP	19.86 (40.12)	−.17[*]
Number of status updates (WP)	3.67 (2.58)	.09
Number of check-ins (WP)	.67 (1.06)	.04
Number of check-ins with photo (WP)	.31 (.95)	−.02
Number of links (WP)	.87 (1.56)	.09
Number of videos (WP)	.27 (.72)	.01
Number of shared photos (WP)	4.09 (2.55)	−.12
Number of negative WP	1.05 (1.49)	.30[**]
Number of positive WP	5.24 (2.25)	−.12
Number of neutral WP	3.60 (2.16)	−.08
Traditional bullying perpetration	24.43 (9.25)	.27[**]
Traditional bullying victimisation	29.99 (13.05)	.38[**]

WP = wall post.
[*] $p < .01$.
[**] $p < .05$.

not the profile owner reported their city of residence. Table 5 shows the results of this analysis. The final model included two significant predictor variables. Each increase in one standard deviation of number of friends was associated with nearly a twofold increase in risk of cyberbullying victimisation. Traditional bullying victimisation was associated with an 11% increase in cyberbullying victimisation risk.

4. Discussion

The current study utilised the victim precipitation model to investigate the relationship between victims' behaviour and the risk of victimisation. More specifically, we aimed to determine the frequency of cyberbullying victimisation in Facebook in the preceding 6 months and to explore whether specific online self-presentation behaviours in SNS and associated constructs were related to the likelihood of cyberbullying victimisation.

4.1. Frequency of victimisation behaviours in SNS

To the authors' knowledge, this is the first study to provide the frequencies of victimisation behaviours specifically in Facebook. Fifty-one percent of participants aged 15–24 years reported experiencing more than one victimisation behaviour in the preceding

Table 3
Correlations between Facebook Features and Cyberbullying Victimisation.

Variable	N (%)	r
Cover photo	138 (93.9)	−.01
Profile picture	147 (100)	
School	123 (83.7)	−.06
University[a]	99 (79.8)	.13
Employment	88 (59.9)	.12
Current city	123 (83.7)	.20
Relationship status	108 (73.5)	.12
Family	125 (85)	.04
About me	54 (36.7)	−.01
Gender	121 (82.3)	−.04
Interested in	70 (47.6)	.01
Languages	28 (19)	.10
Religion	46 (31.3)	.05
Political views	18 (12.2)	.15
Email	0 (0)	
Mobile number	14 (9.5)	−.01
Other phone number	1(0.7)	−.07
Instant messenger	11 (7.5)	.10
Address	9 6.1)	−.06
Website	5 (3.4)	.15
Networks	17 (11.6)	−.10
Quotes	40 (27.2)	−.02
Following others	40 (27.2)	.20[*]

[**] $p < .05$.
[a] Those under 18 years old were not included as they could not be at university.
[*] $p < .01$.

Table 5
Stepwise logistic regression model of an adolescent experiencing a negative behaviour on Facebook.

		B	SE	Wald	Sig.	Odds ratio	95% Confidence intervals for EXP(B)	
							Lower	Upper
Step 1	Number of friends	.60	.28	4.61	.03[*]	1.82	1.05	3.16
	Traditional victimisation	.10	.04	6.66	.01[**]	1.10	1.02	1.19
	Current city	−.85	.52	2.65	.10	.43	.16	1.19
	Constant	−1.12	.97	1.35	.25	.33		
Step 4	Number of friends	.67	.28	5.94	.02[*]	1.96	1.14	3.34
	Traditional victimisation	.10	.04	6.65	.01[**]	1.11	1.02	1.19
	Constant	−1.35	.98	1.91	.17	.26		

Note. R^2 = .19 (Hosmer & Lemeshow), .11 (Cox & Snell), .17 (Nagelkerke). Model $\chi^2(8)$ = 11.21, p = .19. df = 1 for each predictor.
[*] $p < .05$.
[**] $p < .01$.

6 months, which is substantially higher than has been previously reported (Sabella et al., 2013). The difference in frequencies may be due to using a behaviour based list compared to using a global victimisation item, as was used in the Staksrud et al. (2013) study, which is likely to lead to lower rates of recall. Indeed, previous research has found that frequency responses to a global item are lower than behaviour-based lists (Gradinger, Strohmeier, & Spiel, 2010). The difference may also be because other reported frequencies of victimisation have included victimisation experiences across all technological media. Either way, our reported frequencies of victimisation show that more than three out of four adolescent Facebook users (aged 15–25 years) have experienced at least one victimisation experience on Facebook in the preceding 6 months.

4.2. Risk factors associated with cyberbullying victimisation in the preceding 6 months

Number of Facebook friends was the strongest predictor in the logistic regression model. This is consistent with previous research (Staksrud et al., 2013). Having a higher number of friends may increase risk because there are more potential perpetrators with access to the victim's SNS profile page. The other significant predictor was traditional bullying victimisation which was associated with an 11% increase in cyberbullying victimisation risk. This is not as high as previous findings (Hinduja & Patchin, 2008). Furthermore, *total cyberbullying victimisation* was significantly positively associated with traditional bullying perpetration and victimisation. This is consistent with previous research (Hinduja & Patchin, 2008; Walrave & Heirman, 2011). However, traditional bullying perpetration was not a significant predictor of cyberbullying victimisation in the final logistic regression model perhaps because the sample recruited reported low scores on this measure (Actual range = 18–108, M = 24.43). Consistent with some previous research that has not found a significant difference in risk for gender and age (Patchin & Hinduja, 2006; Slonje & Smith, 2008), the present study did not find a significant relationship between gender or age of Facebook users and *total cyberbullying victimisation*. However, the lack of a gender effect could be due to the disproportionately high number of females in this sample.

The Facebook features associated with total cyberbullying victimisation in the preceding 6 months were following other users, a higher overall frequency of posting activity by the profile owner (as measured by the number of days from day of coding until first wall post) and a higher frequency of wall posts containing negative affect (out of the 10 most recent posts). Regarding the positive association found between the number of negative affect wall posts made by the individual on their profile page and total cyberbullying victimisation, such wall posts may influence the mood of others and lead to reactions or comments that the user considers a

form of victimisation. This would be consistent with the victim precipitation model. Interestingly, the type of relationship status of participants was also related to total cyberbullying victimisation. Those who stated that their relationship status was 'married' reported higher levels of victimisation compared to all other relationship status options. Qualitative feedback from the two independent raters indicated that in all these cases, the participants listed being married to one of their close friends. Therefore, it is plausible that the real risk factor for cyberbullying victimisation is falsely reporting a 'married' status.

Self-reported frequency of daily SNS use, as measured by how often participants reported logging into their SNS account(s) daily, was not associated with *total cyberbullying victimisation*. This is inconsistent with previous research that has found that more time spent online (Hinduja & Patchin, 2008), and higher dependency on the internet (Vandebosch & Cleemput, 2009) are significant predictors of cyberbullying victimisation. Such research suggests that internet use that involves simply browsing is related to an increased risk of cyberbullying victimisation. However in the current study, using SNS, and more specifically, following other users and posting at a higher frequency, was associated with *total cyberbullying victimisation*. This suggests that the risk of cyberbullying victimisation can vary depending on specific aspects of active use or direct visible activity (such as uploading negative posts) rather than more general browsing behaviour, and perhaps the use of SNS. This may be because SNS are environments in which more cyberbullying victimisation occurs of because active use is visible to others. This is consistent with the victim precipitation model that highlights the importance of victim behaviour that when seen by perpetrators, may subsequently influence potential perpetrators' actions. Our results suggest that the more actively engaged the profile owner is with their profile page, the more likely they are to be cyberbullied.

4.3. Strengths and limitations

A major strength of the current study was that a much broader range of self-presentation features within Facebook were coded compared to previous research (Staksrud et al., 2013). Self-report of the use of these features was also not relied upon. Furthermore, a comprehensive coding manual that took into account content of key features (cover photo, profile picture, and wall posts from the profile owner) was used. The association between feature content and risk of cyberbullying victimisation has not been investigated in previous research to the authors' knowledge. Therefore, this study constitutes a foundation for future research to continue to investigate adolescent self-presentation in SNS and other online environments. More specifically, the impact of self-presentation on the likelihood of being targeted and victimised needs to be examined further.

It is important to note that the sample used in the current study was obtained from the general population rather than from a population of self-identified cyberbullying victims (e.g., those who identified as having experienced cyberbullying victimisation). As a result, our sample showed a restricted range in frequency of experienced behaviours on Facebook (range was only 0–20 out of a possible 84). Although this may be the nature of the cyberbullying phenomenon, the data (including the use of Facebook features) was positively skewed. This limited the statistical approaches available and may have contributed to the non-significant correlations due to a lack of variability and restricted range in the variables. Obtaining a broader representation of experiences, including sampling from more vulnerable populations (e.g., chronic cyberbullying victims, minority populations) would enable a more in-depth understanding of the risk factors for cyberbullying victimisation so that all SNS can be informed how to minimise their risk online.

In addition, although we eliminated self-report bias regarding Facebook variables by having researchers code the Facebook profile pages of users, self-report biases may have been present when participants were asked to recall their experiences on SNS in the preceding 6 months. One approach to improve upon the ecological validity of this study would be to use experience sampling which requires participants to repeatedly respond to measurements at specific moments over a period of time whilst going about their daily life (Scollon, Kim-Prieto, & Diener, 2003). This method may eliminate recall bias and provide more detail about adolescents' experience in SNS as they occur in real or recent time.

It is also important to note that there was a gender imbalance in the sample recruited for this study with many more females participating. It is unclear whether this was due to a self-section bias and limits the sample's representativeness of the general adolescent population.

Furthermore, it must also be noted that the Staksrud et al. (2013) study used a random stratified sample of nearly 1000 participants across 25 European countries. Such a sampling approach is superior to the recruitment approach in the current study and should be considered when interpreting the victimisation frequency data.

Given the ever changing popularity of each SNS, it is important that the impact of self-presentation behaviours on victimisation in other SNS, such as Twitter and Instagram, is explored. A recent American poll showed that Twitter is now the most popular SNS amongst American teens (Piper Jaffrey., 2013). Importantly, our approach of coding the user's behaviour directly, rather than using self-report can be applied to other SNS like Twitter. For example, details about a user's relationship status can be provided in other SNS and frequency of use still applies. Other SNS also involve following other users, having numerous friends/followers and provide an opportunity to post negative affect posts. The question of whether the present results generalise to other SNS is an empirical question that will be answered when this approach is applied to the analysis of cyberbullying victimisation in other SNS. Finally, our measures of Facebook activity did not include other ways users can engage in SNS such as 'liking' others users' wall posts or posting on others' profile pages. Future research could investigate whether victimisation risk varies depending on other forms of SNS use.

4.4. Conclusions

The results of the current study are consistent with the victim precipitation model. It is not the aim of the current study to remove responsibility from the perpetrators; however the results show that cyberbullying victims have the potential to contribute to their risk of victimisation. Consequently, all SNS users need to be informed about the impact of their online behaviours in order for the prevention of cyberbullying to be successful. Within SNS, it is important that users understand that disclosing their city of residence, following others, having more Facebook friends, posting wall posts more frequently, and posting negative wall posts on their profile wall, increases the likelihood that they are targeted. It is important that this information is integrated into online safety programs. The current results also indicate that as well as online behaviours, experience as a traditional bullying victim and/or perpetrator is a risk factor for cyberbullying victimisation and needs continued consideration in future prevention efforts. This supports prevention and education programs that target offline behaviours as well. Finally, the current study has contributed to the cyberbullying research literature by developing an innovative methodology for the coding of online self-presentation behaviours in SNS and by focusing on victim specific behaviours that contribute to risk of cyberbullying victimisation.

Appendix A. Supplementary material

Supplementary data associated with this article can be found, in the online version, at http://dx.doi.org/10.1016/j.chb.2014.07.035.

References

Amichai-Hamburger, Y., & Vinitzky, G. (2010). Social network use and personality. *Computers in Human Behavior, 26*, 1289–1295. http://dx.doi.org/10.1016/j.chb.2010.03.018.

Aquino, K., & Bradfield, M. (2000). Perceived victimisation in the workplace: The role of situational factors and victim characteristics. *Organization Science, 11*(5), 525–537. http://dx.doi.org/10.1287/orsc.11.5.525.15205.

Aquino, K., & Byron, K. (2002). Dominating interpersonal behaviour and perceived victimization in groups: Evidence for a curvilinear relationship. *Journal of Management, 28*, 69–87. http://dx.doi.org/10.1177/014920630202800105.

Aquino, K., & Thau, S. (2009). Workplace victimization: Aggression from the target's perspective. *Annual Review of Psychology, 60*, 717–741. http://dx.doi.org/10.1146/annurev.psych.60.110707.163703.

Beran, T., & Li, Q. (2005). Cyber-harassment: A study of a new method for an old behaviour. *Journal of Educational Computing Research, 32*(3), 265–277. http://dx.doi.org/10.2190/8YQM-B04H-PG4D-BLLH.

Boyle, K., & Johnson, T. (2010). MySpace is your space: Examining self-presentation of MySpace users. *Computers in Human Behavior, 26*, 1392–1399. http://dx.doi.org/10.1016/j.chb.2010.04.015.

Coyne, I., Seigne, E., & Randall, P. (2000). Predicting workplace victim status from personality. *European Journal of Work and Organizational Psychology, 9*, 335–349. http://dx.doi.org/10.1080/135943200417957.

Dempsey, A., Sulkowski, M., Nichols, R., & Storch, E. (2009). Differences between peer victimization in cyber and physical settings and associated psychological adjustment in early adolescence. *Psychology in the Schools, 46*(10), 962–972. doi: 10.1002/pits.20437.

Duggan, M., & Smith A. (2014). *Pew Research Center - Social Media Update 2013*. <http://pewinternet.org/Reports/2013/Social-Media-Update/Main-Findings.aspx>.

Elias, R. (1986). *The politics of victimization: Victims, victimology, and human rights*. New York: Oxford Press.

Erikson, E. (1968). *Identity: Youth and crisis*. New York: Norton.

Finger, L., Yeung, A., Craven, R., Parada, R., & Newey, K. (2008). Adolescent peer relations instrument: Assessment of its reliability and construct validity when used with upper primary students. *AARE 2008 International Education Research Conference*.

Gonzales, A., & Hancock, J. (2011). Mirror, mirror on my Facebook wall: Effects of exposure to Facebook on self-esteem. *Cyberpsychology, Behavior, and Social Networking, 14*, 79–83. http://dx.doi.org/10.1089/cyber.2009.0411.

Gradinger, P., Strohmeier, D., & Spiel, C. (2010). Traditional bullying and cyberbullying: Identification of risk groups for adjustment problems. *Journal of Psychology, 217*(4), 205–213. http://dx.doi.org/10.1027/0044-3409.217.4.205.

Hinduja, S., & Patchin, J. (2008). Cyberbullying: An exploratory analysis of factors related to offending and victimization. *Deviant Behavior, 29*(2), 129–156. http://dx.doi.org/10.1080/01639620701457816.

Hinduja, S., & Patchin, J. (2010). Bullying, cyberbullying, and suicide. *Archives of Suicide Research, 14*, 206–221. http://dx.doi.org/10.1080/13811118.2010. 494133.

Juvonen, J., & Gross, E. (2008). Extending the school grounds? – Bullying experiences in cyberspace. *Journal of School Health, 74*, 96–505. http://dx.doi.org/10.1111/j.1746-1561.2008.00335.x.

Kim, K., & Glomb, T. (2010). Get smarty pants: Cognitive ability, personality, and victimization. *Journal of Applied Psychology, 95*, 889–901. http://dx.doi.org/10.1037/a0019985.

Kowalski, R., & Limber, S. (2007). Electronic bullying among middle school students. *Journal of Adolescent Health, 41*(6), S22–S30. http://dx.doi.org/10.1016/j.jadohealth.2007.08.017.

Li, Q. (2007). New bottle but old wine: A research of cyberbullying in schools. *Computers in Human Behavior, 23*, 1777–1791. http://dx.doi.org/10.1016/j.chb.2005.10.005.

Madden, M., Lenhart, A., Cortesi, S., Gasser, U., Duggan, M., Smith, A., & Beaton, M. (2013). *Teens, social media, and privacy*. <http://www.w.youthtoday.org/hotdocs/PIP_TeensSocialMediaandPrivacy_FINAL.pdf>.

Mehdizadeh, S. (2010). Self-presentation 2.0: Narcissism and self-esteem on Facebook. *Cyberpsychology, Behavior, and Social Networking, 13*, 357–364. http://dx.doi.org/10.1089/cyber.2009.0257.

Moore, K., & McElroy, J. (2012). The influence of personality on Facebook usage, wall postings, and regret. *Computers in Human Behavior, 28*, 267–274. http://dx.doi.org/10.1016/j.chb.2011.09.009.

Parada, R. (2000). *Adolescent Peer Relations Instrument: A theoretical and empirical basis for the measurement of participant role in bullying and victimization of adolescence: An interim test manual and a research monograph: A test manual*. Penrith South, DC, Australia: Publication Unit, Self-concept Enhancement and Learning Facilitation (SELF) Research Centre, University of Western Sydney.

Patchin, J., & Hinduja, S. (2006). Bullies move beyond the schoolyard: A preliminary look at cyberbullying. *Youth Violence and Juvenile Justice, 4*, 148–169. http://dx.doi.org/10.1177/1541204006286288.

Piper Jaffrey. (2013). *Piper Jaffray Completes 26th Semi-Annual "Taking Stock with Teens" Market Research Project*. <http://www.piperjaffray.com/2col.aspx?id=287&releaseid=1863548>.

Price, M., & Dalgleish, J. (2010). Cyberbullying: Experiences, impacts and coping strategies as described by Australian young people. *Youth Studies Australia, 29*, 51–64.

Sabella, R., Patchin, J., & Hinduja, S. (2013). Cyberbullying myths and realities. *Computers in Human Behavior, 29*, 2703–2711. http://dx.doi.org/10.1016/j.chb.2013.06.040.

Scollon, C., Kim-Prieto, C., & Diener, E. (2003). Experience sampling: Promises and pitfalls, strengths and weaknesses. *Journal of Happiness Studies, 4*, 5–34. http://dx.doi.org/10.1023/A:1023605205115.

Slonje, R., & Smith, P. (2008). Cyberbullying: Another main type of bullying? *Scandinavian Journal of Psychology, 49*, 147–154. http://dx.doi.org/10.1111/j.1467-9450.2007.00611.x.

Smith, P., Mahdavi, J., Carvalho, M., Fisher, S., Russell, S., & Tippett, N. (2008). Cyberbullying: its nature and impact in secondary school pupils. *Journal of Child Psychology and Psychiatry, 49*, 376–385. http://dx.doi.org/10.1111/j.1469-7610.2007.01846.x.

Staksrud, E., Olafsson, K., & Livingstone, S. (2013). Does the use of social networking sites increase children's risk of harm? *Computers in Human Behavior, 29*, 40–50. http://dx.doi.org/10.1016/j.chb.2012.05.026.

Timmer, D., & Norman, W. (1984). The ideology of victim precipitation. *Criminal Justice Review, 9*, 63–68. http://dx.doi.org/10.1177/073401688400900209.

Twyman, K., Saylor, C., Taylor, L., & Comeaux, C. (2010). Comparing children and adolescents engaged in cyberbullying to matched peers. *Cyberpsychology, Behavior, and Social Networking, 13*, 195–199. 10.1089=cyber.2009.0137.

Vandebosch, H., & Cleemput, K. (2009). Cyberbullying among youngsters: Profiles of bullies and victims. *New Media & Society, 11*, 1–23. http://dx.doi.org/10.1177/1461444809341263.

Walrave, M., & Heirman, W. (2011). Cyberbullying: Predicting victimisation and perpetration. *Children & Society, 25*, 59–72. http://dx.doi.org/10.1111/j.1099-0860.2009.00260.x.

Wang, J., Iannotti, R., & Nansel, T. (2009). School bullying among adolescents in the United States: Physical, verbal, relational and cyber. *Journal of Adolescent Health, 45*, 368–375. http://dx.doi.org/10.1016/j.jadohealth.2009.03.021.

Zhao, S., Grasmuck, S., & Martin, J. (2008). Identity construction on Facebook: Digital empowerment in anchored relationships. *Computers in Human Behavior, 24*, 1816–1836. http://dx.doi.org/10.1016/j.chb.2008.02.012.