Cyberbullying victimisation and mental distress: Testing the moderating role of

attachment security, social support, and coping styles

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Although it has been well established that cyberbullying leads to mental health problems, less is known about the factors that confer resilience to the adverse effects of cyberbullying among young people. To address this gap, adolescents aged 13-19 years (*n*=476) completed a survey measuring cyberbullying victimisation, attachment styles, perceived social support, coping styles, and mental distress. Compared to non-victims, victims of cyberbullying experienced higher levels of depression and anxiety and endorsed more self-statements indicative of anxious attachment. Peer support, security in attachment relationships, and the endorsement of positive coping strategies attenuated the positive relationship between cyberbullying victimisation and mental health difficulties. Family support did not appear to buffer adolescents from mental distress in this context. However, family support was the strongest bivariate predictor of reduced mental distress. Although peer relations should be the target of intervention programmes within school settings, the findings highlight the importance of including families in cyberbullying prevention programmes.

Keywords: cyberbullying; adolescence; attachment style; social support; coping styles; depression; anxiety.

Introduction

Bullying has been defined as a repeated, intentional act that is carried out by an individual or a group of individuals against someone who cannot easily defend him- or herself (Olweus 1999). People who are bullied suffer from a range of psychological, behavioural, and physical consequences, including increased risk of depression, psychosis, headaches, stomach aches, and suicide-related behaviours (Gini and Pozzoli 2013; Varese et al. 2012; Copeland et al. 2013). While substantial prior research has focused on face-to-face bullying (Smith, del Barrio, and Tokunaga 2013), the proportion of people reporting online bullying increased from 19% to 34% between 2007 and 2016 (Patchin and Hinduja 2016). This phenomenon, known as cyberbullying, has been defined 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).

There are a number of features of cyberbullying which distinguish this form of bullying from its traditional counterpart. One is the difficulty of escaping it as, in comparison to traditional bullying, cyberbullying can occur more frequently in the victim's home (Slonje and Smith 2008). Another characteristic of cyberbullying is the potential for large audiences afforded by the online environment (Slonje and Smith 2008). In addition to this, there is increased invisibility and anonymity compared to traditional bullying. Due to the lack of social feedback, perpetrators are not privy to a victim's immediate reaction, and thus they may be more aggressive online as feelings of personal accountability are reduced (Slonje and Smith 2008). Collectively, these features challenge factors central to traditional bullying, namely repetition, power imbalance, and intentionality (Livingstone and Smith 2014). Given the permanence of online content, a single act of cyberbullying may be repeated when viewed or distributed by multiple others (Aboujaoude et al. 2015; Selkie, Fales, and Moreno

2016). Thus, the criterion of repetition should be understood in terms of the number of people who are able to view the online content or the length of time that a negative post remains online (Olweus 2013; Smith, del Barrio, and Tokunaga 2013). Rather than physical strength, the criterion of power imbalance may be linked to "differences in technological know-how between the perpetrator and victim, relative anonymity, social status, number of friends, or marginalised group position" (Smith, del Barrio, and Tokunaga 2013, p.36). The final criterion, intentionality, is complicated in this context due to the online disinhibition effect (Suler 2004). Thus, the extent to which the defining criteria associated with traditional bullying (i.e., intent, repetition, and imbalance of power) need to be present when defining cyberbullying is subject to considerable debate (Smith 2013).

Cyberbullying has been associated with symptoms of depression and anxiety (Aoyama, Saxon, and Fearon 2011; Fahy et al. 2016; Calvete, Orue, and Gámez-Guadix 2016; Fisher, Gardella, and Teurbe-Tolon 2016; Juvonen and Gross 2008). In fact, it has been suggested that cyberbullying has a greater impact on victims than traditional bullying (Cénat et al. 2014; O'Higgins Norman and Connolly 2011). Reasons for this assertion include the uncontrollable nature of social media, the permanence of content shared on these social platforms, a larger audience, and the degree of difficulty to escape online bullies (Slonje, Smith, and Frisén 2013). In line with this suggestion, victims of cyberbullying report significantly more social difficulties, and higher levels of depression and anxiety, than victims of traditional bullying (Campbell et al. 2012). Thus, there is a need to understand the consequences of cyberbullying, as well as the characteristics of those who become victims and the factors that minimise its effects. In comparison to schools and the peer context, there has been considerably less research on the role of families in preventing

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cyberbullying and its consequences (Bradshaw 2014). The present study explores the characteristics of those who report cyberbullying victimisation and the role of secure attachment, perceived familial and peer support, and positive coping styles as potential protective factors in the context of cyberbullying.

Attachment styles and victimisation

According to attachment theory, infants develop internal working models of the self and others in response to early experiences with their caregiver (Bowlby 1973). A secure attachment is formed when a primary caregiver is sensitive and responsive to an infant's needs, and this optimal form of parenting fosters the development of positive beliefs about the self and others. Emotionally unavailable, unresponsive, and/or inconsistent parenting results in the development of insecure attachment styles. For example, an anxious attachment style, characterised by a negative view of the self and a positive view of others, is formed when a primary caregiver is inconsistent, whereas an avoidant attachment style, characterised by a positive view of the self and a negative view of others, is formed when a primary caregiver is emotionally unavailable (Main and Solomon 1990). When parents are confusing and contradictory, this results in the development of disorganised attachment, characterised by negative views about the self and others (Main and Solomon 1990). Adult attachment theory proposes that the beliefs about the self and others acquired through early interactions with primary caregivers guide expectations in future attachment-related interactions (Bartholomew and Horowitz 1991). According to Bartholomew and Horowitz (1991), adult attachment can be conceptualised similarly to the childhood attachment styles of secure, preoccupied (anxious), dismissive (avoidant), and fearful (disorganised), and characteristics from

these styles can be categorised into two dimensions: the anxious dimension (model of self) and the avoidant dimension (model of others).

Previous research suggests that children with insecure attachment styles are more likely to become victims of traditional bullying (Kokkinos 2013). However, little is known about the role of attachment in the context of cyberbullying. As individuals characterised by insecure attachment styles have difficulty forming and maintaining relationships (Mikulincer and Shaver 2007), they may be more likely to rely on the online world to meet their interpersonal needs. More specifically, as attachment anxiety is related to over-disclosing personal information (Mikulincer and Shaver 2007), higher Facebook use when feeling sad or lonely (Oldmeadow, Quinn, and Kowert 2013), and excessive social media use (Worsley et al. 2018), individuals who score high on this attachment dimension may be at greater risk of being cyberbullied. Conversely, as people with avoidant attachment styles prefer self-reliance and superficial relationships, they may be less likely to overuse social aspects of the internet (Worsley et al. 2018). Because social relationships are less important to people who score high on this attachment dimension, avoidant individuals should be less prone to cyberbullying victimisation. Indeed, in a sample of university students aged 18 to 26 years, maternal attachment anxiety was found to be associated with cyberbullying victimisation, while attachment avoidance was not (Varghese and Pistole 2017). This remains, however, an under-researched area, particularly among adolescents who are most at risk of cyberbullying victimisation.

Although insecure attachment patterns may confer vulnerability, security in attachment relationships may be a source of resilience that reduces mental distress in the context of cyberbullying. Consistent with this possibility, Kokkinos et al. (2016) reported that face-to-face peer victimisation was associated with lower levels of

depression in adolescents who were securely attached. In accordance with attachment theory, the authors suggested that individuals who are securely attached may be more adept at regulating their emotions and harnessing social support which, in turn, may confer resilience and reduce the possibility of developing depressive symptoms in response to the experience. Kokkinos and colleagues also suggested that securely attached individuals may employ more adaptive coping strategies that can protect them from experiencing low mood. As people with a secure attachment style may be more adept at harnessing social support and employing more adaptive coping styles, this attachment style may confer protection against cyberbullying.

Coping styles and victimisation

Coping refers to the cognitive and behavioural efforts individuals make to manage stress and related emotions (Lazarus and Folkman 1984). Lazarus and Folkman (1984) dichotomised coping into problem-focused coping (i.e., attempting to minimise emotional distress by engaging in behaviour to modify oneself or the environment) and emotion-focused coping (i.e., employing cognitive coping strategies to allay emotional distress).

Previous research suggests that active coping buffers the effect of traditional bullying victimisation on depressive symptoms in a sample of adolescents (Yin et al. 2017). Specific cognitive coping strategies have also been found to moderate the effect of traditional bullying victimisation on mental distress. For example, positive refocusing reduced the effect of bullying victimisation on depression, whereas rumination enhanced the effects of bullying victimisation on depression (Garnefski and Kraaij 2014). Similarly, positive reappraisal was found to reduce the effect of bullying on anxiety, while rumination and catastrophizing were found to enhance the effect of bullying victimisation on anxiety (Garnefski and Kraaij 2014).

Moving to the cyberbullying literature, a systematic review revealed that victims of cyberbullying employ a wide range of coping strategies including technical solutions (e.g., deleting or blocking threatening messages), avoidance strategies (e.g., ignoring the situation), confrontation (e.g., retaliating or seeking revenge), and seeking either emotional or instrumental support (McGuckin et al. 2013). While the literature has described the array of coping strategies drawn on by victims of cyberbullying, less research has explored the role of specific coping strategies as potential buffers against mental distress caused by cyberbullying. Despite this lacuna, the extent to which victims *seek* social support as a coping mechanism following cyberbullying victimisation has been explored. Specifically, Machmutow et al. (2012) investigated whether certain coping strategies moderated the impact of cybervictimisation on depressive symptoms. They found that high levels of support seeking from friends and family buffered against the negative impact of cybervictimisation on depression insofar as victims who reported seeking more social support reported less depressive symptoms. However, very little is known about the adaptive value of different cognitive coping styles in relation to cyberbullying victimisation. As the positive cognitive coping styles of reappraisal (i.e., attaching a positive meaning to a negative event) and refocusing (i.e., thinking about enjoyable matters rather than a negative event) were found to buffer the negative mental health outcomes associated with traditional bullying (Garnefski and Kraaij 2014), these positive cognitive coping styles may also be helpful resources in the context of cyberbullying.

Social support and victimisation

Social support may affect outcomes for young people in a number of different ways. Although some researchers have investigated the mediating role of social

support (Chen and Wei 2013; Pouwelse et al. 2011; Malecki, Demaray, and Davidson 2008), most previous research in relation to traditional bullying examines the stress-buffering theory (Davidson and Demaray 2007; Flouri and Buchanan 2002; Holt and Espelage 2007; Kochenderfer-Ladd and Skinner 2002), and according to a critical review of the literature, the stress-buffering model may be particularly useful in explaining cyberbullying experiences (Tokunaga 2010).

According to the stress-buffering model (Cohen and Wills 1985), social support acts as a buffer between interpersonal stressors and negative outcomes. Supportive families have been shown to buffer primary school children from the negative outcomes associated with traditional bullying victimisation (Bowes et al. 2010). With regard to gender effects, previous research has suggested that parental support for females, and teacher-, classmate-, and school support for males, buffers the effects of traditional peer victimisation on psychological well-being (Davidson and Demaray 2007). Further to this, Elgar et al. (2014) reported family contact and communication, such as that which happens at shared mealtimes, may help protect young people from the harms of cyberbullying. Frison, Subrahmanyam, and Eggermont (2016) found support from friends to be effective in buffering against the harmful effects of online peer victimisation on young people's mental health; showing that higher levels of perceived peer support conferred resilience against depression and low life satisfaction following peer cybervictimisation on Facebook. Conversely, Tennant et al. (2015) found no evidence that social support attenuated the association between cyberbullying victimisation and depression. However, Tennant and colleagues investigated the role of overall social support, whereas previous findings suggest that the buffering effect depends on the source of support (e.g., Stice, Ragan, and Randall 2004).

Given these conflicting findings, we aimed to provide a more comprehensive test of the hypothesis that social support confers resilience against cyberbullying. Specifically, we examined whether both perceived familial and peer support attenuated the negative effects of cyberbullying on mental health, as both parents and peers may play an important role in helping young people to develop a different, more positive way of conceptualising their online experience, and in promoting specific coping strategies that offset the impact of this form of victimisation.

The present study

The current study aimed to test the relationship between cyberbullying victimisation and common mental health difficulties amongst a sample of adolescents, and to identify psychological and cognitive factors that mitigate the negative effects of cyberbullying on mental health. We predicted that:

1. victims of cyberbullying will report higher levels of mental distress (i.e., symptoms of depression and anxiety) than non-victims.

2. victims of cyberbullying will endorse more self-statements indicative of attachment anxiety (but not attachment avoidance) than non-victims.

3. secure attachment would buffer the relationship between cyberbullying victimisation and symptoms of depression and anxiety.

4. perceived familial and peer social support would buffer the relationship between cyberbullying victimisation and symptoms of depression and anxiety.

5. positive coping styles, such as reappraisal and refocusing, would buffer the relationship between cyberbullying victimisation and symptoms of depression and anxiety.

Method

Participants

The sample comprised 476 adolescents (54.8% female) aged 13-19 years (*M*=14.84, *SD*=1.31) attending a single secondary school in an urban area of northern England. The school's Ofsted rating is grade 2 (good). All pupils in years 9, 10, 11, and sixth form were invited to participate. The questionnaire was administered in a classroom during school hours. Ethical approval was obtained from the University's ethics committee.

Measures

Hospital Anxiety and Depression Scale (HADS; Zigmond and Snaith 1983)

The HADS is a 14-item scale that measures symptoms of depression and anxiety experienced over the preceding week. The HADS comprises two 7-item subscales (scored on a 0-3 scale). An overall score and two separate scores for anxiety and depression were obtained (the overall score ranges from 0-42 and the subscale scores range from 0-21). Prior work has validated the HADS for use with adolescents (White et al. 1999). Internal consistency for this study was α =.86 for the overall scale, and α=.71 and α=.84 for the depression and anxiety subscales, respectively.

Multidimensional Scale of Perceived Social Support (MSPSS; Zimet et al. 1988)

The MSPSS is a 12-item scale that measures supportive relationships within three contexts: family, peer, and significant others. Because the latter would be less relevant to school children, only two of the subscales were selected: perceived family support (4 items) and perceived peer support (4 items). Participants responded on a 7-point Likert scale (1=very strongly disagree; 7=very strongly agree). The possible scores for each subscale range from 4 to 28, with higher scores indicating greater perceived

support. The MSPSS has been validated for use with adolescents (Canty-Mitchell and Zimet 2000), and in our data both subscales were found to have good reliability: $\alpha=.93$ for family support and $\alpha=.93$ for peer support.

Relationship Questionnaire (RQ; Bartholomew and Horowitz 1991)

The RQ is a 4-item questionnaire that measures four attachment styles: secure, preoccupied, dismissing, and fearful. The paragraphs in the RQ were adapted to reflect the simplified language used in the adolescent-relationship questionnaire (Scharfe and Bartholomew 1995). Participants were instructed to rate how well each attachment style description reflected their own general relationship style on a 7-point Likert scale (1=not at all like me; 7=very much like me). In line with the developers' recommendations, the ratings were used to calculate anxious ((fearful + preoccupied) – (secure + dismissing)) and avoidant ((fearful + dismissing) – (secure + preoccupied)) attachment dimensions. Higher scores on the anxious dimension reflect a higher negative view of the self, whereas higher scores on the avoidant dimension reflect a higher negative view of others. The scale has an acceptable test–retest reliability (Griffin and Bartholomew 1994) and good discriminant and face validity (Ravitz et al. 2010).

Cognitive Emotion Regulation Questionnaire (CERQ-short; Garnefski, Kraaij, and Spinhoven 2001)

The CERQ-short is an 18-item scale used to assess individual differences in coping, and is comprised of nine distinct subscales: self-blame, other-blame, acceptance, rumination, catastrophizing, refocus on planning, putting into perspective, positive reappraisal, and positive refocusing (Garnefski, Kraaij, and Spinhoven 2001).

Participants were asked to think about an event that they found stressful and specify how they had coped with it by rating 18 statements. Cognitive coping strategies were measured on a 5-point Likert scale (1=almost never; 5=almost always). Individual subscale scores were obtained by summing up the scores on the items belonging to each particular subscale (ranging from 2 to 10) with higher scores representing greater use of the coping strategy. The CERQ-short was selected over the original 36-item scale due to time restrictions within the school setting. All items were created to be easily understood by participants as young as 12 years (Garnefski and Kraaij 2006). Internal consistencies for the two subscales used in the current study were α=.61 (positive refocusing) and α=.72 (positive reappraisal).

Cyberbullying Victimisation (Hinduja and Patchin 2014)

After being provided with a definition (e.g., "cyberbullying is when someone repeatedly harasses, mistreats, or makes fun of another person online or while using mobile phones or other electronic devices"), students were asked to report how often they had been cyberbullied in their entire life on a 6-point scale (1=never; 6=very often).

Statistical analyses

Only participants who completed the survey in its entirety (*n*=476) were included in the analysis (111 participants from an original 587 were excluded from the analysis due to missing data). Independent-samples t-tests were conducted using SPSS version 22 to assess group differences and Cohen's d was used as an effect size measure. We conducted a multiple regression to assess the relative importance of cyberbullying victimisation, secure attachment, different coping mechanisms, and different forms of

support in predicting mental distress. We conducted hierarchical regression analyses to test the hypotheses that security in attachment relationships, perceived peer and familial support, and positive coping styles moderated the relationship between cyberbullying victimisation and symptoms of depression and anxiety. The HADS total score was used in the regression analyses to reflect mental distress (i.e., the endorsement of symptoms of depression and anxiety). All independent variables were standardised, and the standardised variables were used to test main effects and compute interaction terms. The same procedures were used for all moderation analyses. Cyberbullying victimisation and each psychological or cognitive factor (e.g., secure attachment style, perceived familial support, perceived peer support, positive reappraisal, and positive refocusing) were entered at Block 1. To test for the moderation effect of each factor independently, we entered a single interaction term at Block 2. Standardised beta values reported in Table 2. When plotting significant interaction effects, we used unstandardised regression coefficients. Significant interaction effects were plotted according to procedures described by Aiken and West (1991).

3. Results

Approximately 30% of adolescents in our sample (29.6%; $n=141$) reported experiencing cyberbullying in their lifetimes. Descriptive statistics of the final sample ($n=476$) and the inter-correlations between the key variables are shown in Table 1. As no correlations between the proposed moderators were above 0.7, each moderator was considered independently in subsequent analyses.

INSER TABLE 1

An independent samples t-test revealed that participants who were victims of cyberbullying experienced significantly higher levels of depression and anxiety (M=14.87, SD= 7.48) compared to non-victims (M=10.88, SD=6.56), t(474)= -5.81, p<.001, d= -0.58. In addition, an independent samples t-test revealed that victims of cyberbullying (M=0.24, SD=3.97) endorsed more self-statements indicative of attachment anxiety compared to non-victims (M=-1.02, SD=3.61), t(474)= -3.36, p=.001, d=-0.34. In relation to attachment avoidance, there was no difference between victims (M=-0.04, SD=3.49) and non-victims (M=-0.05, SD=3.56), t(474)=-0.03, p=.975, d=-0.00.

Multiple regression analysis

Hierarchical regression analysis assessed the contributions of cyberbullying victimisation, secure attachment, positive coping styles, and forms of perceived social support to explaining mental distress (i.e., symptoms of depression and anxiety; see Table 2). The overall regression model predicted approximately 16% of variance in mental distress, R^2=.16, F(6, 469)=15.22, p<.001. Family support was the strongest negative predictor of mental distress.

<div align="center">INSER TABLE 2</div>

Moderation analyses

Cyberbullying victimisation and perceived social support (Table 3)

Overall, cyberbullying victimisation and family support predicted approximately 16% of the variance in mental distress, R^2=.16, F(3, 472) = 29.25, p<.001. The first step accounted for 16% of variance with cyberbullying victimisation and lower levels of family support being associated with mental distress. Step 2 did not account for any of the variance as the interaction term was not significant. In the second model,

cyberbullying victimisation and peer support predicted approximately 12% of the variance in mental distress, $R^2 = .12$, $F(3, 472) = 21.89$, $p<.001$. The first step accounted for 11% of variance with cyberbullying victimisation and lower levels of peer support being associated with mental distress. Step 2 accounted for 1% of the variance and the interaction term was significant.

Cyberbullying victimisation and secure attachment (Table 3)

In the third model, cyberbullying victimisation and secure attachment predicted approximately 12% of the variance in mental distress, $R^2 = .12$, $F(3, 472) = 20.59$, $p<.001$. The first step accounted for 11% of variance with cyberbullying victimisation and lower levels of security in attachment relationships being associated with mental distress. Step 2 accounted for 1% of the variance and the interaction term was significant.

Cyberbullying victimisation and positive coping styles (Table 3)

Cyberbullying victimisation and positive refocusing predicted 11% of the variance in mental distress, $R^2 = .11$, $F(3, 472) = 18.68$, $p<.001$. The first step accounted for 9% of variance with only cyberbullying victimisation a significant predictor. The second step accounted for 2% of the variance and the interaction term was significant. In the final model, cyberbullying victimisation and positive reappraisal predicted 10% of the variance in mental distress, $R^2 = .10$, $F(3, 472) = 17.57$, $p<.001$. The first step accounted for 9% of the variance with only cyberbullying victimisation a significant predictor. The second step accounted for 1% of the variance and the interaction term was significant.

INSERT TABLE 3

Significant interaction effects were plotted according to procedures described by Aiken and West (1991). Adolescents' predicted anxious-depressed scores at low and high levels (±1SD) of cyberbullying victimisation and at low (-1SD) and high levels (+1SD) of peer support, secure attachment, positive refocusing, and positive reappraisal are shown in Figures 1, 2, 3, and 4 respectively.

After probing the simple slopes, the analyses revealed that the associations between cyberbullying victimisation and symptoms of depression and anxiety were weaker at higher levels (+1SD) of peer support (gradient slope; B=1.26), t(472)=2.90, p=.004, secure attachment (gradient slope; B=1.51), t(472)=3.78, p<.001, positive refocusing (gradient slope; B=1.56), t(472)=4.20, p<.001, and positive reappraisal (gradient slope; B=1.54), t(472)=3.95, p<.001. On the other hand, this relationship was stronger at lower levels (-1SD) of peer support (gradient slope; B=2.54), t(472)=6.60, p<.001, secure attachment (gradient slope; B=2.66), t(472)=6.59, p<.001, positive refocusing (gradient slope; B=3.28), t(472)=6.47, p<.001, and positive reappraisal (gradient slope, B=3.11), t(472)=6.15, p<.001.

<div align="center">INSERT FIGURES 1-4</div>

Discussion

The present study assessed the relationship between cyberbullying victimisation and common mental health difficulties in young people. The study also examined whether the relationship between cyberbullying victimisation and symptoms of depression and anxiety was attenuated by attachment security, perceived social support, and specific coping styles. In line with our first hypothesis and previous empirical findings (e.g., Aoyama, Saxon, and Fearon 2011; Juvonen and Gross 2008), cyberbullying victims reported higher levels of anxiety and depressive

symptoms compared to non-victimised youth. This form of victimisation may lead to an increase in mental health difficulties because adolescents may attribute the negative encounter to their own deficiencies, which may consequently compromise their own sense of self-worth. More specifically, the shame and humiliation caused by cybervictimisation may engender self-blame and negative views of the self which may translate into mental health difficulties as, in accordance with Beck's cognitive theory, individuals prone to experiencing depression have negative views of the self (Beck 1976).

In line with our second hypothesis and previous empirical findings concerning college students (e.g., Varghese and Pistole 2017), victims of cyberbullying endorsed self-statements indicative of anxious attachment more than non-victims. This supports the assertion that as individuals who are characterised by attachment anxiety have a higher need for social validation and a tendency to disclose personal information online, they may be especially vulnerable to cyberbullying victimisation. Hence, the way in which individuals characterised by attachment anxiety conduct themselves online may render them vulnerable to cyberbullying victimisation. Further to this, as individuals who are anxiously attached are more likely to overuse social media (Worsley et al. 2018), they may be especially vulnerable to cyberbullying victimisation due to mere exposure.

The current study also investigated whether specific factors underpin the onset of mental distress resulting from experiences of cyberbullying, with a view to identifying protective factors that might confer psychological resilience. In line with our third hypothesis, cyberbullying victimisation was associated with lower levels of mental distress in adolescents who were securely attached. This finding suggests that

attachment security is a source of psychological resilience that sustains mental health during times of trauma.

Family support was found to be the most important predictor of mental distress in our sample compared to peer support, positive coping styles, and secure attachment; however, contrary to our predictions, this form of support did not significantly attenuate the association between cyberbullying victimisation and symptoms of depression and anxiety. One explanation for this is that young people tend to spend more time with their peers and less time with their parents during adolescence (Steinberg 2005), and as a consequence, they may choose to turn to their peers for support when faced with challenges online. In line with this theorising and our predictions, we found that perceived peer support moderated the impact of cyberbullying victimisation on mental distress, as adolescents exposed to cyberbullying and who perceived greater peer support reported fewer symptoms of depression and anxiety. The social support offered by peers may serve a stress-relieving function as it may relieve some of the stress that develops as a consequence of being cyberbullied. This may enable victims of cyberbullying to cope more effectively with the emotional sequelae. It is also possible for peers to play an important role in helping victims of cyberbullying to reframe the meaning of their online experience which may subsequently enable them to develop a different, more positive way of conceptualising it. Peer support may also bolster resilience through updating negative self-cognitions. Thus, family support may be important for reducing psychological distress in general. However, peer support may be particularly helpful in the context of cyberbullying victimisation.

In line with hypothesis five and previous empirical findings concerning traditional bullying (e.g., Garnefski and Kraaij 2014), the coping strategies of positive

refocusing and positive reappraisal significantly attenuated the association between cyberbullying victimisation and symptoms of depression and anxiety. The ability to cognitively reappraise or refocus thoughts may enable adolescents to re-establish some emotional control by reframing the meaning of their cyberbullying experiences internally, leading to enhanced psychological resilience. Taken together, these findings suggest that adolescents who have the ability to reappraise or refocus thoughts cope more effectively with the emotional sequelae of cyberbullying.

Taken together, the findings bolster calls for an integrated approach to protecting victims of cyberbullying from its negative psychological consequences. Specifically, intrapersonal interventions to promote mental health in this context should include building the capacity of young people through enhanced positive cognitive coping styles and social skills, whilst concomitantly fostering a supportive school environment where peer relationships are valued. Indeed, the creation and use of peer support programmes could be promoted in school settings with the backing of school administrators. The importance of parenting in terms of preventing cyberbullying victimisation should also be acknowledged, and although peer relations should be the focus of intervention programmes within school settings, the findings highlight the importance of including families in cyberbullying prevention initiatives.

The present findings also support the implementation of the attachment aware schools framework. In accordance with this framework, schools should acknowledge the role of staff members as secondary attachment figures who can help children to reshape insecure attachment-related behaviours and support the development of secure attachment styles (Parker, Rose, and Gilbert 2016). This model advocates the use of emotion coaching in supporting children and young people's behaviour and emotions. The goal of emotion coaching is to improve competencies in dealing with

difficult emotions, and this in turn supports the adult-child relationship. Nurturing and emotionally supportive relationships promote prosocial behaviour, which subsequently promotes social acceptance and friendship. Generally, the present findings emphasise the importance of interpersonal relationships as part of any prevention or intervention package aimed at reducing the incidence of cyberbullying and the associated negative psychological effects.

There are, however, several limitations of this study that require consideration when interpreting the findings. As the study was cross-sectional, the correlates could be antecedents or consequences of cyberbullying victimisation. Thus, whilst this cross-sectional study can provide an indication that cyberbullying victimisation is associated with symptoms of depression and anxiety, the direction of influence requires additional enquiry. It is plausible that adolescents with mental health difficulties may find it more difficult to integrate with face-to-face social groups and thus turn to online socialising, increasing their chances of being bullied due to mere exposure. Second, the data were self-reported and therefore measure subjective measures of incidence. Future research could usefully include multiple informants (e.g., parent and self-report) as their use has been shown to better predict adjustment compared with mono-informant assessments (Ladd and Kochenderfer-Ladd 2002). Third, although the cyberbullying scale used in this study did include the criterion of repetition, it did not include imbalance of power as a criterion to demarcate cyberbullying, and thus, it could be argued that it measured cyberaggression rather than cyberbullying (Smith, del Barrio, and Tokunaga 2013). Last, although high levels of perceived peer support offered protection against experiencing symptoms of depression and anxiety, the current study did not investigate whether this form of social support was perceived from peers whilst online or offline. As an increasing

number of relationships are now formed and maintained online, it may be beneficial to explore whether online supportive relationships can protect adolescents from the negative psychological consequences of cyberbullying victimisation. Further to this, as cyberbullying has been largely conceptualised as a youth problem, few data exist in adults (Aboujaoude et al. 2015). Among adults, cyberstalking, defined as the repeated pursuit of an individual utilising electronic means, has been compared with cyberbullying and is now common in contemporary society (Spitzberg and Hoobler 2002). Future work might therefore attempt to explore the emotional impact of cyberstalking alongside the resilience and vulnerabilities of the exposed victims in an adult sample.

Notwithstanding these limitations, the present findings highlight the role of cyberbullying in relation to adolescents' mental health and identify psychological and cognitive factors that may confer resilience. Specifically, attachment anxiety was found to confer vulnerability to cyberbullying victimisation in our adolescent sample. Indeed, the identification of vulnerable young people, such as those characterised by attachment anxiety, may serve to thwart incidents of cyberbullying. The present findings also underscore the importance of perceived social support from peers, secure attachment styles, and positive cognitive coping styles, which appear to play fundamental roles in protecting adolescents against anxiety and depressive symptoms in the event of cyberbullying victimisation. This research therefore contributes to our understanding of the factors that underlie individual heterogeneity in response to cyberbullying victimisation, and leads to two main practical conclusions. First, the importance of parenting in terms of preventing cyberbullying victimisation should be acknowledged, and although peer relations should be the target of intervention programmes within school settings, the findings highlight the importance of including

families in cyberbullying prevention programmes. Second, schools should acknowledge the role of staff members as secondary attachment figures who can help support the development of secure attachment styles. In sum, it will be important for schools and homes to focus on building supportive offline relationships that will help young people deal with online challenges.

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Table 1. Descriptive statistics and Pearson's correlations between the cyberbullying victimisation, secure attachment style, insecure attachment dimensions, social support, positive coping styles, and mental distress

	Mean (SD)	2	3	4	5	6	7	8	9	10
1. Cybervictimisation	1.51 (1.01)	0.13**	-0.00	-0.03	-0.25**	-0.11*	0.09*	0.11*	0.25**	0.28**
2. Attachment anxiety	-0.64 (3.76)	-	0.16**	-0.51**	-0.28**	-0.20**	-0.13**	-0.07	0.26**	0.34**
3. Attachment avoidance	-0.05 (3.54)		-	-0.60**	-0.11*	-0.14**	-0.05	0.01	0.11*	0.10*
4. Secure attachment	3.93 (1.81)			-	0.21**	0.22**	0.22**	0.16**	-0.16**	-0.11**
5. Family support	22.38 (5.92)				-	0.57**	0.10*	0.09*	-0.32**	-0.26**
6. Peer support	21.48 (5.83)					-	0.13**	0.09	-0.20**	-0.14**
7. Positive refocusing	5.17 (2.08)						-	0.48**	-0.03	-0.01
8. Positive reappraisal	5.92 (2.29)							-	-0.07	0.08
9. Depressive symptoms	4.53 (3.41)								-	0.59**
10. Anxiety symptoms	7.54 (4.51)									

$**p<.01, *p<.05$

Key: Secure attachment rated on a 7-point Likert scale. Insecure attachment dimensions calculated as follows: attachment anxiety ((fearful + preoccupied) – (secure + dismissing)) and attachment avoidance ((fearful + dismissing) – (secure + preoccupied)).

Table 2. Regression analysis showing cyberbullying victimisation, family support, peer support, secure attachment, positive refocusing, and positive reappraisal as predictors of mental distress (i.e., symptoms of depression and anxiety).

Variable	β	*p*
Cybervictimisation	.23	<.001
Family support	-.25	<.001
Peer support	.00	.943
Secure attachment	-.09	.048
Positive refocusing	-.01	.778
Positive reappraisal	.04	.464

Table 3. Hierarchical regression analyses predicting mental distress (i.e., symptoms of depression and anxiety)

Predictors	Cumulative		Simultaneous	
	R^2 (Change)	F(Change)	β	*p*
Cyberbullying and family support				
Step 1	.16	$F_{(2,473)}=43.39$**		
Cyberbullying			.21	<.001
Family support			-.26	<.001
Step 2	.00	$F_{(1,472)}=0.99$		
CB x family support			-.05	.32
Cyberbullying and peer support				
Step 1	.11	$F_{(2,473)}=29.69$**		
Cyberbullying			.27	<.001
Peer support			-.14	.001
Step 2	.01	$F_{(1,472)}=5.71$*		
CB x peer support			-.11	.017
Cyberbullying and secure attachment				
Step 1	.10	$F_{(2,473)}=28.18$**		
Cyberbullying			.30	<.001
Secure attachment			-.12	.005
Step 2	.01	$F_{(1,472)}=4.94$*		
CB x secure attachment			-.10	.027
Cyberbullying and positive refocusing				
Step 1	.09	$F_{(2,473)}=23.60$**		
Cyberbullying			.34	<.001
Positive refocusing			-.05	.221
Step 2	.02	$F_{(1,472)}=8.12$*		
CB x refocusing			-.13	.005
Cyberbullying and positive reappraisal				
Step 1	.09	$F_{(2,473)}=23.02$**		
Cyberbullying			.33	<.001
Positive reappraisal			-.03	.557
Step 2	.02	$F_{(1,472)}=6.15$*		
CB x reappraisal			-.11	.013

**$p<.001$, *$p<.05$

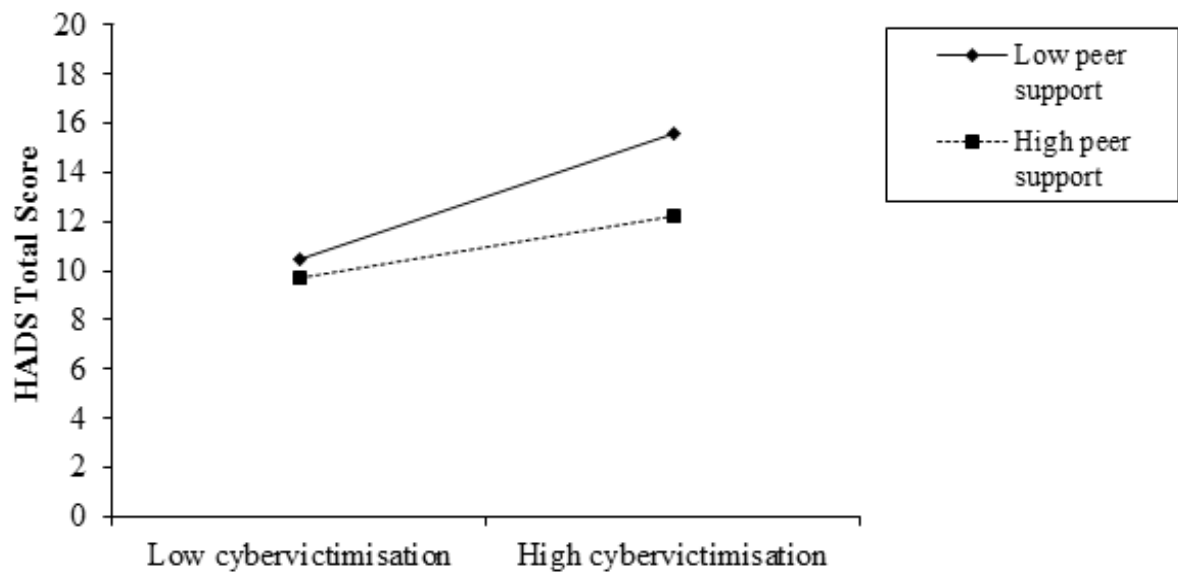Figure 1. Plot of cyberbullying victimisation x peer support on symptoms of depression and anxiety

Figure 2. Plot of cyberbullying victimisation x secure attachment on symptoms of depression and anxiety
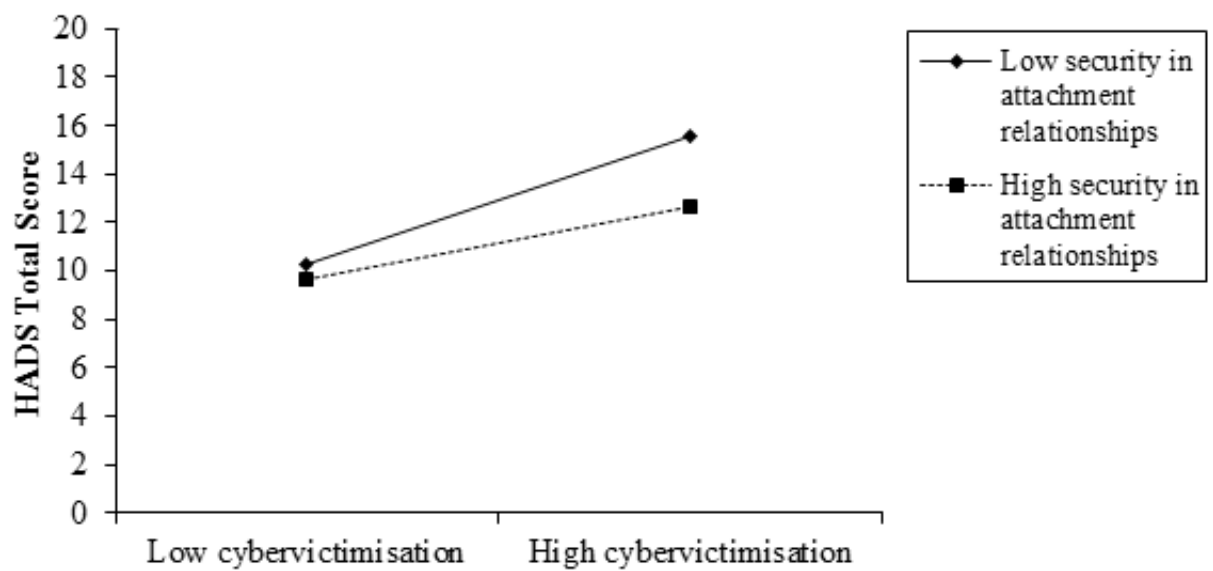
Figure 3. Plot of cyberbullying victimisation x positive refocusing on symptoms of depression and anxiety
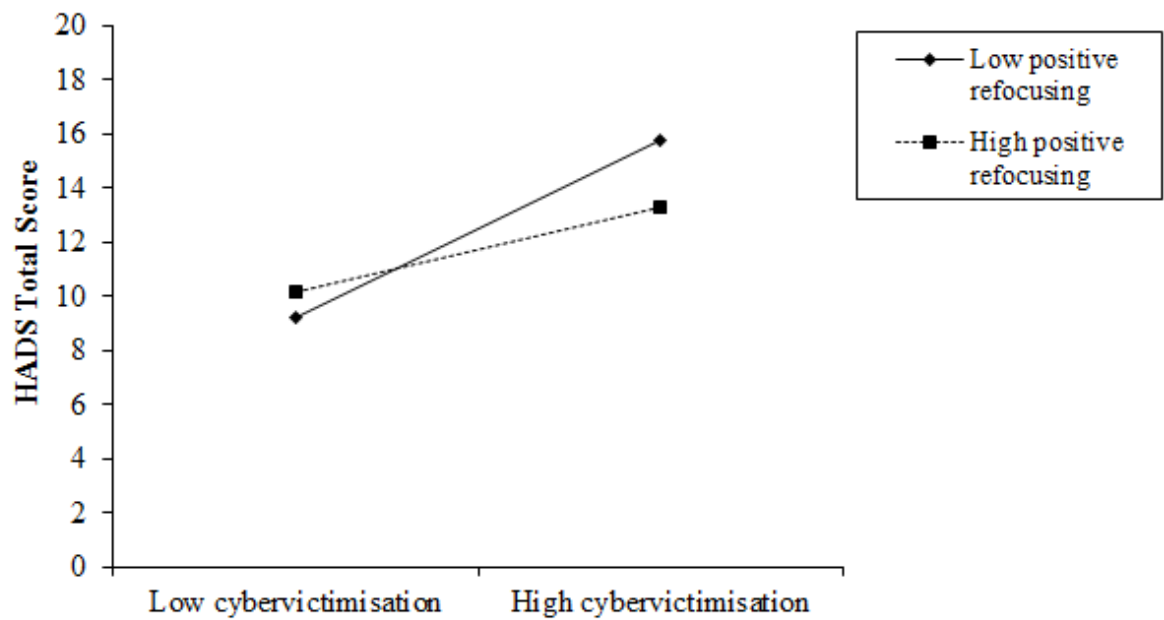

Figure 4. Plot of cyberbullying victimisation x positive reappraisal on symptoms of depression and anxiety