

What Makes a Cyber Bully/Victim? Factors Associated with the Perpetration of
Cyberbullying by Cybervictims

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Abstract

Cybervictimisation is the leading risk factor for cyberbullying. Despite this, little is known about the personal factors that are associated with a cybervictim also being a cyberbully. The present study addresses this gap in the literature by investigating the psychological factors associated with cybervictims perpetrating cyberbullying. Unlike traditional bullying where a power imbalance may make it difficult for a victim to retaliate, cybervictims with a rudimentary level of technological skill can retaliate online, thereby becoming cyber bully/victims (Kowalski, Limber, & Agatston, 2012). Identifying the factors that associate with cybervictims perpetrating cyberbullying (therefore becoming a cyber bully/victim) will inform intervention to help stop the cycle of cyberbullying. A self-report questionnaire was completed by 632 children from grades five, seven, and nine. Questions included frequency of cyberbullying and cybervictimisation, victim responses to cybervictimisation, individual moral disengagement, emotional dysregulation, and mindfulness. Two hierarchical regression analyses were conducted to identify the factors associated with cyberbullying perpetration by victims, versus non-victims. Results revealed that cybervictims with poorly regulated anger, high moral disengagement, and low mindfulness were more likely to be bully/victims. Key differences emerged for non-victims, supporting the examination of cyber bully/victims as a distinct group. Implications for cyberbullying intervention and future research directions are outlined.

Declaration of Originality

I hereby declare that this submission is my own work and to the best of my knowledge it contains no materials previously published or written by another person, or substantial proportions of material which have been accepted for the award of any other degree at Macquarie University or any other educational institution.

I certify that the intellectual content of this thesis is the product of my own work and that all the assistance received in preparing this thesis and sources have been acknowledged.

All empirical research contained within this thesis was approved by the Human Research Ethics Committee at Macquarie University (reference number: HREC 5201401142).

A handwritten signature in black ink, appearing to read 'P Johnson', with a stylized, flowing script.

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1 Introduction

Cyberbullying is a relatively new form of bullying, however in a short space of time it has established itself as a critical issue facing the youth of today (Kowalski & Limber, 2013). Cyberbullying is bullying through email, instant messaging, in a chat room, on a website, or through a text message sent to a phone (Kowalski & Limber, 2007).

A recent, large meta-analysis focused on cyberbullying revealed that the strongest predictor of cyberbullying perpetration is cybervictimisation (Kowalski, Giumetti, Schroeder, & Lattanner, 2014). That is, individuals who cyberbully others also tend to be victims of cyberbullying (cyber bully/victims). In comparison to pure cyberbullies or pure cybervictims, bully/victims have been found to suffer the most adverse consequences of cyberbullying in regards to their psychological and physical health, suicidal ideation, and academic performance (Kowalski & Limber, 2013; Bonanno & Hymel, 2013). Understanding the processes through which an individual becomes a cyber bully/victim is a critical first step toward intervention to address this important issue.

The direction of the relationship between cyberbullying and cybervictimisation is yet to be established. It is unlikely to be consistent for all bully/victims, however one plausible explanation that has been proposed in the literature, including the meta-analysis by Kowalski and colleagues (2014) is that the experience of cybervictimisation might provoke an individual to retaliate with cyberbullying. This proposition is consistent with evidence showing that interpersonal provocation is a strong predictor of aggression (Anderson & Bushman, 2002).

There is not a perfect overlap between cyberbullying and victimisation, so not all victims retaliate and become bullies. This raises the question: what is it that turns a cybervictim into a cyberbully? Specifically, what are the factors that associate with cyberbullying perpetration by victims and how does this compare to the factors that associate with cyberbullying perpetration by non-victims? These questions are yet to be answered in the

cyberbullying literature and are the focus of this study. Given cybervictimisation is the number one risk factor for cyberbullying perpetration, the answer to this question is critical in reducing the cycle of cyberbullying.

Using the General Aggression Model (Anderson & Bushman, 2002) as a theoretical basis, this study aims to fill this gap in the literature by identifying the personal factors that associate with cybervictims perpetrating cyberbullying. Personal factors that may result in a retaliatory response, such as poor emotional regulation and individual moral disengagement, will be examined. Poor emotional regulation and high moral disengagement have been shown to result in aggression (Card & Little, 2006; Gini, Pozzoli, & Hymel, 2014). Moral disengagement describes the process by which individuals selectively disengage from their moral standards (Bandura, 1999). In addition, the role of mindfulness as a moderator of the relationship between emotional dysregulation and cyberbullying, and the relationship between moral disengagement and cyberbullying will be examined. Mindfulness increases self-control, which may facilitate the inhibition of aggressive behaviour by victims in response to provocation (Denson, von Hippel, Kemp, & Teo, 2010) and therefore weaken the effect of emotional dysregulation of anger on bullying by victims. Mindfulness may also assist individuals to self-regulate their behaviour (Bussey & Quinn, 2015) and so is expected to weaken the effects of moral disengagement on bullying.

Before presenting the current study a detailed review of the cyberbullying literature will be provided with specific focus on bully/victims. The General Aggression Model will then be introduced and will provide the theoretical framework for the examination of the personal factors impacting the perpetration of cyberbullying behaviour by cybervictims. The key aims and hypotheses tested in this study will then be outlined.

1.1 Literature Review

1.1.1 Definition of cyberbullying

Cyberbullying is broadly defined as an act of aggression carried out via electronic communication technologies such as email, instant messaging, in a chat room, on a website, or through a text message (Kowalski & Limber, 2007; Mehari, Farrell, & Le, 2014). The broader category of ‘bullying’ has been defined as an act of aggression that is i) intended to harm; ii) repeated over time; and iii) involves a power imbalance between the perpetrator and the victim (Olweus, 1993). There is much debate in the literature regarding whether cyberbullying meets the criteria to be classified as ‘bullying’. There is consensus that cyberbullying constitutes an act of aggression that is intended to harm (Mehari et al., 2014). The debate therefore relates to whether the aspects of repetition and power imbalance must be apparent, and look the same, for an online act of aggression to be classed as cyberbullying.

In the context of cyberbullying, although the aspects of repetition and power imbalance present differently to traditional bullying, the effect is very similar. A single act of online aggression can have the effect of being repeated over time, in that the victim can view and experience it multiple times, and the ease of sharing – via social media, for example – means that the aggressive act can be witnessed multiple times by multiple bystanders (Slonje, Smith, & Frisén, 2013). In addition, bystanders can take hold of the aggressive act and forward it or make it their own – turning a single act of aggression into an act that is repeated over time.

The nature of a power imbalance in the context of traditional bullying is quite tangible – typically it involves a difference in physical size or popularity. In an online context, the power imbalance between perpetrator and victim is not so clear-cut – the anonymity available online gives adolescents with a rudimentary level of technological access and skill the opportunity to be a cyberbully. The potential for power imbalance rests within this anonymity as many online victims are not aware of the cyberbully’s identity and this creates a sense of powerlessness (Kowalski & Limber, 2007).

The consensus is that an online act of aggression does meet the criteria of intention to harm, repetition, and power imbalance, albeit in a different form to traditional bullying. Therefore, the term cyberbullying is commonly used to describe a broad range of online aggressive acts. This breadth of behaviours classed as ‘cyberbullying’ has contributed to inconsistency in the measurement of the construct, and the lack of a cohesive model or framework to describe the different types of cyberbullying.

1.1.2 Types of cyberbullying

There is not yet a standard classification system for describing the different forms of cyberbullying. Traditional bullying is consistently categorised as physical (e.g. hitting, punching), verbal (name calling, yelling), or relational bullying (gossip, excluding others, spreading rumours) (Kowalski & Limber, 2013). Early researchers in the cyberbullying field treated cyberbullying as a form of relational bullying, given it typically involves rumour spreading, public humiliation, and gossip (Beran & Li, 2005). However, the medium through which cyberbullying is carried out, and the breadth of behaviours it can involve, has warranted the investigation of cyberbullying as a distinct form of bullying.

Cyberbullying behaviour is often examined based on the technological platform (e.g. laptop or phone) or channel (e.g. text message) through which it occurs, or the content of the aggressive behaviour (Slonje et al., 2013). For example, Smith and colleagues (2008) investigated the frequency of cyberbullying via seven different technological channels; text messaging, photos or video clips, phone calls, email, chat rooms, instant messaging, and websites. A number of other studies have examined cyberbullying using a similar system of classification (Hinduja & Patchin, 2010; Wachs & Wolf, 2011). Although this approach does provide detail on the avenues through which cyberbullying is most common, it does not offer insight into the actual content of the aggressive behaviour being perpetrated. Without an understanding of the content of the aggressive behaviour, it is difficult to identify the psychological effects the behaviour may have on victims, or to design effective interventions

to reduce the behaviour in bullies. In addition, while a classification system based on technology device or channel may be informative at a particular point in time, it does not provide a platform for consistent measurement and comparison years later, given that advancements in technology may change or reduce the use of those forms of technology.

The alternative system for classifying the types of cyberbullying is focused on the content of the aggressive behaviour. Willard (2007) proposed a classification system for “*cyberbullying and other forms of online social cruelty*” (p.5) based on this method, which includes flaming, harassment, denigration, cyberstalking, outing and trickery, exclusion, impersonation, and sexting. Despite this system of classification being discussed in the literature as an effective method for categorising online aggression (Kowalski et al., 2014; Slonje et al., 2013), it has not been adopted as a standard framework in the measurement of cyberbullying behaviour.

Due to the lack of a standardised system for classifying and measuring cyberbullying, it is difficult to report the most prevalent types of cyberbullying and to compare prevalence rates across studies. Given the advancements in technology and changing nature of cyberbullying, it may be that a consistent approach to classification and measurement of the construct over time is not feasible.

Nevertheless, the two methods used to examine cyberbullying described above (the technology or channel used and the content of cyberbullying) each provide unique insight into the construct and experience of cyberbullying. The technology or channel used to perpetrate bullying allows educators and caregivers to be alert to the environments in which this activity is carried out, and to encourage safe and respectful behaviour by children in these environments, while the content provides insight into the possible antecedents and consequences of the bullying behaviour. In combination, they provide an understanding of the types of bullying behaviour perpetrated and the methods used for perpetration, both aspects

which are valuable in the design of effective intervention. In the current study, measurement of cyberbullying is focused on the content of the cyberbullying behaviour.

1.1.3 Cyberbullying roles

Research on bullying typically divides individuals into a number of specific roles, based on their involvement in the bullying activity. At the highest level there are ‘bullies’, who are those who perpetrate bullying behaviour, and ‘victims’, who are the targets of bullying behaviour. Within these broad categories, bullies and victims are often classified as a bully/victim, a ‘pure bully’, or a ‘pure victim’. Pure bullies are those individuals who have perpetrated bullying behaviour and have not been victimised; pure victims have experienced victimisation and have not perpetrated bullying; bully/victims are those individuals who have both perpetrated bullying, and experienced victimisation.

There is some evidence in the literature that the role of ‘bully’ and ‘victim’ are less distinct in online aggression (Law, Shapka, Domene, & Gagne, 2012; Law, Shapka, Hymel, Olson, & Waterhouse, 2012). Law and colleagues examined the factor structure of a measurement of online aggression and found that the form of online behaviour (e.g. sending mean messages, or posting embarrassing pictures) better differentiated individuals than the particular role they played (i.e. bully or victim). They argued that this is due to the ease in which individuals can retaliate online. Despite this, research typically examines cyberbullying according to bullying role type, and this is the approach taken in the current study. The focus in this study is particularly on ‘bully/victims’, however reference will also be made to ‘pure bullies’ and ‘pure victims’. A factor analysis of the cyberbullying measure will be undertaken to validate the division of the sample by bullying role.

1.1.4 Prevalence of cyberbullying

There is considerable variation in the reported level of cyberbullying and cybervictimisation (Kowalski & Limber, 2013). The main reasons for this variation are the different measures used to examine cyberbullying (multi-item specific measures to one-item

general measures), the different time periods used in these measures (e.g. experiences of cyberbullying in the last month vs. lifetime), and the broad age range that cyberbullying research covers (Kowalski et al., 2014).

Using a restricted time period of the last two months or the last school term as a reference point, the rate of cyberbullying and cybervictimisation tends to range from 10-20% (Kowalski & Limber, 2007; Kowalski & Limber, 2013; Bonano & Hymel, 2013; Hinduja & Patchin, 2008). Within this, approximately 3-5% of individuals tend to be a cyber bully/victim, and 5-10% are a pure cyberbully or pure cybervictim. The overall rate of cyberbullying may be slightly lower in Australia, with Cross and colleagues (2009) reporting that approximately 7-10% of students between 8–14 years had experienced cyberbullying within the school term. Studies that measure cyberbullying involvement across a lifetime tend to report much higher and broader rates of cyberbullying prevalence. The meta-analysis conducted by Kowalski and colleagues (2014) estimated cybervictimisation as between 10-40%, with some studies reporting as high as 72% of participants experiencing “mean things” online (Juvonen & Gross, 2008). Juvonen and Gross (2008) use a very broad definition of cyberbullying, which may explain the high rate.

Cyberbullying activity seems to be less prevalent than traditional forms of bullying. Bonano and Hymel (2013) and Wang, Nansel, and Iannotti (2011) reported the most common forms of bullying as verbal bullying (37-48%) and relational bullying (27-42%) followed by physical bullying (13-15%) and lastly, cyberbullying (9-11%). However, a different pattern of use has emerged for bully/victims.

Yang and Salmivalli (2013) investigated the unique experience and behaviour of bully/victims across physical, verbal, relational, and cyberbullying. Drawing on a very large sample (N=19,869), they reported that bully/victims were found to experience higher levels of victimisation than pure victims across all types of bullying. In addition, bully/victims were more likely to perpetrate verbal bullying, physical bullying, and cyberbullying, and were less

likely to demonstrate relational bullying, when compared to pure bullies. These findings are consistent with previous research indicating that bully/victims are impulsive and demonstrate reactive aggression through cyberbullying (Law et al., 2012). Despite them representing a relatively small subset of the sample (Yang & Salmivalli reported 3%), they are an important group to examine given their high level of victimisation, the adverse consequences that they experience (Kowalski & Limber, 2013), and their role in perpetuating bullying.

There are mixed views regarding whether the prevalence of cyberbullying is increasing or constant (though none claim that it is decreasing). Although not supported empirically, Slonje and Smith (2008) argue that as the use of technology is increasing, the rate of cyberbullying is likely to be increasing. Not all experts in the field agree – with some claiming that the incidence of cyberbullying is steady (Olweus, 2012). Whether or not the prevalence is increasing or has plateaued, there is recognition across the literature that cyberbullying is a serious issue facing adolescents across ages, genders, and geographies (Kowalski et al., 2014).

1.1.5 Traditional bullying vs. cyberbullying

There are a number of significant differences between traditional bullying and cyberbullying that impact the experience of cyberbullying for both perpetrators and victims. The online environment allows cyberbullies to hide their identity from the victim and potential bystanders, which results in more individuals becoming bullies or demonstrating behaviour that they would not normally exhibit offline. Cyberbullies are also able to distance themselves from the victim's response, which can result in reduced empathy and remorse, and again, increase the level and severity of bullying behaviour.

A number of studies have shown that approximately 50% of cyberbullies hide their identity from their victim (Smith et al., 2008). The potential for anonymity in a cyber setting results in children who may not normally exhibit aggressive behaviour doing so online, increasing the pool of potential bullies (Tokunaga, 2010). In addition, deindividuation

research has shown that individuals are more disinhibited when they are anonymous – saying and doing things that they would not do in face-to-face interactions (Diener, 1980; Postmes & Spears, 1998). Finally, the anonymity available in cyberbullying means that bullies are essentially free from being caught and punished, or being judged socially for their behaviour, which may increase both the frequency and extremity of their behaviour.

As discussed briefly when defining cyberbullying, the online environment makes it more feasible for victims, who may not be able to retaliate face-to-face due to a power imbalance, to ‘get back’ at their bully. In a traditional bullying setting, characteristics such as physical size, strength, and popularity all impact an individual’s ability to retaliate. However, almost anyone with a rudimentary level of technological skill can perpetrate bullying online, resulting in some victims becoming bully/victims. The use of the online environment to retaliate was also supported by Kowalski et al. (2014) who identified cybervictimisation and traditional victimisation in the top three risk factors for cyberbullying perpetration. That is, individuals who cyberbully others are more likely to have been victimised in either a cyber or traditional context themselves.

In addition to protecting the perpetrator from judgement and potential punishment, the online environment allows cyberbullies to avoid observing the impact of their behaviour on the victim. Not observing the impact of one’s behaviour can reduce the empathy and remorse experienced, and thus make it easier to perpetrate again in future (Slonje et al., 2013). This is particularly the case for children and early adolescents who have been found to rely more heavily on external cues, such as facial expressions, for guidance on how people feel and how they should behave (Hoffner & Badzinski, 1989). Given the demonstrated link between empathy and aggression (Eisenberg, 2010), the limited cues that may prompt an empathic response in the perpetrator is likely to play a pivotal role in the ongoing use of the online environment for bullying.

From a victim's perspective, not knowing the identity of the bully can make it difficult to respond to the behaviour and can create a feeling of insecurity or uncertainty in social situations. The 'unknown' creates a feeling of powerlessness and worry, as the bully could be anyone of an individual's classmates or peers (Slonje et al., 2013).

The experience of cybervictimisation also differs from traditional victimisation in that it can be experienced anywhere, anytime, and witnessed by a much wider audience. Unlike victims of traditional bullying who may feel fearful at school and in particular social environments but safe inside their own home, it is difficult for victims of cyberbullying to escape their aggressors. In addition, where the observers of traditional bullying may be limited to peers at school, the potential bystanders of an act of cyberbullying are endless. On the flipside, cyberbullying can be an online private exchange between the bully and victim, leaving the victim alone and without any support to help them deal with the experience. These aspects make a difference to the experience of cyberbullying for victims, and also make the monitoring and control of cyberbullying for parents, teachers, and schools much more difficult.

There are critical differences between traditional bullying and cyberbullying that impact the ease with which individuals can perpetrate cyberbullying, the experience of cybervictimisation, and cyberbullying monitoring and intervention. These differences amount to a reduction in the extrinsic barriers such as social pressures, risk of punishment, physical size, or popularity, to an individual becoming a cyberbully. The reduction in extrinsic factors means that intrinsic personal factors may play a greater role in determining frequency of cyberbullying perpetration.

1.1.6 Consequences of cyberbullying

Involvement in bullying, as a bully or victim and across both traditional and cyber forms, has a detrimental impact on an individual's physical, psychological, academic, and behavioural outcomes (Kowalski & Limber, 2013). Victims and perpetrators of bullying have

increased levels of depression, anxiety, and suicidal ideation, decreased self-esteem and feelings of self-worth, reduced self-control, increased alcohol and drug dependence, poor physical health, and inferior academic outcomes than students not involved in bullying (Bonanno & Hymel, 2013; Dooley, Shaw, & Cross, 2012; Juvonen & Gross, 2008; Kowalski & Limber, 2013; Menesini, Modena, & Tani, 2009, Ybarra, 2004). These outcomes have been reported across both traditional bullying and cyberbullying, however some studies have suggested a difference in the occurrence of these consequences across types of bullying, and across bullying roles.

Researchers have examined the differences in outcomes for those involved in traditional bullying versus cyberbullying. While many studies have shown considerable negative consequences across both traditional and cyber bullying, some researchers have questioned whether the reported consequences of cyberbullying are inflated due to the high level of overlap between traditional and cyber victimisation. Olweus (2012, p. 2) for example suggested that the claims regarding cyberbullying “*are often greatly exaggerated*”. However, there is now enough evidence specific to cyberbullying (and controlling for the effects of traditional bullying) to suggest this is not the case.

Studies that have examined the unique impact of cyberbullying have identified consequences for victims over and above those of traditional bullying. A large-scale Australian study (Campbell et al., 2012) reported that the effects of cybervictimisation were more adverse than traditional victimisation. Specifically, cyber victims experienced higher levels of depression, anxiety, and social difficulties than victims of traditional bullying. Bonanno and Hymel (2013) and Wang and colleagues (2011) also looked at the independent contribution of cyberbullying and found that involvement as a victim or bully significantly predicts depressive symptomatology over and above that of traditional bullying. Bonanno and Hymel (2013) also reported that involvement in cyberbullying (as a bully or victim) relates to increased suicidal ideation.

Sticca and Perren (2013) investigated the unique effects of cyber and traditional bullying by examining the perceived severity of an act of bullying based on the medium (cyber or traditional), level of publicity, and whether the bully was anonymous. They found that individuals rated acts of bullying that were highly public and anonymous as the most severe. They concluded that cyberbullying is more detrimental for victims, and that this is due to the characteristics of cyberbullying (i.e. the potential for it to be seen by a large audience and not know who the bully is), rather than the medium (cyber versus traditional) itself.

The adverse impact of cyberbullying is likely a result of the key differences between cyber and traditional bullying. Specifically, the unlimited boundaries of cyberbullying may contribute to the internalising symptoms experienced by cybervictims, as it is more difficult to escape the perpetration. In addition, in the 50% of cases that the perpetrator remains anonymous, the victim is likely to experience increased anxiety in social situations, as they do not know who it is that is bullying them. These differences in cyberbullying result in distinct consequences for cybervictims, and highlight the variation in outcomes that can be experienced by bullying role (bullies, victims, bully/victims).

Bully/victims are often reported as suffering the most negative consequences of bullying, when compared to pure bullies or victims. It has been argued this is due to them experiencing the behavioural problems of bullies and the emotional problems of victims (Juvonen & Gross, 2008; Menesini et al., 2009). Menesini and colleagues (2009) examined traditional bullies, victims, and bully-victims against a measure of psychosocial problems and found that bully/victims presented with higher levels (comparable to pure bullies) of externalising symptoms (delinquent or rule-breaking behaviour and aggressive behaviour subscales), as well as higher levels (comparable to pure victims) of internalising symptoms (withdrawn, somatic complaints, and anxious or depressed subscales). Kowalski and Limber (2013) reported a similar pattern of results in a comparison of bully/victims involved in traditional bullying versus cyberbullying, but identified cyber bully/victims as worse off

across psychological, physical and academic outcomes than traditional bully/victims (and pure bullies or pure victims in either type). Notwithstanding this finding, research has not consistently found that bully/victims are worse off across adverse outcomes.

Bonanno and Hymel (2013) found that cyber bully/victims reported significantly higher levels of suicidal ideation than cyberbullies or cybervictims, but did not demonstrate higher levels of depression. This was consistent with the results of Wang and colleagues (2011) who revealed that cyber bully/victims did not experience the highest levels of depression (cybervictims reported highest depression). Despite there being some inconsistency across studies in the intensity of negative consequences reported by cyber bully/victims, overall there is enough evidence to indicate that this group is high risk given the combination of externalising and internalising difficulties that they experience.

The way in which cybervictims respond to the experience of victimisation may also contribute to, or be a result of, their internalising and externalising difficulties. Dooley, Shaw and Cross (2012) categorised victim responses to cyberbullying into aggressive, assertive, or passive and examined this in relation to victim mental health and behavioural outcomes. They found that aggressive responses to cybervictimisation were associated with higher mental health and behavioural problems than assertive responses. The causality of this finding is unclear (i.e. it is not clear whether responding aggressively to victimisation results in greater mental health and behavioural problems, or if poor mental health and behavioural problems result in an individual behaving aggressively). However, given that bully/victims are thought to respond aggressively to victimisation, this result highlights bully/victims as a high risk group.

The consequences of cyberbullying for both victims and bullies are well documented (Bonanno & Hymel, 2013; Dooley et al., 2012; Juvonen & Gross, 2008; Menesini et al., 2009; Wang et al., 2011) and point to the adverse effects involvement in the activity can have on an individual's physical and mental health, and social and academic outcomes. Although there

has been some debate in the literature as to the independent contribution of cyberbullying to these negative outcomes, studies have demonstrated that over and above traditional bullying, involvement in cyberbullying has significant negative consequences. Victims of cyberbullying have consistently been found to experience internalising difficulties such as depression and social anxiety; and while some studies have also demonstrated this link for bullies, the relationship is less consistent. Bullies have consistently shown externalising and behavioural difficulties, and bully/victims have been found to experience both externalising and internalising symptoms.

1.1.7 Age and gender differences in cyberbullying

Findings regarding the prevalence of cyberbullying by gender are mixed, however there are clearer results on the effects of age. The consensus in the literature is that cyberbullying activity follows a curvilinear relationship with age (Tokunaga, 2010). Cyberbullying activity is relatively low at primary school age (grades 5-6), reaches a peak in middle school (grades 7-9), and declines slightly into late adolescence (Hinduja & Patchin, 2008; Tokunaga, 2010; Kowalski et al. 2014). This pattern is similar to the effect of age on traditional bullying. However, within traditional bullying there are differences by age and type of bullying used, with primary school children preferring more direct methods of bullying such as physical and verbal, and adolescents increasingly using relational bullying (Yang & Salmivalli, 2013).

The effect of gender on cyberbullying activity is not clear. Many studies have shown no relationship between gender and cyberbullying behaviour (Hinduja & Patchin, 2008; Ybarra & Mitchell, 2004; Beran & Li, 2007; Perren, Dooley, Shaw, & Cross, 2010), some have found that boys cyberbully more than girls (Erdur-Baker, 2010; Li, 2006; Yang & Salmivalli, 2013), and others have suggested the reverse (Kowalski & Limber, 2007).

A recent meta-analysis examining the effect of gender on cyberbullying, reported that gender differences could be explained by whether cyberbullying is seen as a form of direct or indirect aggression (Bartlett & Coyne, 2014). The traditional bullying literature has

established that boys use more direct methods of aggression such as physical and verbal bullying. Cyberbullying is typically thought of as indirect aggression however, and the findings relating to indirect aggression are less conclusive. Some scholars argue that girls more frequently use indirect aggression such as relational bullying (Olweus & Limber, 2010). Conversely, two meta-analyses conducted by Bartlett and Coyne (2014), and Card, Stucky, Sawalani, and Little (2008) reported disparate findings across the studies included in their analyses, and very small but significant findings regarding indirect aggression and gender in the opposite direction. That is, Bartlett and Coyne's (2014) meta-analysis reported that boys were slightly more likely to cyberbully than girls, and Card and colleagues (2008) reported the reverse. These disparate results by gender are likely a result of differences in measurement of the construct, and reflect that cyberbullying is made up of both direct and indirect aggression (and different measures including different weightings of each).

There is relatively little evidence regarding the incidence of cyber bully/victims by age and gender. Studies that have examined bully/victims have looked at traditional and cyberbullying together and have reported inconsistent results. Yang and Salmivalli (2013) found that the majority of bully/victims were boys, and that they were more common in primary school than high school. This result was based on all forms of bullying, with a greater prevalence of physical and verbal bullying than relational bullying or cyberbullying, which may explain the higher incidence of boys. By contrast, Kowalski and Limber (2007) investigated cyberbullying specifically and found a higher incidence of cyber bully/victims among girls, and within grades seven and eight (lower levels in grade six). Further research is needed to better understand the prevalence of cyber bully/victims by age and across genders.

While there are some patterns emerging regarding the role of age in cyberbullying activity, the impact of gender is inconclusive. The differences in gender results by study can be partly attributed to inconsistency in the measurement of cyberbullying. Drawing on the findings of the traditional bullying literature, gender is potentially related to different types of

cyberbullying, with boys more likely to demonstrate direct bullying, and both genders likely to perpetrate indirect bullying. Further research is needed to establish if this is the case.

Given the significant negative consequences of cyberbullying, and particularly for those classed as bully/victims, focus must be given to the factors that predict perpetration of bullying behaviour. Identification of these factors will help to identify strategies that can be put in place to help reduce the incidence of bully/victims, and prevent the cycle of cyberbullying.

1.1.8 The General Aggression Model

The General Aggression Model (GAM) is a holistic theoretical framework, which integrates domain specific aggression models into one model that can be used to understand the different personal and situational factors leading to aggressive behaviour (Anderson & Bushman, 2002). Anderson and Bushman suggest that the GAM facilitates a comprehensive understanding of aggression as it incorporates the various motives and processes that may result in aggression. As such, it may be more useful in designing intervention to reduce aggressive behaviour than theories of aggression that have a narrower focus. The model has been used in previous research on bullying, and was the theoretical basis for the meta-analysis examining cyberbullying research conducted by Kowalski and colleagues (2014).

Knowledge structures are the foundation of the GAM, that is, the scripts and schemas individuals draw on to process, understand, and respond to scenarios and interactions that they are presented with (Kowalski et al., 2014). Put informally, knowledge structures are the ‘lens’ through which individuals view their world (Anderson & Bushman, 2002). The GAM is made up of three key components, all of which are impacted by an individual’s knowledge structures; i) person (e.g. age, gender, personality) and situational inputs (e.g. school climate); ii) the cognitive, affective, and arousal routes through which the inputs have an impact; and iii) the appraisal and decision making process that results in behavioural and other outcomes (Anderson & Bushman, 2002).

As discussed, Kowalski and colleagues (2014) applied the GAM to their examination of the factors surrounding a cyberbullying encounter (see Figure 1 below). From the perspective of the perpetration of cyberbullying, person and situational factors (inputs) result in a decision to perpetrate cyberbullying, by impacting the cyberbully's thoughts, emotions, or arousal (routes). The cyberbullying encounter then occurs, and is subject to a number of longer-term (distal) outcomes such as psychological or physical health, and social and behavioural problems. The process by which this occurs in cybervictimisation is slightly different.

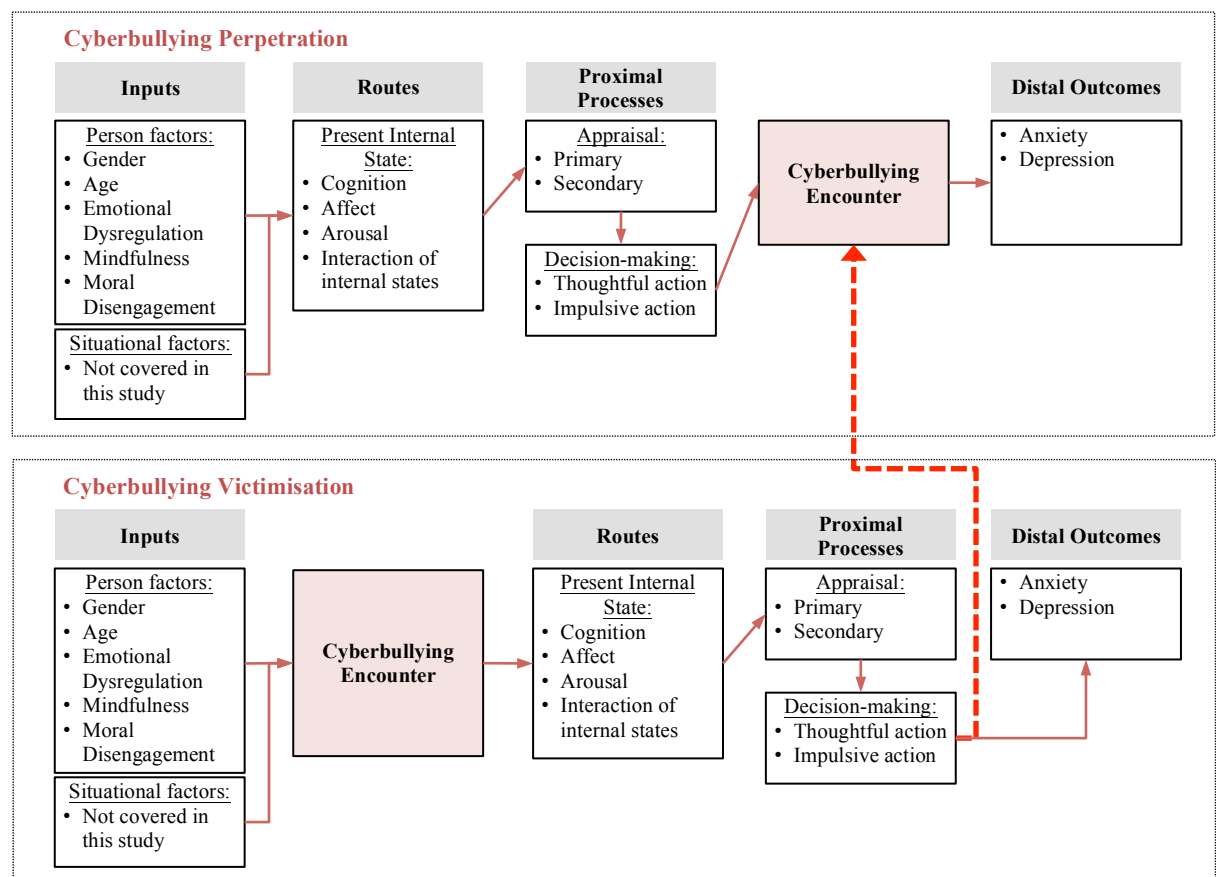


Figure 1. *View of a cyberbullying encounter through the General Aggression Model. The red dashed line indicates how a victim of cyberbullying might become a perpetrator of cyberbullying and is the primary focus of this study (Kowalski et al., 2014).*

From the perspective of cybervictimisation, an individual's person and situational factors (the inputs; e.g. they may be socially less popular) result in them being victimised (the cyberbullying encounter). This encounter impacts their thoughts, feelings, and arousal (routes), which leads to them appraising the scenario and deciding how to respond to the

present internal state. For example, if an individual has difficulty controlling their anger (an input; person factor), has experienced cybervictimisation, and is experiencing the emotion of anger as a result (their present internal state), their primary appraisal is likely to be based on this emotion of anger, and may result in aggression and retaliation. In contrast, if the individual is able to regulate their anger quite well, the same experience of cybervictimisation may not result in high levels of anger, and so their primary appraisal may not be to respond with aggression. If the individual does not have the resources available (e.g. time, or cognitive/emotional capacity) to conduct further appraisal of the situation, or the outcome is not important to them, the primary appraisal may be the only appraisal undertaken and result in an impulsive action (Anderson & Bushman, 2002; Kowalski et al., 2014).

However, the individual's primary appraisal is not always the determining factor in the action they decide to take. If the individual has the capacity, and the situation is important to them, they will reappraise the situation (secondary appraisal). This reappraisal can occur several times and is based on the individual's knowledge structures. Ultimately, the reappraisal will end and result in a course of thoughtful action. In the context of cybervictimisation, this thoughtful action may still involve retaliation, and so follow the dashed line (in Figure 1) up to the perpetration of cyberbullying.

The level of appraisal undertaken and resulting behavioural decisions are impacted by an individual's person and situational factors. A key aim of this study is to uncover the person factors that relate to a cybervictim's appraisal and decision-making process to result in cyberbullying perpetration. A number of person factors will be examined, all of which have established relationships with aggressive behaviour. However, the relative importance of each of these in the perpetration of cyberbullying, particularly in response to provocation (cybervictimisation), is yet to be determined.

The factors that will be examined stem from two major traditions of research on aggressive behaviour. The first, based on the Frustration-Aggression hypothesis, is focused on

the role of negative emotion and affect regulation on aggressive behaviour (Berkowitz, 1989). In the current study, this will be represented through examination of the link between emotional dysregulation of anger and cyberbullying perpetration. The second major tradition of research on aggressive behaviour, Social Cognitive Theory, is (in part) focused on the sociocognitive mechanisms used by individuals to perpetrate behaviour misaligned to their own moral standards without suffering negative self-judgement (Bandura, 2001). In the current study, this will be represented by the examination of the link between moral disengagement and cyberbullying perpetration for both cyber bully/victims and pure bullies. In addition, the moderating role of mindfulness on the relationship between emotional dysregulation of anger and cyberbullying, and moral disengagement and cyberbullying, will be investigated for cyber bully/victims, and pure bullies. Mindfulness is a recent addition to the aggression literature, and shows promise in the reduction of cyberbullying through its relationship with increased self-control, and greater consciousness of thought processes (and so potentially reduced moral disengagement).

Given the focus of the present study is aggressive behaviour in response to provocation (cyberbullying in response to cybervictimisation), it is also relevant to provide an overview of the distinction between proactive versus reactive aggression. These two types of aggression are likely to differ by bullying role as outlined below.

1.1.10 Proactive vs. Reactive aggression in bullying

Historically research on aggression has often divided aggressive behaviour into two categories, based on the motive of the aggressor. These two categories are *proactive* aggression and *reactive* aggression (Crick & Dodge, 1996; Dodge & Coie, 1987). Proactive aggression, also known as “cold blooded” aggression, is a deliberate and controlled behaviour, carried out in order to achieve an external goal (Crick & Dodge, 1996). The motives of proactive aggression sit within Bandura’s (2001) social cognitive theory and the concept of self-efficacy. Individuals need to feel confident that they can achieve their goal in

order to exhibit the aggressive behaviour. In contrast, reactive aggression, also referred to as defensive or “hot blooded” aggression, is aggression in response to a frustration or perceived provocation. Reactive aggression is grounded in the frustration-aggression model (Berkowitz, 1993) and has been linked to hostile attribution biases. That is, the bias that results in some individuals perceiving ambiguous behaviour as aggressive, and hence responding defensively (hence the term reactive aggression is relevant in response to real *or* perceived provocation).

Research has demonstrated differences in the use of proactive and reactive aggression by bullying role. Perry, Perry and Kennedy (1992) and Dodge, Price, Coie, and Christopoulos (1990) argued that the aggression displayed by non-victimised aggressors (e.g. pure bullies) is more proactive in nature, given it is typically conducted in pursuit of social goals. In contrast, victimised aggressors (e.g. bully/victims) are consistently reported as demonstrating reactive aggression given their aggression is retaliatory and a result of poorly modulated anger, rather than a goal-oriented social strategy (Schwartz, Dodge, Petit, & Bates, 1997).

Despite the utility of these findings, the classification of aggression into proactive and reactive aggression does not have unanimous support. Critics argue that the distinction is a very simplistic model in which to view behaviour, and neglects the possibility of an individual having multiple motives (Bushman & Anderson, 2001). As a result, in the current study, the GAM is utilised as it is a comprehensive theoretical model of aggression, which allows for multiple person and situational factors as potential inputs in explaining the aggressive behaviour of bully/victims, and the possible interlinkages between them. The personal factors of focus in the present study will now be outlined, namely, emotional dysregulation, moral disengagement, and the moderating role of mindfulness.

1.1.11 Emotion dysregulation

Emotional regulation is defined as the process by which individuals manage their emotions, including the specific emotions they experience, the intensity of those emotions, and how and when they are expressed (Gross, 2002). Emotion dysregulation is therefore the

maladaptive ways in which individuals experience and manage their emotions (Werner & Gross, 2010). There are two forms of maladaptive emotion regulation, under-regulation and over-regulation. While both forms have been linked to aggressive behaviour, the majority of the literature is focused on under-regulation (Robertson, Daffern, & Bucks, 2012). As such, discussion and measurement of emotion dysregulation in this study, refers to emotion under-regulation. Emotion under-regulation occurs when an individual is unable to contain emotion effectively in order to behave in line with their goals. This can result in impulsive behaviour that the individual is unable to inhibit (Robertson et al., 2012). For example, an individual unable to regulate intense anger may show aggression to a person that the individual would otherwise like to have a positive relationship with.

Emotional dysregulation of negative emotion, particularly anger, has shown a strong relationship with the perpetration of aggressive behaviour (Robertson et al., 2012). That is, individuals who have poor control of anger are more likely to show aggression. A recent meta-analysis revealed that emotional dysregulation is positively related to reactive aggression, but only has a weak association with proactive aggression (Card & Little, 2006). This is consistent with reactive aggression being “hot blooded” aggression, which is characteristic of bully/victims (Toblin, Schwartz, Gorman, & Abou-ezzeddine, 2005).

Traditional bully/victims (i.e. those involved in verbal, physical or relational bullying) have consistently been shown to demonstrate poor emotional regulation, often more so than pure bullies (Garner & Hinton, 2010; O’Brennan, Bradshaw, & Sawyer, 2009; Schwartz, 2000; Toblin, et al., 2005). Schwartz (2000) reported that bully/victims received higher scores on teacher ratings of impulsive behaviour and emotion dysregulation, when compared to pure victims and pure bullies. Toblin and colleagues (2005) reported a similar result when they found that bully/victims showed higher levels of emotion dysregulation than bullies, and non-involved children. It has been argued that the aggression shown by bully/victims is a result of poorly controlled anger in response to provocation. This is distinct from pure bullies who

typically use aggression more strategically in the pursuit of social goals (Perry, Perry, & Kennedy, 1992; Schwartz et al., 1997).

While the relationship between emotional dysregulation, reactive aggression, and bully/victims has been well established in the context of traditional bullying, it is unclear whether emotional dysregulation has the same effect on the production of bully/victims in a cyber context. As previously discussed, it is easier for victims to respond with retaliation online than in a face-to-face setting. Given individuals who have difficulty managing their emotions are more likely to respond to provocation with aggression, it therefore follows that cybervictims with poor emotional regulation are more likely to perpetrate cyberbullying and become bully/victims.

In addition to the direct effect of emotional dysregulation of anger on cyberbullying perpetration by cybervictims, it is expected that emotional dysregulation may also have an indirect effect via moral disengagement. Caprara and colleagues (2013, 2014) have investigated the relationship between personality traits such as emotional stability, irritability and hostile rumination on moral disengagement and aggression. These investigations identified that high levels of irritability lead to increased moral disengagement, via increased hostile rumination. Irritability is defined as the tendency to “*react impulsively and take offense to the slightest disappointment or disagreement*” (Caprara et al., 2014, p.72). The construct is therefore similar to emotional dysregulation as it relates to the poor management of negative emotion. Caprara et al. (2013) reported irritability to be similar to the big five factor of emotional (in)stability which also closely mirrors emotional dysregulation. Taken together, these findings suggest a potential link between emotional dysregulation and moral disengagement, similar to the relationship found between irritability and moral disengagement by Caprara (2013).

In Caprara’s research, hostile rumination plays a linking role between irritability and moral disengagement (Caprara et al., 2013, 2014). While hostile rumination is not measured

in the current study, given the resemblance of irritability and emotional dysregulation, it is expected that emotional dysregulation impacts moral disengagement through this channel. That is, individuals who are predisposed to experience elevated and poorly controlled anger (emotional dysregulation) are more likely to dwell on the reason for their anger and plan revenge (hostile rumination). This in turn is likely to lead to the need for cognitive distortions to justify plans for revenge without negative self-sanction (moral disengagement). In this context, moral disengagement acts as a gatekeeper to behaving aggressively by giving individuals the mental freedom to act on their angry thoughts and emotions (hostile rumination and emotional dysregulation), while avoiding guilt or shame (Caprara et al. 2014).

The focus of this study is on the personal factors that are associated with the perpetration of cyberbullying behaviour by cybervictims. It is expected that cybervictims high in emotional dysregulation are likely to respond to provocation (i.e. the experience of victimisation) with aggression. In addition, it is hypothesised that high emotional dysregulation of anger will relate to increased moral disengagement, which then results in cyberbullying perpetration.

1.1.12 Moral disengagement

Moral disengagement originates from Social Cognitive Theory (Bandura, 2001), which postulates that human behaviour is the result of a triadic interaction between personal factors, behaviour, and the environment. In the context of cyberbullying, personal factors include an individual's aggression self-efficacy and their tendency to morally disengage (among others). Environmental factors are similar to situational inputs and may include the level of access a child or adolescent has to technology, peer and parental support, and school climate. The influence of personal, behavioural, and environment factors is triadic – so an individual's environment can impact their own personal factors and their behaviour, and they also have influence over their environment. This is referred to as reciprocal determinism, and is a defining characteristic of Social Cognitive Theory.

The ability individuals have to influence and direct the outcomes of their lives is another key element of Social Cognitive Theory, and is referred to as human agency (Bandura, 2001). This agentic capacity allows individuals to motivate, monitor, and regulate their own behaviour. In the context of cyberbullying, moral agency is of primary focus, and describes the social-cognitive process through which individuals develop moral standards, behave, and make evaluative judgements of their behaviour.

Individuals develop moral standards across childhood, initially by learning what is right and wrong through external sanctions applied by parents and others. As children develop, they internalise these moral standards, and start to monitor and regulate their own behaviour through self-reactions. By adolescence, individuals are able to regulate their own conduct through anticipatory judgement of whether their behaviour aligns to their own moral standards and how they are likely to feel about that alignment (or misalignment). Where there is alignment, the individual will experience self-satisfaction and self-respect, while misalignment results in negative self-sanctions.

However, these self-regulatory mechanisms do not operate in a consistent manner across all scenarios. Individuals are able to selectively engage or disengage their internal regulators of moral conduct, and by doing so engage in immoral conduct, without the negative self-sanctions that would typically follow. This process is called moral disengagement.

Moral disengagement is the selective deactivation of the self-regulatory processes that normally result in an individual experiencing negative self-sanctions in response to behaviour that is not aligned to their moral standards (Bandura, 1999). In other words, it is the psychological manoeuvring that allows an individual to act immorally but feel okay about it. Bandura has outlined four broad categories, made up of eight mechanisms, through which moral disengagement takes place (see Figure 3).

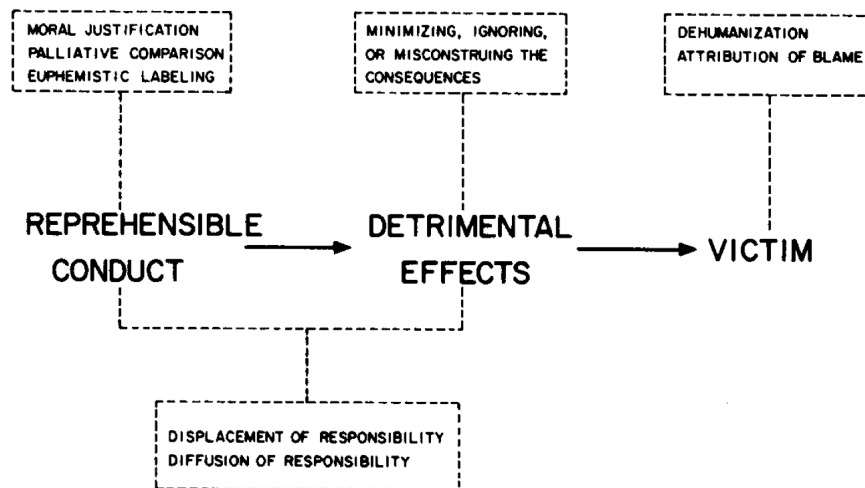


Figure 3. *Mechanisms through which moral control is selectively activated or disengaged from detrimental conduct at different points in the self-regulatory process (Bandura, 1986)*

The first category of moral disengagement, known as cognitive restructuring, involves a re-construal of the immoral behaviour itself. Individuals convince themselves that their behaviour is acceptable by (i) providing a *moral justification* for the act; (ii) comparing the behaviour to other behaviour that is much worse (*advantageous comparison*); or (iii) describing the behaviour in language that diminishes its severity (*euphemistic labelling*). An example of cognitive restructuring in a cyberbullying context would be an adolescent convincing himself or herself that sending a mean message to a peer privately is not so bad because posting it in a public forum would be much worse (advantageous comparison), or that “all I’m doing is being honest and telling him/her what I think” (euphemistic labelling). These cognitive tricks are the most effective mechanisms by which individuals can avoid negative self-sanctions for immoral behaviour as they address the behaviour itself (Bandura, Barbaranelli, Caprara, & Pastorelli, 1996). The remaining three categories seek to minimise the extent to which an individual feels guilt for a behaviour they know is immoral.

The second category focuses on the level of responsibility the individual assumes for the immoral behaviour and includes *Displacement of responsibility* and *Diffusion of responsibility*. Displacement of responsibility occurs when an individual contends that they

only behaved in a certain way as a result of peer or social pressures. Diffusion of responsibility takes place when an individual feels reduced personal responsibility as a result of behaving immorally in a group. In cyberbullying, this may present as an individual posting a photo of a peer due to peer pressure (displacement of responsibility), or forwarding a picture that had already been shared electronically (diffusion of responsibility).

The third category by which individuals morally disengage is focused on the re-construal of the consequences of their immoral behaviour. Individuals can *minimise, ignore or distort the consequences* of their actions, and thereby convince themselves that their conduct is not that bad. The cyber environment lends itself to this form of moral disengagement given the perpetrator of cyberbullying is unable to see the victim's response and so may trivialise the impact of their actions.

Lastly, individuals deactivate their self-regulatory processes by justifying their behaviour as a result of the victim's characteristics. This may include *dehumanising* the victim, or by *attributing blame* to the victim for the bullying they experience. Aggressive behaviour by bully/victims that is retaliatory fits this category, as the perpetrator feels that the victim deserves the experience of victimisation and that they are justified to behave in a certain (immoral) way given that they were provoked.

The link between moral disengagement and traditional bullying has consistently been demonstrated in the literature for children and adolescents (Gini, 2006). A recent meta-analysis conducted by Gini and colleagues (2014) examined 27 studies focusing on moral disengagement and aggressive behaviour and found a moderate effect size confirming that high levels of moral disengagement are associated with increased aggression. They also compared the effect size of moral disengagement to other commonly cited predictors of aggressive behaviour, and found that moral disengagement was as strong a predictor as other-related cognitions (e.g. empathy, normative beliefs about aggression), and stronger than predictors such as self-efficacy, social competence, and hostile attributions. These findings

did not relate to cyberbullying specifically, but rather to general aggression and bullying overall.

Only a small number of studies have examined the relationship between moral disengagement and cyberbullying, as distinct from traditional bullying. Studies that have examined this link have argued that moral disengagement may be less critical in the prediction of cyberbullying behaviour due to differences in the online environment. Pornari and Wood (2010) suggested that the anonymity and inability to view the victim's response might minimise the extent to which bullies feel they are doing the wrong thing and therefore reduce the need for adolescents to morally disengage from their behaviour. Bauman (2010) supported this view stating that online bullies can more easily minimise the consequences of their actions, as they do not see the victim's reaction.

In contrast to these arguments, Gini and colleagues (2014) found that the relationship between moral disengagement and cyberbullying ($r = .31$) was slightly stronger than for general aggression ($r = .27$) and traditional bullying ($r = .25$). This result was based on just four studies, however it provides preliminary evidence that cyberbullying is impacted by moral disengagement in a way that is similar to other forms of aggressive behaviour. Given the limited findings in this area, more research is needed to ascertain the strength and consistency of this relationship.

Moral disengagement describes the process by which individuals are able to act immorally and avoid negative self-sanctions by deactivating their self-regulatory processes. Moral disengagement has been shown to have a strong link to the perpetration of general aggression and traditional bullying, and preliminary evidence validating this link has been found in a cyberbullying context. Therefore, it is expected that moral disengagement may act as an input to cyberbullying perpetration by both cybervictims and non-victims (pure bullies).

In summary, cybervictims who retaliate and perpetrate cyberbullying become cyber bully/victims. The perpetration of cyberbullying by cybervictims is expected to relate to high

levels of emotional dysregulation of anger, and high levels of moral disengagement. The nature of these relationships may differ however, depending upon an individual's level of mindfulness. The role of mindfulness as a potential moderator will be outlined now.

1.1.13 The moderating role of mindfulness

Mindfulness stems from Eastern meditative practice and has become increasingly prevalent in psychological and medical treatment over the past 20 years (Brown, Ryan, & Creswell, 2007). Mindfulness is commonly defined as “*paying attention in a particular way: on purpose, in the present moment, and nonjudgementally*” (Kabat-Zinn, 1994, p.4) or “*a receptive attention to and awareness of present events and experience*” (Brown et al., 2007, p.212). A key component of mindfulness is the openness and non-judgemental nature of an individual's awareness and attention. It is this openness that allows individuals to observe their thoughts, cognitions, behaviour and surroundings, without becoming enmeshed in the emotions or thoughts themselves (Brown & Ryan, 2003).

Mindfulness has been linked to a wide range of psychological, physical, and behavioural benefits (Brown et al., 2007). One such benefit is a reduction in aggression (Borders, Earleywine, & Jajodia, 2010; Heppner et al., 2008; Singh et al., 2007). Borders and colleagues (2008) discovered, across two studies, that individuals that were high in mindfulness showed lower levels of anger, hostility, and aggression. This research also demonstrated that anger and hostility were impacted by mindfulness through its impact on rumination. In addition, Heppner and team (2008) found that mindfulness was able to buffer the impact of social rejection on aggression. That is, individuals with experimentally induced mindfulness who were socially rejected exhibited much lower aggression than those with low mindfulness, and similar levels of aggression to individuals who were not rejected. Lastly, Singh et al. (2007) conducted a case study with a sample of three clinical patients who suffered from anger management and achieved a significant drop in aggression for four years following a mindfulness intervention.

Mindfulness has not yet been linked to child and adolescent bullying specifically, however there is evidence of the positive impact of mindfulness on children in other respects. Mindfulness interventions have become increasingly popular with child populations and have shown large effect sizes on cognitive performance (executive function type assessments), and small to medium effect sizes on measures of prosocial behaviour, emotional control, stress, and coping (Schonert-Reichl et al., 2015; Zenner, Herrnleben, & Walach, 2014). In addition, Swart and Apsche (2014) identified the effects of a mindfulness intervention in reducing reactive aggression in a clinical sample of adolescent males. Taken together, this evidence points to the potential for mindfulness to reduce reactive aggression and bullying behaviour.

The mechanisms through which mindfulness reduces aggressive behaviour have received little empirical attention, and will be investigated in the present study. Two possible mechanisms will be examined; mindfulness as a moderator of the relationship between emotional dysregulation and cyberbullying, and mindfulness as a moderator of the relationship between moral disengagement and cyberbullying. Specifically, by increasing self-control and inhibition, it is expected that high levels of mindfulness will attenuate the relationship between emotional dysregulation of anger and cyberbullying behaviour for cybervictims. Secondly, by reducing the defensiveness and automatic nature of an individual's thought processes, it is expected that mindfulness will reduce the effect of moral disengagement on cyberbullying behaviour by cybervictims and non-cybervictims.

Mindfulness has been shown to positively impact child executive functions, which have been linked to the regulation of behaviour and overall social-emotional competence (Diamond, 2012). Executive functions (EFs) depend on the prefrontal cortex and are cognitive control abilities used to organise, sequence and regulate behaviour (Diamond, 2012). A key executive function relevant to this discussion is inhibition. Inhibition plays an important role in the control of behaviour, attention, and emotion (Diamond, 2012). Specifically, inhibition allows the control of behaviour in order to prevent habitual or impulsive responses, which

allows the individual to come to a more considered response regarding the best course of action. In addition, inhibition helps individuals control their emotions, so not to behave inappropriately in response to emotion (Diamond, 2012).

Although not under the label of executive function specifically, the role of mindfulness on behavioural self-control has been demonstrated empirically several times. Barnes, Brown, Krusemark, Campbell, and Rogge (2007) and Lakey, Campbell, Brown, and Goodie (2007) found that high levels of trait mindfulness were associated with higher levels of self-control. Self-control was defined as the ability to over-ride inner responses, and refrain from acting on impulse.

Research regarding the strength model of self-control also points to the positive effects of mindfulness on self-control (Baumeister, Vohs, & Tice, 2007). Baumeister and colleagues theorised that self-control is a limited resource, and so is vulnerable to deterioration following use (similar to a muscle) (Baumeister, Heatherton, & Tice, 1994). Experimental evidence has demonstrated that a brief mindfulness intervention can counteract the impact of self-control depletion, and boost individual self-control on subsequent tasks (Frieze, Messner, & Schaffner, 2012). Specifically, individuals who were required to exert self-control (via an emotion suppression task), and were then led through a mindfulness exercise, subsequently exhibited higher levels of self-control to individuals who suppressed their emotions and did not do the mindfulness exercise, and similar levels of self-control to those individuals who did not deplete their self-control (i.e. those who were not required to suppress their emotions in the first task). This study provides additional evidence for the role mindfulness may play in boosting self-control.

Given that increased self-control and inhibition helps prevent individuals from behaving inappropriately in response to emotion, the role of mindfulness in boosting self-control and reducing the effects of dysregulated anger on cyberbullying activity is most relevant for individuals who have been provoked. Denson, von Hippel, Kemp and Teo (2010)

demonstrated this in their experiment investigating the impact of glucose on an individual's ability to control aggressive impulses when provoked versus when not provoked. Like mindfulness, glucose has been found to bolster self-control (Gailliot & Baumeister, 2007). Denson and colleagues found that when provoked, consumption of glucose reduced aggression. However, when not provoked, the consumption of glucose had no impact on aggression levels. These findings support the important role that mindfulness may play in reducing the impact of dysregulated anger on cyberbullying behaviour for cybervictims (i.e. individuals who have been provoked), but not non-cybervictims.

Mindfulness may also reduce cyberbullying behaviour, by dampening the effects of moral disengagement on aggression. This relationship has undergone preliminary examination by Bussey and Quinn (2015) who found that for students in grades nine and eleven, high levels of mindfulness weakened the relationship between moral disengagement and aggression. This effect was not found for students in grade seven. This research was based on a measure of pure overt aggression however. The present study will examine whether mindfulness reduces the link between moral disengagement and cyberbullying, particularly cyberbullying perpetrated by cybervictims.

The means by which mindfulness may reduce the effect of moral disengagement on aggression works via two channels. Firstly, mindfulness provides individuals with greater clarity and awareness of their internal thoughts, values, and emotions, and of their external environment. This allows individuals to see their reality as it is, rather than through a filter or set of self-serving biases (Brown et al., 2007). Secondly, this objective clarity can be used to make flexible and considered psychological and behavioural responses, which are aligned to the individuals thoughts, values, and emotions. This makes the use of impulsive or habitual responses or psychological tricks difficult, as individuals are attuned to their internal beliefs, and are able to regulate their actions in line with these beliefs without bias or self-serving defensiveness.

Moral disengagement is essentially a self-implemented psychological maneuver, to make individuals feel okay about behaviour that is not aligned to their moral standards. In the context of moral disengagement and aggression, mindfulness may make it difficult for an individual to convince himself or herself that perpetrating bullying is ok, and thus be associated with reduced cyberbullying perpetration. As a result, it is expected that high levels of mindfulness will weaken the relationship between moral disengagement and cyberbullying behaviour (by both cybervictims and non-cybervictims).

1.2 The Present Study

This study is focused on identifying the factors that are associated with cybervictims perpetrating cyberbullying. This aim is based on the finding that cybervictimisation is the strongest predictor of cyberbullying perpetration, and the commonly alleged position that this is a result of cybervictims retaliating and becoming cyberbullies (Kowalski et al., 2014). To examine these relationships, students in grades five, seven, and nine participated in a questionnaire-based study. Students of these ages were included, as it has been shown that cyberbullying often commences in year five and peaks in year's seven to nine (middle school) (Kowalski et al., 2014). Based on the literature, a number of hypotheses have been generated.

Cyberbullying literature has consistently reported a strong association between cybervictimisation and cyberbullying perpetration (Kowalski et al., 2014). Therefore, the first hypothesis is that high levels of cybervictimisation will relate to high levels of cyberbullying (H1).

The premise of this study is that cyber bully/victims are a product of cybervictims responding aggressively to the experience of victimisation and becoming cyberbullies (hence then being cyber bully/victims). The collection of longitudinal data to examine the direction of this relationship was not feasible, however victims were asked to provide detail on how they have responded to cybervictimisation. Using this information, it is hypothesised that

cyber bully/victims would be more like to responded aggressively to cybervictimisation than pure victims (H2).

Individuals who exhibit poor emotional regulation, particularly of anger, are more likely to respond aggressively when provoked (Robertson et al., 2012). As such, it is hypothesised that high emotional dysregulation will relate to increased cyberbullying perpetration by cybervictims (H3a). There is also evidence that high emotional dysregulation may result in increased aggression, by increasing an individual's propensity to morally disengage (Caprara et al., 2013). It is therefore expected that emotional dysregulation of anger will indirectly associate with cyberbullying, via moral disengagement (a mediation effect) for cybervictims (H3b). In addition, research regarding the use of "cold blooded" aggression by pure bullies (Perry et al., 1992) suggests that it is unlikely that high emotional dysregulation of anger will relate to cyberbullying perpetration by non-cybervictims either directly (H3c), or indirectly via moral disengagement (H3d).

There is evidence that high mindfulness may reduce aggression by bolstering an individual's self-control (Baumeister et al., 2007, Frieze et al., 2012). Increased self-control is necessary to inhibit impulsive aggressive behaviour, resulting from anger, when provoked (Denson et al., 2010). Therefore, it is expected that mindfulness will act as a moderator of the relationship between emotional dysregulation of anger and cyberbullying for cybervictims (hypothesis 4a). Given that high emotional dysregulation of anger is unlikely to result in cyberbullying behaviour for those who have not been provoked, this moderation effect is not expected for non-cybervictims (hypothesis 4b).

Literature has demonstrated a strong link between moral disengagement and adolescent aggression. As such, it is hypothesised that high levels of moral disengagement will associate with greater cyberbullying behaviour both by cybervictims (H5a) and non-cybervictims (H5b).

Lastly, Bussey and Quinn (2015) have demonstrated that mindfulness weakens the moral disengagement – aggression link. This finding was specific to physical aggression, however it is expected that it will extend to cyberbullying. Specifically, it is hypothesised that high levels of mindfulness will weaken the relationship between moral disengagement and cyberbullying perpetration by cybervictims, and non-cybervictims (H6a and H6b respectively).

2 Method

2.1 Participants

Respondents were 632 students (377 males, 255 females) across grades five, seven, and nine from five independent and catholic schools in New South Wales. Children in grade five (38 males, 37 females) had a mean age of 10.3 years (range 10 years to 11 years), children in grade seven (196 males, 134 females) had a mean age of 12.3 years (range 11 years to 13 years), and the mean for grade nine (141 males, 84 females) was equal to 14.2 years (range 14 years to 15 years). A combination of single-sex and co-educational schools participated in the study including one girls' school, one boys' school, and three co-education schools.

Information regarding the socioeconomic status of respondents was not collected however it is assumed the sample had low levels of socioeconomic disadvantage given their postcodes and that all schools that took part were independent (i.e. private or catholic schools). Details regarding ethnicity were collected, however respondents experienced difficulty understanding the item (observed through the frequency and nature of questions asked during completion of the item) and so the responses should be interpreted with caution. Regardless, 52.2% reported that they were Anglo/Celtic (examples provided were “English, Irish, Scottish, Welsh”), 14.2% reported that they were mixed ethnic descent, 11.9% European (e.g. French, German, Italian, Spanish), and 7.0% East or South East Asian (e.g. Chinese, Japanese, Korean, Vietnamese). A vast majority were Australian-born (90.2%). Active consent was obtained from each School Principal, the parent of each respondent, and each student prior to the

completion of the questionnaire (see Appendix B for consent forms). The resulting response rate was 39% (i.e. 39% of all students who received a consent form returned the consent form and elected to participate in the study).

2.2 Measures

2.2.1 Cyberbullying

At the beginning of the questionnaire, students were provided with a definition and several examples of bullying as follows (see Appendix A):

“We say that a person is being bullied when another person, or several other people do any of the following: say mean and hurtful things or make fun of him or her or call him or her mean and hurtful names; completely ignore or exclude him or her from their group of friends or leave him or her out of things on purpose; hit, kick, push, shove around, or lock him or her inside a room; tell lies or spread false rumours about him or her or send mean notes and try to make other students dislike him or her; and other hurtful things like that. Cyberbullying is bullying through e-mail, instant messaging, in a chat room, on a website, or through a text message sent to a mobile phone.

When we talk about bullying, these things happen repeatedly, and it is difficult for the person being bullied to defend himself or herself. We also call it bullying, when a student is teased repeatedly in a mean and hurtful way. Cyberbullying is when these mean things happen over the internet or via a mobile phone.”

The Cyberbullying Questionnaire (CBQ), originally developed by Calvete and colleagues in 2010 and slightly modified in 2014 (Gamez-Guadix, Villa-George, & Calvete, 2014) was used to assess cyberbullying perpetration. The CBQ perpetration subscale consists of 14-items which measure the frequency of specific cyberbullying behaviours. Example items include “*sending threatening or insulting messages*”, “*deliberatively excluding someone from an online group*” and “*recording a video or taking pictures while someone hits or hurts another kid*”. The items also assessed more indirect involvement in cyberbullying such as

‘posting or sending’ images or links described in prior items (e.g. *“Posting or sending the images described in item 7 to be seen by other kids”*). The scale has previously demonstrated strong internal consistency with Cronbach’s alpha equalling .90 for the 14-items; in the current sample Cronbach’s alpha was .79.

A six-point Likert scale was utilised to measure the frequency of the behaviour described in each item (*1=It hasn’t happened at all, 2 = About once a term, 3 = Two or three times a term, 4 = Many times a term, 5 = Every week of a term, 6 = Many times a week*). This rating scale differed from the CBQ’s original scale (0=Never, 1=Sometimes, 2=Often) to provide a more specific and concrete measurement of frequency, and include a time reference that students would easily relate to (i.e. the school term).

2.2.2 Cybervictimisation

The Cyberbullying Questionnaire (CBQ) was also utilised to measure a child’s experience of cybervictimisation. The cybervictimisation subscale consists of nine-items which mirror the cyberbullying behaviours outlined in the perpetration subscale, but from the victim’s perspective. The scale is nine-items (as opposed to 14) as the five-items covering indirect bullying (*‘posting or sending’* aggressive content) in the perpetration subscale were not included (Gamez-Guadix et al., 2014). Items include *“I have received threatening or insulting messages”* and *“Other people have deliberately excluded me from an online group”*. Students rated the frequency with which they had experienced these acts of cyberbullying against the same six-point Likert scale used to measure cyberbullying perpetration. Gamez-Guadix and colleagues (2014) demonstrated sufficient internal consistency ($\alpha = .79$). In the present study item nine was removed due to a low correlation between the item and total score (.14). This item was *“Other people have used a mobile phone to record a video or take pictures of me involving a sexual behaviour”*. Removal of this item increased Cronbach’s alpha from .74 to .75.

2.2.3 Victim response to cybervictimisation

Immediately following completion of the cybervictimisation subscale, participants were asked, “*what did you do when you experienced these behaviours?*”. Participants were provided with twelve possible responses, and were able to select multiple responses. The response options provided were adapted from Dooley, Shaw and Cross (2012) and represent commonly cited strategies for dealing with cybervictimisation. Following the approach taken by Dooley and colleagues (2012), responses were classified as ‘passive’ (e.g. *tried to ignore the behaviour*), ‘assertive’ (*asked my parents for help*) and ‘aggressive’ (*tried to get back at the bully by doing something mean to them*). Students were then categorised into one of these three mutually exclusive groups based on their responses. The category ‘aggressive’ included all students who demonstrated an aggressive response (they may also have used an assertive or passive response). The category ‘assertive’ included students who used an assertive response (and also possibly passive, but not an aggressive response). Lastly, the category ‘passive’ included students who only used a passive response (Dooley et al., 2012).

2.2.4 Moral Disengagement

Moral Disengagement (MD) was assessed using the Cyber Moral Disengagement Scale (CMDS), which consists of 16-items based on Bandura’s Moral Disengagement Scale (1996), but modified to be relevant for cyber interactions (Bussey, Fitzpatrick, & Raman, 2015). The scale included two items for each of the eight moral disengagement mechanisms; moral justification, euphemistic language, advantageous comparison, displacement of responsibility, diffusion of responsibility, distorting consequences, attribution of blame, and dehumanisation. Individuals rated their agreement with each of the 16 statements using a five-point Likert scale (*1=Strongly disagree* to *5=Strongly agree*). Cronbach’s alpha was .90.

2.2.5 Mindfulness

The Child and Adolescent Mindfulness Measure (CAMM) was used to assess respondents' trait mindfulness (Greco, Baer & Smith, 2011). The CAMM includes 10-items and each item describes particular thoughts or feelings. Students indicate how often each item is true for them using a five-point Likert scale (*1=Never true* to *5=Always true*). Items cover key elements of being mindful such as acceptance of current feelings (*"I tell myself that I shouldn't feel the way I'm feeling"*), and awareness of the present moment (*"At school, I walk from class to class without noticing what I'm doing"*). The CAMM has high reliability in the literature ($\alpha = .81$; Greco et al., 2011) and in the present study ($\alpha = .87$).

2.2.6 Emotional Dysregulation

Emotional regulation was assessed using the Children's Emotional Dysregulation Questionnaire (CEDQ) (Spence, De Young, Toon, & Bond, 2009). The CEDQ measures children's reactivity to, control over, and recovery from feelings of anger, fear and sadness in response to difficult events. Using a five-point Likert rating scale children indicate how true each item is for them (items 1-6; *1=Never true* through to *5=Always true*), and how long it takes them to recover from each emotion (items 7-9; *1=A few seconds* through to *5=weeks*). Items include *"When things go wrong, I get really sad"* (reactivity to sadness), *"I get so angry that I find it hard to stay in control"* (control over anger), and *"how long do you usually stay scared when you get scared?"* (recovery from fear). Spence and colleagues (2009) reported adequate internal consistency for both the overall scale ($\alpha = .81$) and individual subscales assessing emotional dysregulation of anger ($\alpha = .71$), sadness ($\alpha = .72$), and fear ($\alpha = .76$). In the current study Cronbach's alpha for the overall scale and subscales was higher than Spence et al. (2009) (overall scale $\alpha = .86$; anger $\alpha = .75$; sadness $\alpha = .80$; and fear $\alpha = .74$).

2.3 Missing Data

There was a relatively large amount of missing data (range 1.4-12.5%). This level of missingness was the result of students not having time to complete the questionnaire within

the allocated time period (observed through supervision of students completing the questionnaires). Following the initial cyberbullying perpetration and victimisation questions (which had 1.4-2.7% missing), the order of the measures within the questionnaire was randomised. As a result, the data is missing completely at random (MCAR) as the reason for the missing values is unrelated to the variables of interest. There is a relatively consistent amount of missing data across the randomised sections of the questionnaire (8.5-12.5%). This supports the assumption that the data is missing completely at random.

Estimation of missing values was attempted using the Gelman multiple imputation (*mi*) package in R (Gelman & Hill, 2011). This process was attempted three times (with 100 imputations and 10 chains). The imputed values were unstable across the three attempts, and use of the values changed the nature of the relationships within the data. As a result, the imputed data from *mi* was discarded. Missing data was therefore treated using listwise deletion. Given listwise deletion only uses complete records, it reduces the overall sample size and subsequent power of the analyses conducted. However, given the relatively large sample size (N=632), this was not a concern. As the data is MCAR, listwise deletion will not have introduced bias.

2.4 Procedure

Students completed a questionnaire consisting of the measures listed above (included in Appendix A), either online or via paper-and-pencil on school grounds and in classroom size groups (20-25 students per group). The decision to complete the questionnaire online or on paper was made at a school level based on the technology facilities available. Students were supervised by either a teacher or research assistant. Prior to completing the questionnaire, parental consent was obtained via the distribution and return of consent forms (included in Appendix B), and children were then able to withdraw at anytime prior to and during the completion of the questionnaire. As an incentive for the return of consent forms, students who returned their consent forms (regardless of whether the response was yes or no) were entered

into a draw to win one of three iPods. The questionnaire took approximately 35-40 minutes to complete. The first portion of the questionnaire was presented in a consistent order (Bullying definition, demographics, technology use, bullying and victimisation), after which the measures were presented to students in a randomised order. This approach was taken to reduce the effects of fatigue and reduced concentration on any one particular measure. Students were advised that if they experienced distress while completing the questionnaire that they could request to speak to a school counsellor, and a discrete method for them to make this request was provided. Contact details for Kids helpline were also provided.

3 Results

3.1 Data Analytic Strategy

Results are presented in six sections. First, factor analyses of the Cyberbullying Questionnaire (bullying and victim subscales) are outlined. Second, descriptive analysis of the prevalence of cyberbullying perpetration and victimisation is provided. Third, chi-square testing is reported to demonstrate differences in responses to victimisation (i.e. aggressive or not) between pure victims and bully/victims. Next, results of multivariate and univariate analyses of variance are presented, which describe differences across grade, gender and bullying role (not involved, pure victim, pure bully, bully/victim) for cyberbullying perpetration, cybervictimisation, moral disengagement, emotional dysregulation of anger, and mindfulness (fourth). Fifth, the correlations between cyberbullying perpetration, cybervictimisation, moral disengagement, emotional dysregulation of anger, and mindfulness are reported. Lastly, two hierarchical regression analyses are outlined, the first of which focused on the factors that associate with cyberbullying perpetration by cybervictims. The second regression included only non-victims, and therefore provides a comparison of the factors that associate with cyberbullying perpetration by cybervictims versus non-cybervictims. In both regression models the dependent variable was cyberbullying perpetration. The independent variables included in both regressions were moral

disengagement, emotional dysregulation of anger, and the moderating role of mindfulness on the relationship between these variables and cyberbullying perpetration.

3.2 Factor analysis of the Cyberbullying Questionnaire

A factor analysis was performed to examine the structure of the Cyberbullying Questionnaire (CBQ). Following the approach taken by Gamez-Guadix et al. (2014), all items for perpetration and victimisation were included in an exploratory factor analysis with principal axis extraction and oblique rotation (direct oblimin). The Kaiser-Meyer-Olkin measure verified the sample adequacy for the analysis ($KMO = .77$), and KMO values for individual items were all greater than .65 (above the acceptable limit of .5 (Field, 2013)).

An initial analysis obtained eigenvalues for each factor in the data. Seven factors had eigenvalues over Kaiser's criterion of 1, and in combination explained 64.87% of the variance. However, the scree plot showed a clear point of inflexion at factor number 3, indicating that two factors would be suitable. Examination of the pattern matrix revealed no conceptually meaningful categorisation of items across the 7 factors. Given this, plus the relatively small number of items (23 items) to split into 7 factors, the scree plot, and prior validation of the questionnaire as a two-factor measure, a two-factor solution was chosen.

The two factors together explained 35.71% of the variance. Items split into those relating to cyberbullying perpetration (factor 1), and those relating to cyberbullying victimisation (factor 2). The only item for which this was not the case was a cybervictimisation item ("*Other people have used a mobile phone to record a video or take pictures of me involving a sexual behaviour*"), which loaded onto factor 1 (the perpetration subscale) with a factor loading of .30. Inclusion of this item in the reliability analysis for the cybervictimisation subscale also indicated it should be removed (item to score correlation was .14). Given this and its low factor loading to the cyberbullying perpetration subscale (at the recommended cut-off of .30 (Field, 2013)), it was removed from all analyses. The final factor structure is outlined in Table 1 below.

Table 1.

Factor structure and factor loading for the items of the Cyberbullying Questionnaire (CBQ)

Cyberbullying subscales and items	Factor Loadings	
	1	2
<i>Factor 1: Cyberbullying perpetration subscale</i>		
7. Recording a video or taking pictures while a group laughs and forces another kid to do something humiliating or ridiculous	.673	
8. Posting or sending the images described in Item 7 to be seen by other kids	.629	
12. Deliberately excluding someone from an online group	.629	
2. Posting or sending humiliating images of another kid	.627	
10. Posting or sending the images described in Item 9 to be seen by other kids	.580	
14. Posting or sending the images described in Item 13 to be seen by other kids	.577	
5. Posting or sending links with rumours, gossip, etc. about another kid so that other kids can read them	.511	
13. Recording a video or taking pictures of other kids performing some type of sexual behaviour	.510	
9. Recording a video or taking pictures while someone hits or hurts another kid	.508	
4. Writing embarrassing jokes, rumours, gossip, or comments about another kid on the internet	.464	
6. Hacking to send messages by email or social networks that could make trouble for another kid	.405	
1. Sending threatening or insulting messages	.346	
3. Posting links of humiliating images to other people for them to see	.335	
11. Broadcasting online other kid's secrets, compromising information or images	.325	
<i>Factor 2: Cyberbullying victimisation subscale</i>		
3. Other people have written embarrassing jokes, rumours, gossip, or comments about me on the Internet		.707
7. Other people have broadcast secrets about me online that involve compromising information or images of me		.628
2. Other people have posted humiliating images of me on the internet		.617
8. Other people have deliberately excluded me from an online group		.534
4. Other people have hacked my email or social networks to send messages that could be troublesome for me		.518
1. I have received threatening or insulting messages		.516
6. Other people have used a mobile phone to record a video or take pictures of me while someone hits or hurts me		.491
5. Other people have used a mobile phone to record a video or take pictures of me while a group laughs and forces me to do something humiliating or ridiculous		.466
Eigenvalues	5.20	2.66
% of variance	23.62	12.08
α	.79	.75

3.3 Prevalence of cyberbullying and cybervictimisation

Participants were divided into a number of ‘bullying role’ categories, based on their cyberbullying perpetration and cybervictimisation scores. Given the relatively short timeframe used (a school term), a cut-off of one or more instances of bullying or victimisation was used to classify a participant as a cyberbully (an overall cyberbullying perpetration score of one or more), or a cybervictim (an overall cybervictimisation score of one or more). Research in the field typically utilises a cut-off of either ‘at least once in the last two months’ (equivalent to a school term) (Kowalski & Limber, 2007; Menesini, Modena, & Tani, 2009) or ‘twice or more in the last two months’ (Kowalski & Limber, 2013; O’Brennan et al., 2009; Yang & Salmivalli, 2013). Cyberbullies and cybervictims were also divided into three additional categories; ‘pure cybervictims’ (those who had experienced cybervictimisation but had not perpetrated cyberbullying), ‘pure cyberbullies’ (those who had perpetrated cyberbullying but not experienced victimisation), and, ‘cyber bully/victims’ (individuals who had both perpetrated cyberbullying and experienced victimisation). Table 2 (below) outlines the frequencies and percentages of participants falling within each of these categories. For comparison purposes, the frequencies for the more conservative criterion of two or more times in the prior term are also provided.

Table 2.

Participants split by cyber bullying role

Cyberbullying role	At least once (this term)	Two or more times (this term)
Cyberbully	179 (28.3%)	97 (15.3%)
Cybervictim	257 (40.6%)	171 (27.0%)
Not involved	312 (49.3%)	411 (64.9%)
Cyber Bully/Victim	128 (20.2%)	63 (10.0%)
Pure Cybervictim	121 (19.1%)	102 (16.1%)
Pure Cyberbully	48 (7.6%)	33 (5.2%)

Using the criteria of ‘at least once (this term)’, approximately 28.3% (n=179) of the sample can be considered a cyberbully, and 40.6% (n=257) cybervictims. Of the cyberbullies, 71.5% were also victims, making them cyber bully/victims (n=128, 20.2% of the total sample). This leaves 7.6% as ‘pure bullies’ (n=48), and 19.1% as ‘pure victims’ (n=121).

Table 3 (below) outlines the prevalence of bullying role by gender and grade. Chi-square analysis revealed significant differences in the split of bullying role type by grade (χ^2 (6)= 22.64, $p = .001$). The incidence of bully/victims was higher in grade 9 (27.1%) than grade 5 (10.0%) and grade 7 (19.4%). Also, a higher percentage of children in grade 5 were not involved in bullying (70.0%) than in grade 7 (51.1%) and grade 9 (45.4%). This pattern of differences by grade was significant for females (χ^2 (6)= 14.84, $p = .021$), but not for males (χ^2 (6)= 9.426, $p = .151$). There was not a significant difference in the incidence of bullying role by gender (χ^2 (3)= 1.561, $p = .668$). That is, males were no more likely than females to be bully/victims (and vice versa).

Table 3.

Bullying role by gender and grade

Cyberbullying role	Females				Males			
	5 th	7 th	9 th	Total	5 th	7 th	9 th	Total
Not involved	26 (72%)	66 (50.4%)	35 (43.2%)	127 (51.2%)	23 (67.6%)	97 (51.6%)	64 (46.7%)	184 (51.3%)
Cyber Bully/Victim	2 (5.6%)	26 (19.8%)	24 (29.6%)	52 (21.0%)	5 (14.7%)	36 (19.1%)	35 (25.5%)	76 (21.2%)
Pure Cybervictim	5 (13.9%)	33 (25.2%)	15 (18.5%)	53 (21.4%)	3 (8.8%)	42 (22.3%)	23 (16.8%)	68 (18.9%)
Pure Cyberbully	3 (8.3%)	6 (4.6%)	7 (8.6%)	16 (6.5%)	3 (8.8%)	13 (6.9%)	15 (10.9%)	31 (8.6%)

As outlined in Table 4 (below), frequency of cyberbullying perpetration and cybervictimisation varied within bullying role category. One-way analysis of variance (ANOVA) including cyberbullies only, revealed that cyber bully/victims demonstrated

significantly higher levels of cyberbullying perpetration than pure bullies ($F(1,174) = 6.02, p = .015$). A second ANOVA was conducted with cybervictims only, and the results indicated that cyber bully/victims experienced higher levels of cybervictimisation than pure victims ($F(1,247) = 11.75, p = .001$). These results indicate that in addition to bully/victims comprising a considerable proportion of all bullies and victims, the frequency of their involvement is also greater than pure cyberbullies and pure cybervictims.

Table 4.

Comparison of cyberbullying perpetration and cybervictimisation scores by bullying role

Variable	Cyber Bully/Victims	Pure Victims	Pure Bullies	F-statistic	p-value
Cyberbullying Perpetration	3.59 (4.19)	-	2.04 (1.97)	6.02	.015
Cybervictimisation	4.04 (3.74)	2.65 (2.52)	-	11.75	.001

3.4 Analysis of Variance across Gender, Grade, and Bullying Role

Differences by grade, gender, and bullying role for the key variables of interest were examined via a multivariate analysis of variance (MANOVA) using the General Linear Model (GLM). The first MANOVA included moral disengagement, emotional dysregulation of anger, and mindfulness as dependent variables, and grade, gender, and bullying role as independent variables. The second MANOVA included cyberbullying perpetration and cybervictimisation as dependent variables, and grade and gender as independent variables. Two separate MANOVAs were conducted as inclusion of bullying role in the MANOVA for cyberbullying perpetration and cybervictimisation would bias the results given the bullying role categories were based on these scores. Following each MANOVA, univariate analysis of variance was then carried out to examine the main and interaction effects for each variable. Post-hoc pairwise comparisons were undertaken and a Bonferroni adjusted alpha level of .01 was applied to determine significant differences.

Preliminary analyses were conducted to ensure the data met relevant assumptions. Multivariate outliers were identified with Mahalanobis distances of $p < .001$ were removed from all analyses ($N=9$). Due to unequal group sizes, and the violation of assumption of homogeneity of variance for moral disengagement, Pillai's Trace was selected as the test statistic (instead of Wilks' Lambda), as it is more robust (Tabachnick & Fidell, 2013).

Prior to analysing these differences, the potential effect of school was examined using the linear mixed model procedure in SPSS. These analyses revealed that clustering of responses within schools was not a concern as the random effect of school was not significant and intraclass correlations ranged from .002 to .06. As there was no significant clustering effect of school, this factor was not included in subsequent analyses.

The first MANOVA revealed a significant difference between gender ($F(3, 461) = 5.122, p = .002$; Pillai's Trace = .032), and across bullying roles (see Table 5, $F(9, 1389) = 4.159, p < .001$) on the combined dependent variables. There was not a significant difference by grade for the combined dependent variables ($F(6, 924) = F = 1.422, p = .203$). The main effects for each variable are outlined below.

Table 5. *Main effects of cyberbullying role*

Variable	Univariate tests		Post-hoc pairwise comparisons (<i>M</i> and <i>SD</i>)			
	F-statistic	p-value	Not involved	Cyber Bully/ Victim	Pure Cybervictim	Pure Cyberbully
Moral Disengagement	3.841	.010	20.48 _a * (6.29)	25.70 _{a,b} (9.77)	21.06 _b (6.59)	23.11 (9.94)
Emotional Dysregulation (Anger)	9.933	< .001	6.04 _{a,c} (2.33)	7.70 _{a,b} (2.69)	7.10 _c (2.64)	5.63 _b (2.57)
Mindfulness	4.267	.005	28.21 _a (7.87)	22.40 _{a,b} (8.18)	25.39 (7.74)	27.54 _b (8.71)

* Means in a single row that share a common subscript differ significantly, $p < .01$

3.4.1 Moral Disengagement

As outlined in Table 5 (row 1), moral disengagement differed significantly by cyberbullying role ($F(3,463) = 3.841, p = .010$). Bonferroni pairwise comparisons revealed that cyber bully/victims demonstrated significantly higher levels of moral disengagement ($M = 25.70$) than those not involved in cyberbullying ($M = 20.48, p < .001$), and pure cyber victims ($M = 21.06, p < .001$), and a similar level of moral disengagement to pure cyberbullies ($M = 23.11, p = .435$). There was no main effect of grade or gender for moral disengagement.

3.4.2 Emotional Dysregulation (Anger)

As illustrated in Table 5 (row 2), significant differences in levels of emotional dysregulation of anger were found across bullying roles ($F(3,463) = 9.93, p < .001$). Bonferroni pairwise comparisons revealed that cyber bully/victims demonstrated significantly higher levels of emotional dysregulation of anger ($M = 7.70$) than those not involved in cyberbullying ($M = 6.04, p < .001$), and pure bullies ($M = 5.63, p < .001$), and a similar level of emotional dysregulation of anger to pure cyber victims ($M = 7.10, p = .550$). There was no significant main effect of grade or gender for emotional dysregulation of anger ($M = 6.56, SD = 2.58$).

3.4.3 Mindfulness

There was a significant main effect of gender ($F(1, 463) = 10.323, p = .001$) and bullying role ($F(3, 463) = 4.267, p = .005$) for mindfulness. Females ($M=23.95$) reported significantly lower levels of mindfulness than did males ($M=28.13$). As outlined in Table 5 (row 3), Bonferroni pairwise comparisons of bullying role revealed that cyber bully/victims reported significantly lower mindfulness ($M = 22.40$) than individuals not involved in cyberbullying ($M = 28.21, p < .001$), and pure cyberbullies ($M = 27.54, p = .004$), and similar levels of mindfulness (using a p-value cut-off of .01) to pure cyber victims ($M = 25.39, p = .040$).

The second MANOVA revealed a significant effect for grade for the combined dependent variables ($F(4, 1208) = 3.021, p = .017$, Pillai's Trace = .020). There was no significant difference between males and females ($F(2, 603) = 1.029, p = .358$, Pillai's Trace = .003). The main and interaction effects for each variable are outlined below.

3.4.4 Cyberbullying perpetration

There was a significant main effect of grade for cyberbullying perpetration ($F(2,604) = 3.902, p = .021$). Post-hoc comparisons revealed that students in grade 9 reported significantly higher levels of cyberbullying perpetration ($M=1.34$) than students in grade 7 ($M=.72, p = .011$) and grade 5 ($M=.49, p = .034$). There was no significant effect of gender for cyberbullying perpetration ($F(1,604) = 1.712, p = .191$).

3.4.5 Cybervictimisation

There were no significant main or interaction effects for cybervictimisation across grade and gender ($M = 1.38, SD = 2.67$).

3.5 Victim Response to Cybervictimisation

Students were categorised as having an 'aggressive', 'assertive', or 'passive' response to victimisation based on their selected response strategies. A larger number of students responded to this question ($N=289$) than the number of cybervictims identified ($N=257$). This suggests that some students may have responded to the question based on prior experiences of cybervictimisation (the victimisation questions in the survey referred to the current term).

As outlined in Table 6 (below), the majority of students reported using assertive response strategies when faced with victimisation (55.1%), followed by aggressive (29.8%) and passive (15.2%).

Table 6.

Frequency of students in response to cybervictimisation categories

Victim response category	N	%
Aggressive	86	29.8
Assertive	159	55.1
Passive	44	15.2

Chi-square analysis also revealed that victim response to cybervictimisation differed between pure cybervictims and cyber bully/victims. There was a significant difference between pure cybervictims and cyber bully/victims on the ‘aggressive’ response option “*tried to get back at the bully by doing something mean to them*” ($\chi^2 (1) = 6.003, p = .019$). Specifically, bully/victims were 4.20 times more likely than pure victims, to select this action as a response to cybervictimisation. There was not a significant difference between pure cybervictims and cyber bully/victims on the other ‘aggressive’ response option “*confronted the bully*” ($\chi^2 (1) = .928, p = .371$).

3.6 Correlations

Correlation analyses were performed to examine the associations between cyberbullying perpetration, cybervictimisation, moral disengagement, emotional dysregulation of anger, and mindfulness and are outlined in Table 7 (below).

Table 7.

Pearson Correlations for independent and dependent variables

Variable	1	2	3	4	5
1. Cyberbullying Perpetration	1	.358*	.344*	.130*	-.186*
2. Cybervictimisation	611 ^a	1	.121*	.233*	-.278*
3. Moral Disengagement	541	549	1	.241*	-.241*
4. Emotional Dysregulation (Anger)	565	574	532	1	-.420*
5. Mindfulness	548	555	517	542	1

* $p < .01$, ^a sample size is the lower triangle

The correlations matrix illustrates that, as hypothesised, the variable that correlates most strongly to cyberbullying perpetration is cybervictimisation ($r = .36$). Following this is moral disengagement, which also has a moderate positive correlation with cyberbullying perpetration ($r = .34$). Mindfulness negatively relates to cyberbullying perpetration ($r = -.19$), and also cybervictimisation ($r = -.28$), moral disengagement ($r = -.241$), and emotional dysregulation of anger ($r = -.42$). Emotional dysregulation of anger has a relatively small positive relationship with cyberbullying perpetration, and a stronger positive relationship with cybervictimisation ($r = .23$) and moral disengagement ($r = .24$). The nature of these relationships when controlling for all other variables in the model will now be examined through hierarchical regression analyses.

3.7 Hierarchical Regression Analyses

Two hierarchical regression analyses were conducted to examine the associations between moral disengagement, emotional dysregulation of anger, mindfulness (as a moderator), and cyberbullying perpetration. The first regression was limited to cybervictims ($N=196$), in order to ascertain the factors that most strongly relate to cyberbullying perpetration by cybervictims (see Table 8). The second regression was limited to non-cybervictims, and was conducted to enable a comparison between the variables that relate to cyberbullying perpetration by cybervictims versus non-cybervictims (see Table 9). The same procedure was used for each regression analysis. The dependent variable was cyberbullying perpetration. Grade and gender were entered in the first step as control variables. In step two, the main effects were tested; moral disengagement, emotional dysregulation of anger, and mindfulness. In the third step, the two interaction variables were entered, which are the product of moral disengagement and mindfulness, and, emotional dysregulation of anger and mindfulness. To aid interpretation of the unstandardised coefficients, all independent variables were centred prior to inclusion in the regression.

Following each regression, simple slopes analysis was conducted using the PROCESS tool (Hayes, 2012) to examine the interactions between moral disengagement and mindfulness, and emotional dysregulation of anger and mindfulness on cyberbullying perpetration. PROCESS was also used to test the indirect relationship of emotional dysregulation of anger and cyberbullying perpetration via moral disengagement. The PROCESS tool is a custom dialog box, which allows users to directly operate the Preacher and Hayes (2004, 2008) mediation and moderation tools.

3.7.1 Prediction of cyberbullying perpetration by cybervictims

The first regression analysis conducted included only those participants who had experienced cybervictimisation in the prior school term (signified by a cyberbullying victimisation score of 1 or more). The results are presented in Table 8. The overall model was highly significant ($F(7,189) = 9.998, p < .001$) and accounted for 27.0% of the variance in cyberbullying perpetration by cybervictims ($R\text{-squared} = .270$).

Table 8.

Hierarchical regression analyses for cyberbullying perpetration by cybervictims (N = 196)

Cyberbullying Perpetration (Victims only)			
Variable	Step 1	Step 2	Step 3
Grade	.43*	.36*	.33*
Gender	-.63	-.45	-.34
Emotional Dysregulation (Anger)		-.02	-.01
Moral Disengagement		.13**	.09**
Mindfulness		-.06*	-.06*
Moral Disengagement x Mindfulness			-.01**
Emotional Dysregulation (Anger) x Mindfulness			-.00
Total R ²	.045	.231	.270

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

Moral disengagement had a significant positive relationship with cyberbullying perpetration ($b = .09$, $p = .001$). This means that high levels of moral disengagement are associated with high levels of cyberbullying perpetration. The main effect of emotional dysregulation of anger on cyberbullying perpetration was not significant ($b = -.01$, $p = .91$). In addition to the hypothesised direct effect of emotional dysregulation of anger on cyberbullying perpetration, it was hypothesised that emotional dysregulation of anger may have an indirect effect on cyberbullying perpetration through moral disengagement. This mediation analysis was carried out using the PROCESS tool and is illustrated in Figure 4 (below). A moderate and statistically significant indirect effect was found ($b = .109$, Sobel's test; $p = .001$, $\kappa^2 = .11$). This provides support for the hypothesis that for cybervictims, emotional dysregulation of anger associates with cyberbullying perpetration, through its effect on moral disengagement.

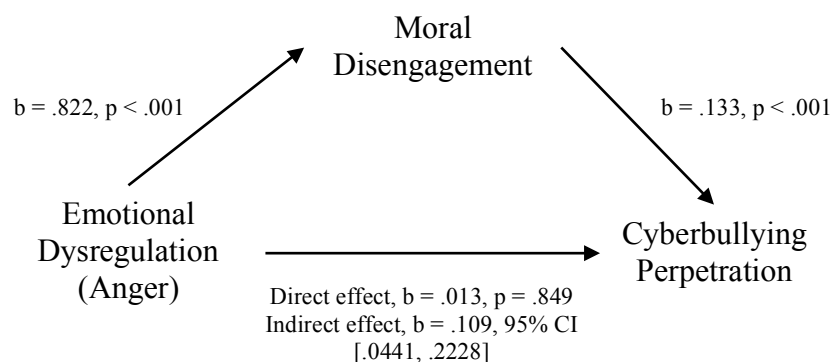


Figure 4. *Diagram of the indirect effect of emotional dysregulation of anger on cyberbullying perpetration, through moral disengagement (cybervictims only, $N = 196$)*

Results revealed a significant negative relationship between mindfulness and cyberbullying perpetration by cybervictims ($b = -.057$, $p = .027$). This indicates that high levels of mindfulness associate with lower levels of cyberbullying perpetration. In addition, the role of mindfulness as a moderator of the relationship between moral disengagement and cyberbullying perpetration was significant ($b = -.01$, $p = .004$). To investigate the nature of this interaction, simple slopes were calculated for the regression of mindfulness on

cyberbullying perpetration at one standard deviation above the mean of mindfulness (which equated to ‘high’ mindfulness), and one standard deviation below (‘low’ mindfulness; ‘medium’ equated to those scores in between). As illustrated in Figure 5, the relationship between moral disengagement and cyberbullying perpetration is weaker and non-significant at high levels of mindfulness ($b = .03$, $p = .52$). At low and medium levels of mindfulness, the relationship remains significant (Medium; $b = .12$, $p < .001$, Low; $b = .20$, $p < .001$).

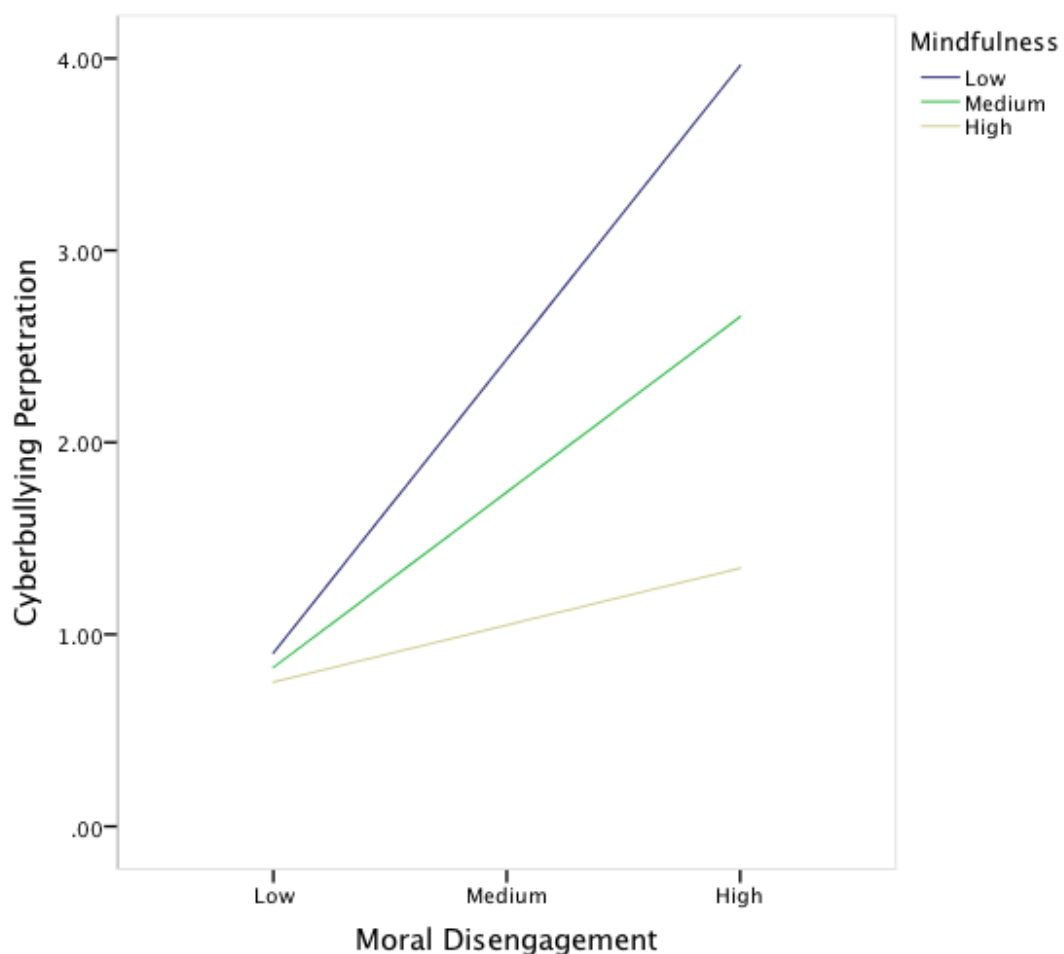


Figure 5. *Moderation of the effect of moral disengagement on cyberbullying perpetration by mindfulness (cybervictims only, $N=196$).*

The second interaction tested in this analysis involved the moderating impact of mindfulness on the relationship between emotional dysregulation of anger and cyberbullying perpetration. This interaction effect was not significant ($b = -.002$, $p = .77$).

3.7.2 Prediction of cyberbullying perpetration by non-victims

The second regression analysis included only those participants who had not experienced cybervictimisation in the prior school term and is presented in Table 9 below. In order to easily compare this regression analysis with the analysis conducted on cybervictims, all independent variables remained the same as those examined in the prior analysis. The overall model was significant ($F(7, 281) = 4.041, p < .001$) however only accounted for 12.5% of the variance in cyberbullying perpetration ($R\text{-squared} = .125$).

Table 9.

Hierarchical regression analyses for cyberbullying perpetration by non-cybervictims (N=286)

Cyberbullying Perpetration (by non-cybervictims)			
Variable	Step 1	Step 2	Step 3
Grade	.08*	.06	.06
Gender	-.12	-.08	-.07
Emotional Dysregulation (Anger)		-.04*	-.04*
Moral Disengagement		.03**	.03**
Mindfulness		.00	-.01
Moral Disengagement x Mindfulness			-.00**
Emotional Dysregulation (Anger) x Mindfulness			.00
Total R ²	.030	.092	.125

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

Moral disengagement was found to have a significant positive relationship with cyberbullying perpetration for non-cybervictims ($b = .03, p < .001$). That is, as moral disengagement increased, so did the frequency of cyberbullying perpetration. Despite the relationship between moral disengagement and cyberbullying perpetration being significant for both cybervictims and non-cybervictims, graphing the relationship for the two groups suggested a difference in the strength of the relationship for cybervictims versus non-

cybervictims (see Figure 6 below). A simple slopes analysis was conducted to investigate this difference using PROCESS. Victim status (cybervictim vs. non-cybervictim) was entered as a moderator of the relationship between moral disengagement and cyberbullying perpetration (controlling for mindfulness and emotional dysregulation of anger). Results revealed a significant interaction ($b = .112$, $p = .005$). Specifically, the relationship between moral disengagement and cyberbullying was significantly weaker for non-cybervictims than for cybervictims (non-victims; $b = .026$, $p = .074$; victims; $b = .138$, $p < .001$).

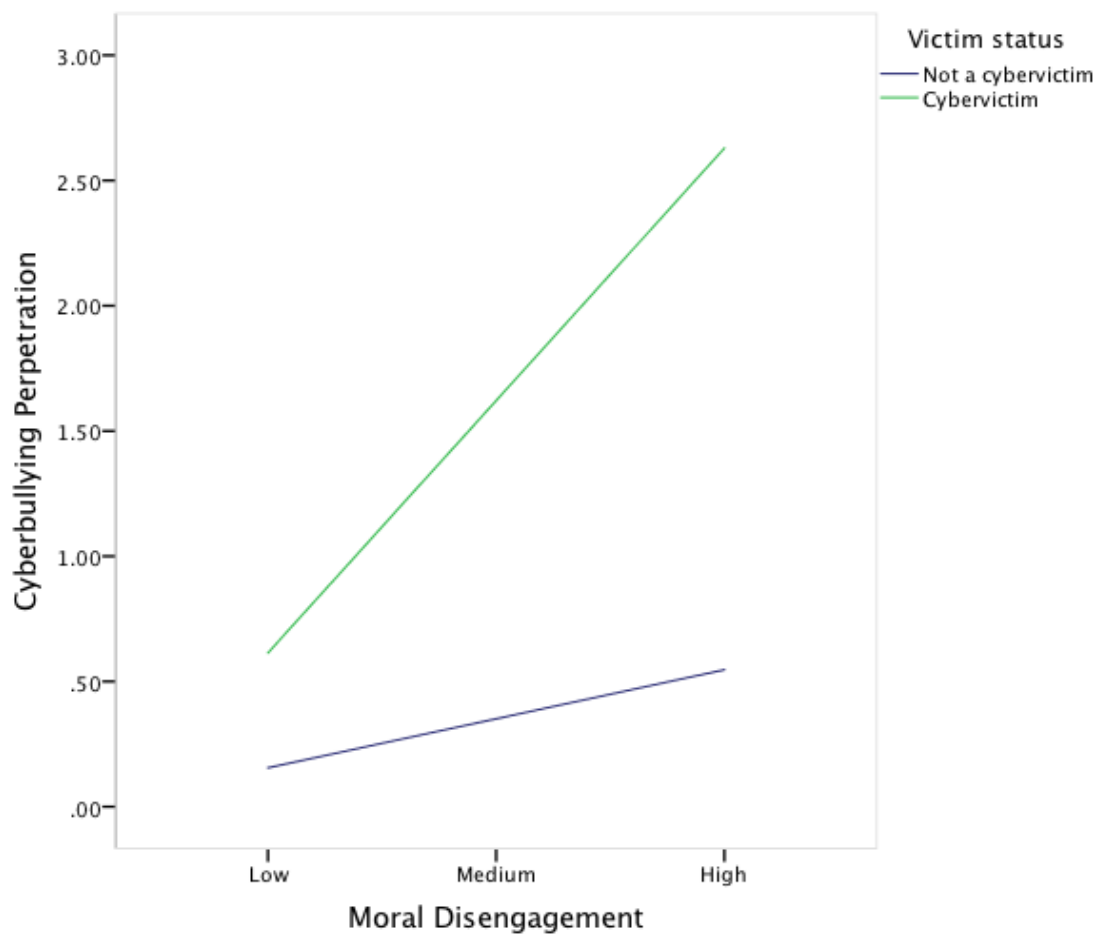


Figure 6. *The relationship between moral disengagement and cyberbullying perpetration for non-cybervictims vs. cybervictims (N=487).*

Emotional dysregulation of anger was found to have a significant negative relationship with cyberbullying perpetration for non-cybervictims ($b = -.044$, $p = .019$). This suggests that cyberbullying perpetration by non-cybervictims declines as emotional dysregulation of anger increases. The indirect effect of emotional dysregulation of anger on cyberbullying

perpetration by non-cybervictims was tested using PROCESS. Mediation occurs when including a third variable reduces the strength of the relationship between two variables (Baron & Kenny, 1986). This analysis revealed that for non-cybervictims the opposite pattern occurs. That is, the strength of the relationship between emotional dysregulation of anger and cyberbullying perpetration is actually stronger when moral disengagement is included in the model (total effect, $b = -.03$, $p = .11$; direct effect, $b = -.04$, $p = .02$). This suggests that emotional dysregulation of anger does not relate to cyberbullying perpetration via moral disengagement.

The role of mindfulness as a moderator of the relationship between moral disengagement and cyberbullying was found to be significant ($b = -.002$, $p = .003$). Figure 7 illustrates the nature of the moral disengagement and mindfulness interaction. Simple slopes analysis revealed that at high levels of mindfulness (1+SD from the mean), the relationship between moral disengagement and cyberbullying perpetration is not significant ($B = .006$, $p = .465$). However, at low (-1SD from the mean) and medium levels (between -1SD and +1SD) of mindfulness, the relationship between moral disengagement and cyberbullying is positive and significant at the .05 level ($B = .05$, $p = .05$ and $B = .03$, $p = .04$ respectively).

The second interaction tested examined the role of mindfulness as a moderator of the relationship between emotional dysregulation of anger and cyberbullying. This interaction was not found to be significant for non-cybervictims ($b = -.001$, $p = .549$)

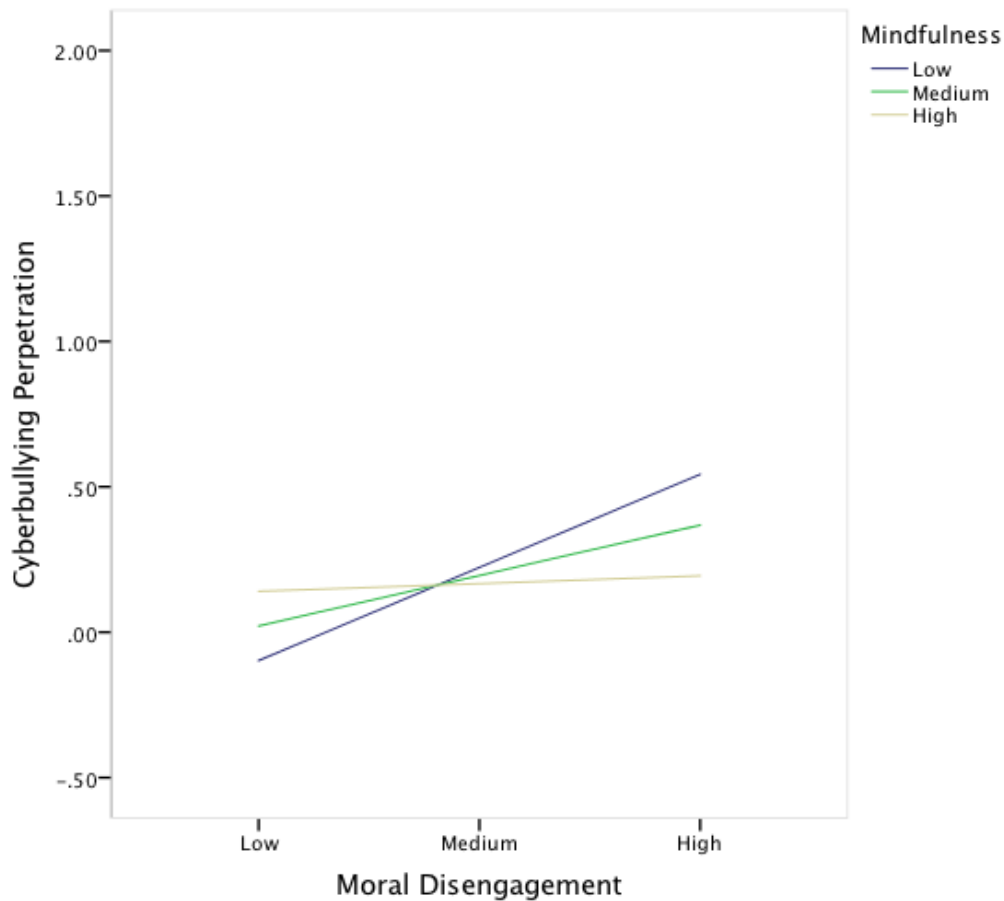


Figure 7. *Moderation of the effect of moral disengagement on cyberbullying perpetration by mindfulness (cyber non-victims, N=286)*

4 Discussion

The results identified a number of key factors that are associated with cyberbullying perpetration by cyber victims, and demonstrated key differences in these relationships between cyber victims and non-victims. Perpetration of cyberbullying by victims relates to poor regulation of anger, high levels of moral disengagement, and low mindfulness. Cyberbullying perpetration by non-cyber victims associated with high moral disengagement, however in contrast to victims, poor regulation of anger related to reduced cyberbullying behaviour, and there was no direct link between cyberbullying behaviour and mindfulness. These findings highlight the need to examine victimised and non-victimised bullies separately when seeking to understand the motivators and psychological mechanisms that lead to perpetration.

Factor analyses confirmed the validity of distinguishing between bullies and victims.

There is some evidence in the bullying literature that cyberbullying should be examined according to the type of cyberbullying activity, rather than by participant role (Law et al., 2012, 2012), however factor analysis supported the division by role in the present study. Factor analysis split the data into two clear factors, one relating to cyberbullying perpetration, and the other to cybervictimisation. Based on the classification of individuals into the categories of 'pure cyberbully', 'pure cybervictim', and 'bully/victim', clear patterns arose. Specifically, approximately 20% of all respondents were 'cyber bully/victims', however this figure was much higher for students in grade nine than grades five or seven. There were no significant differences in the prevalence of cyber bully/victims by gender.

Overall, the results confirm a number of established relationships in the field, and contribute new findings to the understanding of cyberbullying perpetration, particularly by cyber bully/victims. Specifically, the critical role of high moral disengagement in the perpetration of aggression was validated for cyberbullying. This relationship did not apply uniformly however; there was a much stronger link between high moral disengagement and high cyberbullying perpetration for victims than non-victims. In addition, at high levels of mindfulness, moral disengagement no longer related to cyberbullying perpetration for both victims and non-victims. Another new finding was that high emotional dysregulation of anger was found to associate with increased cyberbullying perpetration via its impact on moral disengagement.

The established link between cybervictimisation and cyberbullying forms the basis for this study. Confirming this link was the focus of hypothesis one. In support of this hypothesis, approximately 70% of all cyberbullies had experienced cybervictimisation in the current school term, and cybervictimisation had the strongest relationship with cyberbullying perpetration. This finding is consistent with the large meta-analysis conducted by Kowalski and colleagues (2014), which reported cybervictimisation as the number one risk factor for cyberbullying perpetration.

The causal direction of the relationship between cybervictimisation and cyberbullying could not be examined in this study. However, it was hypothesised that cybervictims would be more likely to respond to victimisation with aggression than pure victims. The results supported this hypothesis; cyber bully/victims were four times more likely to respond to cybervictimisation by trying to get back at their aggressor than pure victims. This finding provides suggestive evidence that the perpetration of cyberbullying by at least a segment of victims is retaliatory. This finding is consistent with the suggestion made by Kowalski and team (2014) that the online environment increases the ease with which cybervictims can retaliate and perpetrate cyberbullying, hence becoming cyber bully/victims. In addition, the notion that victims may respond with retaliation and perpetrate cyberbullying is consistent with a well-cited view from the general aggression field that provocation is the most important single cause of human aggression (Anderson & Bushman, 2002). Together with hypothesis 1, these findings support the premise for this study. That is, that cybervictimisation is a key risk factor for cyberbullying perpetration, and that one of the pathways for this occurrence is an individual responding to victimisation (provocation) with cyberbullying, and therefore becoming a cyber bully/victim. Uncovering the factors that relate to a cybervictim perpetrating cyberbullying was the primary aim of this study.

The analyses compared the factors associated with cyberbullying perpetration for victims and non-victims, and key differences emerged. Firstly, the way in which emotional dysregulation of anger relates to cyberbullying perpetration was different for cybervictims and non-victims. It was hypothesised that high emotional dysregulation of anger would relate to high cyberbullying perpetration by cybervictims, but not for non-victims. This hypothesis was based on evidence that victimised aggressors (i.e. bully/victims) perpetrate more reactive “hot blooded” aggression in response to anger, while cold-blooded aggressors perpetrate proactive “cold blooded” aggression (Perry et al., 1992). Contrary to this hypothesis, high emotional dysregulation of anger was not found to relate to cyberbullying perpetration by

cybervictims. A comparison of means revealed that bully/victims reported poorer regulation of anger than pure bullies, but a similar level to pure victims. Therefore, poor regulation of anger appears to relate to being a victim itself, rather than to cyberbullying perpetration by victims. This is consistent with a number of studies that have reported that bully/victims demonstrate inferior emotional regulation than pure bullies (Garner & Hinton, 2012; O'Brennan et al., 2008; Schwartz, 2000; Toblin et al., 2005). Explicit examination of victims has enabled the current study to reveal that this poor emotional regulation is common to all victims, and not directly related to aggressive behaviour by victims.

It was hypothesised that there would not be a significant relationship between emotional dysregulation of anger and cyberbullying perpetration for non-victims. Unexpectedly, the results revealed a significant negative relationship. That is, non-victims with poorly regulated anger were less likely to cyberbully. As mentioned above, non-victimised aggressors are thought to be relatively “cold” (i.e. un-emotive) when perpetrating aggression (Card & Little, 2006; Perry et al., 1992; Toblin et al., 2005), however the finding that poor emotional regulation leads to less aggression does not seem to have been reported in the literature previously. The number of non-victims who perpetrated cyberbullying was relatively small (pure bullies, N=48), and so this result will need to be validated with a larger sample. Together with the finding relating to cybervictims above, these results at least confirm that there is unlikely to be a positive *direct* relationship between emotional dysregulation of anger and cyberbullying perpetration. Whether a negative relationship exists for non-victims warrants further investigation. Also, the presence of an *indirect* relationship was found in the current study.

It was hypothesised that emotional dysregulation of anger may indirectly relate to cyberbullying perpetration, via moral disengagement for victims (hypothesis 3c), but not for non-victims (hypothesis 3d). Both of these hypotheses were supported; no mediation effect was found for non-victims, and in the case of victims, poor regulation of anger associated

with a higher propensity to morally disengage, which related to increased cyberbullying perpetration. This finding is aligned to and extends the work of Caprara and colleagues (2013, 2014) who identified a link between irritability and moral disengagement, via hostile rumination. However, as hostile rumination was not examined in this case, this study provides evidence for a direct relationship between emotional dysregulation of anger and moral disengagement, which has not been established in the literature previously. In addition, this result extends Caprara's findings (which were focused on irritability) by linking a broader measure of emotional (in)stability to moral disengagement. From a practical perspective, this finding may contribute to intervention efforts targeting moral disengagement by highlighting the potential utility of an improvement in emotional dysregulation of anger.

It was hypothesised (hypothesis 6) that high levels of mindfulness would weaken the relationship between high emotional dysregulation of anger and high cyberbullying perpetration by victims; this hypothesis was not supported. High emotional dysregulation of anger did not directly relate to high cyberbullying perpetration, and this did not vary by level of mindfulness. This hypothesis was formulated based on experimental evidence that i) mindfulness increases self-control (Frieze et al, 2012), and ii) that strengthening self-control decreases aggression (Denson et al., 2010). Given the direct relationship between emotional dysregulation of anger and cyberbullying perpetration was not significant, there was not the opportunity for mindfulness to counteract the effects of poor regulation of anger on bullying behaviour by increasing self-control. However, this doesn't mean that mindfulness is not able to play this role. High mindfulness was found to directly relate to lower cyberbullying perpetration by cybervictims, and it may be that this is due to its effects on self-control (this finding is discussed below).

Overall, the relationship between emotional dysregulation of anger and cyberbullying perpetration was a differentiator of victims and non-victims. For non-victims, a negative relationship appeared; individuals with high levels of emotional dysregulation of anger were

less likely to perpetrate cyberbullying. For cybervictims, a positive indirect relationship was found; poor regulation of anger related to an increased propensity to morally disengage, which has a strong association with increased cyberbullying perpetration.

Consistent with hypotheses 4a and 4b, high moral disengagement was significantly associated with high cyberbullying perpetration for both victims and non-victims. This result was not surprising; the link between moral disengagement and adolescent aggression is well established (Gini et al., 2014). However, research has not previously examined whether this relationship differs for victims versus non-victims. The two groups were compared in the current study and this revealed that the relationship was much stronger for cybervictims than non-victims. That is, high levels of moral disengagement more strongly related to increased cyberbullying perpetration by cybervictims than by non-cybervictims. One possible explanation for this finding is that having experienced victimisation themselves, cybervictims may find it easier to justify cyberbullying perpetration. The moral disengagement mechanisms that they use to justify cyberbullying perpetration may relate to the victimisation they have experienced. For example, it would not be difficult for a cybervictim to believe that the perpetrator of their own victimisation deserves retaliatory aggression (attribution of blame), or that the cyberbullying they are planning to perpetrate isn't as bad as the victimisation they have experienced (advantageous comparison). The experience of victimisation may provide individuals with concrete evidence for the self-justification process, which is likely to reduce the barriers to them perpetrating cyberbullying. Although non-victims can also find evidence that relates to the moral disengagement mechanisms, they may need to look further afield, which may reduce the strength of those mechanisms in justifying cyberbullying perpetration.

The relationship between moral disengagement and cyberbullying perpetration did not hold under all circumstances. At high levels of mindfulness, the positive relationship between moral disengagement and cyberbullying perpetration became non-significant for both victims

and non-victims. This result is consistent with and extends preliminary evidence by Bussey and Quinn (2015) who found that high mindfulness weakened the typically strong link between high moral disengagement and increased overt aggression. The key differences are that in Bussey and Quinn's study, the relationship between moral disengagement and aggression remained significant (whereas it becomes non-significant in the present study), the moderation effect was specific to grades 9 and 11 (and not found for grade 7), whereas in the current study, the result was found across grades 5, 7, and 9, and lastly, the relationship involved overt aggression (as opposed to cyberbullying). Given the strength of the link between moral disengagement and aggression (Gini et al., 2014), and the evidence that mindfulness can be cultivated through intervention (Heppner et al., 2008), the moderating role of mindfulness highlights a new avenue for intervention efforts aimed at reducing adolescent bullying and general aggression. There is already an established link between high mindfulness and reduced aggression (Borders et al., 2010; Heppner et al., 2008; Singh et al., 2007), however this finding provides insight into the mechanism that facilitates this reduction in aggression (i.e. by eliminating the link between moral disengagement and bullying perpetration).

Explanation for the impact of mindfulness on the link between moral disengagement and cyberbullying is speculative at this stage, and warrants further investigation. It is hypothesised that high levels of mindfulness increases an individual's awareness of their own internal thoughts, morals and beliefs, and decreases the biases through which they observe their environment and their planned actions (Brown et al., 2007). This clarity may better allow individuals to make conscious behavioural decisions aligned to their thoughts, morals, and beliefs, and avoid acting on cognitive maneuvers such as moral disengagement, which result in an individual behaving in a way that is not aligned to their own moral standards.

Lastly, results revealed a significant negative relationship between mindfulness and cyberbullying behaviour by cybervictims in addition to the tested interaction effects. This

suggests that when accounting for the moderating role mindfulness plays on the relationship between moral disengagement and cyberbullying, that high levels of mindfulness associate with reduced aggression. The mechanisms through which high mindfulness relates to reduced cyberbullying may involve additional variables not included in the present study. For example, Borders and team (2010) reported that the relationship between high mindfulness and reduced aggression was mediated by lower (general) ruminative thinking (i.e. intrusive and repetitive thoughts, Denson, 2013). Experimental evidence also points to the link between increased angry rumination and increased aggression (Denson, Pedersen, Frieze, Hahm, & Roberts, 2011). Therefore, the relationship between high mindfulness and reduced cyberbullying behaviour may be the result of a link with reduced rumination (hostile or otherwise). In addition, despite emotional dysregulation not relating to cyberbullying perpetration, mindfulness may still relate to lower aggression via increased self-control. Mindfulness is thought to increase self-control by creating a gap between a stimulus (e.g. provocation) and an individual's response (e.g. aggression), which provides them with the opportunity to consider the situation and make a conscious choice about the optimal way to behave (Brown et al., 2007). This reduces the likelihood of automatic, habitual, or impulsive reactions that involve aggression (Ryan & Deci, 2004).

Although the findings of the present study are promising, there are a number of limitations, which mean that further research is needed to validate its conclusions. A key limitation is the reliance on cross-sectional self-report data. Despite a number of suggestive associations being found, the current research question would be better answered with longitudinal data. Causal attributions regarding the direction of the association between cybervictimisation and cyberbullying could then be made (rather than assumed), and analyses could be conducted to identify the personal factors at time one that best predict cyberbullying perpetration by victims at time two. In addition, sole use of self-report data increases the chances of shared method variance. That is, associations between variables due to factors

related to how an individual completes self-report measurements, rather than true associations between constructs. However, a number of the relationships of interest in the present study were interactions, which are less vulnerable to shared method variance (Evans, 1985). To overcome the potential issues that surround reliance on self-report data, future research should include peer, parent, or teacher ratings to bolster the validity of the findings. For example, parents and or teachers could provide assessments of children's emotional regulation, while peers could provide another view on the key perpetrators and victims of cyberbullying.

Despite these limitations, this study has significant implications for understanding the factors that associate with cyberbullying perpetration by cybervictims, and the linkages between emotional dysregulation, moral disengagement, mindfulness and cyberbullying perpetration overall. Firstly, the study sought to identify the key differences between pure victims and those victims who perpetrate bullying (bully/victims). Analyses revealed that when cybervictims have difficulty regulating their anger, a high propensity to morally disengage, and low levels of mindfulness, they are more likely to cyberbully. To help reduce the ongoing cycle of cyberbullying, which in part results from cybervictims retaliating and perpetrating cyberbullying themselves, intervention efforts should seek to improve these three personal factors. A focus on reducing adolescent's propensity to morally disengage is not new. What is new however is the insight that targeting improvements in the emotional regulation of anger and mindfulness may result in reduced moral disengagement, and subsequently reduced cyberbullying.

Secondly, the findings of this study highlight key differences between the factors that associate with cyberbullying perpetration by victims and non-victims. While there was a high degree of overlap, key differences between the two groups emerged. Specifically, the strength of the relationship between moral disengagement and cyberbullying perpetration was much stronger for cybervictims than non-cybervictims. In addition, whereas high emotional dysregulation of anger indirectly led to increased cyberbullying perpetration by victims, it had

the opposite direct effect for non-victims. The differences that emerged between victims and non-victims underline the need to examine these two groups separately when investigating the mechanisms that relate to cyberbullying perpetration.

Finally, this study provided insight into a number of interlinkages between factors that have well-established associations with cyberbullying in the literature. Extending the work of Bussey and Quinn (2015), it was found that at high levels of mindfulness, the relationship between high moral disengagement and increased cyberbullying perpetration diminishes. In addition, results revealed that poor regulation of anger indirectly relates to cyberbullying perpetration via moral disengagement. These findings contribute to the cyberbullying and aggression field more broadly, and highlight factors that may assist in the reduction of moral disengagement and aggression overall.

There are a number of avenues for future research stemming from the present study. Firstly, given that a number of these findings are novel, validation of these results with larger samples of bully/victims and pure bullies, and across different forms of bullying (verbal, physical, and relational), and adolescent aggression more broadly, is warranted. The inclusion of angry rumination in future research examining these relationship would also be of benefit. Key areas of focus would be whether the link between emotional dysregulation of anger and moral disengagement is via angry rumination (as it is for irritability and angry rumination; Caprara et al., 2014), and if mindfulness also works to reduce cyberbullying via a reduction in angry rumination (as was the case for adult aggression; Border et al., 2010). Third, the moderating role of mindfulness on both emotional dysregulation and cyberbullying, and moral disengagement and cyberbullying could be tested experimentally. Induced states of mindfulness have been linked to reduced aggression in a similar pattern to trait mindfulness (Heppner et al., 2008), and so it is feasible for its role as a moderator to also be tested experimentally. Lastly, broader consideration of the personal and situational factors leading to perpetration of cyberbullying by cybervictims would also be valuable. This study has focused

on a relatively narrow set of personal factors and has yielded interesting and practically useful results. However, as indicated by the GAM, a number of both personal and situational inputs are likely to lead to a cybervictim's decision to cyberbully, and examination of a broader range of factors would help explain the variance in cyberbullying perpetration unaccounted for in the current study, and provide better insight into the relative importance of risk factors. Research suggests that situational factors, such as the level of moral disengagement at the classroom level (i.e. collective moral disengagement)(Gini, Pozzoli, & Bussey, 2014) and parental involvement and supervision of technology use, may be important (Hinduja & Patchin, 2013; Ybarra & Mitchell, 2004). At a personal level, internet usage (Ybarra & Mitchell, 2004) and internalising difficulties such as anxiety and depression may also associate with the perpetration of cyberbullying by cybervictims (as an antecedent or consequence, or both; Kowalski & Limber, 2013).

To conclude, the findings of this study confirm the strong association between cybervictimisation and cyberbullying. There is suggestive evidence that this may, at least in some cases, be a result of cybervictims responding to victimisation with retaliation by perpetrating cyberbullying. Results indicated that the cybervictims who are more likely to perpetrate cyberbullying report poorer emotional dysregulation of anger, higher levels of moral disengagement, and lower mindfulness. These factors differed for pure bullies. Future longitudinal research is required to confirm the direction and validity of these relationships, however, the present findings provide promising evidence for intervention efforts. Overall, this study has highlighted the critical role of mindfulness in reducing cyberbullying behaviour by victims and non-victims, both directly, and through its impact on moral disengagement.

5 References

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6 Appendix

Appendix A: Online-version of questionnaire



Dear Student,

This questionnaire is designed to find out how you feel about your interactions with peers at school. This is not a test. There are no right or wrong answers. All responses will be confidential and identified only through a unique code. Your name will not be recorded and your teachers, parents and other students will not see what you have written. The only people who will see your answers are the researchers at Macquarie University. The questionnaire will take about 40 minutes to fill out. Your participation in this study is completely voluntary and you can choose to stop at any time without giving a reason.

If you experience distress as a result of completing this questionnaire, you will be able to privately request a meeting with the school counsellor by speaking with the research assistant or checking a box on a form provided to you when you stop filling in the questionnaire (which can be at any time). Alternatively, you may wish to seek support from the Kids Helpline by calling 1800 55 1800 or by visiting <http://www.kidshelp.com.au/>. If you have any questions, please do not hesitate to put up your hand and one of the researchers will answer your questions.

The ethical aspects of this study have been approved by the Macquarie University Human Research Ethics Committee. If you have any complaints or reservations about any ethical aspect of your participation in this research, you may contact the Committee through the Director, Research Ethics and Integrity (telephone (02) 9850 7854; email: ethics@mq.edu.au). Any complaint you make will be treated in confidence and investigated, and you will be informed of the outcome. Data may be made available to other researchers for future Human Research Ethics Committee-approved research projects.


Would you like to participate in this study?

Yes (choosing this option will take you to the questionnaire)

No (choosing this option will end the questionnaire)

>>

Appendix A: Online-version of questionnaire



UNIQUE IDENTIFICATION CODE

The researchers working on this project may be doing a follow up later on, to see how things have changed. We need to link your surveys together to analyse the results, but we can't identify you individually. This code will allow us to link all the surveys you complete, without knowing who you are.

Put the **first letter** of your **mother's first name** in the box provided.

eg. Fiona = F

Put the **day** of your birth in the box provided.

eg. 9/10/1994 = 09

Put the **last two** letters of **your first name** in the box provided.


eg. Jake = KE

Put the **last two** letters of **your last name** in the box provided.

eg. Gibson = ON

>>


Appendix A: Online-version of questionnaire



Your unique identification code is:

Please copy this code into the box below:

>>



Definition of bullying

This section asks you about your interactions with your peers.
Please be assured that the researchers cannot identify you from any information in this survey.
Please read the definition below before answering any of the questions.

We say that a person is being bullied when another person, or several other people do any of the following:



- say mean and hurtful things
- make fun of him or her
- call him or her mean and hurtful names
- completely ignore or exclude him or her from their group of friends
- leave him or her out of things on purpose;
- hit, kick, push, shove around, or lock him or her inside a room;
- tell lies or spread false rumours about him or her
- send mean notes and try to make other students dislike him or her;
- and other hurtful things like that.

Cyberbullying is bullying through e-mail, instant messaging, in a chat room, on a website, or through a text message sent to a mobile phone.

When we talk about bullying, these things happen repeatedly, and it is difficult for the person being bullied to defend himself or herself. We also call it bullying, when a student is teased repeatedly in a mean and hurtful way. Cyberbullying is when these mean things happen over the internet or via a mobile phone.

>>

Appendix A: Online-version of questionnaire



What school do you go to?

What grade are you in?

What home room class are you in?

What is your gender?

Male

Female

What is your age in years and months?

Years:

Months:

What is your date of birth? (DD/MM/YYYY)

Appendix A: Online-version of questionnaire

What country were you born in?

Australia

Other (please specify)

What country was your mother born in?

Australia

Other (please specify)

What country was your father born in?

Australia

Other (please specify)

Appendix A: Online-version of questionnaire

What is your ethnicity?

Anglo/Celtic (eg. English, Irish, Scottish, Welsh background)

European (eg. French, German, Greek, Italian, Spanish background)

East/South East Asian (eg. Chinese, Japanese, Korean, Vietnamese background)

South Asian (eg. Bangladeshi, Indian, Pakistani, Sri Lankan background)

Middle Eastern (eg. Egyptian, Lebanese, Turkish background)

Aboriginal/Torres Strait Islander

Pacific Islander (eg. Fijian, Samoan, Tongan background)

Mixed ethnic descent (please specify)

Other (the above categories do not adequately represent my ethnicity; please specify)

>>

Appendix A: Online-version of questionnaire

How often in the last school term **have you performed** the following behaviours while on the internet or on a mobile phone/tablet?


	It hasn't happened at all	About once a term	Two or three times a term	Many times a term	Every week of a term	Many times a week
1. Sending threatening or insulting messages	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2. Posting or sending humiliating images of another kid	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3. Posting links of humiliating images to other people for them to see	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4. Writing embarrassing jokes, rumours, gossip, or comments about another kid on the internet	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5. Posting or sending links with rumours, gossip, etc. about another kid so that other kids can read them	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	It hasn't happened at all	About once a term	Two or three times a term	Many times a term	Every week of a term	Many times a week
6. Hacking to send messages by email or social networks that could make trouble for another kid	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
7. Recording a video or taking pictures while a group laughs and forces another kid to do something humiliating or ridiculous	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
8. Posting or sending the images described in Item 7 to be seen by other kids	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
9. Recording a video or taking pictures while someone hits or hurts another kid	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
10. Posting or sending the images described in Item 9 to be seen by other kids	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Appendix A: Online-version of questionnaire

	It hasn't happened at all	About once a term	Two or three times a term	Many times a term	Every week of a term	Many times a week
11. Broadcasting another kid's secrets, compromising information or images online	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
12. Deliberately excluding someone from an online group	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
13. Recording a video or taking pictures of other kids performing some type of sexual behaviour	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
14. Posting or sending the images described in Item 13 to be seen by other kids	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

>>

Appendix A: Online-version of questionnaire


MACQUARIE
University

How often in the last school term have the following behaviours **happened to you** via the internet or a mobile phone/tablet?

	It hasn't happened at all	About once a term	Two or three times a term	Many times a term	Every week of a term	Many times a week
1. I have received threatening or insulting messages	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2. Other people have posted humiliating images of me on the internet	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3. Other people have written embarrassing jokes, rumours, gossip, or comments about me on the Internet	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4. Other people have hacked my email or social networks to send messages that could be troublesome for me	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5. Other people have used a mobile phone to record a video or take pictures of me while a group laughs and forces me to do something humiliating or ridiculous	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
6. Other people have used a mobile phone to record a video or take pictures of me while someone hits or hurts me	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
7. Other people have broadcast secrets about me online that involve compromising information or images of me	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
8. Other people have deliberately excluded me from an online group	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
9. Other people have used a mobile phone to record a video or take pictures of me involving a sexual behaviour	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Appendix A: Online-version of questionnaire

What did you do when you experienced these behaviours? (Please check all that apply)

Stopped using the internet

Spoke to a friend(s) about it

Tried to ignore the behaviour

Tried to not let the behaviour get to me

Confronted the bully

Tried to get back at the bully by doing something mean to them

Changed my privacy settings

Deleted or blocked the negative / threatening messages



Hid my identity by changing my email address / profile / username

Asked my parents or teachers for help

Something else (please specify):

I didn't experience these behaviours in the last school term

Appendix A: Online-version of questionnaire

For the following items, please read each statement and select the response to show how much you agree.



	Strongly Disagree	Disagree Somewhat	Neither Agree nor Disagree	Agree Somewhat	Strongly Agree
It's alright to send mean messages to a kid using a mobile phone or the internet if they have poked fun at your friends	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Posting a mean message about a cyberbully is just teaching them "a lesson"	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
It is unfair to blame a kid who only had a small part in the harm caused by a whole group of kids sending mean messages about someone	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
It's okay to email a mean message to another kid because posting it on Facebook for everyone to see is worse	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Kids can't be blamed for texting mean comments when all their friends do it	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
It is okay to cyberbully because it doesn't really do any harm	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Appendix A: Online-version of questionnaire

	Strongly Disagree	Disagree Somewhat	Neither Agree nor Disagree	Agree Somewhat	Strongly Agree
If kids are annoying, it is their own fault if they get sent a mean message on their mobile phone or through the internet	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Some kids who are cyberbullied deserve to be treated like animals	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
If kids have mean comments texted to them on their mobile phone, then it's okay for them to text mean comments to other kids	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Sending a mean message about someone on Facebook is just a way of joking around	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
A kid who only suggests sending a mean message to another kid on the internet should not be blamed if other kids go ahead and do it	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Compared to the illegal things that people do, sending a mean email about a kid is not very serious	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	Strongly Disagree	Disagree Somewhat	Neither Agree nor Disagree	Agree Somewhat	Strongly Agree
Kids can't be blamed for sending mean comments on a mobile phone if their friends pressured them to do it	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Posting mean comments about other kids on Facebook does not really hurt them	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Kids who get cyberbullied usually do things to deserve it	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
It's okay to cyberbully a kid who behaved like a jerk	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

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Appendix A: Online-version of questionnaire


We want to know more about what you think, how you feel, and what you do. Read each sentence. Then, select the option that tells **how often** each sentence is true for you.

	Never True	Rarely True	Sometimes True	Often True	Always True
I tell myself that I shouldn't feel the way I'm feeling	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I keep myself busy so I don't notice my thoughts or feelings	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
It's hard for me to pay attention to only one thing at a time	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I think that some of my feelings are bad and that I shouldn't have them	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I stop myself from having feelings that I don't like	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

	Never True	Rarely True	Sometimes True	Often True	Always True
At school, I walk from class to class without noticing what I'm doing	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I push away thoughts that I don't like	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I get upset with myself for having certain thoughts	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I get upset with myself for having feelings that don't make sense	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I think about things that happened in the past instead of thinking about things that are happening right now	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

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Appendix A: Online-version of questionnaire



Below is a list of ways that people can feel when they have problems.



Please read each statement and select the option that shows how you would feel.

	Never true	Rarely true	Sometimes true	Often true	Always true
I get scared easily	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
When I get scared, I can't stop shaking	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I get so angry that I find it hard to stay in control	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
When something bad happens I feel so angry	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I find it very hard to stop myself from crying when I am upset	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
When things go wrong, I get really sad	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

	A few seconds	Minutes	Hours	Days	Weeks
How long do you usually stay scared when you get scared?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
How long do you usually stay sad when you get sad?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
How long do you usually stay angry when you get angry?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

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Appendix A: Online-version of questionnaire



Some of this questionnaire may have caused you to think about things in a new way, or may have reminded you of things that have happened in the past which may have upset you. If this has happened we would encourage you to talk to an adult about this. You may want to talk to your parents or another family member or teacher.

If you would like to talk to the school counsellor or the researcher who gave you this questionnaire you can make an appointment yourself by speaking to them, or you can type your name in the box below and we will arrange the appointment for you.

Name

Roll Class

THANK YOU FOR PARTICIPATING IN THIS QUESTIONNAIRE :)

Please click the arrow to submit your answers.

>>

Appendix B: Principal, Parent, and Student Consent Forms

Principal Consent



Department of Psychology
Faculty of Human
Sciences
MACQUARIE UNIVERSITY NSW 2109
Phone: +61 (02) 9850 8085
Email: kay.bussey@mq.edu.au

“Factors Associated with Cyberbullying”

Dear Principal,

We are seeking permission for children in Grades 5, 7 and 9 to participate in a longitudinal research project entitled “Factors Associated with Cyberbullying”. The aim of this research is to investigate factors that are associated with children being mean to each other in their cyber interactions. We anticipate the results of this study will be of benefit to your school in planning strategies to reduce bullying and victimisation. This research is being conducted by Dr. Kay Bussey (Associate Professor) and Mrs Rhiannon Fogliati (Research Assistant) from the Faculty of Human Sciences, Department of Psychology at Macquarie University (Dr. Kay Bussey, phone: 02 9850 8085, email: kay.bussey@mq.edu.au; Mrs Rhiannon Fogliati, phone: 02 9850 8075, email: rhiannon.fogliati@mq.edu.au).

Children will complete a 40 minute questionnaire at school in Term 1 or 2. The questionnaire will be completed in a group setting, ensuring minimal disruption to the school day. Each child who participates will be asked to answer questions about their experiences of cyber bullying, their self-efficacy to respond to cyber-bullying, and the psychological effects that cyber-bullying has on them. No names will be submitted in the questionnaire to ensure confidentiality. The study will be conducted on school premises in a location determined by you. If you consent to this study being conducted at your school we will provide information and consent forms outlining the aims and the procedures of the research to be sent home to parents. Researchers from Macquarie University will administer the questionnaire either online (if the resources are available) or in a pen and paper format.

Consent will be obtained from parents by sending a letter home detailing the nature of the study and asking approval for student participation. Parents will provide their consent via a returned form or email. It is requested that **ALL** students return this consent form, regardless of whether their parents consent to them participating. Consent will also be obtained from students before they begin the questionnaire. It is possible that some students may experience distress as a result of recalling bullying experiences. If a student does experience distress, it may be necessary for that student to speak to a school counsellor. Students will be able to privately request a meeting with the school counsellor by speaking with the research assistant or checking a box on a form provided to them when they stop filling in the questionnaire (which can be at any time). Although this is unlikely, I would appreciate you informing the counsellor of this possibility.

All data gathered is strictly confidential and students’ responses are identified only by an individual code. The data is held in a secure area and accessible only to the project’s researchers. No participant will be identified in any publication or presentation of results. Approval to conduct the study has been granted by the Macquarie University Human Research Ethics Committee. Data may be made available to other researchers for future Human Research Ethics Committee-approved research projects.

At the completion of this study a summary of the research results will be forwarded to you. We would greatly appreciate your involvement in this important project.

Thank you,
Dr Kay Bussey

Appendix B: Principal, Parent, and Student Consent Forms

APPROVAL OF PRINCIPAL'S CONSENT - please detach copy below and return to researcher.

I (*block letters*) _____, have read the above information and any questions I have asked have been answered to my satisfaction. I have kept a copy of this form. I give consent for this research to be conducted in my school. I understand that participation is voluntary and that I can withdraw consent at any time without penalty.

Principal's Name (*block letters*): _____

Principal's Signature: _____ Date: _____

Investigator's Name: Dr Kay Bussey

Investigator's Signature/s: _____ Date: _____

The ethical aspects of this study have been approved by the Macquarie University Human Research Ethics Committee. If you have any complaints or reservations about any ethical aspect of your participation in this research, you may contact the Committee through the Director, Research Ethics and Integrity (telephone (02) 9850 7854; email: ethics@mq.edu.au). Any complaint you make will be treated in confidence and investigated, and you will be informed of the outcome.

.....

CONSENT FORM – RESEARCHERS' COPY

I (*block letters*) _____, have read the above information and any questions I have asked have been answered to my satisfaction. I have kept a copy of this form. I give consent for this research to be conducted in my school. I understand that participation is voluntary and that I can withdraw consent at any time without penalty.

Principal's Name (*block letters*): _____

Principal's Signature: _____ Date: _____

Investigator's Name: Dr Kay Bussey

Investigator's Signature/s: _____ Date: _____

The ethical aspects of this study have been approved by the Macquarie University Human Research Ethics Committee. If you have any complaints or reservations about any ethical aspect of your participation in this research, you may contact the Committee through the Director, Research Ethics and Integrity (telephone (02) 9850 7854; email: ethics@mq.edu.au). Any complaint you make will be treated in confidence and investigated, and you will be informed of the outcome.

Parent Consent

Dear Student,

Please give this letter to your parent/guardian when you get home and return the signed consent form by _____

If you do, you will go in the draw to win 1 of 3 iPod Shuffles.



Department of Psychology
Faculty of Human
Sciences
MACQUARIE UNIVERSITY NSW 2109
Phone: +61 (02) 9850 8085
Fax: +61 (02) 9850 8062
Email: kay.bussey@mq.edu.au

“Factors Associated with Cyberbullying”

Dear Parent/Guardian,

We are seeking permission for your child to participate in a longitudinal research project entitled “Factors Associated with Cyberbullying”. **The study has been approved by the school principal and will be conducted at your child’s school.** Please sign the attached form and return it to the school, regardless of whether you would like your child to participate. The aim of this research is to investigate factors that are associated with children being mean to each other in their cyber interactions.

Children will complete a 40 minute questionnaire at school in Term 1 or 2 and again in Term 3 or 4. The questionnaire will be completed in a group setting in a location directed by the school principal, ensuring minimal disruption to the school day. Participants will be identified by a unique code and all data gathered are strictly confidential. No names will be submitted in the questionnaire to ensure confidentiality. Data may be made available to other researchers for future Human Research Ethics Committee-approved research projects. The principal of your school has been given a copy of the questionnaire for his/her approval prior to the commencement of the research. Children who participate will be asked to answer questions about their experiences of cyberbullying, their self-efficacy to respond to cyberbullying, and the psychological effects that cyberbullying has on them. Cyberbullying is bullying through e-mail, instant messaging, in a chat room, on a website, or through a text message sent to a mobile phone. The effects of cyberbullying are varied, although they may include children experiencing low mood or increased anxiety.

Most students who have participated in similar research have enjoyed the experience. However, if your child shows any signs of not wishing to participate, s/he can stop at any time. Also, you can withdraw your consent for your child’s participation at any time without giving a reason. It is possible that some students may experience distress as a result of recalling bullying experiences. If your child does experience distress as a result of completing this questionnaire, they will be able to privately request a meeting with the school counsellor by speaking with the research assistant or checking a box on a form provided to them when they stop filling in the questionnaire (which can be at any time). Organisations such as the Kids Helpline also provide telephone and online support to students who are distressed. They can be contacted on 1800 55 1800 or at <http://www.kidshelp.com.au/>. If you would like more

Appendix B: Principal, Parent, and Student Consent Forms

information on Cyberbullying or Cyber safety, please visit the Cybersmart (<http://www.cybersmart.gov.au/>) or ThinkuKnow (<http://www.thinkuknow.org.au/>) websites. A copy of the research results will be made available to your child's school once they are available.

Approval to conduct the study has been granted by the Macquarie University Human Research Ethics Committee. This research is being conducted by Dr. Kay Bussey (Associate Professor) and Mrs Rhiannon Fogliati (Research Assistant) from the Faculty of Human Sciences, Department of Psychology at Macquarie University (Dr. Kay Bussey, phone: 02 9850 8085, email: kay.bussey@mq.edu.au; Mrs Rhiannon Fogliati, phone: 02 9850 8075, email: rhiannon.fogliati@mq.edu.au).

Please discuss this project with your child before giving approval. During discussions, it is important to make your child aware that s/he can withdraw from participation at any time, even if s/he has not completed the questionnaires. Please assure your child that s/he will not be asked any questions if s/he decides not to participate or withdraws his/her participation.

Regardless of whether you do or do not want your child to participate, **PLEASE** indicate your consent on the form below and return the form to your child's school, or respond via email, by _____.

You can indicate your consent in the following ways:

- **Sign the enclosed forms. Detach and return the 'researcher's copy' to your child's school,**
- OR**
- **Email _____, stating whether or not you consent to your child's participation**

We would be very grateful for your child's participation. If you have questions please do not hesitate to contact Dr Kay Bussey.

Thank you,

Dr. Kay Bussey

Appendix B: Principal, Parent, and Student Consent Forms

PARENTS' COPY FOR CHILD PARTICIPATION

I (*block letters*) _____, **WANT / DO NOT WANT**
(please circle)

MY CHILD (*block letters*) _____ TO PARTICIPATE IN THIS STUDY.

CHILD'S GRADE _____ CHILD'S HOMEROOM
CLASS _____

Parent or Guardian's Name (*block letters*): _____

Parent or Guardian's Signature: _____ Date: _____

Investigator's Name: Dr Kay Bussey

Investigator's Signature/s: _____ Date: _____

The ethical aspects of this study have been approved by the Macquarie University Human Research Ethics Committee. If you have any complaints or reservations about any ethical aspect of your participation in this research, you may contact the Committee through the Director, Research Ethics and Integrity (telephone (02) 9850 7854; email: ethics@mq.edu.au). Any complaint you make will be treated in confidence and investigated, and you will be informed of the outcome.

"Factors Associated with Cyberbullying"

RESEARCHERS' COPY FOR CHILD PARTICIPATION

I (*block letters*) _____, **WANT / DO NOT WANT**
(please circle)

MY CHILD (*block letters*) _____ TO PARTICIPATE IN THIS STUDY.

CHILD'S GRADE _____ CHILD'S HOMEROOM CLASS _____

Parent or Guardian's Name (*block letters*): _____

Parent or Guardian's Signature: _____ Date: _____

Investigator's Name: Dr Kay Bussey

Investigator's Signature/s: _____ Date: _____

The ethical aspects of this study have been approved by the Macquarie University Human Research Ethics Committee. If you have any complaints or reservations about any ethical aspect of your participation in this research, you may contact the Committee through the Director, Research Ethics and Integrity (telephone (02) 9850 7854; email: ethics@mq.edu.au). Any complaint you make will be treated in confidence and investigated, and you will be informed of the outcome.

Appendix B: Principal, Parent, and Student Consent Forms

Student Consent Form – Paper Version

MACQUARIE
UNIVERSITY



MACQUARIE UNIVERSITY NSW 2109

Department of Psychology

Faculty of Human Sciences

Phone: +61 (02)9850 8085

Fax: +61 (02)9850 8062

Email: kay.bussey@mq.edu.au

Dear Student,

This questionnaire is designed to find out how you feel about your interactions with peers at school. This is not a test. There are no right or wrong answers. All responses will be confidential and identified only through a unique code. Your name will not be recorded and your teachers, parents and other students will not see what you have written. The only people who will see your answers are the researchers at Macquarie University. Data may be made available to other researchers for future Human Research Ethics Committee-approved research projects. The questionnaire will take about 40 minutes to fill out. Your participation in this study is completely voluntary and you can choose to stop at any time without giving a reason. If you experience distress as a result of completing this questionnaire, you will be able to privately request a meeting with the school counsellor by speaking with the research assistant or checking a box on a form provided to you when you stop filling in the questionnaire (which can be at any time). Alternatively, you may wish to seek support from the Kids Helpline by calling 1800 55 1800 or by visiting <http://www.kidshelp.com.au/>. If you would like to fill out this questionnaire, please sign the consent form below. If you have any questions, please do not hesitate to put up your hand and one of the researchers will answer your questions.

STUDENT'S COPY:

I (*block letters*) _____ have read the above information and **I DO WANT TO PARTICIPATE IN THIS STUDY**. Any questions I have asked have been answered to my satisfaction. I understand that participation is voluntary and that I can withdraw consent at any time without penalty.

Student's Name (*Block letters*): _____

Student's Signature (*Block letters*): _____ Date: _____

Investigator's Name: Dr Kay Bussey

Investigator's Signature/s: _____ Date: _____

The ethical aspects of this study have been approved by the Macquarie University Human Research Ethics Committee. If you have any complaints or reservations about any ethical aspect of your participation in this research, you may contact the Committee through the Director, Research Ethics (telephone (02) 9850 7854; email: ethics@mq.edu.au). Any complaint you make will be treated in confidence and investigated, and you will be informed of the outcome.

RESEARCHER'S COPY:

I (*block letters*) _____, have read the above information and **I DO WANT TO PARTICIPATE IN THIS STUDY**. Any questions I have asked have been answered to my satisfaction. I understand that participation is voluntary and that I can withdraw consent at any time without penalty.

Student's Name (*Block letters*): _____

Student's Signature (*Block letters*): _____ Date: _____

Investigator's Name: Dr Kay Bussey

Investigator's Signature/s: _____ Date: _____

The ethical aspects of this study have been approved by the Macquarie University Human Research Ethics Committee. If you have any complaints or reservations about any ethical aspect of your participation in this research, you may contact the Committee through the Director, Research Ethics and Integrity (telephone (02) 9850 7854; email: ethics@mq.edu.au). Any complaint you make will be treated in confidence and investigated, and you will be informed of the outcome.

Appendix B: Principal, Parent, and Student Consent Forms

Student Consent Form – Online Version

Please note that the text below will appear on Qualtrics and thus, has not been presented on a Macquarie University letterhead.

Dear Student,

This questionnaire is designed to find out how you feel about your interactions with peers at school. This is not a test. There are no right or wrong answers. All responses will be confidential and identified only through a unique code. Your name will not be recorded and your teachers, parents and other students will not see what you have written. The only people who will see your answers are the researchers at Macquarie University. Data may be made available to other researchers for future Human Research Ethics Committee-approved research projects. The questionnaire will take about 40 minutes to fill out. Your participation in this study is completely voluntary and you can choose to stop at any time without giving a reason.

If you experience distress as a result of completing this questionnaire, you will be able to privately request a meeting with the school counsellor by speaking with the research assistant or checking a box on a form provided to you when you stop filling in the questionnaire (which can be at any time). Alternatively, you may wish to seek support from the Kids Helpline by calling 1800 55 1800 or by visiting <http://www.kidshelp.com.au/>. If you have any questions, please do not hesitate to put up your hand and one of the researchers will answer your questions.

The ethical aspects of this study have been approved by the Macquarie University Human Research Ethics Committee. If you have any complaints or reservations about any ethical aspect of your participation in this research, you may contact the Committee through the Director, Research Ethics and Integrity (telephone (02) 9850 7854; email: ethics@mq.edu.au). Any complaint you make will be treated in confidence and investigated, and you will be informed of the outcome.

☐ If you would like to participate in this study, please check the box to continue to the questionnaire.

Appendix C: Ethics approval

Office of the Deputy Vice-Chancellor
(Research)

Research Office
Research Hub, Building C5C East
Macquarie University
NSW 2109 Australia
T: +61 (2) 9850 4459
<http://www.research.mq.edu.au/>
ABN 90 952 801 237



MACQUARIE
University
SYDNEY · AUSTRALIA

20 March 2015

Associate Professor Kay Bussey
Department of Psychology
Faculty of Human Sciences
Macquarie University
NSW 2109

Dear Associate Professor Bussey

Reference No: 5201401142

Title: *Factors Associated with Cyberbullying*

Thank you for submitting the above application for ethical and scientific review. Your application was considered by the Macquarie University Human Research Ethics Committee (HREC (Human Sciences & Humanities)) at its meeting on 28 November 2014 at which further information was requested to be reviewed by the Ethics Secretariat.

The requested information was received with correspondence on 17 February 2015.

I am pleased to advise that ethical and scientific approval has been granted for this project to be conducted at:

- Macquarie University

This research meets the requirements set out in the *National Statement on Ethical Conduct in Human Research* (2007 – Updated March 2014) (the *National Statement*).

This letter constitutes ethical and scientific approval only.

Standard Conditions of Approval:

1. Continuing compliance with the requirements of the *National Statement*, which is available at the following website:

<http://www.nhmrc.gov.au/book/national-statement-ethical-conduct-human-research>

2. This approval is valid for five (5) years, subject to the submission of annual reports. Please submit your reports on the anniversary of the approval for this protocol.

3. All adverse events, including events which might affect the continued ethical and scientific acceptability of the project, must be reported to the HREC within 72 hours.

4. Proposed changes to the protocol must be submitted to the Committee for approval before implementation.

It is the responsibility of the Chief investigator to retain a copy of all documentation related to this project and to forward a copy of this approval letter to all personnel listed on the project.

Should you have any queries regarding your project, please contact the Ethics Secretariat on 9850 4194 or by email ethics.secretariat@mq.edu.au

The HREC (Human Sciences and Humanities) Terms of Reference and Standard Operating Procedures are available from the Research Office website at:

http://www.research.mq.edu.au/for/researchers/how_to_obtain_ethics_approval/human_research_ethics

The HREC (Human Sciences and Humanities) wishes you every success in your research.

Yours sincerely



Dr Karolyn White

Director, Research Ethics & Integrity,

Chair, Human Research Ethics Committee (Human Sciences and Humanities)

This HREC is constituted and operates in accordance with the National Health and Medical Research Council's (NHMRC) *National Statement on Ethical Conduct in Human Research* (2007) and the *CPMP/ICH Note for Guidance on Good Clinical Practice*.

Office of the Deputy Vice-Chancellor (Research)

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MACQUARIE
University
SYDNEY · AUSTRALIA

21 April 2015

Associate Professor Kay Bussey
Department of Psychology
Faculty of Human Sciences
Macquarie University
NSW 2109

Dear Associate Professor Bussey

Reference No: 5201401142

Title: *Factors Associated with Cyberbullying*

Thank you for your correspondence dated 24 March 2015 submitting an amendment request to the above study. Your proposed amendment was reviewed and approved by the HREC (Human Sciences & Humanities) Executive at its meeting held on 14/04/2015.

I am pleased to advise that ethical approval of the following amendments to the above study has been granted:

1. The addition of two Masters students to the project:
Ms. Philippa Johnson and Ms. Kimberley Allison.
2. The addition of three standard measures. The measures assess depression, social anxiety, and emotional dysregulation.
3. The removal of measures related to moral standards.
4. Amendments to the demographic section items to ensure that the items relating to technology use are current and relevant / accessible for the target participants.

The HREC (Human Sciences and Humanities) Terms of Reference and Standard Operating Procedures are available from the Research Office website at:

http://www.research.mq.edu.au/for/researchers/how_to_obtain_ethics_approval/human_research_ethics

Please do not hesitate to contact the Ethics Secretariat should you have any questions regarding your ethics application.

The HREC (Human Sciences and Humanities) wishes you every success in your research.

Yours sincerely



Dr Karolyn White

Director, Research Ethics & Integrity

Chair, Human Research Ethics Committee (Human Sciences and Humanities)

This HREC is constituted and operates in accordance with the National Health and Medical Research Council's (NHMRC) National Statement on Ethical Conduct in Human Research (2007) (the National Statement) and the CPMP/ICH Note for Guidance on Good Clinical Practice.