

“STICKS AND STONES MAY BREAK MY BONES”: THE ROLE OF RESILIENCE  
AS A MEDIATOR BETWEEN TRADITIONAL AND CYBERBULLYING  
EXPERIENCES AND PSYCHOLOGICAL ADJUSTMENT IN EARLY ADULTHOOD

by

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**Abstract**

Bullying, both traditional and cyber, is a well-studied phenomenon, and justifiably so. Research has recently begun to explore how resilience may play a role in mitigating the harmful effects of bullying. Two hundred and thirty undergraduate students completed a series of online surveys that assessed bullying experiences, personal resilience, overall well-being, and symptoms of depression and anxiety. Confirmatory Factor Analyses and subsequent Exploratory Factor Analyses were completed for each measure. Mediation analyses revealed that resilience mediated the relationship between traditional bullying and symptoms of depression and overall well-being, but not anxiety. Resilience did not mediate the relationship between cyberbullying and psychological adjustment, as cyberbullying was not significantly associated with resilience. It is proposed that future research continue to investigate the association between bullying, resilience, and other factors that contribute to this relationship in order to gain a more holistic understanding.

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Here's to the end of one adventure, and the start of another!

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**“Sticks and stones may break my bones”: The role of resilience as a mediator between traditional and cyberbullying experiences and psychological adjustment in early adulthood**

The ramifications of negative social relationships have come to the forefront of public attention in recent years, specifically in regard to bullying. In 2010, reports found that 44% of youth suicides in the United Kingdom were related to bullying (Dickinson, 2010). In Canada, a history of being a target of bullying was the most significant predictor of suicidal ideation in youth aged 8 to 17 (Alavi et al., 2017). Bullying is defined as the deliberate and repetitive acts of interpersonal aggressions that are committed with intent to cause harm where an imbalance of power is believed to exist between perpetrator and target (Olweus, 1994). These acts of aggression can manifest through physical, verbal, or relational attacks and can occur both in face-to-face communication (i.e., “traditional bullying”), or online (i.e., cyberbullying; Smith et al., 2008). Much of the research about bullying has focused primarily on youth, or adjustment outcomes in adulthood that are associated with bullying experiences in childhood (Sigurdson et al., 2015; Sigurdson et al., 2014). This extensive research has indicated that being targeted is associated with a multitude of negative implications, including lower self-esteem, higher levels of internalizing disorders and a decreased sense of well-being in children and youth (e.g., Sigurdson et al., 2014; Sigurdson et al., 2015; Wang et al., 2010). Despite being aware of the detrimental effects of bullying throughout the lifespan, researchers have consistently ignored the outcome for targets of bullying in early adulthood. Many people believe that bullying is a childhood phenomenon, however research indicates that young adults continue to be targets of

bullying, and that the negative effects they experience are comparable to those seen for children and youth (Kowalski et al., 2017). Although extensive research has indicated there is a strong relationship between victimization and subsequent adjustment, not all individuals who are targets of bullying behaviours experience the same degree of negative ramifications (Sapouna & Wolke, 2013), suggesting that there are protective factors such as positive social relationships, problem solving skills, executive functioning, and emotional intelligence that can buffer the negative impact of the victimization experience (e.g., Jain & Cohen, 2013; Lightfoot et al., 2011; Lösel & Farrington, 2012; Skodal, 2010).

One construct that encompasses these protective factors and has been studied extensively is *resilience* (Masten, 2013; Panter-Brick & Leckman, 2013). Resilience is characterized by successful coping or increased positive adjustment despite facing adversities (Connor & Davidson, 2003; Luthar et al., 2000; Ungar, 2008). Previous research demonstrates that resilience is a significant mediator in the relationship between bullying experiences and negative adjustment for adolescents (Kabadayi & Sari, 2018; Moore & Woodcock, 2017) and adults (Maidanuic-Chirila, 2018; Reknes et al., 2018). However, the literature on resilience as a mediator between being a target of bullying behaviours in adulthood has been restricted to workplace bullying, despite the knowledge that young adults experience bullying outside of the workplace as well (Kowalski et al., 2017; American Osteopathic Association, 2017).

The purpose of the current study was to determine if resilience was a mediator of the relationship between bullying and negative adjustment for young adults in a university setting. More specifically, it was postulated that increased resilience would be

negatively associated with symptoms of depression and anxiety, and positively associated with a sense of well-being in a sample of young adults who have been the targets of bullying behaviours (both face-to-face and cyberbullying). However, before delving into this relationship, a more in depth understanding of all the factors involved is needed. First, I will discuss the issue of bullying, how it is defined, how prevalent it is, and how being a target affects psychological adjustment. However, I will also demonstrate the lack of focus paid to young adult's experiences of being targeted despite the indication that being a target occurs regularly (American Osteopathic Association, 2017). I will then argue that protective factors, and indeed resilience, play a role in explaining why some individuals report fewer symptoms of depression and anxiety and an increased sense of well-being after being targeted (Kabadayi & Sari, 2018; Maidanuic-Chirila, 2018; Moore & Woodcock, 2017). To do this, I will explain what resilience is and how it relates to adjustment outcomes in general and, more specifically, for targets of bullying (Kabadayi & Sari, 2018; Maidanuic-Chirila, 2018; Moore & Woodcock, 2017). Finally, I will provide hypotheses for the current study and explain how I conducted this study and the statistical analyses used. To begin, it is first essential to have a clear understanding of the predictor variable- bullying.

### **Bullying**

“Sticks and stones may break my bones, but words will never hurt me” has been a popular sentiment in previous decades. Previously, the perception of bullying was that it made a child stronger, that it is natural for a child to be picked on, or that “teasing” is relatively harmless. However, reports from the United Kingdom in 2010 indicated that 44% of youth suicides were related to bullying (Dickinson, 2010). A meta-analysis

revealed that students who were the targets of bullying behaviours have been found to be 2.2 times more likely to contemplate suicide and 2.6 times more likely to attempt suicide (Gini & Esperlage, 2014). In Canada specifically, a history of being a target of bullying has been found to be the most significant predictor of suicidal ideation in youth aged 8 to 17 (Alavi et al., 2017). These alarming numbers justify why bullying has been such an explored topic in past research, but it is important to fully understand exactly what bullying is in order to further contemplate its effects.

**Definition.** Aggression in schools has been a major topic of conversation in North America for almost two decades. Specifically, bullying has been one of the largest points of focus due to the increase in youth deaths that can be directly linked back to bullying experiences (Marr & Fields, 2001). Youth today are reminded throughout elementary and high school about what bullying is, what it can look like, and what they can do if they see a peer being bullied. Despite this, one third of adolescents continue to report experiencing bullying (Molcho et al., 2009).

Bullying is defined as repetitive and deliberate interpersonal acts of aggression wherein an imbalance of power exists between the perpetrator and the target (Olweus, 1994) and is often separated into four categories including physical, verbal, relational, and cyber behaviours. Physical bullying includes any act wherein a perpetrator intends to physically harm a target (e.g., by hitting, punching, kicking; Rivers & Smith, 1994). Conversely, verbal bullying is characterized by a perpetrator intending to cause harm to a target through verbal attacks (e.g., name calling; Rivers & Smith, 1994). Relational bullying describes behaviours that occur through more indirect means where the intention of the perpetrator is to harm a target by damaging their social status or relationships by

spreading rumours or by exclusion (Crick et al., 1999; Crick & Grotpeter, 1995; Rivers & Smith, 1994). Physical, verbal, and relational bullying have often been collectively grouped under the label of “traditional” bullying (Smith et al., 2008) to differentiate it from technology-based bullying. This fourth style of bullying that occurs via social media, the Internet, and various other forms of technology has been coined cyberbullying (Smith et al., 2008; Swearer & Hymel, 2015). Although cyberbullying is a new medium for perpetrating bullying behaviours, it is best categorized as an extension of relational aggression (Burgess-Proctor et al., 2009). Cyberbullying does meet some unique definitional issues, as what constitutes “repetitive” and a “power dynamic” are called into question (Kiriakidis & Kavoura, 2010), however, the literature continues to use Olweus’ (1994) definition. The focus of the current study is to investigate both traditional and cyberbullying, and the role they play in psychological adjustment and well-being.

**Prevalence of Bullying.** Despite the existence of different methods of bullying, evidence suggests that there is a significant correlation of target experiences between the different forms of bullying such that those who experienced one form of bullying are also more likely to experience other forms (Wang et al., 2010). Orpinas and colleagues (2003) found that 37% of students between kindergarten and grade two reported being targets of four or more bullying behaviours, including both physical and verbal behaviours. Moreover, 33% of elementary school students, 32% of middle school students, and 22% of high school students reported being a target of bullying at least twice in the previous month (Bradshaw et al., 2007).

Interestingly, the prevalence of the different forms of bullying varies across ages. Björkqvist and colleagues (1992) found that as children aged into adolescence, the

amount of physical aggression declined whereas the amount of relational aggression increased. Moreover, adolescents reported being more likely to perpetrate verbal and relational bullying behaviours than any other kind of bullying behaviour (Wang et al., 2012). Indeed, in 2010, reports indicated that up to 51% of youths between grade four and 12 reported being the target of verbal bullying and 37% reported experiencing relational bullying (Vaillancourt et al., 2010). As cyberbullying is perceived as an extension of traditional relational bullying, and with the rise in accessibility and use of technology, it would also be reasonable to assume that prevalence of cyberbullying also increases with age. In fact, there has been a drastic increase in the degree of cyberbullying, rising from 6% to 11% between 2000 and 2010 (Jones et al., 2013). In 2018, 97.7% of youth between the ages of 15 and 24 years reported having a smart phone (Statistics Canada, 2020). It has also been suggested that older adolescents are more likely to be involved in electronic bullying (Raskauskas & Stoltz, 2007). Despite the extensive amount of research on bullying among youth that has been conducted over the past 20 years, little attention has been paid to the experience of being a target of bullying behaviours in young adulthood.

Indeed, when reviewing the research that looks at older adolescents and adults as the *targets* of bullying, this area appears to be drastically under studied when compared to the decades of research on childhood and early adolescent bullying experiences. The primary focus of this literature is childhood bullying experiences and its relation to psychosocial outcomes in adulthood. Perhaps this emphasis stems from a misunderstanding that bullying is a childhood problem, or that once we have left the schoolyard bullying ceases. However, this is not reflective of real-world occurrences.

Indeed, one survey of 2,000 Americans aged 18 and older found that 31% reported being the target of bullying behaviours within the past year (American Osteopathic Association, 2017). A study of 3,699 adults found that 19% and 24% of participants reported that adulthood is when they were most recently targeted by traditional bullying behaviours and cyberbullying behaviours respectively (Kowalski et al., 2017). Verbal and relational bullying were found to be the most common forms of behaviours used to target these individuals, similar to results previously found by Björkqvist and colleagues (1992) for children and adolescents, with 25% of adults experiencing exclusion and 21% having rumours spread about them (American Osteopathic Association, 2017). Similar findings have also been reported for cyberbullying in late adolescence and adulthood, with 17% of individuals between the ages of 15 and 29 having reported being targeted (Hango, 2016). This continues to highlight the importance of asking “Why such a detrimental experience is so understudied in early adulthood?” However, what is undeniable is the fact that bullying, no matter the age at which it occurs, does result in an array of negative adjustment outcomes throughout a person’s lifetime.

**Impact.** There are four groups directly involved in an incident of bullying, these include a perpetrator, a target, bystanders, and a distinct category of individuals who both perpetrate and experience bullying (labelled “bully-victims”; Olweus, 1978, 1993). Each category of involvement is associated with distinct patterns of negative outcomes. However, all individuals involved with bullying in adolescence are found to have higher levels of negative adjustment outcomes in adulthood, indicating that being involved in bullying plays a unique role in the development of a vulnerability in regard to mental health concerns (Sigurdson et al., 2015; Sigurdson et al., 2014). Indeed, young adults

who reported being bullies, targets, and bully-victims alike reported lower educational attainment and higher levels of narcotic use in young adulthood (Sigurdson et al., 2014). However, those who were specifically the targets of bullying behaviours demonstrated a higher risk for physical pain, headaches, medication use, reported more issues with live-in romantic partners, and reported poorer general health in young adulthood (Sigurdson et al., 2014). A review of the research has indicated that being a target of bullying is associated with increased symptomology levels of internalizing disorders, specifically depression and anxiety, is presented below. Anxiety and depression were of particular interest in this study as anxiety disorders are the most commonly reported mental illness in Canada and depression is the third leading cause of disability worldwide (Mood Disorders Society of Canada, 2019).

Wang and colleagues (2010) found that adolescents who experienced verbal or social bullying reported higher levels of depressive symptoms than those who did not report experiencing bullying. This pattern is sustained over time, as those who experienced bullying in their formative years reported increased symptoms of depression and anxiety as undergraduate students (Espelage et al., 2016). Additionally, being targeted through multiple different forms of bullying was found to be associated with higher levels of reported depression symptoms and medication use in adulthood (Wang et al., 2010). Research indicates that young adults who reported experiencing all four types of bullying in adolescence were more likely to take medication for nervousness than those who experienced only verbal and relational aggression, or did not report being bullied (Sigurdson et al., 2014). Targets of cyberbullying also demonstrate similar negative adjustment outcomes to those who experience traditional forms of bullying.

Hinduja and Patchin (2007) found that approximately 22% of cyberbullying targets reported feeling sad while 34% and 30% reported feeling frustrated and angry respectively. It becomes evident through these studies how pervasive the effects of being targeted are, and how the outcomes extend beyond the schoolyard. Being a target of bullying results in long-term detriments to both physical and mental health. However, much like research on the prevalence of bullying in adulthood, there is limited research on the concurrent consequences of being targeted in late adolescence and early adulthood.

Despite this, the limited extant research indicates patterns similar to the research focused on children and early adolescents. Indeed, adults who reported being the target of traditional bullying behaviours in adulthood were more likely to report increased symptoms of depression, social anxiety, and reported feeling lonelier (Kowalski et al., 2017). Young adults who were targeted in the workplace reported increased depressed mood on the same day, the following two days (Hoprekstad et al., 2019), and up to three years following being targeted (Loerbroks et al., 2015). Additionally, 71% of adults who experienced being targeted in adulthood reported higher levels of stress, 70% experienced anxiety and depression, and 17% report issues with daily functioning (American Osteopathic Association, 2017). Young adults who reported being targeted electronically reported higher levels of anger, anxiety symptomology, depressive symptoms, and difficulties concentrating when compared to those who were not targeted (Schenk & Fremouw, 2012). Undergraduate students who were targets of cyberbullying were also more likely to report symptoms of anxiety and depression (Kokkinos & Antoniadou,

2019; Tennant et al., 2015). This suggests that young adults are targeted by bullying behaviours and experiences the same negative ramifications.

But what about the individuals who do not experience the same negative adjustment outcomes? Why do some individuals persevere in the face of adversity? Indeed, there is a subset of the target population who appears to be resistant to the negative impacts of bullying (Hodges et al., 1999; Kabadayi & Sari, 2018; Maidanuic-Chirila, 2018; Moore & Woodcock, 2017; Sapouna & Wolke, 2013; Schacter & Juvonen, 2017). The goal of the current thesis was to advance our understanding of what factors may mediate the negative effects of being targeted by bullying behaviours. For example, high self-esteem, low familial conflict, and low reports of social isolation are all common factors of individuals who, despite being targeted, report low symptoms of internalizing disorders (Sapouna & Wolke, 2013). Due to these factors being associated with decreases in reports of negative adjustment, it becomes important to discuss what protective factors may play an important role in mitigating the negative implications of bullying.

### **Protective factors and psychological adjustment**

Protective factors impact the way an individual reacts to negative events that typically foster maladaptive adjustment outcomes (Rutter, 1985). Three main features define protective factors: negative events, stressors, and individual characteristics. A protective factor need not come from positive events; rather, many protective factors are born out of negative situations. For example, Schacter and Juvonen (2017) found that adolescents who reported having at least one friend had lower levels of social anxiety after being victimized. However, an important component of protective factors, as first introduced by Rutter (1985), are that they require a stressor in order to be beneficial.

Additionally, protective factors in and of themselves do not foster or promote healthy development. Rather, they allow for healthy development to occur *despite* the existence of a stressor that, in other circumstances, may result in maladaptive functioning. Sapouna and Wolke (2013) found that adolescents who reported low levels of parental conflict also reported lower levels of depression even after being bullied. In this case, low parental conflict may not necessarily be considered a characteristic to promote adaptive functioning if it were not met with a stressor that draws this quality out. Finally, other protective factors may not be experiences at all, but instead are qualities that an individual possesses, such as emotional intelligence and increased executive functioning skills (Lightfoot et al., 2011; Skodal, 2010). The literature suggests that there are two styles of protective factors; direct and buffering.

A direct protective factor is a characteristic that is associated with a lower risk of negative adjustment, regardless of the situation (Lösel & Farrington, 2012). For example, school achievement appears to be a direct protective factor, as those who have achieved greater school success are less likely to exhibit delinquent behaviours when no other extenuating variables are considered (Farrington & Ttofi, 2012). However, by the same token, those who demonstrated lower levels of school achievement were at a higher risk of delinquent behaviours. This demonstrates that it is the characteristic itself that is influencing the outcome. Conversely, a buffering protective factor is a characteristic that is associated with lower risks of maladaptive outcomes only when a stressor is present (Lösel & Farrington, 2012). The interaction effect of an individual being in a high-risk situation, who possesses a particular protective factor, who then does not experience the negative ramifications of their high-risk situation has been replicated consistently in the

literature (e.g., Jain & Cohen, 2013; Lightfoot et al., 2011; Flett et al., 2016; Howell & Miller-Graff, 2014). For example, adolescents who had been the target of bullying behaviours and who demonstrated higher levels of positive social relationships, lower emotional reactivity, and increased feelings of mastery over their environment reported fewer symptoms of depression and anxiety (Moore & Woodcock, 2017). While there are a multitude of protective factors, this study sought to focus specifically on those that constitute resilience, as these are typically the characteristics that have been valuable across all kinds of adversity. Therefore, it is necessary to have a clear understanding of what resilience is.

### **Resilience**

**Definition.** The definition and operationalization of resilience has been a point of contention in past research. In the early stages of understanding resilience, it was believed to be an unchanging personal characteristic of invulnerability (Pines, 1975), or the absence of psychopathology (Sroufe, 1997). However, research on resilience today tends to view the construct as a more dynamic quality that is developed (Luthar & Zelazo, 2003). This elaboration within the research has been the source of some misunderstandings as to whether resilience is a personality trait or a process (Luthar et al., 2000). Past studies have sometimes used the term “resilience” in the place of “ego-resilience” or “resiliency”, which are indicative of personality traits rather than a process, as suggested by the term “resilience” (Luthar et al., 2000; Masten, 1994). This confusion has in fact been beneficial as it has led to a more stable two-element definition of resilience. The current understanding requires (1) a stressor that typically warrants negative adjustment outcomes, and (2) an indication of positive development *despite* the

stressor (Connor & Davidson, 2003; Luthar et al., 2000; Ungar, 2008). Using these requirements, resilience has been defined as an individual's ability to successfully cope with stress while maintaining a high level of well-being (Masten, 2009; Ungar, 2008). Moreover, resilience has also been characterized by an *increase* in positive outcomes after withstanding adversity (Friborg et al., 2009; Ungar, 2008). However, the variations in the definition of resilience may not be a disservice to the construct. In fact, many well-established constructs have nuances in their definition and measurement that often provide assurance of the validity. As suggested by Luthar and colleagues (2000), variations in definitions that result in similar results across many different studies provide a notion that there is a single unifying and underlying construct that is being evaluated. This is evident in the resilience literature insofar as, despite definitional differences, there does remain a similar underlying theme that resilience can be attributed to the process of when social and personal factors meet adversity, thus resulting in positive psychological adjustment (Ungar, 2008). In turn, these social and personal characteristics are believed to be what constitute resilience.

Past research has demonstrated that resilience is established through protective factors that an individual possesses that lessen the negative impact of adverse events, resulting in positive adjustment (Connor & Davidson, 2003; Masten, 2009). Due to this, measuring protective factors that are known to be connected with resilience has been shown to be an effective method of assessing individual resilience cross-culturally (Connor & Davidson, 2003; Johnson-Powell et al., 1997; Jowkar et al., 2010). The protective factors that are most often associated with resilience are separated into two categories: cognitive-individual

and social-interpersonal characteristics (Reich et al., 2010). Cognitive-individual factors are characteristics internal to an individual and include emotion regulation, problem solving, and executive functioning. Indeed, research indicates that individuals who demonstrated an increased ability to handle adversities, and thus exhibited better resilience, also had better self-regulation, increased problem solving, enhanced emotion regulation, goal-directed behaviour, and better planning abilities (Gardner et al., 2008; Lightfoot et al., 2011; Janssen et al., 2011; Willis & Bantum, 2012). Conversely, social-interpersonal characteristics typically involve the world around an individual or how one interacts with their social world (Reich et al., 2010). Research has consistently found that increased self-esteem, higher levels of family and peer support, increased sociability, interpersonal understanding, and emotional intelligence are related to enhanced resilience (Lightfoot et al., 2011; Jain & Cohen, 2013; Skodal, 2010). It has been suggested in the literature that men and women rely on different coping mechanisms when faced with adversity (Sneed et al., 2006). However, recent research suggests that when considering resilience as a construct, there are no differences between genders for adult men and women (i.e., Bezek, 2010; Portnoy, et al., 2018). What is clear is that resilience has a large impact on adjustment outcomes, including internalizing disorders and well-being.

**Impact.** Similar to Bronfenbrenner's ecological systems theory (1979), the resilience literature suggests that there are "layers" to the factors that are attributable to resilience. At the centre, there are individual factors that foster resilience, including aspects such as perceptions, coping styles, and personality characteristics. These internal attributes are believed to promote emotional, cognitive, or behavioural attributes that allow for positive coping following adversity or allow for successful coping following a

stressful event (Ahern et al., 2006). Mak and colleagues (2011) found that positive cognitions about oneself, the future, and the world were related to enhanced resilience and well-being. A study of undergraduate students who experienced childhood trauma found that task-oriented coping (i.e., behaviours that limit the impact of an event) was positively related to resilience, while emotion-focused coping skills (i.e., behaviours that limit the emotional toll of an event) was negatively related to resilience (Campbell-Sills et al., 2006). Those who demonstrated higher levels of resilience were also more likely to report lower levels of depression and anxiety symptomology, regardless of the severity of trauma experienced as a child. Similarly, in a sample of adolescents it was found that lower levels of task-oriented coping as well as higher levels of emotion-focused coping were related to increased symptoms of depression (Undheim et al., 2016). Despite emotion-focused coping being inversely related to resilience, emotional awareness and understanding have been found to demonstrate the opposite pattern. Howell and Miller-Graff (2014) found that young adults who reported higher levels of emotional awareness scored higher on resilience, which in turn was associated with fewer symptoms of depression.

Personality traits have also been suggested to be an internal resource that enhances the development of resilience. Indeed, extraversion and neuroticism have been found to be significantly related to resilience in adults, which in turn is related to lower levels of depression and anxiety (e.g., Campbell-Sills et al., 2006; Foumani et al., 2013; Froutan et al., 2018; Oshio et al., 2018). However, not all understandings of resilience are derived strictly from skills an individual possesses, but rather include social factors, similar to Bronfenbrenner's theory, allowing for an interplay of factors that foster the

development of this dynamic characteristic (Brofenbrenner, 1979; Ungar & Liebenberg, 2011). Some factors that have attracted attention within the resilience literature are social support and relationships.

Social relationships are a quintessential necessity for positive social adjustment (e.g., Flett et al., 2016; Hodges et al., 1999; Schacter & Juvonen, 2017), thus the direct connection between social support, relationships, and resilience is not surprising. Taylor and colleagues (2014) conducted a study investigating the effects of social support on a sample of 82 emerging adults transitioning out of high school and into post-secondary education. The results indicated that perceived social support from friends was significantly related to increased levels of resilience at the end of high school and during the first year of post-secondary education. In turn, higher resilience was related to decreased symptoms of depression and anxiety at all time-points. A similar result was found for a study of 321 college students who had experienced violence in childhood, including peer aggression (Howell & Miller-Graff, 2014). Howell and Miller-Graff (2014) found that friend, but not family support, significantly predicted resilience scores insofar as those who felt more support from friends had higher resilience scores. On the contrary, Howard Sharp and colleagues (2017) found that both family support and friend support were correlated with resilience, but only family support significantly predicted resilience in a sample of 252 young adults who experienced a variety of potentially traumatic events. However, family support and friend support both maintained negative relationships with depression and stress.

**Protective factors and bullying**

The role of protective factors in reducing the negative impact of bullying experiences is an area of research that has not drawn much attention in the past. There has been a significant amount of attention paid to factors that may increase the propensity for some to bully others (e.g., Berger & Caravita, 2016; Wilton & Campbell, 2012) and the negative ramifications of both participating in bullying, and being a target of bullying behaviours (e.g., Sigurdson et al., 2015; Sigurdson et al., 2014). However, only a marginal amount of research has been conducted on which characteristics may mitigate the negative impacts of being targeted. Moreover, even fewer studies have considered resilience as a specific mediator of the relationship between bullying experiences and negative adjustment outcomes. This was the goal of the present study since being targeted is a widespread phenomenon, and thus it is essential to understand which factors play a role, including those offering protection.

**Resilience and bullying.** Resilience has previously been found to be a common characteristic displayed by children and adolescents who have been faced with adversity or trauma (Masten, 2001). Past research suggests that individuals with increased resilience were less likely to be the target of bullying behaviours (Donnon, 2010). Kabadayi and Sari (2018) conducted a study investigating resilience and cyberbullying victimization with 444 adolescents, between the ages of 15 and 19, in Turkey. Resilience in this context was characterized by higher perceptions of individual resources (i.e., social skills, peer support, and individual abilities), a strong relationship with a primary caregiver, and positive perceptions of contextual factors (i.e., school, religious/spiritual, cultural). The results indicated that not only was there a negative correlation between

cyberbullying victimization and resilience, resilience was a significant predictor of victimization insofar as those with lower levels of resilience were more likely to be victimized (Kabadayi & Sari, 2018). Moore and Woodcock (2017) found similar results in their sample of 105 Australian children and youth aged between 10 and 14 years. Indeed, the results suggested that those who were *lower* on resilience were more likely to be victims of bullying (Moore & Woodcock, 2017). This research highlights the relationship between resilience and bullying experiences. However, the literature has indicated that although individuals who reported lower levels of resilience were more likely to be targeted, they were not targeted exclusively (e.g., Kabadayi & Sari, 2018; Moore & Woodcock, 2017). In fact, studies have demonstrated that resilience alters the relationship between being targeted and negative adjustment outcomes (e.g., Kabadayi & Sari, 2018; Maidanuic-Chirila, 2018; Moore & Woodcock, 2017; Reknes et al., 2018). The current study focused on the function of resilience as a mediator of the relationship between bullying experiences and psychological adjustment. Although limited, there is some research supporting this notion.

Moore and Woodcock (2017) conducted a study with 105 Australian children and adolescents wherein resilience was measured using the Resilience Scale for Children and Adolescents (RSCA; Prince-Embry, 2007). The RSCA characterizes resilience as increases in mastery (optimism, self-efficacy, adaptability), relatedness (tolerance, trust, comfort, and social support), and decreases in emotional reactivity (sensitivity, recovery, impairment; Prince-Embry, 2007). The results indicated that youth who reported a combination of higher levels of mastery, tolerance, trust, support, and lower levels of emotional reactivity also reported fewer symptoms of depression after being targeted.

Moreover, adolescents who reported a combination of higher levels of optimism, adaptability, trust, comfort, and lower emotional reactivity reported the lowest levels of bullying-associated anxiety. These results support the understanding that resilience can impact the relationship between being targeted by bullying behaviours and negative adjustment. Comparable results have been replicated within an adult population.

Maidanuic-Chirila (2018) used a multi-mediation study to investigate the relationship between workplace bullying, resilience, and mental strain. In this particular study, resilience was characterized using five key traits: the ability to persevere in the face of adversity, equanimity of reactions, understanding the purpose and meaning behind life events, self-reliance, and a sense of uniqueness. A sample of 172 Romanian adults between the ages of 22 and 65 participated, and the results suggested that resilience did in fact mediate the relationship between mental strain and workplace bullying experiences. The results of this study support the postulation that resilience acts as a mediator between bullying experiences and negative adjustment in adult targets.

Another study, conducted by Reknes and colleagues (2018), also focused on the relationship between depression, anxiety, and a theoretically similar construct to resilience- hardiness. Hardiness is the personality characteristic that shares similar theoretical underpinnings with resilience, including involvement (both with activities and other people), a sense of agency, and personal growth (Kobasa, 1979). Reknes and colleagues (2018) investigated if the characteristic of hardiness acted as a protective factor against depression and anxiety following experiences of workplace bullying. A group of 275 Norwegian men with a mean age of 45 were recruited to participate in the study. The results indicated that those with increased levels of hardiness reported lower

levels of anxiety following victimization, but the same was not true for depressive symptomology. The authors suggested that individuals who score lower on hardiness and who have experienced bullying may feel as though they have low control over the situation and fewer personal resources, thus resulting in higher levels of anxiety. Those who report higher levels of hardiness believe they have the abilities to deal with adverse events and thus suffer less with anxiety symptoms. However, the lack of consistency in the results regarding depressive symptomology between the resilience literature and this particular study may be due to complications in assessing hardiness as a personality characteristic. Moreover, the previous two studies are limited as the assessment of bullying was workplace specific. This limitation has neglected an entire, and rather common, experience of bullying in adulthood that occurs *outside* of the workplace, such as within the peer group or over social media. Regardless, it is evident that more research is needed within the area of resilience and bullying experiences in adulthood.

### **The Current Study**

**Research Question.** Bullying is a prolific experience across all developmental periods. Nevertheless, a significant amount of research has focused primarily on childhood bullying experiences and their consequences in childhood through to adulthood. Despite this, research has indicated that bullying remains an issue into adulthood (Kowalski et al., 2017). Similarly, a reliable pattern has been established which has indicated that a subset of the victimized population does not experience the same degree of negative ramifications (Sapouna & Wolke, 2013). Protective factors are both internal and external to an individual that alter the relationship between an adverse experience and the predicted negative outcomes (Rutter, 1985). Resilience has been

demonstrated to be a significant protective factor for adolescents who have been targeted by bullying behaviours (Kabadayi & Sari, 2018; Moore & Woodcock, 2017) and adults who have experienced workplace bullying (Maidanuic-Chirila, 2018; Reknes et al., 2018). Resilience is believed to be a continuous process by which an individual's personal resources allow for positive adjustment despite facing and experiencing events that typically result in negative adjustment (Connor & Davidson, 2003; Luthar et al., 2000; Ungar, 2008). Indeed, young adults may utilize personal resources, such as social support, problem solving, and executive functioning in order to persevere through adversity. However, limited research exists on the impact of resilience on psychological adjustment of young adult targets of bullying behaviours beyond the workplace. Despite being limited, the extant research has suggested that resilience may explain the underlying source of the relationship between being a target of bullying behaviours and fewer reported negative adjustment outcomes, implying a simple mediation (Baron & Kenny, 1986). Therefore, the primary question in the current study was "Does resilience mediate the relationship between bullying experiences and psychological adjustment in young adults?"

**Hypotheses.** It was hypothesized that symptoms of depression and anxiety would be positively correlated with each other and negatively correlated with well-being. Moreover, it was predicted that traditional and cyberbullying experiences would be positively correlated with depression and anxiety symptomology, and negatively correlated with well-being. However, it was predicted that resilience would alter this relationship. It was hypothesized that resilience would be negatively associated with symptoms of depression and anxiety and would be positively associated with well-being

in adult targets of bullying behaviours. More specifically, it was hypothesized that the relationship between bullying experiences and psychological adjustment and well-being would be mediated by resilience as demonstrated through significant indirect effects. These indirect effects would be associated with a decreased association between bullying experiences and symptoms of depression and anxiety and an increased association with well-being when considering resilience. Due to the inconsistencies in the literature regarding gender differences of bullying experiences (Silva et al., 2013; Smith et al., 2018; Zsila et al., 2019) and resilience (Bezek, 2010; Portnoy et al., 2018), gender was not considered a predictor variable but was controlled for in the mediation model.

## **Method**

### **Participants**

A total of 303 undergraduate students enrolled in first and second year Psychology and Neuroscience courses were recruited using an internal repository system (SONA) with personal login information to view a list of ongoing psychological studies which is hosted by a university in a large urban city. The study was completed using Qualtrics, an external hosting website. However, after data cleaning a final sample of 230 participants were used for all analyses. Participants were required to be able to read fluently in English in order to participate in the study. Participation was voluntary and students received .5 credits towards their final course grade as compensation for participation.

Participants ranged from 16 to 25 years old with the majority of the sample reporting being between 18 and 19 years of age (39.6%) or between 20 and 21 years of age (36.5%). The remainder of the sample consisted of 14.3% 24 to 25-year olds, 9.1%

22 to 23-year olds, and .4% 16 to 17-year olds. The sample was comprised of 172 female participants (74.8%), 56 male participants (24.3%), one gender non-conforming or non-binary participant (.4%), and one participant who wished not to identify (.4%). This is representative of the University's Faculty of Arts and Social Sciences population in which there is a higher proportion of female students than male students (Carleton University, 2019). Participants were 50.4% Caucasian, 26.1% Asian, 10.8% Black, 1.3% Indigenous or Aboriginal, and 11.7% identified as "Other". The remaining 2.2% were unknown or did not identify.

### **Ethics**

Prior to data collection, ethics approval was granted through the University's Research Board which oversees studies in psychology (CUREB-B). CUREB-B follows all guidelines provided by the Tri-Council Policy Statement: Ethical Conduct for Research Involving Humans (TCPS2). The current study was granted clearance from CUREB-B on April 22, 2020 (protocol #112524; Appendix A). Prior to beginning the survey, participants read the informed consent document (Appendix C) which highlighted the purpose of the study and what would be asked of participants. Additionally, this document informed participants of their right to withdraw from the study at any time and still receive their course credit. All data was kept secured on a password protected computer within a locked office. Identifying information was collected in order to ensure participants obtained course credit but was kept separate from all questionnaire responses as to ensure no data could be identified. After course credit was granted, all participant responses were anonymized. There was a potential that answering questions about bullying experiences and symptoms of depression and anxiety would cause some

discomfort in participants. Participants were provided with a list of accessible resources in varying formats should they have required additional support following participation.

### **Procedure**

The current study was conducted through the University's SONA system between May 4<sup>th</sup> 2020 and July 15<sup>th</sup> 2020. Students in first and second year Psychology courses have access to this system in order to participate in research. In order to participate, participants had to login to the SONA system and click the link on the recruitment page. After reading the recruitment information (Appendix B), participants were redirected to Qualtrics, a secure and external survey website. In the informed consent document (Appendix C), participants read a description of the purpose of the study, what the study required for completion, a notice about potential discomfort and risks of participating, and about their right to withdraw from the study at any time. The study was expected to take between 35 to 45 minutes to complete, although participants were given as much time as necessary. Participants had the right to skip questions they did not wish to answer or withdraw at any point in the study and were compensated regardless of whether the survey was completed or not. Participants then completed the *Personal Experiences Checklist* (Hunt et al., 2012), *The Scale of Protective Factors* (Ponce-Garcia et al., 2015), *The PERMA-Profiler* (Butler & Kern, 2016), and *The Depression Anxiety Stress Scale* (Lovibond & Lovibond, 1995). Once complete, or if the participants decided to withdraw at any point during the study (approximately 12%), participants were directed to a debriefing form (Appendix D). The debriefing form listed resources for information and resources for support should they be required, and the Principal researcher's contact information should the participants have had any follow-up questions.

## Materials

**Personal Experiences Checklist.** The Personal Experiences Checklist (PECK; Hunt et al., 2012) is a 32-item self-report measure intended for use to assess an individual's experience with bullying. Previous research has indicated the PECK is comprised of four subscales, including relational-verbal bullying (11 items; e.g., "Other people try to turn my friends against me"), physical bullying (nine items; e.g., "Other people hit me"), cyberbullying (eight items; e.g., "Other people say nasty things to me by text"), and bullying based on cultural differences (four items; e.g., "Other people make fun of my language"). Participants were asked to report their experiences with bullying from the previous 12 months using items rated on a 5-point Likert scale ranging from 1 (Never) to 5 (Most days). Total possible scores could range from 32 to 160 with higher scores indicated higher levels of victimization. The wording of items for the current study was adjusted in order to be appropriate for use within a university population. For the purposes of the current study, a single "traditional" bullying score was calculated by summing the relational-verbal and physical subscales (using the items that were determined to load on these factors from the Exploratory Factor Analysis conducted on the current sample).

In a pilot study involving adolescents, the PECK was found to demonstrate excellent internal consistency with Cronbach's alphas of .91 (verbal-relational and cyberbullying), .90 (physical), and .78 (culture-based; Hunt et al., 2012). Construct validity was also demonstrated, as the relational-verbal, physical, and culture-based subscales had significant correlations above .40 with all subscales of the Olweus Bully/Victim Questionnaire (OBVQ; Olweus, 1996). Moreover, cyberbullying was only

significantly correlated with the verbal ( $r = .26$ ) and rumours ( $r = .29$ ) subscales on the OBVQ. This particular measure was chosen, as it was one of the few that has been used with a population of young adults. The PECK has been used with emerging adults in first-year college and comparable degrees of internal consistency have been found ( $r = .86$  to  $.79$ ; Goodboy et al., 2015). The current study used the 32-item modified version of the PECK established by an EFA using data from the current sample (found in the Results section) to create scores for traditional and cyberbullying experiences. This revised version had good internal consistency with a Cronbach's alpha of .935.

**Scale of Protective Factors-24.** The Scale of Protective Factors-24 (SPF-24; Ponce-Garcia et al., 2015) is a 24-item self-report assessment tool designed to measure adolescent and young adult's levels of resilience. This measure assesses the collection of protective factors an individual possesses and has demonstrated to be a reliable and valid method of evaluating resilience (Connor & Davidson, 2003; Jowkar et al., 2010). The SPF-24 has two subscales; social-interpersonal skills and cognitive-individual skills. These two higher order factors are then both further divided into two subscales, social support and social skills (social-interpersonal), and planning behaviour and goal efficacy (cognitive-individual) respectively, each having six items. Within the social-interpersonal subscale, the questions have been designed to assess the degree to which an individual feels they are supported by their social circle, the strength of their social skills, and the quality of the relationships they have with others (e.g., "My friends and family keep me up to speed on important events"). The cognitive-individual subscale, on the other hand, assesses the participant's ability to self-regulate, their ability to problem solve, their feelings of self-efficacy, and their executive functioning (e.g., "I am confident in my

ability to solve problems”). The SPF-24 uses a 7-point Likert scale ranging from 1 (Disagree completely) to 7 (Agree completely), with possible total scores ranging from 24 to 168, with higher scores representing higher levels of protective factors. For the purposes of this study, only a total score comprised of the sum of all the subscales combined was used to assess global resilience.

A study which examined the development and validity of the SPF-24 found good internal consistency, with factor loadings ranging from .83 (goal efficiency) to .93 (social support) while maintaining an overall score of .94 (Ponce-Garcia et al., 2015). Moreover, strong evidence of construct validity was found, as correlations between the subscales of the SPF-24 and the Connor-Davidson Resiliency Scale (CD-RISC; Connor & Davidson, 2003) and the Resiliency Scale (RS; Wagnild & Young, 1993) ranged from .43 (RS and Prioritizing and Planning Behaviour) to .70 (CD-RISC and Social Skills). The SPF-24 is considered to be a superior scale to the CD-RISC and the RS as it accounts for unique variance from the social support, planning/ prioritizing, and social skills subscales signifying that each factor plays a unique and important role in indicating resilience (Ponce-Garcia et al., 2015). Additionally, the SPF-24 has been demonstrated to be a superior assessment tool to the CD-RISC and RS for emerging adults as it is more comprehensive in the assessment of both cognitive-individual *and* social-interpersonal factors associated with resilience (Madewell & Ponce-Garcia, 2016). Comparable validity results have also been demonstrated within a sample of trauma survivors, with Cronbach’s alphas ranging from .86 (social support and planning/ prioritizing behaviour) to .92 (social skills; Ponce-Garcia et al., 2016). The current study used a 23-item modified version of the SPF established by an Exploratory Factor Analysis conducted for

the current sample (found in the Results section). A single total resilience score was calculated for the purpose of this study. This revised version had good internal consistency with a Cronbach's alpha of .919.

**PERMA-Profiler.** The PERMA-Profiler (Butler & Kern, 2016) is a 23-item self-report measure based on Seligman's (2011) Well-Being Theory, which assesses the five components of this theory (Positive emotion, Engagement, Relationships, Meaning, Accomplishment) while also including additional questions about negative affect, loneliness, general happiness, and health. Items are scored on an 11-point Likert scale from zero (Not at all) to 10 (Completely; Butler & Kern, 2016) with possible total scores ranging from zero to 230 such that and higher scores indicate increased well-being. Each subscale of the measure receives a score, and overall well-being is assessed by summing the mean of all the subscales plus the single happiness question. Items include questions such as "How often do you become absorbed in what you are doing?", "To what extent do you receive help and support from others when you need it?", and "To what extent do you generally feel you have a sense of direction in your life?". The PERMA-Profiler has demonstrated excellent internal consistency across eight studies and approximately 31,000 participants from various cultural backgrounds, with Cronbach's alphas ranging between .71 (Negative emotion) and .94 (Overall well-being). Moreover, past factor analyses have indicated good internal validity across all eight studies, with factor loadings ranging from .46 (How often do you lose track of time while doing something you enjoy?) to .88 (To what extent do you feel that what you do in your life is valuable and worthwhile?). The PERMA-Profiler also has good convergent and divergent validity, as both individual factors and overall well-being scores have been found to be negatively

related to measures of depression, loneliness, and burnout, while being positively related to measures of life satisfaction, gratitude, and self-efficacy (Butler & Kern, 2016). The current study used a 23-item modified version of the PERMA-Profil established by an Exploratory Factor Analysis conducted on the current sample (found in the Results section). A single score for overall well-being was calculated by summing all items together to assess global well-being. This revised version had good internal consistency with a Cronbach's alpha of .863.

**Depression Anxiety Stress Scale-42.** The Depression Anxiety Stress Scale-42 (DASS-42; Lovibond & Lovibond, 1995) is a 42-item self-report measure with three subscales, each with 14 items, which include depression, anxiety, and stress in both clinical and non-clinical populations. For the purposes of this study, only questions from the depression and anxiety subscales were analyzed, as these were the adjustment outcomes of interest, however all subscales were collected. Participants were asked to rate how accurately an item reflected their emotions in the previous 12 months using a 4-point Likert scale with answers ranging from 0 (Never) to 3 (Almost always). Possible total scores range from 0 to 126, and higher scores representing higher level of depression and anxiety. Sample items include "I couldn't seem to experience any positive feeling at all" and "I found myself in situations that made me so anxious I was most relieved when they ended".

Past studies have revealed the DASS-42 to be more specific in identifying depression and anxiety than other measures (i.e., the Beck Depression Inventory and the Beck Anxiety Inventory; Beck & Steer, 1987; Beck & Steer 1990) at pinpointing symptoms of depression and anxiety respectively (Lovibond & Lovibond, 1995). They

have also revealed acceptable levels of construct validity, with factor loadings for the depression subscale ranging from .19 to .67 and the anxiety subscale ranging from .20 to .63 within a Western population (Ciobanu et al., 2018). Moreover, the internal consistency has also been demonstrated in a Malaysian population with 90% of items loading on the identified factors with items on the depression factor ranging from .40 to .86 and on the anxiety factor from .41 to .66 (Ramli et al., 2012). Both results speak to the generalizability of the DASS-42 for use with individuals from different cultures. Moreover, the DASS-42 has demonstrated good construct validity as both the depression and anxiety subscales are correlated at .73 and .51 (respectively) with the Beck Depression Inventory-II (Beck et al., 1996) and the State Trait Anxiety Inventory (Ciobanu et al., 2018; Spielberger, 1983). The current study used a 33-item modified version of the DASS established by an Exploratory Factor Analysis using data from the current sample (found in the Results section) to create scores of depression and anxiety symptomology. This revised version had good internal consistency with a Cronbach's alpha of .962.

### **Results**

Prior to conducting the main analyses, a series of data cleaning procedures, missing data imputation, and descriptive statistics were conducted in SPSS 26. Confirmatory factor analyses and Exploratory factor analyses were completed for all four study measures in Mplus. Finally, a series of bivariate correlations and simple mediation analyses were conducted in SPSS 26 to answer the research questions regarding bullying experiences, resilience, and psychological adjustment outcomes.

### Data Cleaning

Based on the guidelines suggested by Fritz and MacKinnon (2007), the sample size required to detect a small path size of both  $\alpha$  and  $\beta$  using bias-corrected bootstrapping with a power of .8 is  $N = 462$ . Prior to data cleaning, the sample consisted of  $N = 303$  participants. First, participants who did not consent to begin the study, or those who withdrew at any point in time were removed from the data set ( $n = 37$ ). Next, participants who responded carelessly (i.e., those who failed the filler questions or who responded in an identifiable pattern) were also removed from the data set ( $n = 19$ ). Participants who failed to “submit” their survey (as required by the informed consent document) were also deleted from the dataset ( $n = 7$ ). Finally, participants who completed less than 40% of the study questionnaire or those who failed to complete at least one entire measure were also deleted from the data set ( $n = 10$ ). This resulted in a final sample size of  $N = 230$  participants (75.9% of the original sample), which was significantly below the recommended 462. There are implications for not meeting the threshold for sample size, including an inflated Type II error rate, issues with replicating results in future research, and problems distinguishing authentic results (Gervais et al., 2015). In order to control Type I error, a more stringent alpha level was used to determine significance in the analyses that follow (Shaffer, 1995).

Based on the proportion of missing responses ( $n = 78$ ) to total responses (121 questions x 230 participants = 27,830 total responses) approximately 0.27% of the data was missing. Little’s test was conducted to determine if there was a pattern to the missing data (Little, 1988). It was determined that the data was Missing Completely at Random (MCAR;  $\chi^2(4768) = 1676.93, p = 1.00$ ). Missing data was handled using Expectation

Maximization algorithm (EM; Dempster et al., 1977) in SPSS 26. EM is a Maximum Likelihood Estimation approach used when the data is likely to include latent variables (Brownlee, 2019). EM was chosen for this reason, as well as being able to maintain consistency in the relationship between variables, which is essential for the analyses that were conducted (Grace-Martin, n.d.). Moreover, EM has been suggested as a better technique over pairwise or listwise deletion techniques when planning to conduct Confirmatory Factor Analyses, which was an important consideration for this study (Schreiber et al., 2006). EM estimates missing data by completing two steps in succession until the value that is considered “most likely” is achieved. In the first step (i.e., the “Expectation” step), an estimate for the missing value is created based on the model parameters. This estimate is then included in the model at which point, the probability distribution is re-assessed to include the new value (i.e., the “Maximization” step). After running EM algorithm, all newly imputed values were rounded to the closest integer and there was no data missing.

### **Confirmation of Factor Structure for the Measures**

A Confirmatory Factor Analysis (CFA) is a procedure designed to determine if the a priori, theoretically hypothesized measurement model established in earlier literature is valid given the current data (Preedy & Watson, 2009). A CFA establishes the existence of “latent factors” (i.e., components not directly observed by the measure, rather what the measure is believed to be evaluating) through the “observed variables” (i.e., the individual items; Schreiber et al., 2006). CFAs were completed in Mplus (Muthén & Muthén, 2017) for each of the four measures used in this study in order to confirm that all items loaded in the expected manner as indicated in previous studies

(Butler & Kern, 2016; Hunt et al., 2012; Lovibond & Lovibond, 1995; Ponce-Garcia et al., 2015). The hypothesized measurement models were therefore based on the factor loadings established by previous literature.

For all CFAs, tests used to assess model fit were the Root Mean Square Error of Approximation value (RMSEA), the Standardized Root Mean Square Residual value (SRMR), the Comparative Fit Index (CFI), and a Chi-Squared test ( $\chi^2$ ). Standard cut-offs for each test were used to determine goodness of model fit, which include an RMSEA of .06 or less, a SRMR score of .08 or above, a CFI score of .95 or greater, and a  $\chi^2$  with  $p$  values greater than .05 indicating acceptable model fit (Gatignon, 2010; Hu & Bentler, 1999). In all cases, the CFAs did not hold for the current sample, thus Exploratory Factor Analyses (EFA) were subsequently conducted for each of the four measures (Schmitt, 2011). For each EFA, the Maximum Likelihood extraction method was used due to the non-normality of the data (Fabrigar et al., 1999; Tabachnick & Fidell, 2007), and a Promax rotation was used as the factors were assumed to be correlated (Gorsuch, 1983). Due to the Promax rotation, some factor loadings exceeded the expected cut-off of 1, and this is considered to be an acceptable occurrence (Jöreskog, 1999). The results of the EFAs were then used to compute all scores for subsequent analyses. Below are the CFAs and EFAs that were conducted for each measure.

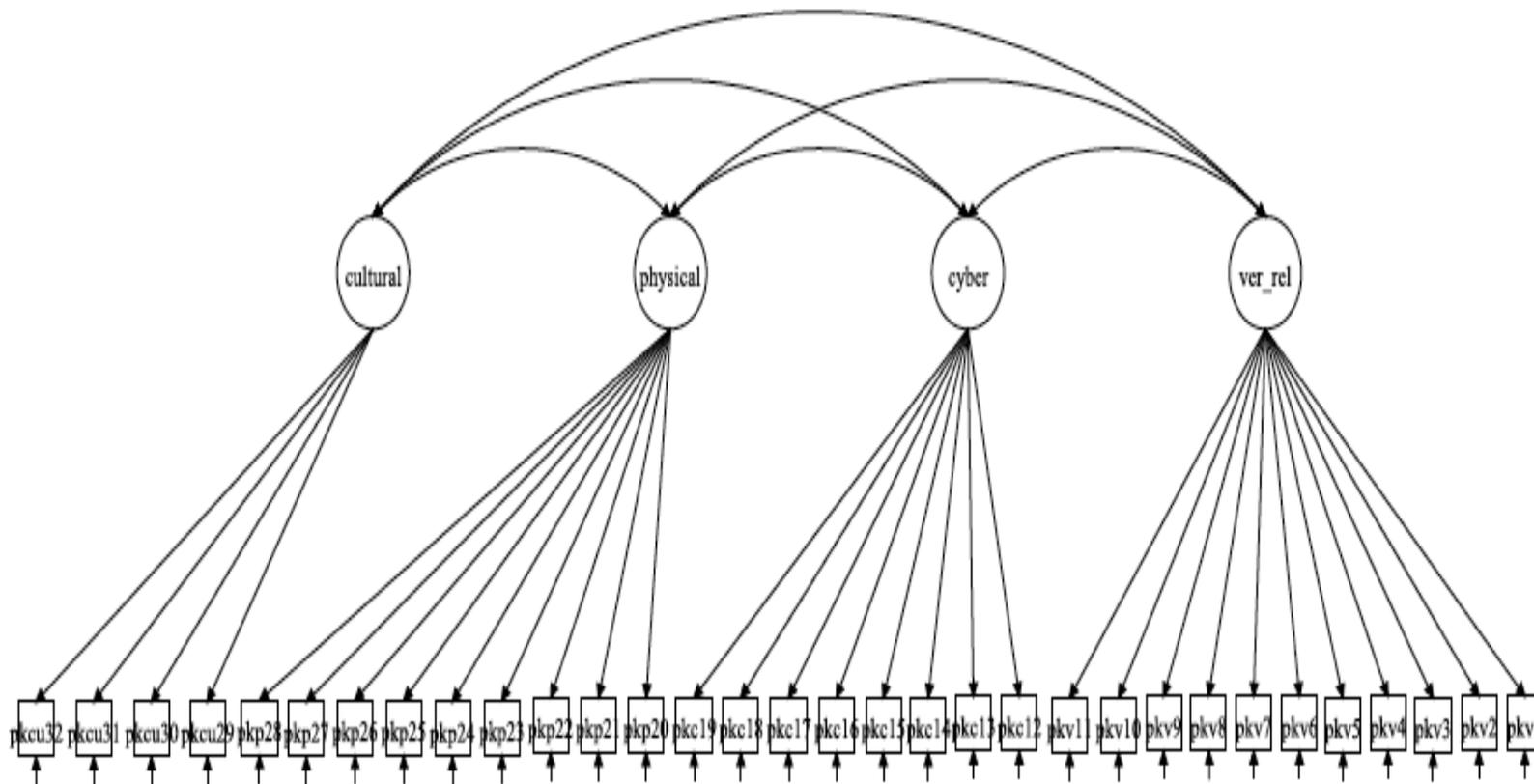
***Personal Experiences Checklist.*** Previous research has indicated that the PECK, which assesses target bullying experiences, demonstrated four latent factors; physical bullying, verbal/relational bullying, cyberbullying, and cultural bullying (Hunt et al., 2012). Previously, the physical bullying latent variable was found to consist of nine observed variables, verbal/relational consisted of 11 observed variables, cyberbullying

consisted of eight observed variables, and cultural bullying consisted of four observed variables. See Figure 1 for the expected model structure. In order to substantiate this factor structure in the current sample, a CFA was performed. Unfortunately, the four-factor model suggested for the PECK indicated a poor model fit (RMSEA = .10 CI [.09 - .10], SRMR = .09, CFI = .82,  $\chi^2(458) = 1471.57, p < .001$ ).

Given that the CFA did not support the suggested factor structure, an EFA was conducted (Schmitt, 2011). The Kaiser-Meyer-Olkin (KMO) Measure of Sampling Adequacy (KMO = .91) and Bartlett's test of Sphericity ( $\chi^2(276) = 4242.37, p < .001$ ) indicated that the data was conducive to a factor analysis of the PECK (Williams et al., 2010). The PECK was expected to contain four latent factors (Hunt et al., 2012). Indeed, the pattern matrix and the Scree plot (see Figure 2) indicated that a four-factor solution was appropriate, however, item loadings differed between this recommended model and the factor structure suggested by the literature. As recommended by Worthington and Whittaker (2006), all items that loaded below .32 or cross-loaded on multiple items above .32 were deleted from the analyses. Thus, eight items were removed from the analysis ("Other people make fun of me about things that aren't true", "Other people say nasty things about me on social media", "Other people make prank calls to me", "Other people hit me", "Other people say they'll hurt me if I don't do things for them", and "Other people tease me about my voice"). The revised measure consisted of 24 items loading on the same four subscales previously identified in the literature, including Physical bullying (six items), Verbal/Relational bullying (10 items), Cyberbullying (four items), and Cultural bullying (four items) with factor loadings ranging between .42 ("Other people wreck my things") and 1.01 ("Other people shove me"). For the current

**Figure 1**

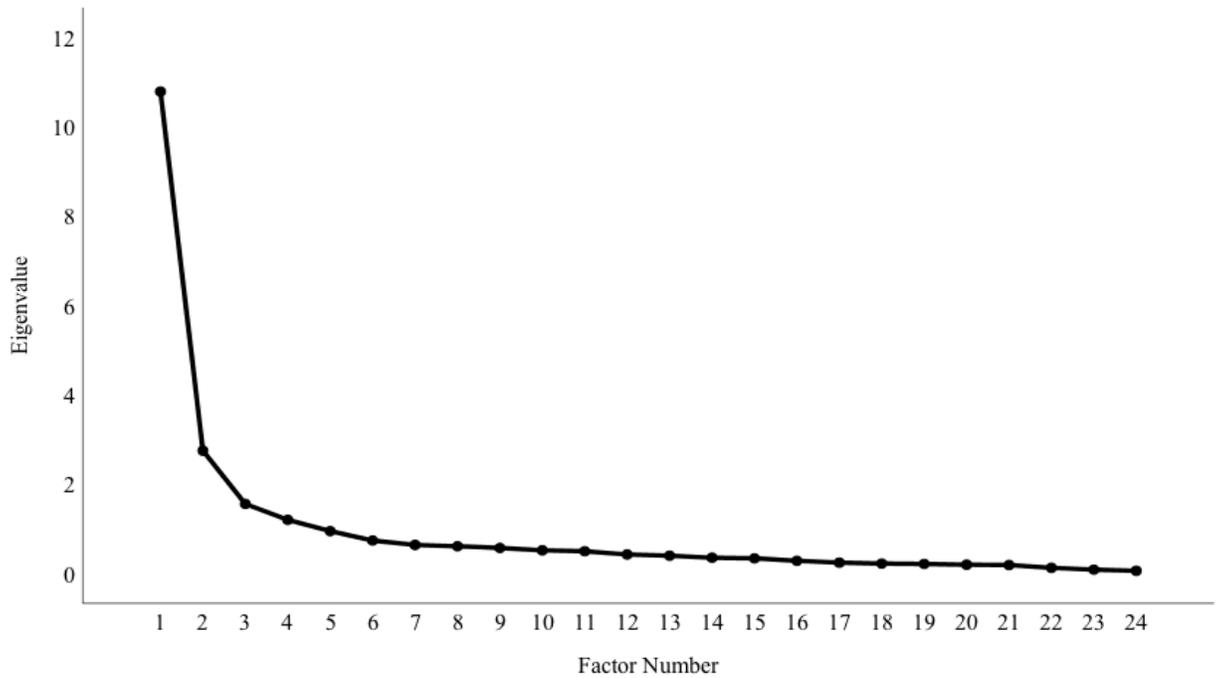
Expected structure of the four latent variables for the PECK.



*Note.* “Ver\_rel” = Verbal/Relational bullying.

**Figure 2**

*Scree plot from the EFA of the PECK supporting a four-factor solution as all eigenvalues are above 1.*



study, the Cyber subscale was used to assess cyberbullying experiences and the Verbal/Relational and Physical bullying subscales were combined to create a mean score of traditional bullying experiences. See Table 1 for the full measure and a description of the factor loadings from the EFA.

*Scale of Protective Factors-24.* Previous research has indicated the SPF-24, which assesses resilience, demonstrated two latent factors; social-interpersonal skills and cognitive-individual skills (Ponce-Garcia et al., 2015). Each latent factor has previously been found to consist of 12 items. In order to substantiate the previously established factor structure for the current sample, a CFA was performed. See Figure 3 for the expected factor structure. Unfortunately, the two-factor model suggested for the SPF-24 was found to be a poor model fit (RMSEA = .12 CI [.11 - .13], SRMR = .10, CFI = .80,  $\chi^2(188) = 834.65, p < .001$ ).

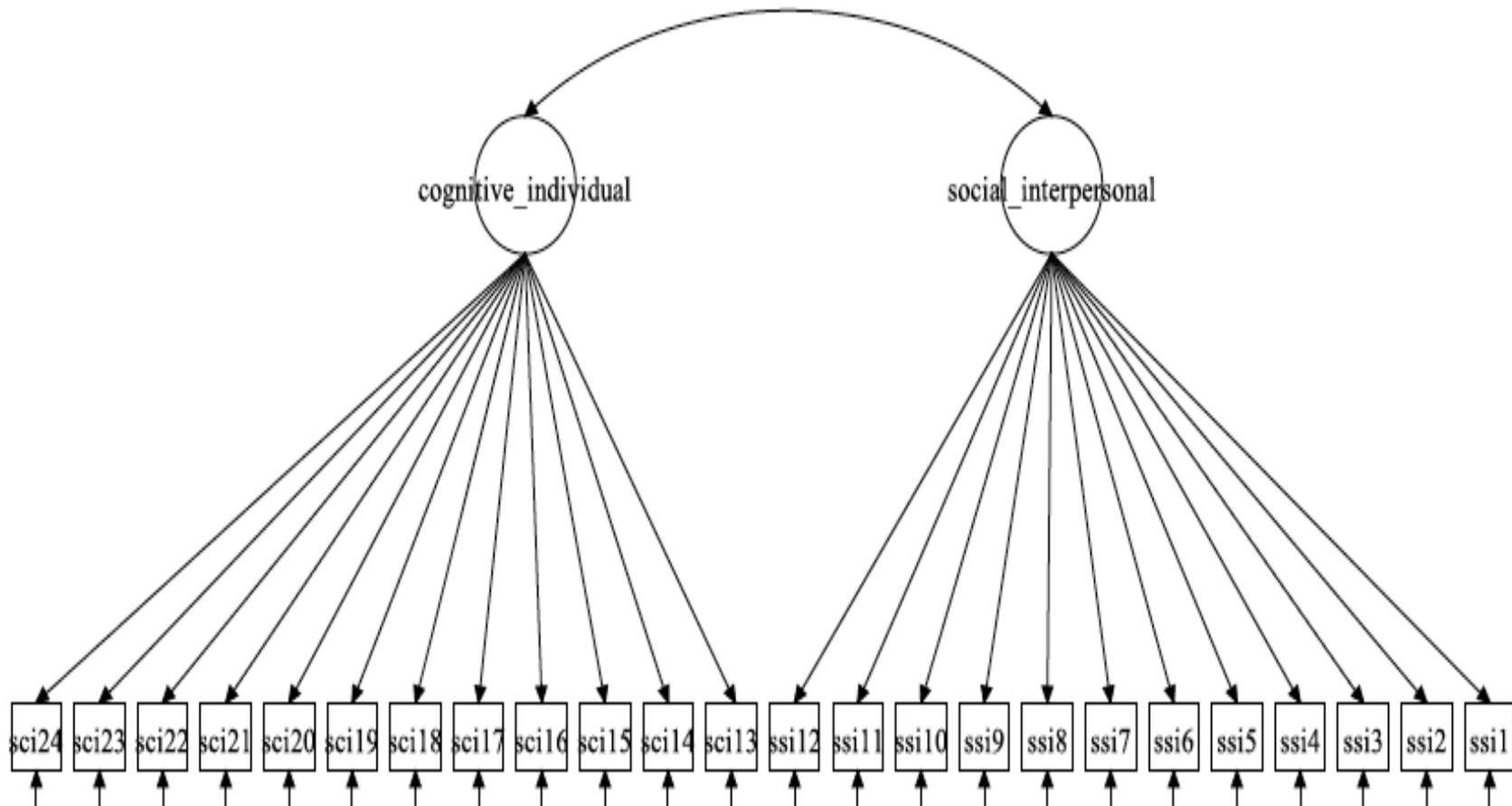
Given that the CFA did not support the suggested factor structure, an EFA was conducted (Schmitt, 2011). The KMO Measure of Sampling Adequacy (KMO = .906) and Bartlett's test of Sphericity ( $\chi^2(253) = 3634.82, p < .001$ ) indicated that the data was conducive to a factor analysis of the SPF-24. All items that loaded below .32 or cross-loaded on multiple items above .32 were deleted from the analysis (Worthington & Whittaker, 2006) resulting in one item being removed ("I am confident in my ability to think out and plan"). The SPF-24 was expected to contain two latent factors as has been previously suggested in the literature (Ponce-Garcia et al., 2015). However, the pattern matrix and Scree plot (see Figure 4) indicated that a four-factor solution was the best fit for the data. The revised measure consisted of 23 items and four subscales, including

**Table 1***Significant factor loadings for the Exploratory Factor Analysis of the PECK*

Item	Physical	Verbal/Relational	Cultural	Cyber
Other people punch me	.97			
Other people kick me	.98			
Other people shove me	1.01			
Other people trip me over	.80			
Other people tell people to hit me	.70			
Other people wreck my things	.42			
Other people say mean things behind my back		.79		
Other people try to turn my friends against me		.87		
Other people tell individuals not to hang around with me		.87		
Other people call me names because I can't do something		.52		
Other people make rude gestures at me		.57		
Other people tell people to make fun of me		.61		
Other people call me names because I'm a bit different		.45		
Other people make death stares at me		.58		
Other people say nasty things to me by text		.56		
Other people say nasty things about me on an instant messenger or chat room		.44		
Other people play practical jokes on me			.53	
Other people make fun of my language			.69	
Other people make fun of my culture			.88	
Other people won't talk to me because of where I'm from			.57	
Other people threaten me over the phone				.70
Other people send me nasty emails				.84
Other people harass me over the phone				.91
Other people send me computer viruses on purpose				.64

**Figure 3**

*Excepted structure of the two latent variables for the SPF-24.*



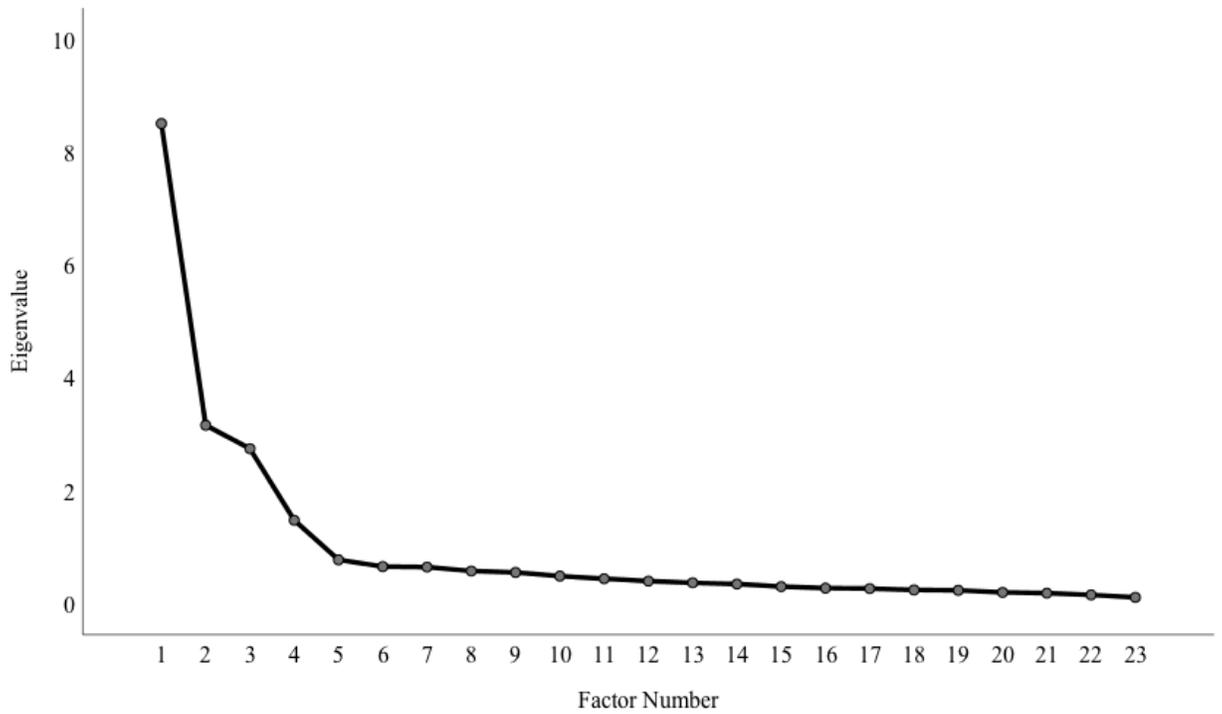
social skills (six items), social support (six items), planning behaviours (six items), and goal efficacy (five items) with factor loadings ranging from .54 (“When working on something, I can see the order in which to do things”) and .97 (“When working on something, I set priorities before I start”). This is consistent with previous research suggesting that four factors may indeed be distinct (Ponce-Garcia et al., 2015). For the current study, a single mean score of resilience was created by averaging the scores from all four factors. See Table 2 for the full measure and the factor loadings.

**PERMA-Profiler.** Previous research has suggested the PERMA-Profiler, which assesses well-being, had seven latent variables; positive affect, engagement, relationships, meaning, accomplishments, negative affect, and physical health, each consisting of three observed variables (Butler & Kern, 2016). In addition, loneliness and happiness are each measured by one observed variable. Only the seven-factor solution was tested given three items per factor is the typically accepted cut-off (Bollen, 1989). See Figure 5 for the expected measure structure. In order to substantiate this factor structure, a CFA was performed. Unfortunately, the seven-factor model suggested for the PERMA-Profiler was indicated to be a poor model fit (RMSEA = .10 CI [.07 - .09], SRMR, .07, CFI = .74,  $\chi^2(168) = 383.32, p < .001$ ).

Given that the CFA did not support the suggested factor structure, an EFA was conducted (Schmitt, 2011). The KMO Measure of Sampling Adequacy (KMO = .91) and Bartlett’s test of Sphericity ( $\chi^2(231) = 3159.23, p < .001$ ) indicated that the data was conducive to a factor analysis of the PERMA-Profiler. All items that loaded below .32 or cross-loaded on multiple items above .32 were deleted from the analysis (Worthington & Whittaker, 2006) resulting in one item being removed (“How often do you lose track of

**Figure 4**

*Scree plot from the EFA of the SPF-24 supporting the four-factor solution as all eigenvalues are above 1.*

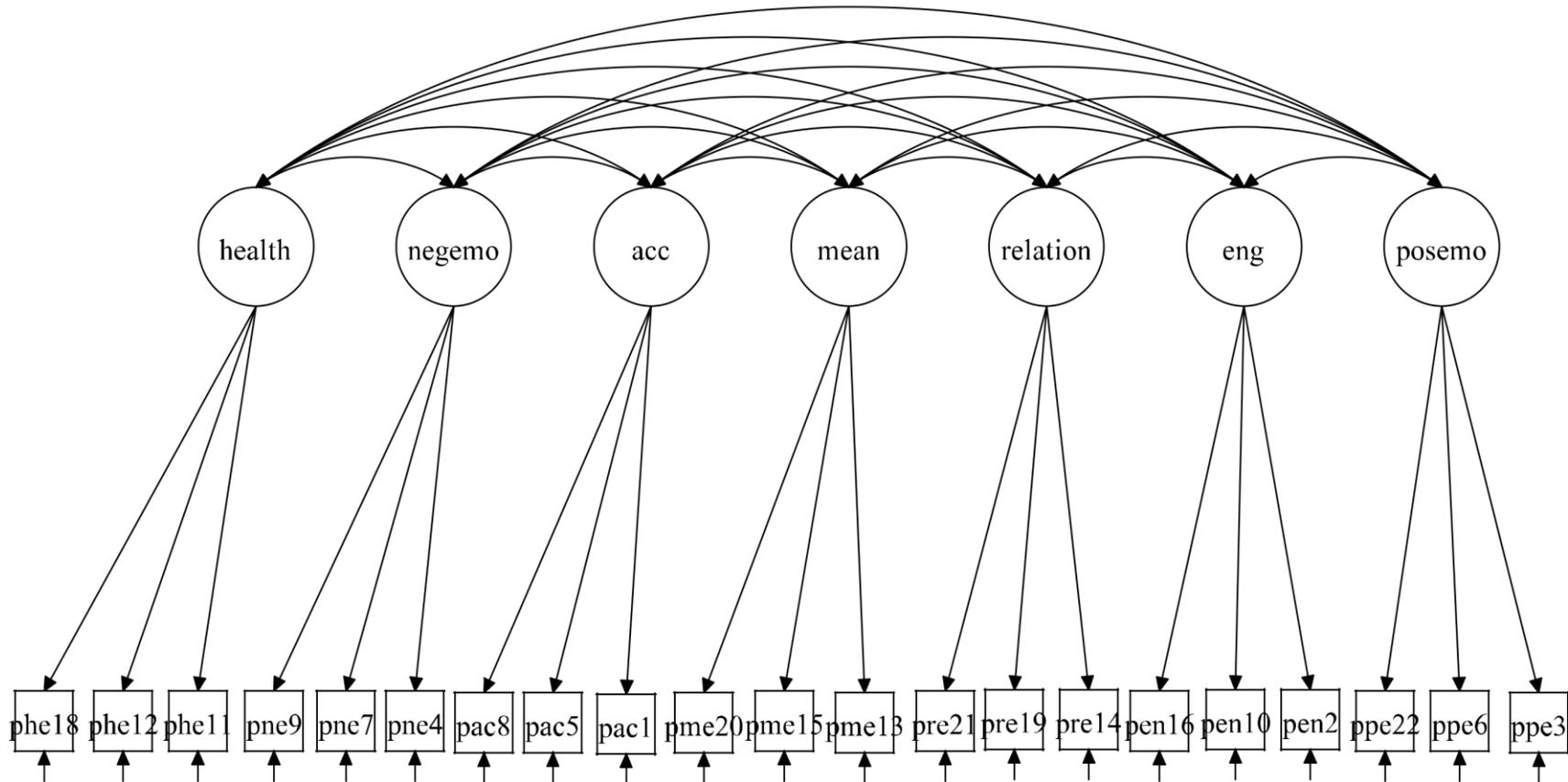


**Table 2***Significant Factor Loadings for the Exploratory Factor Analysis on the SPF-24*

Item	Social Skills	Social Support	Planning Behaviour	Goal Efficacy
I am good at socializing with new people	.95			
I am good at interacting with others	.92			
I am good at making new friends	.91			
I am good at being with other people	.85			
I am good at working with others as part of a team	.59			
I am good at starting new conversations	.85			
My friends and family keep me up to speed on important events		.55		
My friends and family see things the same way		.72		
My friends and family are seen as united		.83		
My friends and family are supportive of one another		.92		
My friends and family are optimistic		.81		
My friends and family spend free time together		.72		
When working on something, I can see the order in which to do things			.54	
When working on something, I plan things out			.75	
When working on something, I organize my time well			.75	
When working on something, I set priorities before I start			.97	
When working on something, I do better if I set a goal			.55	
When working on something, I make a list of things to do in order of importance			.60	
I am confident in my ability to achieve goals				.79
I am confident in my ability to make good decisions/choices				.67
I am confident in my ability to think on my feet				.73
I am confident in my ability to succeed				.84
I am confident in my ability to solve problems				.80

**Figure 5**

*Excepted structure of the seven latent variables for the PERMA-Profiler.*



*Note.* “Posemo” = Positive Emotion, “Eng” = Engagement, “Relation” = Relationships, “Mean” = Meaning, “Acc” = Accomplishments, “Negemo” = Negative Emotions, “Health” = Physical Health.

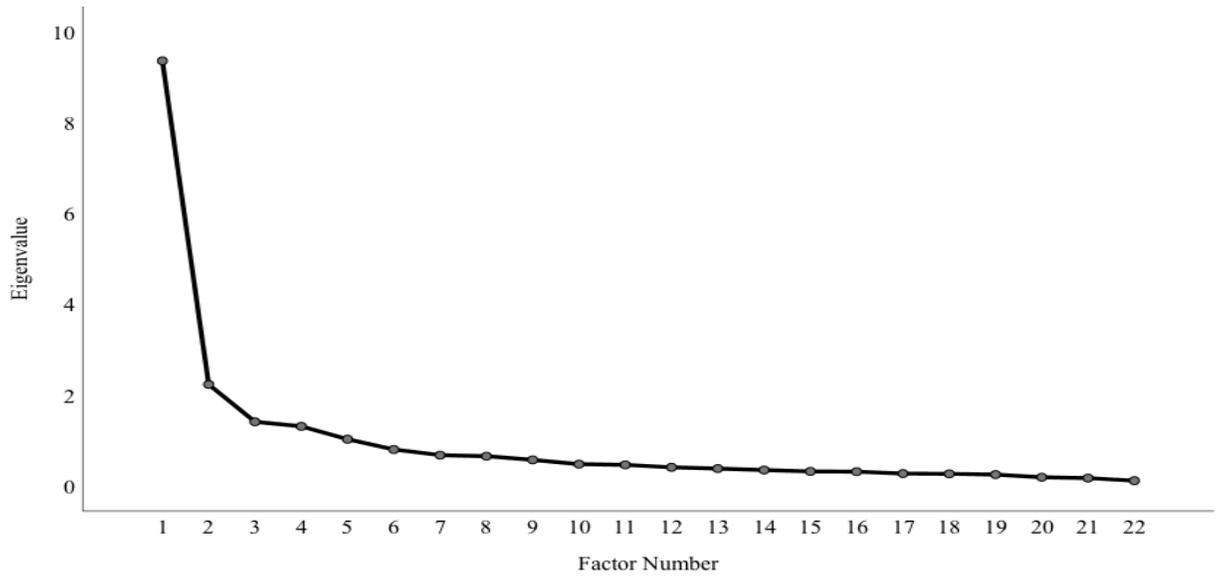
time while doing something you enjoy?”).

The PERMA was expected to contain seven latent variables, plus a single item assessing happiness and a single item assessing loneliness. The pattern matrix and Scree plot (see Figure 6) indicated that a five-factor solution was most appropriate for the data. The revised measure consisted of 22 items and five subscales including Relationships (five items), Positive emotions (six items), Accomplishments (four items), Health (three items), and Negative emotions (four items) with factor loadings ranging between .46 (“In general, how often do you feel positive”) and 1.06 (“Compared to others of the same age and sex, how is your health?”). The single item assessing happiness loaded into the Relationships factor, and the single item assessing loneliness loaded into the Negative Emotions factor. Although these factors are similar to what was originally expected, the individual items loaded differently. For the purposes of this study, a mean score of overall well-being was calculated by summing the 22 items that loaded on the five factors that were found using the EFA and was used for subsequent analyses. See Table 3 for the full measure and a description of the factor loadings from the EFA.

***Depression Anxiety Stress Scale-42.*** Previous research has consistently demonstrated the DASS-42, which is believed to assess negative psychological adjustment, to have three latent factors; depression, anxiety, and stress (Lovibond & Lovibond, 1995). Each of these latent factors consists of 14 observed variables. See Figure 7 for the expected measure structure. In order to substantiate this factor structure, a CFA was performed. Unfortunately, the three-factor model suggested for the DASS-42 was indicated to be a poor model fit (RMSEA = .10 CI [.092 - .100], SRMR = .07, CFI =

**Figure 6**

*Scree plot from the EFA of the PERMA Profiler supporting the five-factor solution as all eigenvalues are above 1.*



**Table 3***Significant Factor Loadings for the Exploratory Factor Analysis on the PERMA-Profiler*

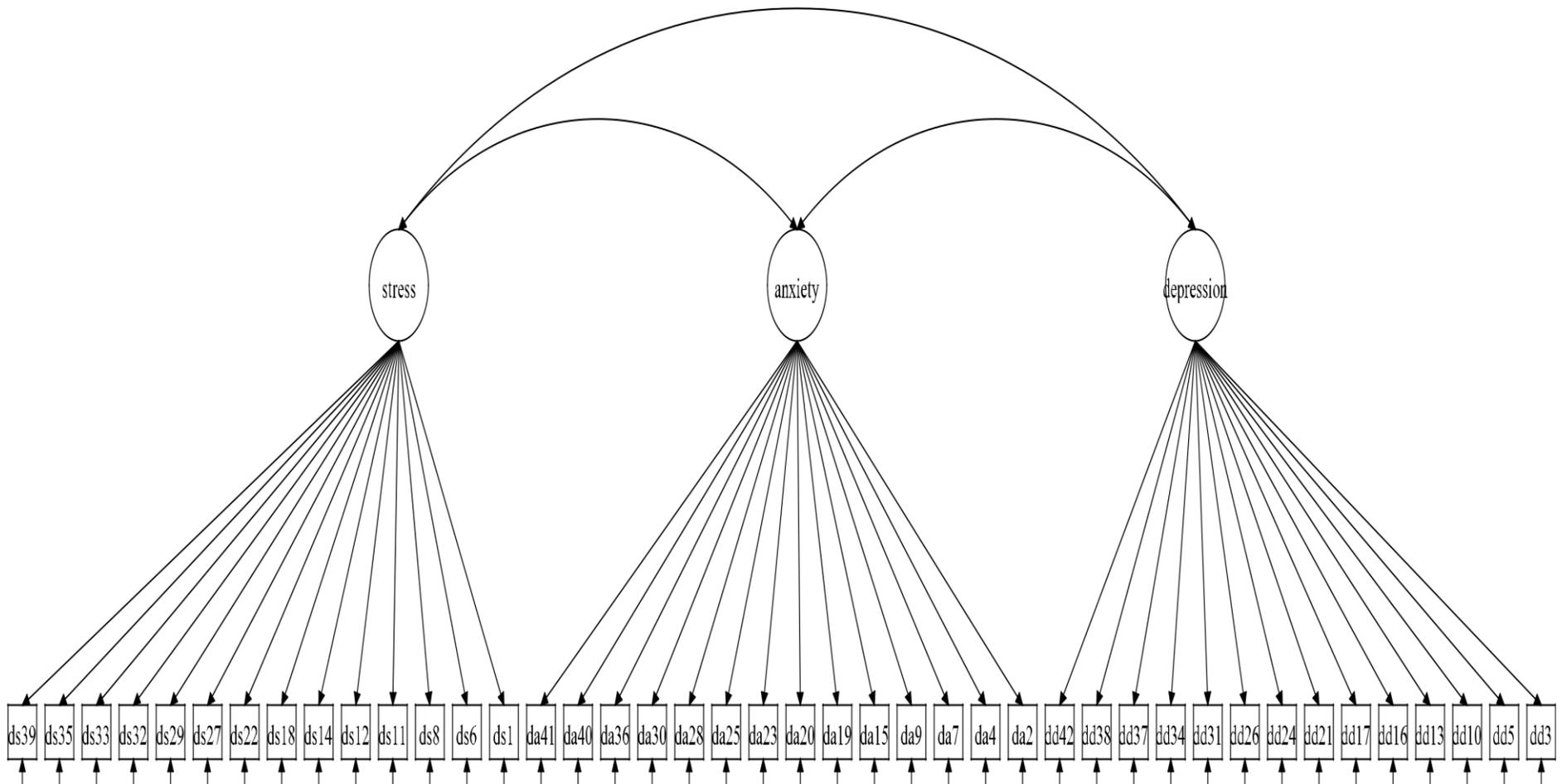
Item	Relationships	Positive Emotions	Achievement	Health	Negative emotion
To what extent do you feel you receive support from others when you need it?	.56				
To what extent do you feel loved?	.95				
How satisfied are you with your personal relationships?	.88				
In general, to what extent do you feel contended?	.62				
Taking all things together, how happy would you say you are?	.67				
In general, how often do you feel joyful?		.51			
In general, how often do you feel positive?		.46			
In general, to what extent do you feel you lead a purposeful and meaningful life?		.77			
In general, to what extent do you feel that what you do in your life is valuable and worthwhile?		.90			
In general, to what extent do you feel excited and interested in things?		.65			
To what extent do you generally feel you have a sense of direction in your life?		.75			
How much of the time do you feel you are making progress			.67		

towards accomplishing your goals?		
How often do you become absorbed in what you are doing?	.50	
How often do you achieve the important goals you have set for yourself?	.78	
How often are you able to handle your responsibilities?	.77	
In general, how would you say your health is?		.77
Compared to others of the same age and sex, how is your health?		1.06
How satisfied are you with your current physical health?		.60
In general, how often do you feel anxious?		.71
In general, how often do you feel angry?		.70
In general, how often do you feel sad?		.81
How lonely do you feel in your daily life?		.46

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**Figure 7**

*Expected structure of the three latent factors for the DASS-42.*

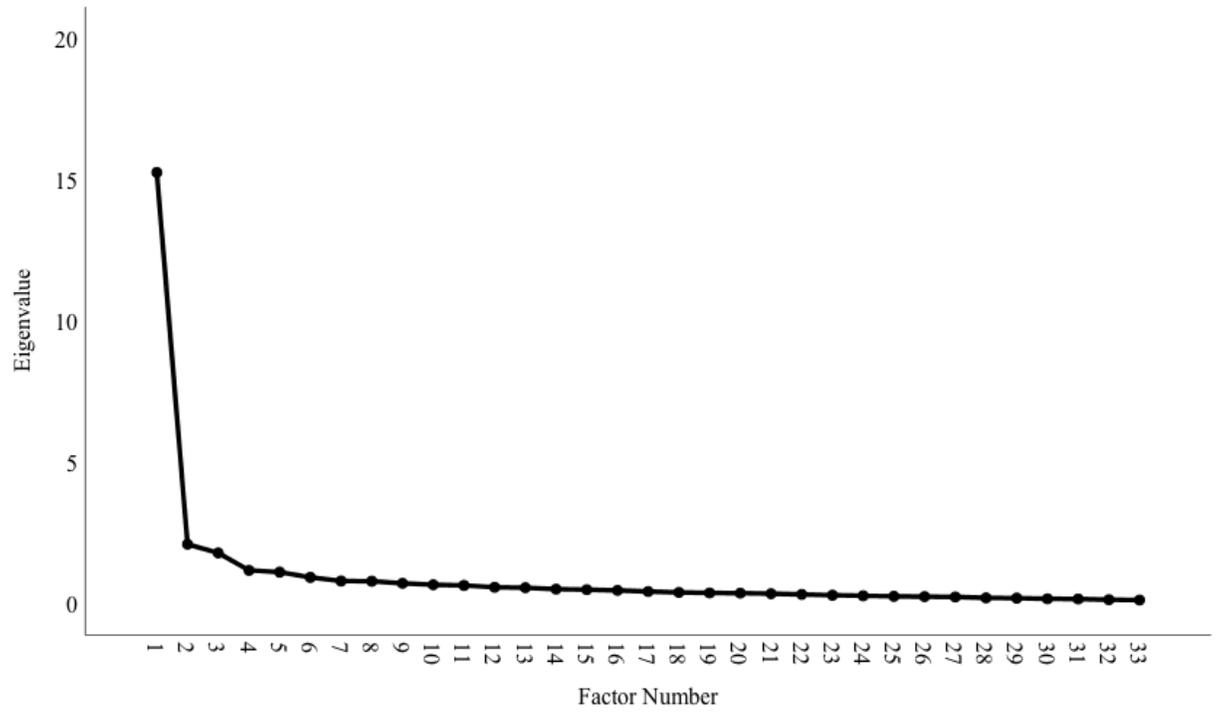


.74,  $\chi^2(816) = 2539.19, p < .001$ ). In order to address the poor model fit indices, an EFA was conducted to determine a more appropriate fit (Schmitt, 2011). The KMO Measure of Sampling Adequacy (KMO = .95) and Bartlett's test of Sphericity ( $\chi^2(528) = 5339.95, p < .001$ ) indicated that the data was conducive to a factor analysis of the DASS-42. All items that loaded below .32 or cross-loaded on multiple items above .32 were deleted from the analysis (Worthington & Whittaker, 2006) resulting in nine items being removed ("I just couldn't seem to get going", "I felt sad and depressed", "I perspired noticeably [e.g., hands sweaty] in the absence of high temperatures or physical exertion", "I found it hard to wind down", "I was aware of the action of my heart in the absence of physical exertion [e.g., sense of heart rate increase, heart missing a beat]", "I found it hard to calm down after something upset me", "I was unable to become enthusiastic about anything", and "I found it difficult to work up the initiative to do anything").

The DASS-42 was expected to contain three latent factors, however the pattern matrix and Scree plot (see Figure 8) indicated that a five-factor solution was more appropriate for this data. The revised measure consisted of 33 items and five subscales including Depression (10 items), Stress (seven items), Physical symptoms (six items), Anxiety (seven items), and Intolerance (three items). Factor loadings ranged between .38 ("I found myself getting agitated") and .98 ("I found it difficult to tolerate interruptions to what I was doing"). This result is rather different than what was originally expected, as multiple items were dropped while many others (specifically those assessing stress and anxiety) loaded differently than expected. For the current study, the results from the EFA were used to create a mean score of depression symptomology (N = 10 items) and a mean score of anxiety symptomology (N = 7 items). See Table 4 for the full measure and a

**Figure 8**

*Scree plot from the EFA of the DASS-42 supporting the five-factor solution as all eigenvalues are above 1.*



**Table 4***Significant Factor Loadings for the Exploratory Factor Analysis on the DASS-42*

Item	Depression	Stress	Physical symptoms	Anxiety	Intolerance
I couldn't seem to experience any positive feeling at all	.43				
I felt that I had nothing to look forward to	.60				
I felt that I had lost interest in just about everything	.65				
I felt I wasn't worth much as a person	.89				
I felt that life wasn't worthwhile	.91				
I couldn't seem to get any enjoyment out of the things I did	.55				
I felt down-hearted and blue	.45				
I felt I was pretty worthless	.96				
I could see nothing in the future to be hopeful about	.72				
I felt that life was meaningless	.96				
I found myself getting upset at quite trivial things		.77			
I tended to over-react to situations		.79			
I found myself getting upset rather easily		.76			
I found myself getting impatient when I was delayed in any way (e.g., elevators, traffic lights, being kept waiting)		.46			
I felt that I was rather touchy		.42			
I found that I was very irritable		.58			
I found myself getting agitated		.38			
I was aware of the dryness of my mouth			.40		
I experienced breathing difficulties			.71		

I had a feeling of shakiness (e.g., legs going to give way)	.71	
I had a feeling of faintness	.76	
I had difficulty swallowing	.65	
I experienced trembling (e.g., in the hands)	.63	
I found it difficult to relax		.59
I found myself in situations that made me so anxious I was most relieved when they ended		.75
I felt that I was using a lot of nervous energy		.73
I felt scared without any good reason		.55
I felt I was close to panic		.53
I was in a nervous state of tension		.83
I was worried about situations in which I might panic and make a fool of myself		.64
I feared that I would be “thrown” by some trivial but unfamiliar task		.42
I found it difficult to tolerate interruptions to what I was doing		.98
I was intolerant of anything that kept me from getting on with what I was doing		.70

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description of the factor loadings from the EFA.

### **Data Screening and Assumptions Check**

All remaining analyses used mean scores created from the new factor loadings established by the EFAs. After appropriate data cleaning was completed, normality was tested using a Shapiro-Wilk test as this test maintains a high level of power and has been suggested as being the ideal choice (Ghasemi & Zahediasl, 2012; Thode, 2002). It was anticipated that some data would not be normally distributed, as bullying data is often skewed (e.g., Wu et al., 2016). Due to this likelihood, analyses that were robust to the violation of non-normality were chosen. The Shapiro-Wilk test indicated that mean resilience scores ( $M = 5.2$ ,  $SD = 0.9$ ) were normally distributed ( $SW = 0.99$ ,  $p = .127$ ). As anticipated, mean scores for traditional bullying ( $M = 1.4$ ,  $SD = 0.5$ ,  $SW = 0.80$ ,  $p < .001$ ) and cyberbullying ( $M = 1.2$ ,  $SD = 0.5$ ,  $SW = 0.41$ ,  $p < .001$ ) positively skewed at 1.93 ( $SE = 0.2$ ) and 3.50 ( $SE = 0.2$ ) respectively. Mean scores for overall well-being ( $SW = 0.99$ ,  $p < .05$ ), symptoms of depression ( $SW = 0.90$ ,  $p < .001$ ) and anxiety ( $SW = 0.95$ ,  $p < .001$ ) were also not normally distributed. Indeed, mean well-being ( $M = 7.5$ ,  $SD = 1.1$ ) was negatively skewed at -0.431 ( $SE = 0.2$ ) while depression scores ( $M = 1.7$ ,  $SD = 0.7$ ) and anxiety scores ( $M = 2.0$ ,  $SD = 0.7$ ) were positively skewed at 0.841 ( $SE = 0.2$ ) and 0.542 ( $SE = 0.2$ ) respectively indicating higher levels of well-being and lower levels of depression and anxiety symptomology than would be expected in a normal distribution in the current sample. In an attempt to correct for the skew, logarithmic transformations (base 10) were completed for each skewed variable. Logarithmic transformations were chosen as there were no zero or negative values in the right-skewed distribution, and logarithmic transformations are much stronger than their square or cubed root counter

parts (Cox, 2005). Although transformations did reduce skew in the distribution for mean scores of symptoms of depression and anxiety, all variables still failed the Shapiro-Wilk test and violated the assumptions of normality. As the logarithmic transformation is significantly stronger than other transformations used for right-skewed distributions, it was unlikely that the square or cube root transformations would generate different results (Cox, 2005). Due to this, the original, untransformed variables were used for the remaining analyses. Measures of central tendency were calculated and are depicted below (Table 5).

### **Correlations**

A series of bivariate correlations were conducted to assess the relationship between the study variables. In order to control Type I error rates, a Bonferroni adjusted alpha was used to determine significance, which was calculated by dividing the alpha value by the number of comparisons planned (Shaffer, 1995). Therefore, an alpha of .008 ( $.05 / 6 = .008$ ) was used to determine significance (see Table 6). Results indicated that gender was significantly correlated with symptoms of anxiety ( $r = .31, p < .001$ ), but was not significantly correlated with any other variable. In order to investigate this relationship, a t-test was conducted. Levene's test for equality of error variances was violated for scores of anxiety symptoms ( $F = 4.45, p = .036$ ), but was not violated for any other variable. Moreover, the results indicated that there were no significant gender differences for any variable except symptoms of anxiety, with female participants reporting higher overall symptoms of anxiety ( $M = 2.1, SD = .72$ ) than male participants ( $M = 1.7, SD = .59$ ),  $t(113.28) = -4.45, p < .001$ .

Traditional bullying and cyberbullying were significantly and positively correlated with one another ( $r = .76, p < .001$ ). Traditional bullying was also positively correlated with symptoms of depression ( $r = .40, p < .001$ ) and anxiety ( $r = .32, p < .001$ ). Similarly, cyberbullying was significantly and positively correlated with symptoms of depression ( $r = .24, p < .001$ ) and anxiety ( $r = .20, p < .008$ ) although the correlations were smaller in magnitude. Traditional bullying was significantly negatively correlated with resilience ( $r = -.23, p < .001$ ), but cyberbullying was not ( $r = -.14, p < .036$ ). Finally, overall well-being was not correlated with traditional bullying ( $r = -.14, p = .033$ ), or cyberbullying ( $r = -.00, p = .949$ ), but was significantly correlated with resilience ( $r = .67, p < .001$ ).

### **Mediation Analyses**

A simple mediation model was used to explore the role resilience plays in mediating the relationship between bullying experiences and psychological adjustment in young adults. A mediation suggests that the “why” of a relationship between a predictor and criteria variable is influenced by a third variable- the mediator (Baron & Kenny, 1986). The indirect effect (i.e., mediated effect) is calculated by multiplying path *a* by path *b* (see Figure 9) and a mediation is only said to occur if this indirect relationship is statistically significant (Preacher & Hayes, 2008). The significance of the indirect effects were tested using the bootstrapping method as this method is robust to violations of normality and homoskedasticity, while maintaining a higher level of power in smaller sample sizes (Efron & Tibshirani, 1993; Mooney & Duval, 1993; Preacher & Hayes, 2004; Yuan & MacKinnon, 2014). In this context, the bootstrapping method draws a

**Table 5**

*Measures of Central Tendency for Traditional bullying, Cyberbullying, Resilience, Overall well-being, Depression, and Anxiety.*

Variable	N	M	SD	Min.	Max
<b>Bullying experiences</b>					
1. Traditional bullying	230	1.4	0.5	1.0	3.4
2. Cyberbullying	230	1.2	0.5	1.0	4.0
<b>Psychological adjustment</b>					
1. Resilience	230	5.2	0.9	2.0	7.0
2. Overall well-being	230	6.5	1.1	3.2	9.4
3. Depression	230	0.7	0.7	1.0	2.8
4. Anxiety	230	1.0	0.7	1.0	3.0

*Note.* Responses were determined using different Likert scales. Bullying experiences were rated on a five-point Likert scale ranging from “never” (1) to “most days” (5). Resilience was rated on a seven-point Likert scale ranging from “disagree completely” (1) to “completely agree” (7). Overall well-being was rated a 11-point Likert scale ranging from “not at all”, “never”, or “terrible” (0) to “completely”, “always”, or “excellent” (10). Depression and anxiety were rated on a four-point Likert scale ranging from “never” (0) to “almost always” (3).

**Table 6**

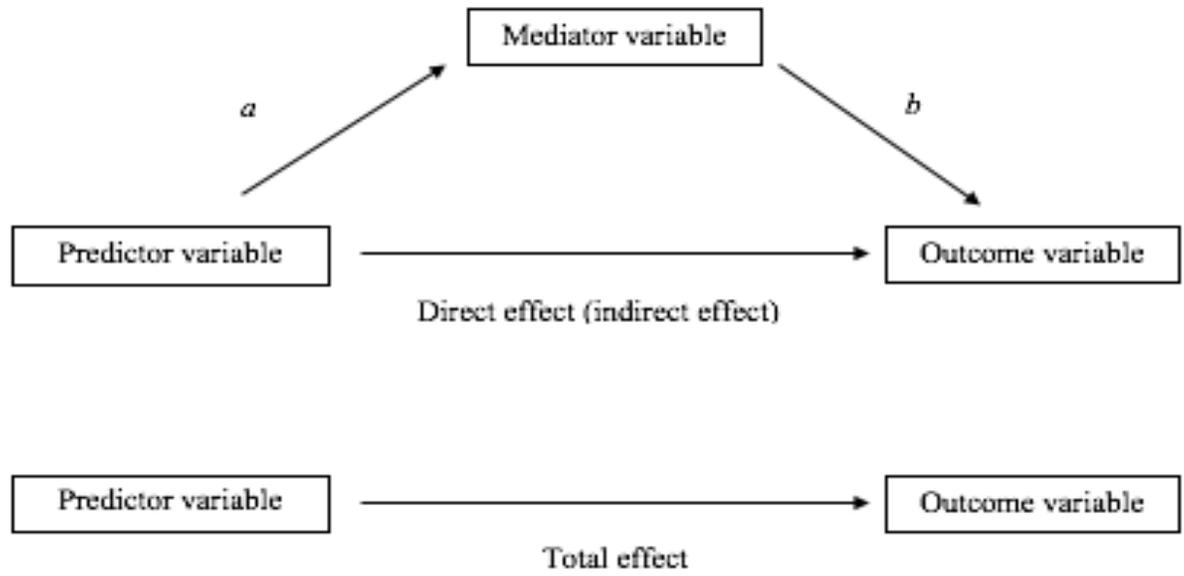
*Correlation Analysis for the Variables Gender, Traditional bullying, Cyberbullying, Resilience, Overall well-being, Depression, and Anxiety.*

Variable	1	2	3	4	5	6
1. Gender	-					
2. Traditional bullying	.03	-				
3. Cyberbullying	.03	.76**	-			
4. Resilience	-.08	-.23**	-.14	-		
5. Overall well-being	.06	-.14	-.00	.66**	-	
6. Depression	.15	.40**	.24**	-.35**	-.39**	-
7. Anxiety	.31**	.32**	.20*	-.18*	-.19*	.67**

*Note.* \* correlation is significant at  $p < 0.008$ , \*\* correlation is significant at  $p < 0.001$

**Figure 9**

*Visual representation of mediation pathways.*



predetermined number of sample indirect effects using the provided sample and the population. Standardized indirect effects were calculated for 5000 bootstrapped samples at 95% confidence by specifying these numbers in the respective boxes within the SPSS PROCESS macro used to conduct the mediation analyses (Hayes, 2018). Once the PROCESS macro was downloaded, the analyses were conducted using “model 4”, which is the designated model to explore mediations. As the current study had two predictor variables (traditional and cyberbullying), one mediating variable (resilience), and three outcome variables (symptoms of depression, anxiety, and overall well-being), six separate mediation models were conducted. Significance of a total effect was not considered a necessity to pursue the mediations as it was recently suggested that a significant total effect is not a necessity for a mediation to occur (Hayes, 2018). The indirect effects (i.e., the influence of resilience on the relationship between bullying and adjustment) were calculated, and the significance of the mediation was determined. Gender was added as a covariate in order to control for its effects. These steps for the individual analyses conducted in this study are discussed in detail below.

**Traditional Bullying.** The first set of mediations investigated the relationship of traditional bullying experiences, resilience, and psychological adjustment. Model 1 examined whether resilience serves to clarify the nature of the relationship between traditional bullying and symptoms of depression. Model 2 examined the influence of resilience on the relationship between traditional bullying on symptoms of anxiety. Since traditional bullying was minimally correlated with well-being ( $r = -.14$ ) this relationship was not analyzed (Kenny, 2018a). Prior to beginning the analyses, the assumptions for the mediation analyses were tested (Kenny, 2018a). The assumption of homoskedasticity

was examined using the Breusch-Pagan test (Breusch & Pagan, 1979) and indicated that neither Model 1 (Breusch-Pagan = 6.47,  $p = .091$ ) nor Model 2 (Breusch-Pagan = 6.15,  $p = .105$ ) violated the assumption. However, Model 3 did violate this assumption (Breusch-Pagan = 25.53,  $p < .001$ ). In order to offset the effects of this violation, Cribari-Neto (2014) heteroskedasticity-robust standard errors were used for this model, as they were developed specifically for smaller sample sizes. This was specified in the PROCESS macro.

The Durbin-Watson test (Durbin & Watson, 1971) was used to assess the independence of error terms. Both Model 1 (Durbin-Watson = 1.96), Model 2 (Durbin-Watson = 2.08), and Model 3 (Durbin-Watson = 1.75) met the assumption for independence as all variables fell within an acceptable range (Durbin & Watson, 1971). Tests of Cook's distance revealed no significantly influential outliers in any model as no observation surpassed the value of 1 (Cook & Weisberg, 1982). Finally, although all variables were significantly correlated with one another, there was no evidence of multicollinearity as the Variance Inflation Factors (VIF; Mansfield & Helms, 1982) remained around 1 for all models, which was well below the standard cut-off of 10. For all models, significance was tested using a Bonferroni adjusted alpha of .008.

To assure the homogeneity of slopes assumption was not violated, two separate interactions were tested; a gender X traditional bullying interaction and a gender X resilience interaction. To test this, a hierarchical linear regression was conducted. Gender, resilience, and traditional bullying experiences were added into Step One, and the interaction terms were entered into Step Two. Interaction terms were created by multiplying gender by each independent variable. Gender was dummy coded as men = 0,

women = 1 and the two cases that did not fall into this dichotomy (i.e., the non-binary participant and the non-identifying participant) were coded as “system missing”.

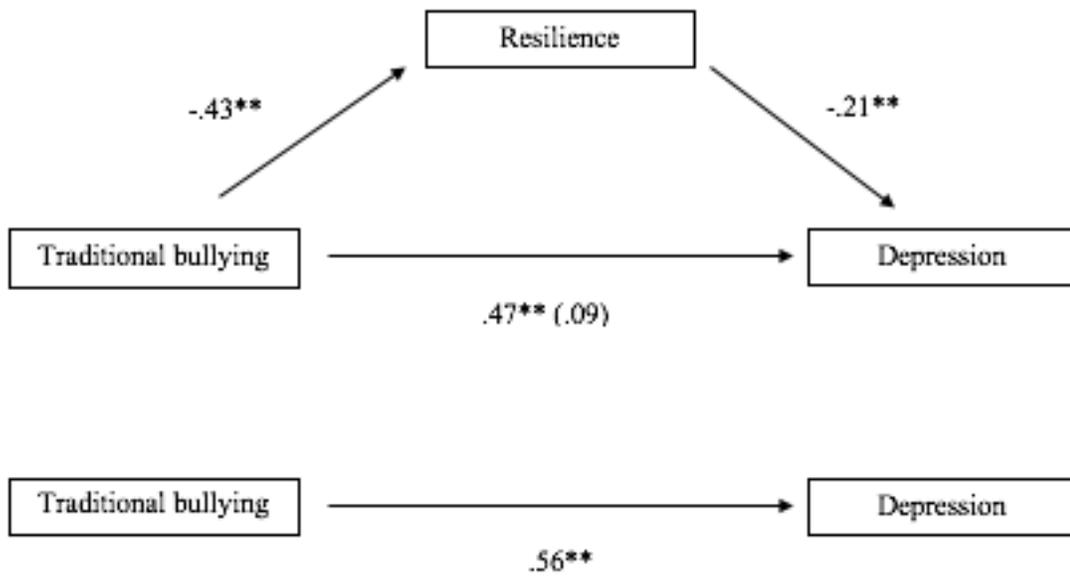
*Analysis of Model 1.* There was a significant main effect of traditional bullying experiences ( $b = .47, SE = 0.1, t(225) = 5.44, p < .001$ ) and resilience on depression scores ( $b = -.21, SE = 0.1, t(225) = -4.43, p < .001$ ). There was no significant main effect of gender,  $b = .14, SE = 0.1, t(225) = 1.56, p = .120$ . The gender X traditional bullying interaction was not significant,  $b = .19, SE = 0.2, t(222) = 0.95, p = .344$ . The gender X resilience effect was also not significant,  $b = .03, SE = 0.1, t(222) = 0.26, p = .793$ . Therefore, there was no violation of homogeneity of slopes and gender was added as a covariate.

The first mediation analysis investigated the mediating effect of resilience on the relationship between traditional bullying and depression (see Figure 10). The total effect of traditional bullying experiences on depression, when gender was controlled, was significant,  $b = .56, SE = 0.1, t(226) = 6.40, p < .001$ . This result indicated that as traditional bullying increased, depression symptomology also increased. The *a* path was also significant and indicated a direct negative relationship between traditional bullying and resilience,  $b = -.43, SE = 0.1, t(226) = -3.61, p < .001$ , illustrating that when traditional bullying increased, resilience scores decreased. This result held constant through all the models. The *b* path indicated that resilience was negatively associated with depression symptomology,  $b = -.21, SE = 0.1, t(225) = -4.43, p < .001$ . Finally, the direct effect traditional bullying on depression scores remained significant,  $b = .47, SE = .10, t(225) = 5.44, p < .001$ . The indirect effect was  $(-.43)(-.21) = .09$  and was determined to be significant by the bootstrapping procedure, as the 95% confidence

**Figure 10**

*Mediation Model 1 demonstrating the significant total effect, significant paths a and b, and significant direct effect. Presented are the unstandardized regression coefficients for the relationship between traditional bullying and depression as mediated by resilience.*

*This analysis revealed a significant mediating role of resilience.*



*Note.* The indirect effect, not standard error, is presented in parenthesis in the mediation figure.

\* indicates significance at  $< .008$ , \*\* indicates significance at  $< .001$

interval ranged from .03 to .16. These results indicated that the relationship between traditional bullying experiences and depression was mediated by resilience when controlling for the effects of gender, indicating that resilience did in fact decrease the association between traditional bullying experiences and depression scores.

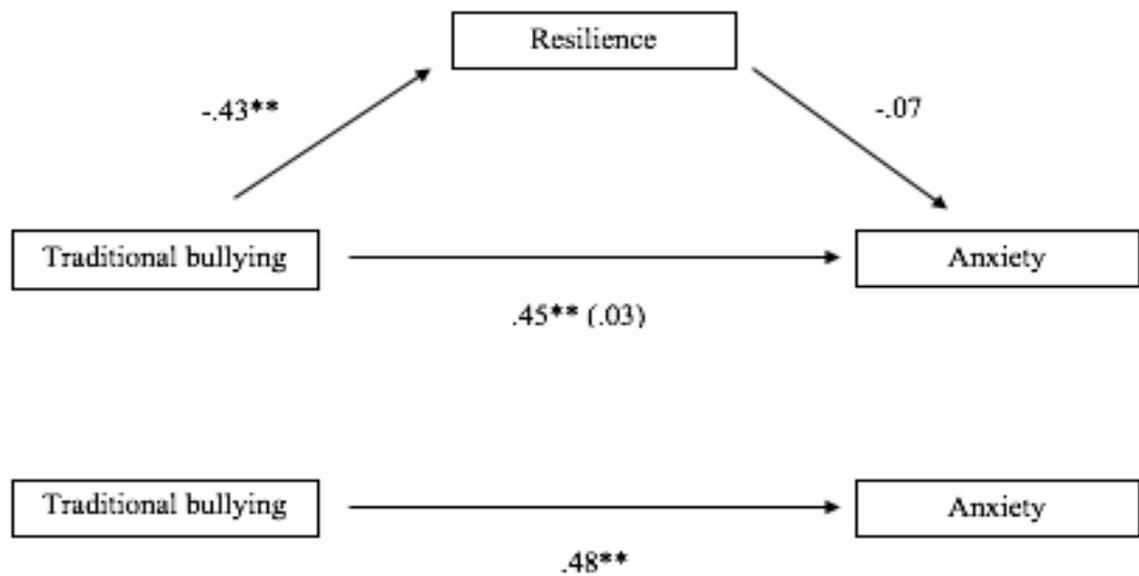
The validity of the mediational relationship was tested by switching resilience and traditional bullying experiences, creating a model in which traditional bullying experiences mediated the relationship between resilience and depression scores. This original model remained a better description for the relationship ( $R^2 = .16$ ,  $F(2,225) = 21.91$ ,  $p < .001$ ) than the new model ( $R^2 = .13$ ,  $F(2,225) = 16.63$ ,  $p < .001$ ), indicating that the mediation model was valid.

***Analysis of Model 2.*** There was a significant main effect of traditional bullying experiences ( $b = .45$ ,  $SE = .1$ ,  $t(225) = 4.69$ ,  $p < .001$ ) and gender on anxiety scores ( $b = -.42$ ,  $SE = .1$ ,  $t(225) = 4.23$ ,  $p < .001$ ). There was no significant main effect of resilience,  $b = -.07$ ,  $SE = .1$ ,  $t(225) = -1.34$ ,  $p = .182$ . The gender X traditional bullying interaction was not significant,  $b = -.07$ ,  $SE = .2$ ,  $t(222) = -0.31$ ,  $p = .757$ . The gender X resilience effect was also not significant,  $b = -.08$ ,  $SE = .1$ ,  $t(222) = -0.65$ ,  $p = .518$ . Therefore, there was no violation of homogeneity of slopes and gender was added as a covariate.

The second mediation analysis investigated the mediating role of resilience on the relationship between traditional bullying and anxiety (see Figure 11). The total effect was significant  $b = .48$ ,  $SE = .1$ ,  $t(226) = 5.14$ ,  $p < .001$ . This illustrated that traditional bullying experiences do account for some of the variance in anxiety scores when controlling for the effects of gender insofar as when traditional bullying increased, anxiety scores also increased. The  $b$  path indicated that resilience was not a significantly

**Figure 11**

*Mediation Model 2 demonstrating the significant total effect, significant path a, non-significant b path, and significant direct effect. Presented are the unstandardized regression coefficients for the relationship between traditional bullying and anxiety as mediated by resilience. This analysis revealed no mediating role of resilience.*



*Note.* The indirect effect, not standard error, is presented in parenthesis in the mediation figure.

\* indicates significance at  $< .008$ , \*\* indicates significance at  $< .001$

associated with symptoms of anxiety,  $b = -.07$ ,  $SE = .1$ ,  $t(225) = -1.34$ ,  $p = .182$ .

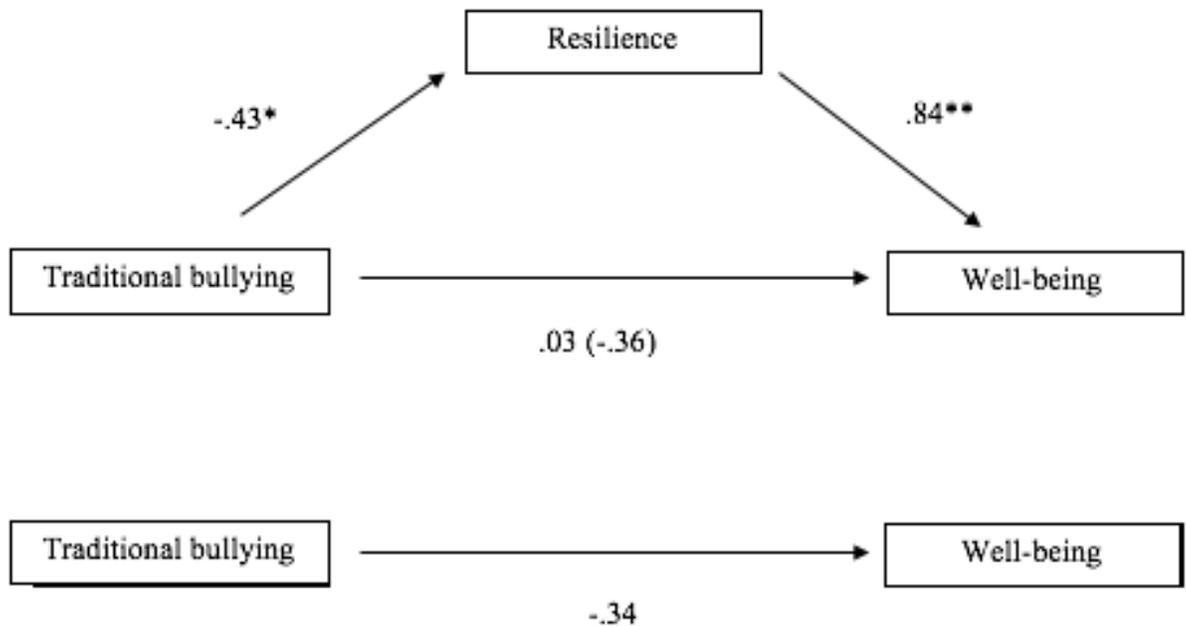
Moreover, traditional bullying remained a significant predictor of anxiety symptoms,  $b = .45$ ,  $SE = .1$ ,  $t(225) = 4.69$ ,  $p < .001$ . Nevertheless, the relationship between traditional bullying experiences and anxiety was not mediated by resilience. This conclusion was supported by a non-significant indirect effect of .03 with the 95% confidence interval ranging from -.01 to .08. However, it should be noted that, consistent with the t-test, gender was a significant covariate in the relationship between resilience and anxiety scores suggesting that women had increased anxiety scores,  $b = .42$ ,  $SE = .1$ ,  $t(225) = 4.23$ ,  $p < .001$ .

***Analysis of Model 3.*** There was a significant main effect of resilience on overall well-being ( $b = .84$ ,  $SE = 0.1$ ,  $t(225) = 13.03$ ,  $p < .001$ ). There was no significant main effect of gender ( $b = .27$ ,  $SE = 0.1$ ,  $t(225) = 2.18$ ,  $p = .030$ ) or traditional bullying experiences ( $b = .03$ ,  $SE = 0.1$ ,  $t(225) = 0.21$ ,  $p = .836$ ). The gender X traditional bullying interaction was not significant,  $b = -.49$ ,  $SE = 0.3$ ,  $t(222) = -1.78$ ,  $p = .077$ . The gender X resilience effect was also not significant,  $b = -.06$ ,  $SE = 0.2$ ,  $t(222) = -0.39$ ,  $p = .700$ . Therefore, there was no violation of homogeneity of slopes and gender was added as a covariate.

The third mediation analysis was conducted for Model 3 and examined the mediating effect of resilience on the relationship between traditional bullying and overall well-being (see Figure 12). The total effect of traditional bullying on overall well-being was not significant ( $b = -.06$ ,  $SE = .0$ ,  $t(226) = -1.71$ ,  $p = .088$ ) suggesting that traditional bullying experiences did not predict variances in overall well-being. However, since this is not considered a necessary prerequisite for mediations (Hayes, 2018), the analysis

**Figure 12**

*Mediation Model 3 demonstrating the non-significant total effect, significant path a and b path, and non-significant direct effect. Presented are the unstandardized regression coefficients for the relationship between traditional bullying and anxiety as mediated by resilience. This analysis revealed a mediating role of resilience.*



*Note.* The indirect effect, not standard error, is presented in parenthesis in the mediation figure.

\* indicates significance at  $< .008$ , \*\* indicates significance at  $< .001$

continued. The  $b$  path was significant indicating that resilience was positively associated with overall well-being,  $b = -.34$ ,  $SE = .2$ ,  $t(225) = 8.64$ ,  $p < .001$ . The indirect effect of the model was  $(-.43) (.84) = -.36$ . The bootstrap analysis demonstrated that this was a significant effect as the 95% confidence interval ranged from  $-.59$  to  $-.14$ , which illustrated that the relationship between traditional bullying experiences and overall well-being was mediated by resilience when controlling for gender. The validity of the mediational relationship was tested by switching resilience and traditional bullying experiences, creating a model in which traditional bullying experiences mediated the relationship between resilience and depression scores. This new model indicated to be a better description for the relationship ( $R^2 = .45$ ,  $F(2,225) = 48.39$ ,  $p < .001$ ) than the original model ( $R^2 = .02$ ,  $F(2,225) = 2.25$ ,  $p = .108$ ), indicating that a moderation model may be more informative.

**Cyberbullying.** The second set of regressions investigated the relationship of cyberbullying experiences, resilience, and psychological adjustment. Model 4 tested the role of resilience and cyberbullying on symptoms of depression. Model 5 tested the role of resilience and cyberbullying on symptoms of anxiety. Prior to running the analyses, the assumptions for mediation were tested (Kenny, 2018a). The assumption of homoskedasticity was examined using the Breusch-Pagan test (Breusch & Pagan, 1979). The Breusch-Pagan test indicated that Model 4 (Breusch-Pagan = 6.04,  $p = .110$ ) and Model 5 (Breusch-Pagan = 3.87,  $p = .276$ ) did not violate the assumption of homoskedasticity. However, Model 6 did violate this assumption (Breusch-Pagan = 26.38,  $p < .001$ ). In order to offset the effects of this violation, Cribari-Neto (2014) heteroskedasticity-robust standard errors were used for this model, as they were

developed specifically for smaller sample sizes. This was specified in the PROCESS macro.

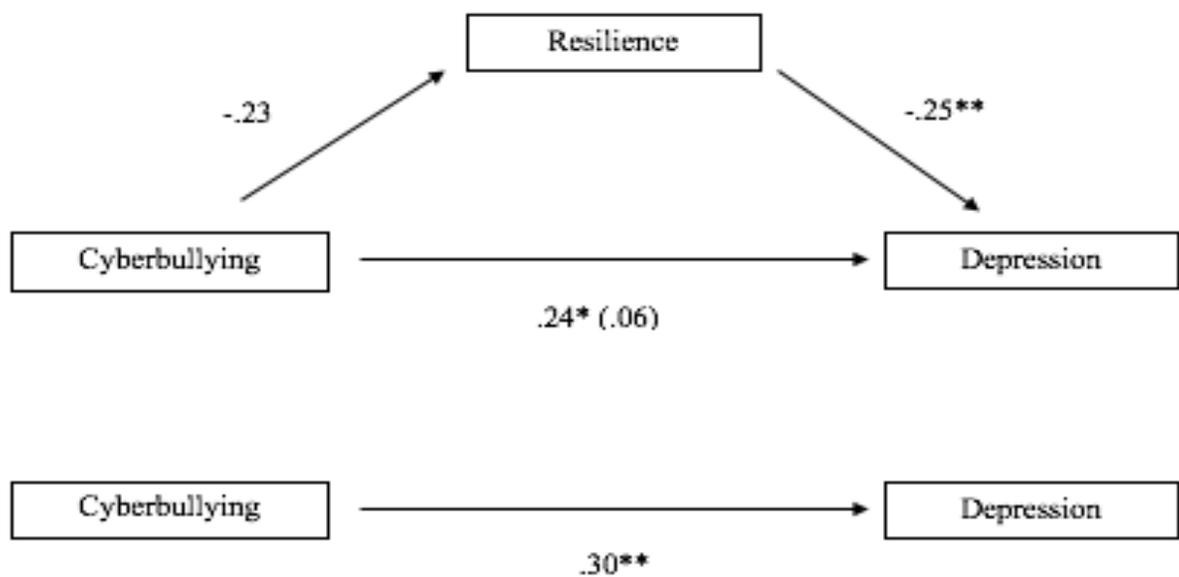
The Durbin-Watson test (Durbin & Watson, 1971) was used to assess the independence of error terms. Model 4 (Durbin-Watson = 2.19), Model 5 (Durbin-Watson = 2.06), and Model 6 (Durbin-Watson = 1.76) all met the assumption for independence as all variables fell within an acceptable range (Durbin & Watson, 1971). Tests of Cook's distance revealed no significantly influential outliers as no observation surpassed the value of 1 (Cook & Weisberg, 1982). Finally, although all variables were significantly correlated with one another, there was no evidence of multicollinearity as all VIFs (Mansfield & Helms, 1982) remained around 1, well below the standard cut-off of 10. For all models, significance was tested using a Bonferroni adjusted alpha of .008. As with the traditional bullying models, the homogeneity of slopes assumption was tested using a gender X cyberbullying interaction and a gender X resilience interaction.

*Analysis of Model 4.* There was a significant main effect of cyberbullying experiences ( $b = .24, SE = .1, t(225) = 3.02, p < .008$ ) and resilience on depression scores ( $b = -.25, SE = .1, t(225) = -5.14, p < .001$ ). There was no significant main effect of gender,  $b = .13, SE = .1, t(225) = 1.36, p = .176$ . The gender X cyberbullying interaction was not significant,  $b = .16, SE = .2, t(222) = 0.86, p = .391$ . The gender X resilience effect was also not significant,  $b = .03, SE = .1, t(222) = 0.27, p = .789$ . Therefore, there was no violation of homogeneity of slopes and gender was added as a covariate.

The fourth mediation analysis investigated the mediating role of resilience on the relationship between cyberbullying and depression (see Figure 13). The total effect was significant demonstrating that cyberbullying experiences did account for a significant

**Figure 13**

*Mediation Model 4 demonstrating the significant total effect, non-significant path a, significant b path, and significant direct effect. Presented are the unstandardized regression coefficients for the relationship between cyberbullying and depression as mediated by resilience. This analysis revealed no mediating role of resilience. This analysis revealed no mediating role of resilience.*



*Note.* The indirect effect, not standard error, is presented in parenthesis in the mediation figure.

\* indicates significance at < .008, \*\* indicates significance at < .001

proportion of the variance in depression scores,  $b = .30$ ,  $SE = .1$ ,  $t(226) = 3.59$ ,  $p < .001$ .

Specifically, when cyberbullying experiences increased, depression scores also increased.

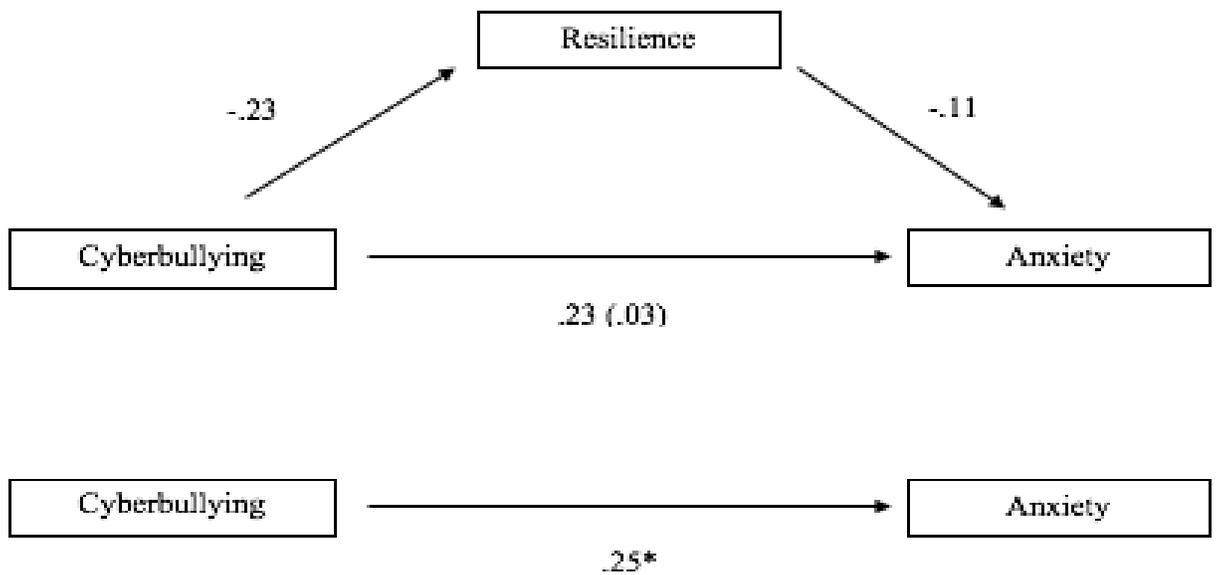
The  $a$  pathway suggested that cyberbullying was not significantly associated with resilience,  $b = -.23$ ,  $SE = .1$ ,  $t(225) = -2.14$ ,  $p = .033$ . This relationship held true for all the models. However, resilience was significantly associated with depression scores,  $b = -.25$ ,  $SE = .1$ ,  $t(225) = -5.14$ ,  $p < .001$ . Moreover, when considering resilience, cyberbullying remained a significant predictor of depression scores,  $b = .24$ ,  $SE = .1$ ,  $t(225) = 3.02$ ,  $p < .008$ . The indirect effect was .06 and was determined to be not significant as the 95% confidence interval ranged from .00 to 12.

***Analysis of Model 5.*** There was a significant main effect of gender on anxiety scores ( $b = .41$ ,  $SE = .1$ ,  $t(225) = 3.98$ ,  $p < .001$ ). However, there was no main effect of cyberbullying experiences ( $b = .32$ ,  $SE = .1$ ,  $t(225) = 2.61$ ,  $p = .010$ ) or resilience on anxiety scores ( $b = -.11$ ,  $SE = .1$ ,  $t(225) = -2.04$ ,  $p = .043$ ). The gender X cyberbullying interaction was not significant,  $b = .03$ ,  $SE = .2$ ,  $t(222) = 0.16$ ,  $p = .874$ . The gender X resilience effect was also not significant,  $b = -.05$ ,  $SE = .1$ ,  $t(222) = -0.42$ ,  $p = .673$ . Therefore, there was no violation of homogeneity of slopes and gender was added as a covariate.

The fifth analysis examined the mediating role of resilience on the relationship between cyberbullying and anxiety (see Figure 14). The total effect was significant suggesting that cyberbullying accounted for a significant portion of the variance in anxiety symptomology even when controlling for gender,  $b = .25$ ,  $SE = .1$ ,  $t(226) = 2.90$ ,  $p < .008$ . The  $b$  pathway indicated that resilience was not significantly associated with anxiety  $b = -.11$ ,  $SE = .1$ ,  $t(225) = -2.04$ ,  $p = .043$ . Moreover, when considering

**Figure 14**

*Mediation Model 5 demonstrating the significant total effect, non-significant paths a and b, and significant direct effect. Presented are the unstandardized regression coefficients for the relationship between cyberbullying and anxiety as mediated by resilience. This analysis revealed no mediating role of resilience.*



*Note.* The indirect effect, not standard error, is presented in parenthesis in the mediation figure.

\* indicates significance at  $< .008$ , \*\* indicates significance at  $< .001$

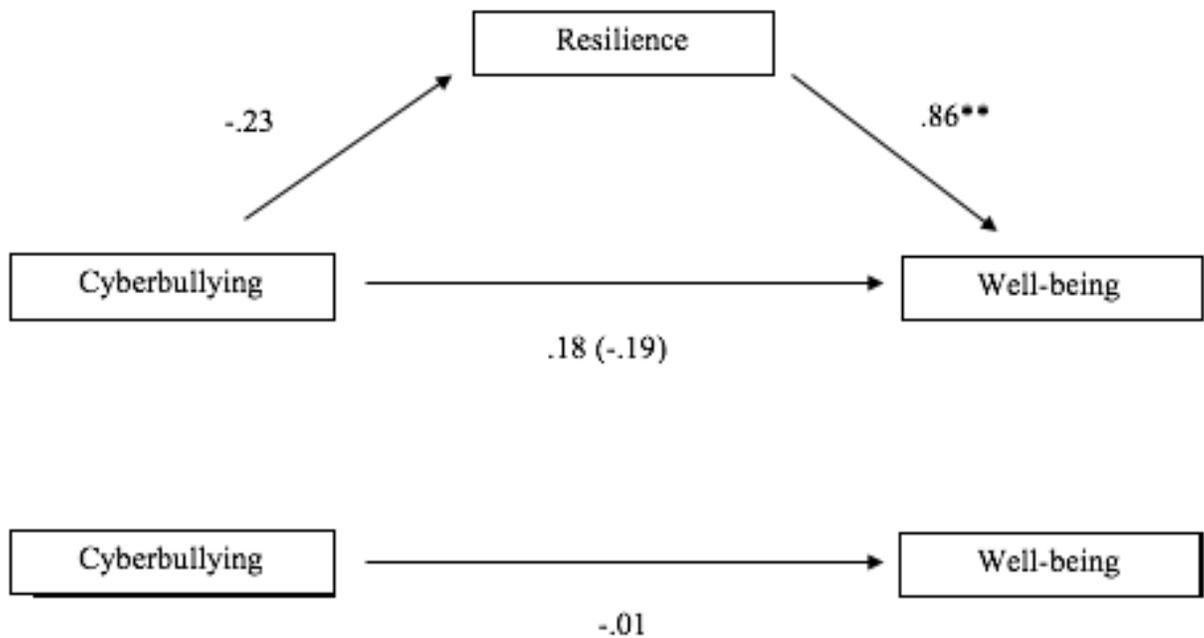
resilience, cyberbullying was no longer a significant predictor of anxiety scores,  $b = .23$ ,  $SE = .1$ ,  $t(225) = 2.61$ ,  $p = .010$ . The relationship between cyberbullying experiences and anxiety was mediated by resilience, supported by the bootstrapped unstandardized indirect effect  $(-.23)(-.11) = .03$  and the 95% confidence interval that ranged from  $-.00$  to  $.07$ . However, consistent with the results of the t-test, gender was demonstrated to be a significant predictor of anxiety scores,  $b = .47$ ,  $SE = .10$ ,  $t(227) = 4.84$ ,  $p < .001$ .

**Analysis of Model 6.** There was a significant main effect of resilience on overall well-being ( $b = .86$ ,  $SE = 0.1$ ,  $t(225) = 13.56$ ,  $p < .001$ ). There was no significant main effect of gender ( $b = .28$ ,  $SE = 0.1$ ,  $t(225) = 2.21$ ,  $p = .028$ ) or cyberbullying experiences ( $b = -.18$ ,  $SE = 0.1$ ,  $t(225) = 1.75$ ,  $p = .081$ ). The gender X cyberbullying interaction was not significant,  $b = -.34$ ,  $SE = 0.2$ ,  $t(222) = -1.45$ ,  $p = .149$ . The gender X resilience effect was also not significant,  $b = -.07$ ,  $SE = 0.2$ ,  $t(222) = -0.46$ ,  $p = .644$ . Therefore, there was no violation of homogeneity of slopes and gender was added as a covariate.

The final mediation conducted on Model 6 explored the mediating effect of resilience on the relationship between cyberbullying and overall well-being (see Figure 15). The total effect indicated that cyberbullying experiences were not a significant predictor of overall well-being ( $b = -.01$ ,  $SE = .2$ ,  $p = .934$ ). As this is not considered a necessity for mediation models (Hayes, 2018), the analysis continued. The  $b$  pathway indicated that resilience was indeed significantly associated with overall well-being,  $b = .86$ ,  $SE = .09$ ,  $t(225) = 9.26$ ,  $p < .001$ . The indirect effect was  $-.19$  and was determined to not be significant as the 95% confidence interval ranged from  $-.37$  to  $.01$  suggesting that the relationship between cyberbullying experiences and overall well-being was not mediated by resilience.

**Figure 15**

*Mediation Model 6 demonstrating the significant total effect, non-significant paths a, a significant path b, and a non-significant direct effect. Presented are the unstandardized regression coefficients for the relationship between cyberbullying and anxiety as mediated by resilience. This analysis revealed no mediating role of resilience.*



*Note.* The indirect effect, not standard error, is presented in parenthesis in the mediation figure.

\* indicates significance at  $< .008$ , \*\* indicates significance at  $< .001$

## Discussion

The negative ramifications of being targeted by bullying behaviours have been well established. Targets of traditional bullying behaviours are more likely to report symptoms of depression and anxiety, as well as increased feelings of loneliness (Kowalski et al., 2017; Wang et al., 2010). Similar patterns have also been established in individuals targeted by cyberbullying, with targets reporting increased levels of depression and anxiety (Kokkinos & Antoniadou, 2019; Schenk & Fremouw, 2012; Tennant et al., 2015). Although significant emphasis has been placed on the implications of being targeted, recent literature has begun to investigate the role of protective factors in mitigating these negative effects. Resilience specifically has been shown to play a role in lessening the negative effects of being a target for adolescents (Kabadayi & Sari, 2018; Moore & Woodcock, 2017) as well as adults who have experienced workplace bullying (Maidanuic-Chirila, 2018; Reknes et al., 2018). However, this research is limited to the aforementioned demographics and their workplace-specific experiences. The current study sought to address this gap by investigating the role resilience plays in the adjustment of young adult targets who had experienced either cyber or traditional bullying outside of the workplace.

The primary research question for this study was “Does resilience mediate the relationship between bullying experiences and psychological adjustment in young adults?”

### The Role of Resilience

Why do some targets of bullying behavior seem to come out of this experience unscathed? What factors contribute to the healthy development of targets facing this

adversity that is often associated with negative adjustment? The primary purpose of the current study was to investigate the role of resilience as a mediator of the relationship between bullying experiences and psychological adjustment. It has been suggested that this relationship is plausible as a result of an individual's increased ability to cope with being targeted (Li et al., 2020). As predicted, resilience did in fact mediate the relationship between traditional bullying experiences and symptoms of depression and overall well-being, but not anxiety. This indicates that even after being the target of bullying behaviours, those who report having more personal resources that contribute to resilience (such as social skills, social support, planning abilities, and goal efficacy) are better able to deal with the adversity and less likely to experience low affect and increased well-being as a result. It could be that individuals with higher resilience are less likely to internalize the responsibility of being targeted and are less likely to blame themselves. Or perhaps these individuals are more aware of the social resources, such as family and friends, that are available to them and are therefore less likely to feel isolated. However, it may also be the case that these personal capitals are not as effective at mitigating the effects of bullying on anxiety. Perhaps these resources are not as effective for protecting against the rumination and preoccupation with worry that are cornerstone to anxiety as they are for lessening the feelings of low affect and isolation that are commonplace with depression.

Contrary to what was expected, resilience did not mediate the relationship between cyberbullying experiences and psychological adjustment since cyberbullying experiences were not associated with resilience. It is plausible that there are differences in target perceptions of cyberbullying that are not being considered account for the lack of a

relationship between these variables. Moreover, there was a very small correlation between bullying experiences (both traditional and cyber) and overall well-being. It is possible that the way well-being was assessed in the current study negatively influenced this relationship. These possibilities are discussed in detail below.

**Traditional Bullying.** The indirect effects for the relationship between traditional bullying experiences and symptoms of depression as well as for traditional bullying and overall well-being when considering resilience were significant. This indicated that resilience plays a role in the underlying mechanism of these relationships. These results are consistent with previous research (e.g., Kabadayi & Sari, 2018; Lin et al., 2020; Moore & Woodcock, 2017). The relationship between bullying experiences and resilience may perhaps be related to target self-perceptions after being bullied. Those who are targeted often develop a negative self-concept, believing that they are to blame for the bullying (Swearer & Hymel, 2015). This internalization may be such that some targets feel as if they “deserved” the bullying, which may lead to low affect and increased symptoms of depression. Due to the availability of personal resources, it is plausible that an individual may feel less isolated or feel as if they have more agency in the situation. This in turn may lessen the internalizing of blame, resulting in actual decreases in depressive symptoms and increases in well-being. The relationship between resilience and depression could also be related to the individual’s perceptions of the symptomology itself, or their ability to deal with said symptomology. An individual with increased resilience may be less likely to report negative emotions due to their increased ability to cope (Lu et al., 2020). Therefore, it is plausible that these individuals perceive symptoms of depression to be milder or easier to cope with, resulting in lower reports of depression

symptomology. This may also be true in the case of well-being. It may be that the increased ability to cope with this adversity aids in promoting an individual's well-being through increasing their sense of agency or decreasing their perception of the severity of the attacks.

Surprisingly and inconsistent with previous research, resilience was not found to mediate the relationship between bullying experiences and anxiety. It was initially predicted that the relationship between bullying experiences and anxiety would be mediated in a similar way to that of depression. It was anticipated that when accounting for resilience, the association between traditional bullying experiences and anxiety symptomology would decrease. Increased targeting by traditional bullying behaviours was indeed associated with decreased level of resilience, but increased resilience was in turn not significantly associated with reduced symptoms of anxiety. However, gender did appear to have a significant influence on this relationship. In the current sample, women did report a significantly higher level of anxiety symptoms when compared to men. Gender was also a significant covariate in the mediation model between traditional bullying and anxiety symptoms, further suggesting that women had higher anxiety scores. The literature has consistently found that women report higher levels of anxiety (Jalnapurkar et al., 2018; McLean et al., 2011), and interaction effects between gender and both traditional and cyberbullying have been found for targets, with women targets demonstrating higher levels of anxiety (Kowalski & Limber, 2013). It is possible that the effects of gender may be more significant than the effects of resilience in the case of anxiety. The significance of gender predicting symptoms of anxiety could be the result of the disproportionate ratio of female to male participants in this particular study, or

women generally reporting higher levels of anxiety. It is possible that the relationship between gender and anxiety is strong enough to overshadow that of bullying experiences and anxiety, which is exacerbated by the gender distribution in this study. Future research with more a more equal gender distribution that allow for investigating separate mediation models for males and females is necessary to further unpack and understand this relationship.

**Cyberbullying.** Resilience did not mediate the relationship between cyberbullying experiences and psychological adjustment, as cyberbullying was not associated with resilience. This is consistent with the fact that cyberbullying and resilience did not have a significant bivariate correlation in this study. So why are cyberbullying experiences and resilience not related? Previous research has found that adolescents who reported higher levels of resilience and had been targeted by cyberbullying reported feeling less concerned about the bullying (Hinduja & Patchin, 2017). This could explain the result of the current study. It may be that young adults who have higher levels of resilience are less bothered by the bullying or are less likely to view cyberbullying as a detrimental experience. Hinduja and Patchin (2017) also found that individuals with higher resilience who had been targeted by cyberbullying were more likely to do something about being cyberbullied, such as reporting the attacks. This suggests that individuals with higher resilience may feel as if they have more agency over the situation and the outcome. This may in turn aid in perceiving cyberbullying as being less harmful, and therefore diminish the relationship between the two variables.

Research has also demonstrated that targets of cyberbullying perceive the attacks as being less detrimental to their lives when compared to traditional bullying (Campbell

et al., 2012). Moreover, the perception of the severity of cyberbullying was dependent on additional factors, that were not assessed in the current study, which are not necessarily as pertinent in traditional bullying (Sticca & Perren, 2013). This may explain why traditional, but not cyberbullying, was related to resilience. Future research about perceptions of cyberbullying, especially in young adults, would be beneficial in further developing an understanding of the relationship between cyberbullying and resilience.

It is also possible that the relationship between cyberbullying and psychological adjustment may not be adequately explained by a mediation. Based on the results of the bivariate correlations, the relationship between cyberbullying and the adjustment outcomes in the current study are minimally related to one another, especially in the case of overall well-being as this relationship was close to 0. This conceptually makes a mediation analysis difficult to justify, as a mediation suggests that a third variable aids in explaining the underlying mechanism of the relationship between two variables. In a moderation model however, there is no need for a correlation relationship between the moderator and the independent variable (Kenny, 2018b). A moderation explores if the relationship between two variables is dependent on the level of the third variable (i.e., the moderator; Kenny, 2018b). It may be that resilience is strengthening or weakening the relationship between cyberbullying and psychological adjustment, suggesting resilience is a moderator (Kenny, 2018b). Future research would benefit from investigating if a moderation model is indeed more informative for understanding the role of resilience in the relationship between cyberbullying and adjustment than the mediation model proposed in the current study.

### **Bullying Experiences**

Consistent with past research, participants who reported being a target of traditional bullying behaviours were also more likely to report being the target of cyberbullying behaviours. This result supports the pattern of poly-victimization across traditional and cyberbullying that has been established in previous research (e.g., Beran et al., 2015; Cross et al., 2015; Kowalski et al., 2012; Waasdorp & Bradshaw, 2015). Also as predicted, participants who reported being the target of both traditional and cyberbullying behaviours also reported lower resilience, and increased symptoms of depression and anxiety. This is consistent with the literature suggesting that bullying experiences play a role in negatively influencing the resilience and psychological adjustment of bullying targets (American Osteopathic Association, 2017; Kabadayi & Sari, 2018; Kowalski et al., 2017; Maidanuic-Chirila, 2018; Moore & Woodcock, 2017; Reknes et al., 2018; Schenk & Fremouw, 2012). However, it is interesting to note that although there was evidence of poly-victimization, resilience only mediated the relationship between traditional bullying experiences and depression scores. This is perhaps due to the aforementioned extraneous variables that should be accounted for when investigating cyberbullying (i.e., target perceptions). Surprisingly, neither traditional nor cyberbullying experiences were significantly correlated with overall well-being.

**Bullying and Well-being.** Within the current study, being the target of traditional or cyberbullying behaviours was not significantly correlated with well-being. This is inconsistent with previous research that has suggested that targets of bullying often report decreases in reported well-being (e.g., Cross et al., 2015; Oriol et al., 2020; Przybylski &

Bowes, 2017; Wigderson & Lynch, 2013). This result may be a function of a complex relationship between victimization and well-being. The literature is somewhat inconsistent with how “well-being” is defined and there are substantial differences in terms of measurement (Linton et al., 2016). Some studies investigating the relationship between bullying and well-being define well-being in terms of social connections (i.e., peer relationships, connectedness; Goldblum et al., 2012), while others assess life satisfaction, purpose in life, and happiness (Oriol et al., 2020; Przybylski & Bowes, 2017). The PERMA-Profilier was designed around Seligman’s (2011) flourishing theory, which is based on the five PERMA pillars; Positive emotion, Engagement, Relationships, Meaning, and Accomplishments. Moreover, although the PERMA-Profilier assesses multiple facets of well-being and may provide an overall sense of well-being, the authors suggest that creating a single score, as was done in the current study, may lose variations across the different components and thus may obscure the intricacies of well-being (Butler & Kern, 2016). These definitional inconsistencies make it difficult to determine the nature of the relationship between bullying (both traditional and cyber) and well-being. Future research would benefit from continuing to investigate how bullying experiences impact different types of well-being using a unified, agreed upon operational definition. If the PERMA-Profilier is used for future research with bullying, it would be beneficial to investigate how bullying impacts each subscale differently rather than creating a global well-being score.

The current study’s result regarding the relationship between well-being and being targeted may also be a consequence of the participants themselves. Based on the measures of central tendency, those who participated reported low levels of being

targeted. On a scale from 1 to 4, the mean score of traditional bullying was 1.44, while cyberbullying was 1.19. This is consistent with previous research indicating that being targeted by bullying is not necessarily a widespread issue (Waasdorp & Bradshaw, 2015). However, the current sample also demonstrated high levels of functioning, with a mean resilience score of 5.17 (on a scale from 1 to 7) and a mean well-being score of 6.45 (on a scale from 0 to 10). It is possible that the low levels of bullying experiences and the high levels of functioning reported may also contribute to the explanation of the non-significant relationship between bullying and well-being. Future research would benefit from investigating the effects of bullying on well-being on a sample with a broader range of target rates. A sample from a more general population that includes young adults beyond first and second year university students is needed.

Baron and Kenny (1986) have also suggested that a moderation model is appropriate when there is a minimal correlation between the predictor and outcome variable. It may be the case that a mediation model was an incorrect explanation for the relationship between bullying experiences and well-being. Perhaps it is more appropriate to suggest that resilience *weakens* the association between being targeted and well-being rather than being the underlying mechanism by which bullying and well-being are related. Future research should examine this relationship in the context of a moderation, while taking the nuances of the operationalization of well-being into consideration.

### **Evaluation of Assessment Tools**

In order to begin assessing the relationship between being a target of bullying, resilience, and psychological adjustment, the validity of the measures needed to be established. A series of CFAs were run to test the previously established factor structures

based on past theoretical and empirical evidence (Butler & Kern, 2016; Hunt et al., 2012; Lovibond & Lovibond, 1995; Ponce-Garcia et al., 2015). All CFAs indicated that the factor structures proposed were not good fits for this data. Perhaps this result can be attributed to the measures themselves. As suggested by Perry and colleagues (2015), measures that are more complex or those that are longer often do not result in good model fit indices. As all measures exceeded 20 items and had multiple subscales, this may be an explanation as to why the current study did not replicate the previously established factor structures. Another possibility is that the current sample had influentially different demographics from those used previously to establish validity. Kim and colleagues (2015) propose that sample demographics can be highly influential for CFAs. Indeed, there are identifiable and influential differences when comparing the demographics of the current sample to the demographics of the original samples used to validate each measure.

Neither the DASS, the PECK, nor the SPF had been previously validated using a Canadian sample (Hunt et al., 2012; Lovibond & Lovibond, 1995; Ponce-Garcia et al., 2015), and the validation sample for the 23-item version of the PERMA-Profilier was comprised of only 30% Canadian participants (Butler & Kern, 2016). Additionally, only the DASS and SPF were validated with a sample that was comprised predominantly of women (Lovibond & Lovibond, 1995; Ponce-Garcia et al., 2015), whereas the PERMA and the PECK consisted of approximately 35% women in each validation sample (Butler & Kern, 2016; Hunt et al., 2012). The DASS and SPF were the only measures originally validated using an age range that matched the participants in the current study (Lovibond & Lovibond, 1995; Ponce-Garcia et al. 2015). The PECK was originally validated among

Australian children between the ages of 9 and 16 with an approximate mean age of 12 (Hunt et al., 2012). Although this measure has been validated within a young adult sample, this sample consisted of American participants, with a mean age of approximately 18 years and was 52% female (Goodboy et al., 2015). As for the PERMA-Profiler, the original validation sample only consisted of approximately 30% individuals between the ages of 18 and 24 years old (Butler & Kern, 2016). These distinct differences in age, gender distribution, and country of origin may have worked in conjunction with the complexity and length of each measure, to result in poor model fit indices.

Gender distribution and country of origin of the sample are important considerations when validating a measure. The existence of gender and sex differences across multiple areas of psychology is a well-documented subject. Indeed, there is literature suggesting differences in variables such as anxiety (Jalnapurkar et al., 2018; McLean et al., 2011), empathy (Christov-Moore et al., 2014), and perceived social support (Soman et al., 2016). While these differences are important to study, they can possibly create issues when developing or validating measures. However, if attention is not properly given to gender difference through proper sample size or demographics, then the expectations for how the measure should perform may be misrepresented. The distribution of variables within a country's population such as race, ethnicity, and educational background are also important considerations when utilizing and validating assessment tools (Harrison et al., 2014). In order to diminish some of these concerns, it has been suggested that future research ensure attention is paid to choosing participants and sample sizes to ensure samples are truly representative of the population of interest, as well as ensuring measures are more inclusive when considering these differences

(Cameron & Stinson, 2019; Rich-Edwards et al., 2018). It is important to consider when creating and using measures that factor loadings can be susceptible to changes in demographics such as gender, education, race, and ethnicity. Research must continue to make concerted efforts to ensure assessments are validated in populations beyond the samples which they were originally created with. For example, conducting more specified and representative research on demographic differences to ensure these nuances are not lost in a measure, which can be done through increased sample size, specified populations, and increasingly detailed sample descriptions when measures are created. Given the poor fit found for the previously established factor loadings for each measure, a decision was made to not use those factors and instead conduct an EFA to determine an appropriate factor structure for this sample (Schmitt, 2011)

The EFAs revealed that many items loaded differently than what was originally expected. The SPF loaded closely with what was originally anticipated, with the exception of one item cross-loading highly between Planning Behaviours and Goal Efficacy (“I am confident in my ability to think out and plan”). Similarly, although eight items were dropped due to cross-loading or failing to meet the .32 cut-off, the majority of the items of the PECK loaded as expected. The exceptions include two items that were expected to load with the Cyber subscale that loaded as Verbal/Relational bullying instead (“Other people say nasty things to me by text” and “Other people say nasty things about me on an instant messenger or chat room”). However, this result is in line with the assumption that cyberbullying is an extension of relational bullying (Burgess-Proctor et al., 2009).

The most noticeable differences in factor structure arose from the PERMA-Profiler and the DASS. Although the PERMA-Profiler only lost one item (“How often do you lose track of time while doing something you enjoy?”), many of the individual items loaded on different factors than what was expected based on previous validation studies. Some items within the PERMA-Profiler loaded onto different factors, although they still remained clustered together in their original groupings. For example, although items originally designed to assess Meaning loaded more with Positive Emotions, all three items loaded together as Positive Emotions. However, a large disruption in the loadings came from the Engagement subscale, which was designed to assess absorption, focus, and dedication to activities (Butler & Kern, 2016). All three Engagement items did not load as expected and instead loaded as either Positive emotions, Achievement, or did not load significantly. Butler and Kern (2016) acknowledged that Engagement was the subscale that had the weakest correlations of all the variables within the measure. This may be an explanation for why these items did not perform as anticipated in the current sample.

For the DASS, the largest changes for the factor loadings occurred within the Anxiety subscale. For the current sample, the items assessing physical manifestations of anxiety loaded as their own factor. This distinction does align with newer understandings of the different aspects of anxiety. According to the DSM-5, there is a distinction between Generalized Anxiety, and Panic Disorder (American Psychiatric Association, 2013). The former consists mainly of the psychological disruptions including worry, preoccupation, and irritability, whereas Panic Disorder is classified by physical symptoms such as shaking, breathing disruptions, or increased perspiration. This

increased understanding and distinction could explain why the DASS did not perform as originally expected. Additionally, it has been suggested that the shorter version of the DASS (DASS-21; Lovibond & Lovibond, 1995) be used as a single score of general negative adjustment in a Canadian sample (Zanon et al., 2020). For the current study, the DASS was chosen based on the significant reliability and validity assessments. However, with new understandings of depression and anxiety, the DASS may prove to be somewhat outdated, which may have also been a contributing factor to the poor performance. Future research may benefit from using more current and established measures, investigating if changing the DASS factors, or taking on a single-factor structure, may be a more beneficial use of this measure.

In the case of this study, the EFAs resulted in measures that had good internal consistency. However, the purpose of factor analyses is not to make measures that are individualized to specific samples, but rather to create reliable and valid assessment tools for a variety of populations. In this study, the PECK and the SPF remained the most consistent to their original form, which is encouraging for use in future research. However, the PERMA-Profiler needs continued work to ensure it is reliable and valid. Perhaps future research about bullying would benefit from using a unidimensional well-being measure, or if using a multi-dimensional measure, the constructs should remain separate and attention should be paid to assessing how bullying impacts the constructs differently. In regard to the DASS, future research may benefit from using the measure as a unidimensional assessment of negative adjustment rather than a measure of distinct depression and anxiety symptoms.

### **Limitations and Future Directions**

The current study is not without limitations that require future research to address. First and foremost, the study was underpowered and used a Bonferroni adjusted alpha to determine significance, making the criteria for finding significant results very stringent. Future research should be conducted with an adequately powered study to ensure all true results are established. Additionally, the sample demographics were significantly skewed, especially considering gender distribution. Nearly 75% of the sample was female respondents. This created issues since gender differences were not expected, yet the results indicated that this may be an important consideration. Currently, there are inconsistencies in the literature about gender differences of bullying experiences (Silva et al., 2013; Smith et al., 2018; Zsila et al., 2019) and resilience (Bezek, 2010; Portnoy et al., 2018), but the current study suggests that gender may play a more significant role than previously predicted, especially in respect to anxiety in young adults. Future research may benefit from a more in-depth investigation of the effects of gender in regard to the psychological consequences in targets of bullying behaviours. Perhaps with a larger sample of males, this study could have investigated the resilience mediated relationships between bullying and psychological adjustment for males and females separately.

It is also important to note that the current study was conducted during the initial months of the COVID-19 lockdown in 2020, which has important implications when considering who may have been participating. Indeed, it can be assumed that individuals who felt more secure and whom may have been better adjusted participated in this study. As this was an unprecedented time for research, it is difficult to say with certainty what

the ramifications of this may be. However, it could be a reason for why there was a slight elevation of overall well-being and relatively low scores of depression and anxiety within the current sample. This could impact the generalizability of the results and thus is important to consider.

Additional research would also benefit from focusing on how bullying impacts different aspects of well-being. Although previous research indicated that being a target of bullying behaviours has a negative impact on certain aspects of well-being (Goldblum et al., 2012; Oriol et al., 2020; Przybylski & Bowes, 2017), the results of the current study were not consistent with this finding. This suggests that aspects of well-being may be differently impacted by being targeted by bullying. The results of the current study support this notion, as bullying experiences were not correlated with the overall well-being score created by the PERMA-Profilier. Should the PERMA-Profilier be used in future studies, it may be advantageous to keep the constructs separate and assess how bullying impacts each subscale (i.e., positive emotions, meaning, accomplishments, etc.) rather than creating a total score. At the same time, additional research may be necessary to confirm the factor structure of the PERMA-Profilier, the DASS, and the PECK. Moreover, this study was limited by using a global score of well-being and resilience, despite the CFAs indicating that both the SPF and PERMA consisted of multiple subscales. Future research would benefit from conducting a follow-up CFA and forcing a one factor solution to investigate if these measures are valid as global assessments of their constructs.

Another significant limitation of the current study stemmed from the measures themselves. The previously established factor structures for all the measures used did not

hold for the current sample. Perhaps this limitation is a result of the sample size being smaller than ideal. Supplementary studies are necessary to corroborate the validity and reliability of the measures used in the current study, with specific emphasis on the DASS, the PECK, and the PERMA-Profiler. Although the PERMA-Profiler had been validated using multiple different samples (Butler & Kern, 2016), none of these samples consisted primarily of Canadian participants. Moreover, only one of these samples validated the entire 23-item measure, and this sample had a minority of women and young adults. The current study suggests that the factor structure postulated by Butler and Kern (2016) might not hold for young adults or may be disproportionately influenced by female respondents.

Along similar lines, the recommended factor structure of the DASS was not replicated in this sample. It has been suggested that the DASS may be more useful as an overall measure of negative adjustment rather than as an individual assessment of depression, anxiety, and stress in a Canadian sample (Zanon et al., 2020). Added research using a Canadian demographic would be valuable, but then again, perhaps research exploring if the DASS is better used as a unidimensional measure would be more consequential. As for the PECK, continued validation using a Canadian sample of young adults is necessary to determine the factor structure observed in young adult samples, as the factor structure established for children and adolescents did not hold.

The results of this study suggest that resilience acts as a protective factor against increased symptoms of depression that is often associated with being targeted by traditional bullying behaviour (e.g., American Osteopathic Association, 2017; Espelage et al., 2016; Kowalski et al., 2017; Wang et al., 2010). However, this result is limited by

two factors. The first being that cyberbullying and traditional bullying were not compared to one another in terms of negative impact, and therefore the relative effect of resilience could not be investigated. The literature has suggested that although cyberbullying may occur less frequently (Waasdorp & Bradshaw, 2015; Wang et al., 2019; Wigderson & Lynch, 2013), that traditional bullying is perceived by the targets as being more harmful than cyberbullying (Campbell et al., 2012), and that the detrimental impacts of cyberbullying depend on different factors than traditional bullying (Sticca & Perren, 2013). These may be important distinctions when considering the effects of resilience and should be considered in future research. The second limitation was that the effects of the different factors that foster resilience were not individually examined. As resilience is believed to be both a dynamic process and a constellation of personal resources, future research may benefit from investigating if different components that aggregate resilience (i.e., social support, emotional intelligence, problem solving etc.) are more influential in mitigating the effects of bullying to further understand the underlying mechanisms of this relationship.

### **Implications**

The new branch of psychology labelled “Positive Psychology” explores the good aspects of the human experience as a response to the considerable bias of focusing on maladaptive or negative aspects of behaviour (Seligman & Csikszentmihalyi, 2000). Since then, it has grown beyond simply studying happiness and has instead turned to investigating the importance of other key elements, including resilience, in order to create a holistic understanding of the human experience (Hogan, 2020). The results of this study are directly relevant to this development in the field of Positive Psychology. By

examining resilience, one of the crucial components, in an under-investigated area, this study aids in continually pushing the field forward. Nevertheless, this does not negate the importance of the more practical implications of this research.

While bullying has been a well-studied phenomenon in childhood and adolescence for many decades, the young adult target has been virtually ignored, except when considering workplace bullying. By studying young adult targets, this study was able to demonstrate that bullying does occur in young adulthood, and that the negative effects are just the same as those in adolescence and childhood. This is an important consideration for mental health professionals when working with this age group. It is also an element that bullying education programs should take into consideration. If there is evidence that bullying continues to occur in young adulthood, perhaps the creation of educational programs or support groups for this age should be a focus.

The enhancement of the factors which contribute to increased resilience is also a consideration for mental health professionals and future educational programs. Although it may not be possible to teach someone how to perceive situations differently, education about social skills, fostering social supports, and developing planning and goal-oriented behaviours, which all contribute to increased resilience, is a feasible undertaking. Through this education, resilience could be promoted and may continue to mitigate the harmful effects of bullying and other adverse experiences. Indeed, there has been a call for increased attention to be paid to proactive, rather than reactive, intervention programs that focus on continued social and emotional development (Gibson et al., 2016; Low et al., 2016). It is possible that developing the skills that promote resilience at a younger age would prove to be beneficial in later life when faced with adversity, such as adulthood

bullying. For example, PATHS (Promoting Alternative Think Strategies) is an early intervention program designed to increase social-emotional skills that has demonstrated success (Paniyiotou et al., 2020; Seyhan et al., 2017). This area of research may be a useful resource for the current bullying education programs in order to develop the aforementioned proactive programs.

Overall, the current study suggests that although resilience may be impactful, it may not be in the way that was originally proposed. Although resilience did mediate the relationship between traditional bullying and depression scores, it did not mediate the relationship between traditional bullying experiences and anxiety symptoms. Moreover, resilience did not mediate the relationship between cyberbullying and adjustment, suggesting there are unique factors to consider when studying cyberbullying. The results of the current study also suggest that the relationship between bullying experiences and well-being may require special attention paid to the various aspects that constitute well-being. Perhaps resilience may be better explained as a moderator for the relationship between bullying experiences and adjustment in young adults. Rather than explaining the underlying mechanism, it may be that the relationship between bullying experiences and negative adjustment is weakened for young adults who have higher levels of resilience or strengthened for those who have lower levels of resilience. Exploring this relationship may be the necessary next step for research. However, it may also prove to be beneficial for future research to investigate if specific aspects of resilience have more impact on the relationship between bullying and adjustment. Perhaps examining the individual effects of social support, planning behaviours, and decision-making abilities would reveal more information about the underlying mechanisms of this relationship (Lightfoot et al., 2011).

This would be advantageous for the continued development of bullying educational programs. Since resilience is often considered a dynamic process (Luthar & Zelazo, 2003), it is important to know which factors have more impact and can be developed. By focusing on developing the factors that contribute to resilience, education programs may indeed be able to enhance personal resilience in targets, and therefore reduce the resulting psychological harm. Continuing to develop an understanding of the positive factors that can influence the impact of being a target of bullying behaviour on psychological adjustment, and how they do so, will allow us to be better able mitigate these effects and to provide better support and education to those effected.

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**Appendix A**

## CUREB Ethics Clearance

**CERTIFICATION OF INSTITUTIONAL ETHICS CLEARANCE**

The Carleton University Research Ethics Board-B (CUREB-B) has granted ethics clearance for the research project described below and research may now proceed. CUREB-B is constituted and operates in compliance with the *Tri-Council Policy Statement: Ethical Conduct for Research Involving Humans* (TCPS2).

**Ethics Protocol Clearance ID:** Project # 112524

**Research Team: Ms. Emily Vanden Hanenberg (Primary Investigator)**  
Tina M. Daniels (Research Supervisor)

**Project Title:** "Sticks and stones may break my bones": The role of resilience as a mediator between traditional and cyberbullying experiences and psychological adjustment in early adulthood

**Funding Source** (If applicable):

Effective: **April 22, 2020**

Expires: **April 30, 2021.**

**Please ensure the study clearance number is prominently placed in all recruitment and consent materials: CUREB-B Clearance # 112524.**

**In light of the COVID-19 outbreak, the REB has developed guidance for human participants' research at <https://carleton.ca/researchethics/>. However, the situation is evolving rapidly so please check back regularly to keep up with any ongoing changes to this guidance.**

**Restrictions:**

This certification is subject to the following conditions:

1. Clearance is granted only for the research and purposes described in the application.
2. Any modification to the approved research must be submitted to CUREB-B via a Change to Protocol Form. All changes must be cleared prior to the continuance of the research.
3. An Annual Status Report for the renewal of ethics clearance must be submitted and cleared by the renewal date listed above. Failure to submit the Annual Status Report will result in the closure of the file. If funding is associated, funds will be frozen.

4. A closure request must be sent to CUREB-B when the research is complete or terminated.
5. During the course of the study, if you encounter an adverse event, material incidental finding, protocol deviation or other unanticipated problem, you must complete and submit a Report of Adverse Events and Unanticipated Problems Form, found here: <https://carleton.ca/researchethics/forms-and-templates/>

Failure to conduct the research in accordance with the principles of the *Tri-Council Policy Statement: Ethical Conduct for Research Involving Humans 2nd Edition* and the *Carleton University Policies and Procedures for the Ethical Conduct of Research* may result in the suspension or termination of the research project.

Upon reasonable request, it is the policy of CUREB, for cleared protocols, to release the name of the PI, the title of the project, and the date of clearance and any renewal(s).

Please contact the Research Compliance Coordinators, at [ethics@carleton.ca](mailto:ethics@carleton.ca), if you have any questions.

**CLEARED BY:**

**Date: April 22, 2020**

Natasha Artemeva, PhD, Chair, CUREB-B

Janet Mantler, PhD, Vice-Chair, CUREB-B

## Appendix B

### Recruitment Poster

**Study Name:** “Sticks and stones may break my bones”: The role of resilience as a mediator between traditional and cyberbullying experiences and psychological adjustment in early adulthood

**Description:** We are interested in factors that are associated with individual’s adjustment following experiencing being the target of bullying behaviours. In particular, we are interested in how resilience (i.e. the collection of positive characteristics present in an individual’s life) influences psychological adjustment. The focus of this study is to look at what factors associated with resilience and bullying, and how these factors might change the effect of being targeted on psychological well-being.

**Eligibility Requirements:** We are looking for students between the ages of 17-25 years in their first and second year of undergraduate studies. Students must read English fluently and will self-identify.

**Risks:** There will be no more physical risk than is consistent with sitting in front of a computer for a 30 to 45-minute period.

**Duration and Locale:** 30 to 45 minutes completed online.

**Compensation:** You will receive 0.5% towards your course (PSYC 1001, 1002, 2001, or 2002).

**Researchers:** Emily Vanden Hanenberg (Principal Investigator); Tina Daniels (Faculty Sponsor)

Email: [emilyvandenhanenberg@email.carleton.ca](mailto:emilyvandenhanenberg@email.carleton.ca)

This study has received clearance by the Carleton University Research Ethics Board (B) (Clearance # 112524).

CUREB-B:

If you have any ethical concerns with the study, please contact the Carleton University Research Ethics Board-B (by phone at 613-520-2600 ext. 4085 or via email at [ethics@carleton.ca](mailto:ethics@carleton.ca)).

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## Appendix C

### Informed Consent Form

**Name and Contact Information of Researchers:** Emily Vanden Hanenberg, Carleton University, Department of Psychology

**Email:** [Emilyvandenhanenberg@cmail.carleton.ca](mailto:Emilyvandenhanenberg@cmail.carleton.ca)

**Supervisor and Contact Information:** Tina Daniels, [tina\\_daniels@carleton.ca](mailto:tina_daniels@carleton.ca)

**Project Title:** “Sticks and stone may break my bones”: The role of resilience as a mediator between traditional and cyberbullying experiences and psychological adjustment in early adulthood

**Project Sponsor and Funder (if any)**

*N/A*

### Carleton University Project Clearance

Clearance: #112524      Date of Clearance: April 22<sup>nd</sup> 2020

### Invitation

If you are a first- or second-year Carleton University student enrolled in the following Psychology courses (i.e. PSYC 1001, 1002, 2001, or 2002), you are invited to take part in this research study. This form is intended to provide you with all of the information that will help you understand the purpose, procedure, and risks involved so that you can decide whether or not you agree to participate. Your participation in this study is completely voluntary, and a decision not to participate will not be used against you in any way. As you read this form and decide whether or not you wish to participate. Should you have any questions about participating, please email the lead researcher ([Emilyvandenhanenberg@cmail.carleton.ca](mailto:Emilyvandenhanenberg@cmail.carleton.ca)), take whatever time you need, and consult with others as you wish.

### What is the purpose of the study?

Being a target of bullying behaviours (i.e. having a rumour spread about you, being called inappropriate names, etc.) can have negative consequences on an individual's mental health, even in adulthood. Some people are able to deal with the experience of bullying behaviours in ways that are positive while others find the experience to have a negative impact on their lives. We are interested in the characteristics of the individual that might determine how this experience is internalized and impact's one's life. The purpose of this study is to understand what characteristics associated with resilience specifically can influence this experience in positive ways. The results of this study may be used for publication, in future research, or in teaching.

**What will I be asked to do?**

If you agree to take part in the study, we will ask you to:

Complete a 30 to 45-minute online survey through Carleton University's SONA system. The survey will provide you with definitions about bullying behaviours and will ask you to answer a set of questions about your bullying experiences from the previous 12 months, different cognitive processes (i.e. problem solving and planning behaviour), your social environment (i.e. friends and family), symptoms of anxiety, depression, stress, and well-being (i.e. positive emotion, engagement, relationships, meaning, accomplishment).

**Risks and Inconveniences**

We anticipate that participating in this study will involve minimal risks. Reflecting on previous bullying experiences within the past year and reporting current feelings of depression, anxiety, stress, and well-being may cause some temporary discomfort. If this is the case, at the end of this survey you will find contact information for counselling services and distress line where there are trained individuals to talk with and help work through your feelings. You have the option of not responding to any questions that you choose and may withdraw from the study at any time without consequence or penalty. If you choose to withdraw after you have started the survey you will still receive credit for participation.

**Possible Benefits**

There may be no direct benefits to you as a participant. However, participation in this study will help us understand what characteristics can impact and alter negative consequences of being targeted by bullying behaviours. This in turn may point us towards possible ways we can reduce the potential negative implications.

**Compensation/Incentives**

You will be granted .5 credits towards your introductory Psychology course (PSYC 1001, 1002, 2001, or 2002) grade as compensation for participation.

**No waiver of your rights**

By signing this form, you are not waiving any rights or releasing the researchers from any liability.

**Withdrawing from the study**

Your participation in this survey is voluntary. You have the right to withdraw from this study at any time without academic penalty. At any point while filling out this questionnaire, you have the right to decline to respond to any question or to stop responding to the questionnaire entirely and still receive full participation credit. You have the right to end your participation at any time, for any reason, up until you hit the

“submit” button at the end of the survey. If you would like to withdraw, please hit the “withdraw” button located at the bottom of each page in order to receive compensation (.5% course credit for research participation). You can only withdraw from the study while you are completing the questionnaire. If you withdraw from the study, all information you provided up to that point will be immediately destroyed and you will not be penalized. If the submit button is not pressed at the end of the survey, data will not be collected. Once you have completed and submitted your answers to the completed survey, we are no longer able to remove the information you have provided, as your answers are anonymous.

### **Confidentiality**

We will treat your personal information as confidential, although absolute privacy cannot be guaranteed. No information that discloses your identity will be released or published without your specific consent. Research records may be accessed by the Carleton University Research Ethics Board in order to ensure continuing ethics compliance. All of the information provided by you will be anonymous and confidential. Personal identifiers will be used only for compensation purposes. At the end of the survey, you will be encouraged to close the browser window to ensure maximum confidentiality. After downloading the data from Qualtrics, the surveys will not be connected to your personal identifying data in any way. All of the data will be collected and coded in such a way that your identity cannot be associated with any of the information that you provide. We collect data through the software Qualtrics, which uses servers with multiple layers of security to protect the privacy of the data (e.g. encrypted websites and password protected storage). Your data will be stored and protected by Qualtrics on Toronto-based servers and can only be disclosed via a court order or data breach. Because you will be granted course credit for taking part in the study identifying information will be retained using a code, separately from your survey answers, until the course credit is granted. After the study is completed, we will retain your anonymized data for future research use.

### **Data Retention**

The data collected will remain on the Qualtrics account until the end of the study when it will be downloaded and stored on password protected lab computers at Carleton University. It will then be deleted from the Qualtrics server and no backups will be kept on the server after the deletion has occurred. Data may be shared with trusted colleagues and with requests from competent professionals (APA guidelines 8.14). The results of this study may be published or presented at scholarly conferences, but the data will be presented so that it will not be possible to identify you individually, only group data will be presented. After the study is completed, we will retain your anonymized data for future research use.

### **Ethics review**

This project was reviewed and cleared by the Carleton University Research Ethics Board [CUREB B]. If you have any ethical concerns with the study, please contact Carleton University Research Ethics Board (by phone at 613-520-2600 [ext. 4085] or by email at [ethics@carleton.ca](mailto:ethics@carleton.ca)).

**Study results**

If you would like a copy of the complete research study, you are invited to contact the lead researcher (Emily) to request an electronic copy, which will be provided to you when the study is completed.

**Implied consent**

By selecting “I agree”, you are agreeing to participate in the study.

I voluntarily agree to participate in the study

- Yes
- No

## Appendix D

### Debriefing Form

 <p><b>Carleton</b> UNIVERSITY Canada's Capital University</p>	<p><b>DEBRIEFING FORM</b></p>
<p><b>Name and Contact Information of Researchers:</b> Emily Vanden Hanenberg, Carleton University, Department of Psychology <b>Email:</b> emilyvandenhanenberg@cmail.carleton.ca</p> <p><b>Supervisor and Contact Information:</b> Dr. Tina Daniels, Tina.Daniels@carleton.ca</p> <p><b>Project Title:</b> “Sticks and stones may break my bones”: The role of resilience as a mediator between traditional and cyberbullying experiences and psychological adjustment in early adulthood</p> <p><b>Carleton University Project Clearance</b> Clearance #: 112524      Date of Clearance: April 22<sup>nd</sup> 2020</p>	
<p><b>What are we trying to learn from this research?</b> We are interested in how people adapt in the face of adversity. We are particularly interested in what characteristics influence an individual’s ability to recover from being targeted by bullying behaviour both online and offline. Being a target of bullying behaviours (i.e. having a rumour spread about you, being called inappropriate names, etc.) can have negative consequences on an individual’s mental health, even in adulthood. Some people are able to deal with the experience of bullying behaviours in ways that are positive while others find the experience to have a negative impact on their lives. We are interested in the characteristics of the individual that might determine how this experience is internalized and impact’s one’s life. We are interesting in examining if certain characteristics associated with resilience, including cognitive processes (i.e. planning behaviours) and social skills are associated with decreased negative effects after being a target of bullying behaviours.</p>	
<p><b>Why is this important to scientists or the general public?</b> Former research in this area suggests that bullying may continue to be a problem even in adulthood. A significant amount of research focuses on the effect of bullying from childhood into adolescence and the negative consequences of it. Similarly, there is also a good amount of research indicating that a certain subset of the population does not experience bullying behaviours in the same way or to the same degree as the rest of the population. Establishing a relationship between personal characteristics, specifically resilience, and bullying experiences may suggest an additional reason for how this</p>	

subset of the unaffected population deal with these consequences. For targets of bullying behaviour, increases in resilience may help minimize the negative impact of this experience on well-being.

### **What are our hypotheses and predictions?**

We predict that individuals who report more bullying experiences will also report increases in depression and anxiety and will report decreases in well-being. However, we are also predicting that individual's who report more perceived resilience will also report fewer symptoms of depression and anxiety while having increases in reported well-being. Therefore, we are predicting that even individuals who report being the target of bullying experiences over the past year, and also report increased resilience will report fewer symptoms of depression, anxiety, and increased well-being.

### **Where can I learn more?**

#### **Books:**

Reich, J., Zautra, A., & Stuart Hall, J. (2010). *Handbook of adult resilience*. New York, NY: Guilford Press. doi: 10.1080/17439760.2011.614836

#### **Online Resources and Information:**

<https://www.prevnet.ca/bullying>

<https://www.canada.ca/en/public-health/services/bullying.html>

<https://www.apa.org/helpcenter/road-resilience>

### **Where can I go for help and support?**

If you feel you being the target of bullying behaviours on or offline, or if you feel any distress or anxiety after participating in this study please contact the resources below:

Carleton University Health and Counselling Services at: 613-520-6674, by clicking <https://carleton.ca/health/> or by going to HCS in person

Ottawa Crisis Line: 613-722-6914 (within Ottawa), 1-866-996-0991 (too-free outside Ottawa), or by clicking <https://www.crisisline.ca/>

The Distress Centre of Ottawa and Region at: 613-238-3311

Mental Health Crisis Line at: 613-722-6914

Good2Talk Post-Secondary Student Helpline at: 1-866-925-5454

### **What if I have questions later?**

For questions concerning this research, please contact Emily Vanden Hanenberg ([emilyvandenhanenberg@gmail.com](mailto:emilyvandenhanenberg@gmail.com)) or Tina Daniels ([tinadaniels@carleton.ca](mailto:tinadaniels@carleton.ca)).

If you have any ethical concerns with the study, please contact the Carleton University Research Ethics Board-B (by phone at 613-520-2600 ext. 4085 or via email at [ethics@carleton.ca](mailto:ethics@carleton.ca)).

**Thank you for your participation in this research. Your time and effort are greatly appreciated!**

**Appendix E**

## Demographic Information

Please list the following demographic information:

Please select the gender you identify with:

- 1) Male
- 2) Female
- 3) Non-binary
- 4) I wish not to identify

Age (in years)

- a) 16-17
- b) 18-19
- c) 20-21
- d) 22-23
- e) 24-25

What is your ethnicity?

- a) Indigenous/Aboriginal
- b) Black (African/Caribbean etc.)
- c) Asian (East Asian, South Asian, South East Asian, etc.)
- d) White (Caucasian, European etc.)
- e) Other
- f) I do not know
- g) I wish not to identify

## Appendix F

## Personal Experiences Checklist (PECK)

Bullying is defined as **purposeful, repetitive, and harmful** actions directed towards an individual wherein **some form of imbalance of power exists**.

		Never	Rarely	Sometimes	Once a week	Most days
		0	1	2	3	4
1	Other people say mean things behind my back					
2	Other people try to turn my friends against me					
3	Other people tell individuals not to hang around with me					
4	Other people make fun of me about things that aren't true					
5	Other people ignore me on purpose					
6	Other people call me names because I can't do something					
7	Other people make rude gestures at me					
8	Other people tell people to make fun of me					
9	Other people call me names because I'm a bit different					

10	Other people make fun of my friends					
11	Other people make death stares at me					
12	Other people say nasty things to me by text					
13	Other people threaten me over the phone					
14	Other people send me nasty e-mails					
15	Other people harass me over the phone					
16	Other people say nasty things about me on social media					
17	Other people send me computer viruses on purpose					
18	Other people say nasty things about me on an instant messenger or chat room					
19	Other people make prank calls to me					
20	Other people hit me					
21	Other people punch me					
22	Other people kick me					
23	Other people shove me					
24	Other people trip me over					
25	Other people tell people to hit me					

26	Other people say they'll hurt me if I don't do things for them					
27	Other people wreck my things					
28	Other people play practical jokes on me					
29	Other people make fun of my language					
30	Other people make fun of my culture					
31	Other people tease me about my voice					
32	Other people won't talk to me because of where I'm from					

**Appendix G**

Scale of Protective Factors- 24 (SPF-24)

Please respond with how much you agree with each of the following statements using a scale from <b>1 (Disagree completely)</b> to <b>7 (Completely agree)</b> . <b>My friends/family...</b>								
		Disagree completely			Neither agree nor disagree			Completely agree
		1	2	3	4	5	6	7
1	Keep me up to speed on important events							
2	See things the same way							
3	Are seen as united							
4	Are supportive of one another							
5	Are optimistic							
6	Spend free time together							

Please respond with how much you agree with each of the following statements using a scale from 1 ( <b>Disagree completely</b> ) to 7 ( <b>Completely agree</b> ).								
<b>I am good at...</b>								
		Disagree Completely					Completely Agree	
		1	2	3	4	5	6	7
7	Socializing with new people							
8	Interacting with others							
9	Making new friends							
10	Being with other people							
11	Working with others as part of a team							
12	Starting new conversations							

Please respond with how much you agree with each of the following statements using a scale from 1 ( <b>Disagree completely</b> ) to 7 ( <b>Completely agree</b> ).								
<b>When working on something, I...</b>								
		Disagree Completely					Completely Agree	
		1	2	3	4	5	6	7
13	Can see the order in which to do things							

14	Plan things out							
15	Organize my time well							
16	Set priorities before I start							
17	Do better if I set a goal							
18	Make a list of things to do in order of importance							

<p>Please respond with how much you agree with each of the following statements using a scale from 1 (<b>Disagree completely</b>) to 7 (<b>Completely agree</b>).</p> <p><b>I am confident in my ability to...</b></p>								
		Disagree Completely						Completely Agree
		1	2	3	4	5	6	7
19	Achieve goals							
20	Think out and plan							
21	Make good decisions/choices							
22	Think on my feet							
23	Succeed							
24	Solve problems							









## Appendix I

## Depression Anxiety Stress Scale-42 (DASS-42)

		Never	Sometimes	Often	Almost Always
		0	1	2	3
1	I found myself getting upset at quite trivial things				
2	I was aware of the dryness of my mouth				
3	I couldn't seem to experience any positive feeling at all				
4	I experienced breathing difficulties (e.g., excessively rapid breathing, breathlessness in the absence of physical exertion)				
5	I just couldn't seem to get going				
6	I tended to over-react to situations				
7	I had a feeling of shakiness (e.g., legs going to give way)				
8	I found it difficult to relax				
9	I found myself in situations that made me so anxious I was most relieved when they ended				
10	I felt that I had nothing to look forward to				
11	I found myself getting upset rather easily				

12	I felt that I was using a lot of nervous energy				
13	I felt sad and depressed				
14	I found myself getting impatient when I was delayed in any way (e.g., elevators, traffic lights, being kept waiting)				
15	I had a feeling of faintness				
16	I felt that I had lost interest in just about everything				
17	I felt I wasn't worth much as a person				
18	I felt that I was rather touchy				
19	I perspired noticeably (e.g., hands sweaty) in the absence of high temperatures or physical exertion				
20	I felt scared without any good reason				
21	I felt that life wasn't worthwhile				
22	I found it hard to wind down				
23	I had difficulty swallowing				
24	I couldn't seem to get any enjoyment out of the things I did				
25	I was aware of the action of my heart in the absence of physical exertion (e.g., sense of heart rate increase, heart missing a beat)				
26	I felt down-hearted and blue				
27	I found that I was very irritable				
28	I felt I was close to panic				

29	I found it hard to calm down after something upset me				
30	I feared that I would be “thrown” by some trivial but unfamiliar task				
31	I was unable to become enthusiastic about anything				
32	I found it difficult to tolerate interruptions to what I was doing				
33	I was in a nervous state of tension				
34	I felt I was pretty worthless				
35	I was intolerant of anything that kept me from getting on with what I was doing				
36	I felt terrified				
37	I could see nothing in the future to be hopeful about				
38	I felt that life was meaningless				
39	I found myself getting agitated				
40	I was worried about situations in which I might panic and make a fool of myself				
41	I experience trembling (e.g., in the hands)				
42	I found it difficult to work up the initiative to do things				