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EXAMINING ADOLESCENT PEER VICTIMIZATION, EMOTION REGULATION,
AND MENTAL HEALTH USING PATH ANALYSIS

by

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A Dissertation

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Abstract

The adverse effects of peer victimization in adolescent development have been consistently shown, including but not limited to internalizing problems, externalizing problems, and reduced life satisfaction. Emotion regulation, a critical individual level factor to the stress-coping process, potentially affects mental health in the context of peer victimization through different mechanisms. Based on theories and relevant empirical research, in the current study, the first mechanism was examined through mediation models, in which emotion regulation strategies (i.e., cognitive reappraisal and expressive suppression) were mediators in the relations between peer victimization and mental health. The second mechanism was tested via moderation models to examine the potential moderating role of cognitive reappraisal and expressive suppression in the relation between peer victimization and mental health. Data were from self-report surveys completed by 392 high school students. Results showed that neither cognitive reappraisal nor expressive suppression were significant mediators; however supplemental analyses of alternative models showed that mental health variables mediated the association between peer victimization and emotion regulation. Regarding moderation, there were significant interaction effects. First, at the highest level of cognitive reappraisal, there was a strong, positive relation between peer victimization and life satisfaction. Second, as expressive suppression levels increased, the negative association between peer victimization and life satisfaction weakened. No significant moderation effects were found for the internalizing or externalizing problems outcomes. Future studies should include an environmental factor in conjunction with an individual level factor like emotion regulation. Implications of these results further the understanding of emotion regulation in the context of peer victimization and mental health in high schoolers.

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Introduction

Adolescence is the developmental stage that is associated with the onset, and increasing rates, of many mental health problems (Houtrow et al., 2014; Lu, 2019). One of the risk factors that threaten adolescent mental health is stress associated with peers, and the most severe form of such stress is being bullied by peers (Bowes et al., 2015; Casper & Card, 2017; Fisher et al., 2016; Huang, 2020). Peer victimization negatively affects adolescent development in many aspects, including but not limited to self-esteem (van Geel et al., 2018), cognitive functioning (e.g., memory), sleeping problems (van Geel et al., 2016), school achievement (Vaillancourt et al., 2013), and both short term and long term mental health problems (van Geel et al., 2015).

To reduce the negative impact of peer victimization on mental health, it is crucial to understand the mechanism underlying this relation. One intrapersonal factor that has been shown as an important factor in the process of coping with stress is emotion regulation (Doyle & Sullivan, 2017; Herts et al., 2012; McLaughlin et al., 2009; Trompeter et al., 2018). Two commonly studied emotion regulation strategies include cognitive reappraisal and expressive suppression (Gullone & Taffe, 2012). Although the detrimental impacts of peer victimization have been consistently documented in the literature; it is less clear what the relations between peer victimization and emotion regulation are and how they affect mental health among older adolescents (i.e., high schoolers).

Thus, this study aims to examine two plausible mechanisms that may explain how emotion regulation works while adolescents experience peer victimization and if the mechanisms vary across different indicators of mental health. Based on the victim schema model (Rosen et al., 2007), each emotion regulation strategy (i.e., reappraisal and suppression) is hypothesized to be a mediator, which transmits the effect of peer victimization to affect mental health. This

mechanism will be tested through two mediation models. Based on the cognitive behavioral theory (CBT; Beck, 1976), cognitive reappraisal and expressive suppression may separately interact with peer interaction to reduce mental health difficulties (Ferraz de Camargo & Rice, 2020), which will be tested via moderation models. These interactions are hypothesized to differ based on gender and will be analyzed through a multigroup moderation model. A review of the relevant literature is presented below including an overview of mental health, peer victimization, the association between the two, and an overview of emotion regulation and its association with mental health. Additionally, the theoretical models will be described and the existing empirical evidence of mediation and moderation of peer victimization, emotion regulation, and mental health.

Mental Health during Adolescence

In the traditional framework that guides research on mental health, there are two broad categories: internalizing and externalizing problems. These two categories are correlated though distinctly different from one another (Mastrotheodoros et al., 2020; Vaillancourt et al., 2013; Van der Ende et al., 2016). Internalizing problems refer to experiencing distress inwards or internally, such as anxiety and depressive symptoms (Cosgrove et al., 2011). Externalizing problems refer to experiencing distress externally or in more observable ways, such as symptoms related to attention-deficit/hyperactivity disorder and conduct disorder (Cosgrove et al., 2011).

The presence or absence of these two broad categories of problems is deemed to capture the status of mental illness or health, according to the traditional medical model (Wang et al., 2011). However, this model equates the absence of mental health problems as mental health, which fails to provide a complete perspective of mental health (Suldo & Shaffer, 2008). Omitting positive indicators may lead to identifying groups who report no to low levels of psychological

problems but who also lack happiness, satisfaction with life, and/or an overall moderate to high level of well-being. To address this limitation, the dual-factor model of mental health incorporates not only psychological symptoms (i.e., internalizing and externalizing problems) but also well-being factors (Antaramian et al., 2010). Subjective well-being is an umbrella construct that includes peoples' subjective evaluations of their experiences in life (Diener & Ryan, 2009). Life satisfaction is one aspect of subjective well-being and is defined as an individual cognitive evaluation of one's life (Shin & Johnson, 1978). Therefore, the current study will apply the dual factor model to incorporate both sides of the coin including internalizing and externalizing problems and life satisfaction as an indicator of well-being. Several established risk factors and protective factors of mental health are reviewed next.

Processes of Risk and Resilience During Adolescence. Although the majority of adolescents navigate the teenage years without significant social-emotional problems, there is an increase in threats to mental health, especially depression, conduct problems, and disordered eating during this time (Compas & Reeslund, 2009). Processes of risk and resilience are of utmost importance to determine mechanisms and factors that will be most beneficial and most harmful in this age group. A risk factor has been defined as a variable of the individual or environment that is associated with the increased likelihood of a negative outcome (Compas & Reeslund, 2009). Resilience is a process, rather than a single trait of an individual, including positive outcomes despite threats to adaptive development (Luthar, 2006; Masten, 2001). Notably, in a review from Yoon and colleagues (2021), for adolescents, resilience was defined as socioecological resources that strengthen well-being such as both accessing and taking advantage of resources in one's environment. Both processes of risk and resilience and specific risk and protective factors can inform areas of prevention and intervention of mental health problems.

This study will apply the concepts of processes of risk and resilience to explore how emotion regulation works in the context of peer victimization to affect adolescent mental health.

Processes of Risk, Stress, and Mental Health. There are many risk factors for developing internalizing and/or externalizing problems and low levels of life satisfaction in adolescents. Broad contexts of risk factors for mental health problems include different categories such as biological, individual, and social factors (e.g., family, classroom, school, or community; Compas & Reeslund, 2009). Some examples of variables within these contexts may include temperament, parent psychopathology, and neighborhood crime. Adolescents' exposure to stress is also a significant risk for mental health problems. Several studies have also identified stress as an antecedent to reduced mental health (Low et al., 2012; Sandin et al., 1998; Updegraff et al., 2021). Additionally, McKnight et al. (2002) provided evidence that stressful life events are predictive of life satisfaction, internalizing problems, and externalizing problems. Regarding mental health, McMahan and colleagues (2003) noted that a comprehensive assessment of psychopathology is needed to determine specificity among associations between specific types of stress and subsequent outcomes as well as particular risk factors and outcomes. Considering the broader context of development for the risk and resilience factors, adolescents' peers become a primary context for socialization and emotional experiences during adolescence, and peer stress may become heightened (Rose & Rudolph, 2006). During this time, adolescents experience increased interpersonal demands and stressors such as conflicts in friendships, social status, rejection of peers, and peer victimization (Bakker et al., 2010). Thus, broad social stress including peer stress is a relevant area to explore, and more literature is reviewed next.

Social Stress as a Risk Factor. Many types of stress that affect mental health difficulties are social in nature, such as romantic breakups, family disruptions (i.e., parent divorce and

remarriage), and problems with parents, siblings, and/or friends (Low et al., 2012). Life satisfaction and social stress are negatively correlated in an adolescent sample both cross-sectionally and over a 1-year period (Huebner et al., 2000a). Additionally, social stressors were negatively related to life satisfaction in Norwegian adolescents (Moksnes & Haugan, 2015). Peer stress is a specific type of social stress and typically refers to difficulties such as not fitting in with peers, being made fun of by peers, or competing with peers for better grades, material items, or sports (Byrne et al., 2007). Regarding peer stress, it was found to be significantly correlated with internalizing and externalizing problems (Bakker et al., 2010; Hazel et al., 2014; Moksnes et al., 2016; Walker & Jiang, 2021). As the severe form of peer stress, peer victimization was found to be a risk factor for increasing adolescents' mental health (Rigby et al., 2007; Stadler et al., 2010). The research presented below delineates the negative impacts of peer victimization broadly and then focuses on mental health outcomes.

Peer Victimization

Peer victimization is defined as a youth being the target of peer aggression (Kochenderfer & Ladd, 1996). Whereas bullying has been defined as a type of peer victimization (Jackman et al., 2021) that involves unwanted aggression that includes a perceived power imbalance from a peer or a group of peers (i.e., not siblings or dating partners), that is either repeated or likely to be repeated (Olweus, 1993). Many researchers use the concepts peer victimization and bullying interchangeably, while others define these terms differently. Here, in this study the focus is on peer victimization which can be traditional or cyber forms. The traditional forms include verbal (e.g., called mean names), physical (e.g., hit or kicked), and relational (e.g., spread lies or rumors) peer victimization that happens in person, face-to-face. Traditional victimization can be characterized by features such as physical aggression, excluding others from a group, or

spreading rumors (Wigderson & Lynch, 2013). Although the trajectory is that peer victimization decreases into adolescence, 20% of high school students reported experiencing an occurrence of peer victimization within 2015 (CDC, 2016)

Cybervictimization is a newer phenomenon that only came to fruition with the internet and social media becoming more widespread and accessible. Cybervictimization is victimization using the Internet or other electronic media forms (Tokunga, 2010). Prevalence of cyber victimization ranges from 10% to 40% (Kowalski et al., 2014) or 3% to 72% based on varying time periods reported (e.g., the last 30 days to ever, and time frames in-between; Selkie et al., 2016). Some studies found cyberbullying victimization to be more common than traditional or “in real life” bullying victimization (Landstedt & Persson, 2014). However, other studies have found that cyberbullying was less common than other forms of bullying (Klomek et al., 2008). These differences may be due to the years of the studies, as the greater accessibility to internet and social media in more recent years may contribute to these differences. Additionally, “cybervictimization” may have been assessed slightly differently across studies causing differences among self-reports of victimization. Notably, it was uncommon for adolescents to report only being cyberbullied (Cross et al., 2015; Landstedt & Persson, 2014; Sumter et al., 2012) and not bullied in other ways as well (e.g., physical or relational).

Peer Victimization and Mental Health. Peer victimization (i.e., physical, verbal, relational, and cyber) is associated with internalizing and externalizing problems in young adolescents (i.e., 5th to 8th grade; Vaillancourt et al., 2013). Results from a meta-analysis found that bullying victimization (including cyberbullying) was causally related to negative mental health outcomes such as anxiety, depression, poorer general health, suicidal ideations, and suicidal behaviors (Moore et al., 2017). Two separate meta-analyses found similar results in that

internalizing problems and peer victimization, and externalizing problems and peer victimization have reciprocal, longitudinal associations in youth (Reijntjes et al., 2010; Reijntjes et al., 2011). Peer victimization (cyber included) has been consistently shown to be associated with depression and suicidality in adolescent populations in cross-sectional studies (Klomek et al., 2008; Landstedt & Persson, 2014; Turner et al., 2013). Regarding well-being, peer victimization (i.e., online and offline) was negatively associated with life satisfaction (Sumter et al., 2012).

The following studies did not explicitly clarify whether peer victimization included cybervictimization or not, and some may have included both traditional and cybervictimization given the definitions in the studies. Traditional bullying and cyberbullying adolescent victims' highest reported feeling was "angry," and the least reported was "afraid" for cyberbullying and "alone" for traditional bullying (Ortega et al., 2012). Victims of peer victimization are more likely to experience externalizing problems (Casper & Card, 2017) including aggression and delinquent behaviors (Barker et al., 2008; Carbone-Lopez et al., 2010; Sullivan et al., 2006). Perpetration of bullying was also identified as an outcome of bullying victimization (van Lier et al., 2012) and an increase in overall problem behaviors (Zhu et al., 2016). Additionally, high school students who were victimized by peers were more likely to have behavior problems two years later (Yeung & Leadbetter, 2010) as well as higher levels of anxiety than their peers who did not experience bullying (Maji et al., 2016). Peer victimization was also found to be negatively associated with life satisfaction in children and adolescents (Flaspohler et al., 2009; Huang, 2020; Kerr et al., 2011). Moreover, peer victimization is positively associated with social, peer, hyperactivity, conduct problems (Mohseny et al., 2019), and emotional problems (Mohseny et al., 2019; Yeung & Leadbeater, 2010; Zwierzynska et al., 2013). Bullied students also reported higher levels of anxiety than their nonbullied peers (Maji et al., 2016), and

cyberbullying victims experienced more psychological distress and low self-esteem compared to both non-victims and traditional bullying victims (Cénat et al., 2014). Peer victimization has been consistently shown to be associated with depression in adolescents in longitudinal studies (Bowes et al., 2015; Hemphill et al., 2014; Sweeting et al., 2010).

Some studies explicitly investigated only cyber peer victimization. For example, victims of peer cybervictimization experienced depression and anxiety when dealing with more daily stressors than those with less daily stressors (Wright, 2015) and more depressive symptoms in general (Klomek et al., 2008; Landstedt & Persson, 2014; Negriff, 2019). Cybervictimization was associated with increased depression and anxiety and lower subjective well-being in the school setting (Tian et al., 2018). Another study found high levels of online victimization were associated with lower life satisfaction among adolescents aged 12 to 17 (Sumter et al., 2012) and increased emotional problems in middle school and high school students (Wigderson & Lynch, 2013). Cybervictimization was positively related to both internalizing and externalizing problems (Tsitsika et al., 2015) and negatively related to life satisfaction (Moore et al., 2012). Additionally, a meta-analysis from Fisher and colleagues (2016) found that peer cybervictimization was positively associated with both internalizing and externalizing problems in adolescents. Additionally, cybervictimization was related to increased internalizing and externalizing problems and decreased social and emotional well-being in emerging adults (Holmgren et al., 2020).

Gender Differences in Peer Victimization and its Relation to Mental Health. Many studies have found gender differences in the reports of victimization (Cheng et al., 2008; Klomek et al., 2008) while other studies have found none (Jackson & Cohen, 2012; McWood et al., 2023). In a study with a sample of adolescents from Hong Kong found that boys reported higher

rates of peer victimization, and the association of victimization and depression was slightly stronger among boys (Cheng et al., 2008). In a few other studies, females reported to be peer victimized via the internet more often than males, and males reported higher frequencies of physical peer victimization (Klomek et al., 2008). Similarly, other studies found that physical peer victimization was more common in males (Carbone-Lopez et al., 2010; Riley et al., 2019) and cybervictimization was more common among female adolescents (Kowalski & Limber, 2007; Tokunaga, 2010; Tsitsika et al., 2015). However, some have found no gender differences in rates of cybervictimization (Jackson & Cohen, 2012) and others have shown boys to report experiencing significantly more cybervictimization (Sidera et al., 2021).

The conclusion of gender differences in the victimization's relation to mental health problems is inconclusive. For externalizing behaviors, physical peer victimization was found to be more strongly associated with alcohol use, aggression, and delinquent behaviors in boys compared to girls in a sample of African American 8th graders (Sullivan et al., 2006). Regarding internalizing behaviors, adolescent females reported higher levels of depression and suicidal ideation than males following bullying victimization (Fredrick et al., 2021; Turner et al., 2013). However, early adolescent boys reported depression following peer victimization, while anxiety was an effect of peer victimization for boys and girls (Lester et al., 2012). In contrast, some studies found no gender differences in the association between peer victimization and both positive and negative indicators of mental health (i.e., life satisfaction, internalizing problems, and externalizing problems; Bakker et al., 2010; Cooley et al., 2020; Frison et al., 2016; Stapinski et al., 2015).

Notably, adolescents who do not identify with traditional binary gender labels may have different experiences of peer victimization. Studies have found that transgender high school

students reported more experiences of peer victimization than cisgender youth (Norris & Orchowski, 2020). Peer victimization of transgender youth is also predictive of mental health problems (Hatchel et al., 2019). However, many studies have not focused on comparing transgender, non-binary, and cisgender youth or have combined transgender and gender non-binary youth with sexual minority youth. Additionally, many studies of transgender youth focused on specific types of biased peer victimization (e.g., transphobia victimization).

Overall, there are clear findings regarding rates of traditional peer victimization differing by gender, but cybervictimization findings of gender differences are mixed. Additionally, impacts of peer victimization by gender are unclear.

Due to the adverse consequences of peer victimization, it is important to understand how adolescents cope to help mitigate the negative consequences. The risk and protective factors when adolescents encounter severe stress such as peer victimization are reviewed below.

Processes of Resilience, Emotion Regulation, and Mental Health.

Finding ways that the effect of social stress on mental health can be buffered in adolescents is crucial, which has implications in prevention and/or intervention of mental health problems. Resilience research seeks to identify mechanisms that may have supportive and adaptive characteristics despite risk factors (Compas & Reeslund, 2009). Also, coping is a construct that can link processes of resilience to outcomes, and understanding protective factors is key to understanding how adolescents may cope with stress. A protective factor has been defined as a characteristic of an individual or environment that is related to positive outcomes despite present risk factors (Compas & Reeslund, 2009). Similar to risk factors, protective factors exist across broad contextual processes, biological, individual, and social (e.g., family,

school, and community) domains. A comprehensive understanding of risk and resilience models includes the contextual factors (e.g., poverty or significant family disruption) and individual level components (Compas & Reeslund, 2009). Variable-focused resilience models may seek to identify characteristics within an individual or the broader contexts in which individuals occupy that will potentially protect against the negative impacts stemming from risk factors.

Adolescence is a relevant contextual factor since this developmental period is distinct from others. Changes in cognitive processes for adolescents may contribute to not only increased vulnerability to risk in some areas but also increases in certain protective factors to mitigate stress.

Effective coping is a crucial, individual-level, feature of the resilience process and a key for attaining resilience outcomes (Compas & Reeslund, 2009). An intrapersonal factor that has been identified as a protective factor in many studies is emotion regulation, which also has been conceptualized as an aspect of coping (Troy & Mauss, 2011). Understanding how adolescents both react to and cope with stress in different contexts and regulate their responses such as emotions is important in the consideration of the effects of different stress (Compas et al., 2009). Furthermore, responses to stress are crucial to psychological well-being following stress (Skinner & Zimmer-Gembeck, 2007). Regulating emotions in the face of stressful situations may play a vital role in resilience development and reduced risk of psychopathology (Compas et al., 2017). Interestingly, reactions and coping factors of stress may serve as both mediators and moderators of the adverse impacts of stress (i.e., mental health problems; Compas & Reeslund, 2009). According to Grant et al. (2006), stress may function as a risk factor for internalizing and externalizing problems which are mediated and moderated by coping and regulating emotions. The literature of emotion regulation is reviewed more comprehensively below.

Emotion Regulation. Adolescents, compared to younger children, have more independence in how they regulate their emotions in response to situations throughout daily life. There are several strategies that are encompassed by emotion regulation, and two of the most researched are cognitive reappraisal and expressive suppression. Cognitive reappraisal is the act of rethinking a situation to elicit an emotion that is less impactful on the individual, whereas expressive suppression refers to inhibiting the expression of one's emotions (Gullone & Taffe, 2012). Cognitive reappraisal, more often used adequately by adolescents and adults, is when individuals process a situation and then attach meaning to it (Gross, 2002), whereas suppression includes suppressing the emotions following the situation. Thus, cognitive reappraisal is seen as an antecedent-focused strategy, whereas expressive suppression is response-focused (Gross & John, 2003). In general, emotional regulation is seen as improving with age, from early childhood to adulthood (Compas et al., 2017; Cole et al., 2004), including improvements of implementing more sophisticated emotion regulation strategies (Schweizer et al., 2020).

Cognitive reappraisal is an adaptive emotion regulation strategy, and the cognitive ability to engage in cognitive reappraisal increases as children age into adolescents and so forth for young adults (McRae et al., 2012). Many studies have found that cognitive reappraisal is both beneficial to preventing psychopathology and the use of cognitive reappraisal improves with age. Specifically, a brain imaging study found that adolescents (aged 14-17) were better at using reappraisal strategies than children (aged 10-13; McRae et al., 2012).

Suppression is sometimes beneficial when expressing emotions may have social consequences (Hsieh & Stright, 2012). However, relying on suppression is often associated with poorer adjustment (Bonanno et al., 2004). Although expressive suppression in early childhood can be a beneficial emotion regulation strategy (Carlson & Wang, 2007; Cole & Jacobs, 2018), it

has been found to be associated with poorer mental health in adolescents (Chervonsky & Hunt, 2019), including being associated with more internalizing symptoms (for a review, see Compas et al., 2017). Some age and gender differences were found in the use of expressive suppression. For example, in a sample of youth aged 9-15, expressive suppression was used less among older participants and males (Gullone et al., 2010). However, another study of adolescents aged 12-18 did not find age differences in cognitive reappraisal versus expressive suppression strategies, but male adolescents did report greater use of expressive suppression (Lantrip et al., 2016).

Gender Differences in the use of Emotion Regulation Strategies. Not all adolescents regularly engage in cognitive reappraisal when faced with stressors (Gullone et al., 2010). Although, cognitive reappraisal has been found to improve and maintain positive emotions and enhance well-being (McRae & Gross, 2020). Suppression has been found to be more common among men than women in some adult studies (Flynn et al., 2010; Gross & John, 2003; Rogier et al., 2019) but not for others (Meyer et al., 2012). Similarly, female adolescents reported greater use of cognitive reappraisal, while male adolescents were reported to use expressive suppression more often (Zhao et al., 2014). Given that girls have been found to use cognitive reappraisal more, it has been posited that girls likely have a greater ability to adequately reap the benefits of cognitive reappraisal (Zhang et al., 2020). However, in a study with 14- to 18-year-old Italian adolescents, no gender differences in the use of cognitive reappraisal and expressive suppression were found (Verzeletti et al., 2016).

Emotion Regulation and Mental Health. In adult samples, reappraisal was associated with more positive emotions (i.e., self-esteem and life satisfaction) and less negative emotions (i.e., depressive symptoms, anxiety, anger, and stress; Gross & John, 2003; Martin & Dahlen, 2005), while expressive suppression was related to negative characteristics (i.e., difficulty with

mood repair, rumination, avoidance of close relationships, low levels of self-esteem and life satisfaction, and depressive symptoms; Gross & John, 2003). A meta-analysis found similar results that the use of reappraisal predicted less psychopathology and greater well-being, and expressive suppression predicted psychopathology and decreased well-being (Aldao et al., 2010). Dysregulation of emotions in general is associated with poorer mental health in adolescents (McLaughlin et al., 2011). Specifically, cognitive reappraisal was positively associated with subjective well-being, while expressive suppression was negatively associated with subjective well-being in adolescents (Li et al., 2021). Low levels of cognitive reappraisal and high levels of expressive suppression were associated with maladaptive coping tendencies in late childhood (Gardner et al., 2017). Additionally, cognitive reappraisal was associated with better executive functioning, while expressive suppression was associated with worse executive functioning in adolescents (Lantrip et al., 2016). In a sample of Taiwanese, early to middle-aged, adolescents, cognitive reappraisal was positively related to a decrease in internalizing problems through self-concept as a mediator, and the same was true for less use of expressive suppression (Hsieh & Stright, 2012). In another study, cognitive reappraisal significantly showed mediating effects for forgiveness and depression in adolescents, while the same effects were not found for expressive suppression (Zhang et al., 2020). Additionally, cognitive reappraisal buffered the relation between stress and internalizing symptoms associated with perceived stress, whereas expressive suppression predicted an increase in internalizing problems in first year college students (Zahniser & Conley, 2018). Notably, in a study with 5th and 8th graders, overall level of anger regulation was negatively correlated with peer victimization cross-sectionally and across two years (Riley et al., 2019). In general, although greater flexibility in using different emotion regulation strategies is ideal (Lougheed & Hollenstein, 2012), cognitive reappraisal seems to be

more beneficial than expressive suppression in adults and adolescents related to mental health symptomology.

Gender Differences in the Relation between Emotion Regulation and Mental Health.

In a sample of Chinese adolescents, the positive association between cognitive reappraisal and subjective well-being was stronger for males than females (Li et al., 2021). Another study showed that male adolescents with higher levels of depression had less use of cognitive reappraisal (Chervovsky & Hunt, 2018). This study found that both males and females with higher depression and anxiety had increased use of suppression. Furthermore, the association between peer victimization and anxiety was stronger for female adolescents with low levels of reappraisal (Chervovsky & Hunt, 2018). Seventh grade boys that reported peer victimization also reported higher rates of suppression use to regulate emotions (Chervovsky & Hunt, 2018). Overall, research regarding gender differences in specific emotion regulation strategy outcomes is still unclear and lacking.

Emotion Regulation Strategies, Context, and Individual Differences. Emotion regulation may function differently in different contexts. Although cognitive reappraisal has usually been found to be more adaptive, research posits that no one strategy can be adaptive all the time (Grant & Schwartz, 2011; McRae et al., 2012). Therefore, context may make a difference in use and effectiveness of emotion regulation strategies (Westphal et al., 2010; McRae et al., 2012). For instance, Troy and colleagues (2013) found that cognitive reappraisal may be more beneficial during uncontrollable stress situations compared to controllable stress. In Troy's adult sample, controllability of stressors was reported by each participant, and higher reported use of cognitive reappraisal during times of uncontrollable stress was related to lower

levels of depressive symptoms. However, the use of cognitive reappraisal was negatively associated with mental health for controllable stress and was not adaptive in this context.

The person by situation by strategy model posits that along with context/situation, individual differences (e.g., gender, age) may also interact to explain the potential utility of a specific emotion regulation strategy (Doré et al., 2016). Due to the mixed outcomes regarding emotion regulation strategy and gender, it is possible that gender differences in the outcomes of emotion regulation may present themselves differently based on the situation. Relatedly, the Gender Role Strain Paradigm (Pleck, 1995) suggests that there is strain when individuals are not behaviorally aligned with meeting traditional gender role expectations. Meeting traditional gender role expectations may sometimes be psychologically harmful. For example, men may engage in avoidance or suppression of emotions to compensate for their gender role expectations (Berke et al., 2019). Tied together, Rogier et al. (2019) found that suppression is used more in men and reappraisal is used more by women. Additionally, psychological distress was negatively related to reappraisal and positively related to suppression in women but not men. While in men, the effects of emotion regulation strategies were more complicated in that interactions between the two were beneficial for different outcomes. For example, in men, reappraisal and verbal aggression were positively associated when low levels of suppression were present, but aggression and hostility were negatively associated with reappraisal when there were high levels of suppression. In line with Troy et al. (2013), peer victimization may be seen as an uncontrollable situation, so cognitive reappraisal may function as a moderating factor more than expressive suppression against mental health symptoms and reductions in life satisfaction. Regarding gender, Jiang et al. (2021) found that reappraisal was positively associated with life satisfaction for women despite social stress levels, whereas for men, reappraisal was only

beneficial at medium and high social stress levels, and suppression was found to be beneficial only for men at the highest level of stress. Although suppression was found to be somewhat beneficial to men, longitudinal studies find that habitual use of this strategy is associated with negative outcomes (e.g., reduced social satisfaction; Srivastava et al., 2009). Overall, the results provide evidence for the current study for the moderating role of cognitive reappraisal and expressive suppression dependent on gender in the context of peer victimization. The available literature regarding the relations between cognitive reappraisal, expressive suppression, and peer victimization are informative but also mixed. There is also a lack of research on such topics for older adolescents. The current study will use different theoretical models to provide a framework for the posited hypotheses and address the research questions in older adolescents (ages 14-18).

Understanding the Mechanism: How Emotion Regulation (ER) and Peer Victimization Work Together to Affect Adolescent Mental Health.

Two theoretical models are used to guide the hypothesized relations that may reveal how ER and peer victimization work together to affect adolescent mental health. The first is the victim schema model, which guides the examination of the mediating effects of emotion regulation, and the second is the cognitive-behavioral theory, which supports the potential moderating effects of emotion regulation.

The Victim Schema Model. The victim schema model (Rosen et al., 2009) suggests that children's experiences of victimization impact their social-cognitive and social-emotional processes to the eventual development of a victim schema. Specifically, children who have been victims by peers may develop a negative cognitive bias for social interactions leading to a pattern of negative future interactions with peers (Rosen et al., 2007). Children who experience the victim schema fall into a cyclical pattern where the victimization occurs again, which becomes

related to self-concept and the victim schema becomes “truer” and more accessible (Rosen et al., 2009). Due to such cognitive bias, children’s expectations of social interactions lead them to attend more to threatening cues from peers even during ambiguous interactions. Often, these cues or thoughts about the interactions become congruent with a victim schema and individuals read the interactions as more intently hostile. Consequently, children may have an uncontrolled emotional arousal that may hinder an appropriate and beneficial emotion regulation response. Furthermore, maladaptive emotion regulation and negative mental health responses may reinforce victimization of the youth, which leads to a vicious cycle. Then, in line with victim schema beliefs, children begin to expect peer victimization will occur. However, regulating emotional responses and controlling emotional distress using effective coping strategies, which is needed to reverse this cycle, likely become more difficult following these experiences. Thus, according to this theory, peer victimization may be an antecedent to emotion regulation strategy, which subsequently affects mental health outcomes.

The next section will provide empirical evidence for the process described in the victim schema model regarding peer victimization, emotion regulation, and mental health. It should be noted that this theory has not been fully tested or supported empirically. The relations between these variables are may not as straightforward or sequential as those stated in the theory. For example, Gross (2015) developed a model centering around the process of emotion regulation that suggests regulation of emotions may not take effect until mental health symptoms occur.

Evidence Supporting the Mediation Models. Most consistent mediation effects of emotion regulation related constructs between peer victimization and different mental health concerns were drawn from studies using emotion dysregulation (Doyle & Sullivan, 2017; Herts et al., 2012; McLaughlin et al., 2009; Trompeter et al., 2018). For example, McLaughlin and

colleagues (2009) used a measure that defined emotion dysregulation as engaging in maladaptive or inappropriate expression of emotion such as excessive crying, while peer victimization included overt, relational, and reputational but not specifically cyber. Across seven months, emotion dysregulation presented as a significant pathway linking relational and reputational peer victimization and internalizing problems in a middle school sample. Similarly, using the same procedure and definitions of constructs, emotion dysregulation mediated the path from peer victimization to aggressive behaviors toward peers (Herts et al., 2012). Likewise, emotion dysregulation, for the specific emotion of sadness, mediated overt peer victimization and internalizing problems in 6th graders (Doyle & Sullivan, 2017). Notably, the mediation results were consistent across genders for these studies (Doyle & Sullivan, 2017; Herts et al., 2012; McLaughlin et al., 2009). Emotion dysregulation and self-efficacy of coping also partially mediated the path from cybervictimization to depression as well as social anxiety in 8th and 10th grade students (Trompeter et al., 2018). Moreover, researchers found that difficulties with behavioral emotion regulation (i.e., impulsive tendencies when emotionally dysregulated) mediated the association between peer victimization and depressive symptoms in high school students (Adrian et al., 2019). The same study also found that lower cognitive emotion regulation (i.e., rumination) mediated peer victimization and anxiety symptoms.

Some studies examined the mediation effect of emotion regulation strategies directly. In a German and Swiss adolescent sample, mediation analyses were conducted to examine the potential mediating role of emotion regulation strategies within the direct relation of cybervictimization and well-being (i.e., self-esteem and life satisfaction; Schunk et al., 2022). Rumination was a mediator for both outcomes, self-esteem and life satisfaction, but neither reappraisal nor suppression were significant mediators. In a sample of Romanian adolescents,

suppression partially mediated cybervictimization and related mental health facets, including higher levels of depression and anxiety and lower levels of self-esteem (Boca-Zamfir, 2020). In a child sample (mean age = 9.79), cognitive reappraisal and maladaptive coping acted as serial mediators between the association of different types of peer victimization (i.e., verbal, social, physical, and attack on property) and school loneliness, whereas emotion suppression was only a mediator for the relation between verbal peer victimization and school loneliness (Gardner et al., 2017).

Overall, there is a scarcity of research regarding mediating effects of cognitive reappraisal and expressive suppression in the direct effects of peer victimization on mental health in American adolescents. However, mediating impacts of suppression in peer victimization situations is likely harmful.

Cognitive-Behavioral Theory. To conceptualize the moderating roles of cognitive reappraisal and expressive suppression within the path from peer victimization to mental health, a cognitive-behavioral therapy (CBT) model is described (Beck, 1976; Ferraz de Camargo and Rice, 2020). Aligning with key elements of CBT, this model posits that distorted thoughts related to victimization toward the individual allow mental health problems to be developed and maintained. Therefore, an individual's coping strategy is a crucial factor in the maintenance of cognitive distortions and problematic responses or the adaptability (i.e., internalizing problems, externalizing problems, and life satisfaction deficits). Cognitive reappraisal is considered an adaptive coping strategy (John & Gross, 2004). Thus, an individual engaging in cognitive reappraisal in peer victimization situations is postulated to engage in fewer cognitive distortions and therefore engaging in more adaptive thinking and emotions. When adaptive thinking and adaptive emotions are increased, mental health symptoms should decrease as is the expected

outcome of CBT interventions. Specifically, a victim engaging in cognitive reappraisal might experience a peer calling them a hurtful name and then reinterpret that situation from a personal attack to the perpetrator going through some negative life events like peer victimization as well, which would not lead to as many mental health problems. Whereas someone interpreting being bullied as a personal attack and not engaging in reappraisal may experience more mental health problems (Ferraz de Camargo & Rice, 2020). In contrast, expressive suppression is the inhibition of emotional expression and is generally considered to be maladaptive (Gross, 2015). In line with CBT, rather than seeking to change cognitions to be less negative, suppression would be assumed to maintain current thoughts, emotions, and behaviors. Although suppression may be beneficial to boys, possibly due to the expression of emotions conceivably reinforcing victimization, since expressing certain emotions would be outside of social norms for boys (McClain et al., 2020). Additionally, the act of engaging in suppression may also be associated with being less acclimated with emotional states and therefore, may be underreporting psychological well-being stemming from peer victimization (McClain et al., 2020). Some research, described in more detail below, suggests suppression may be beneficial for males at least in the short term (Jiang et al., 2021; McClain et al., 2020). Taken together, given this explanation and purpose of CBT, cognitive reappraisal is expected to moderate or buffer against negative outcomes in this specific domain of peer victimization, while expressive suppression may moderate the association for boys at high levels of peer victimization.

Evidence Supporting the Moderation Models. The moderating effects of emotion regulation were found in a few studies in the context of social stress. In a sample of adolescents (i.e., mean age = 15-years-old), cognitive reappraisal was found to attenuate the levels of state

depression and emotional responses following the study's social stressor tasks (Shapero et al., 2019).

There are also studies examining the moderating effects of emotion regulation for the negative effects of peer victimization more specifically. For instance, emotion regulation skills were a significant moderator for the direct relation between relational victimization and anxiety in preschoolers (Memba & Ostrov, 2021). Another study investigated the moderating effects of positive reappraisal (i.e., a coping strategy defined as cognitively reinterpreting a situation to be more positive) within the association between peer victimization and depressive symptoms in Australian adolescents aged 12 to 18 (Ferraz de camargo & Rice, 2020). Victimization included overt, relational, and reputational forms of bullying including via cyber means (e.g., texts and social media). Results showed that higher levels of reported positive reappraisal predicted less endorsement of depression symptoms when adolescents experienced relational and reputational victimization but not overt. Another study found that positive reappraisal reduced the positive association between being bullied and anxiety in adolescents and positive refocusing (i.e., thinking about positive things rather than the stressor) had the same effects for depression as an outcome (Garnefski & Kraaij, 2014). This study sampled adolescents aged 13 to 16 years old in the Netherlands and referred to bullying victimization as relational, physical, verbal, and cyber. This study also found consistent evidence that bullying victimization was associated with depression and anxiety symptoms.

A recent study investigated the relations between peer victimization, emotion regulation strategies (i.e., expressive suppression and cognitive reappraisal), and internalizing symptoms (i.e., anxiety and depressive symptoms) in 3rd and 4th graders (McClain et al., 2020). Results showed that low levels of peer rejection weakened the positive association between peer

rejection and depressive symptoms. Similarly, boys with low levels of suppression experienced fewer depressive symptoms following relational forms of peer victimization. However, suppression buffered the positive relation between peer victimization and anxiety and depression in boys. In contrast, high cognitive reappraisal in boys strengthened the positive relation between peer victimization and anxiety and weakened this relation when low levels of reappraisal were reported. Although these children were younger than the current sample, it still highlights the possibility of gender differences. In contrast, although emotion regulation weakened the direct association between peer victimization and internalizing symptoms in 7- to 10-year-old children, there were no gender differences found (Cooley et al., 2020).

Regarding gender differences, one study with college students found that cognitive reappraisal buffered the negative association between social stress and life satisfaction in college students, but expressive suppression did not for most individuals. The only exception was that expressive suppression had buffering effect for men at high social stress level (Jiang et al., 2021). These findings underscore the possible gender differences in how expressive suppression affects short-term well-being in the context of social stress, although these models have not been tested in younger samples, such as adolescents.

The Current Study

Research has consistently found that peer victimization, whether by traditional means or cyber, is associated with internalizing problems, externalizing problems, and lower life satisfaction (Bowes et al., 2015; Casper & Card, 2017; Huang, 2020; Sumter et al., 2012; Tsitskia et al., 2015; Wigderson & Lynch, 2013). Different emotion regulation strategies are also related to different facets of mental health. Specifically, cognitive reappraisal is more strongly associated with positive aspects of mental health, whereas expressive suppression is associated

with negative consequences (Li et al., 2021; Zahniser & Conley, 2018). However, there is lacking research regarding older adolescent samples for specific types of emotion regulation strategies (i.e., reappraisal and suppression). Additionally, studies that did include the specific emotion regulation strategies only examined cybervictimization rather than broad types of peer victimization (i.e., overt, verbal, relational). To bridge these research gaps, this study aims to address four main research questions.

The first question is whether peer victimization (i.e., traditional and cyber) is directly associated with internalizing problems, externalizing problems, and life satisfaction in adolescents. Based on relevant literature (Fisher et al., 2016; Reijntjes et al., 2011; Sumter et al., 2012), the hypothesis is that peer victimization will be directly and positively related to internalizing problems and externalizing problems, and directly but negatively related to life satisfaction.

The second question is whether cognitive reappraisal or expressive suppression mediates the direct association between peer victimization and mental health. The models to test this question are built on the victim schema model, which posits that children who have experienced victimization believe peer interactions will continue to be negative, leading to more instances of reported peer victimization (Rosen et al., 2007). In line with these beliefs, regulating emotions using effective strategies may be difficult following experiences of peer victimization. Past research found emotion dysregulation to be a significant mediator in the path from peer victimization to internalizing and externalizing problems (Adrian et al., 2019; Doyle & Sullivan, 2017; Herts et al., 2012; McLaughlin et al., 2009; Trompeter et al., 2018). Additionally, Boca-Zamfir (2019) found suppression to be a mediator for cybervictimization and depression in adolescents even though Schunk et al. (2022) did not find mediating effects. Based on the

available evidence, it is hypothesized that expressive suppression mediates the association between peer victimization and internalizing problems (positive), externalizing problems (positive), and life satisfaction (negative). The model with cognitive reappraisal as the mediator will be tested in an exploratory manner, and no specific hypothesis is proposed due to insufficient literature. The mediation models are presented in Figure 1.

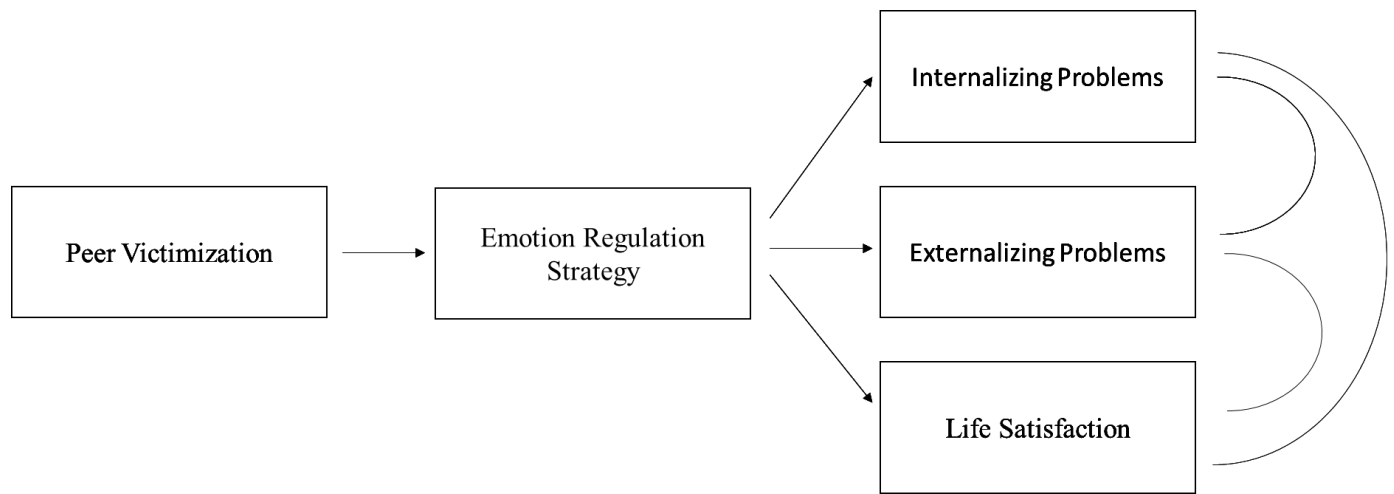


Figure 1.

Mediation Models.

Note. Emotion regulation strategies (i.e., cognitive reappraisal and expressive suppression) will be analyzed in separate models (i.e., Model 2cr and Model 2es, respectively).

The third research question is whether cognitive reappraisal and expressive suppression interact with peer victimization to predict mental health. The foundation to this question is cognitive-behavioral theory (Beck, 1976) and suggests that individuals experiencing peer victimization may have distorted thoughts as to why they are being victimized. Furthermore, those individuals who are victims from peers but engaging in the emotion regulation strategy, cognitive reappraisal, may be able to interpret any distorted thoughts or prevent distorted

thoughts to prevent developing mental health problems stemming from victimization (Ferraz de Camargo & Rice, 2021). Expressive suppression may maintain distortions for most individuals but weaken the expected victimization and mental health association for boys at high levels of peer victimization perhaps due to gender expectations of emotional expression or attending to emotions (Jiang et al., 2021; McClain et al., 2020). Research has found that reappraisal moderated peer victimization and depressive symptoms (Ferraz de Camargo & Rice, 2020) and anxiety in adolescents (Garnefski & Kraaij, 2014). Higher levels of emotion regulation skills also buffered the association between relational peer victimization and anxiety (Membra & Ostrov, 2021). According to the known evidence, the hypothesis is that higher levels of cognitive reappraisal will significantly weaken the direct relation between peer victimization and each mental health variable in expected directions. Additionally, the expressive suppression moderation model using the full sample will be tested but no specific hypothesis is generated; as gender is expected to also moderate this model, which will be tested in the following moderation models. See Figure 2 for the conceptual model.

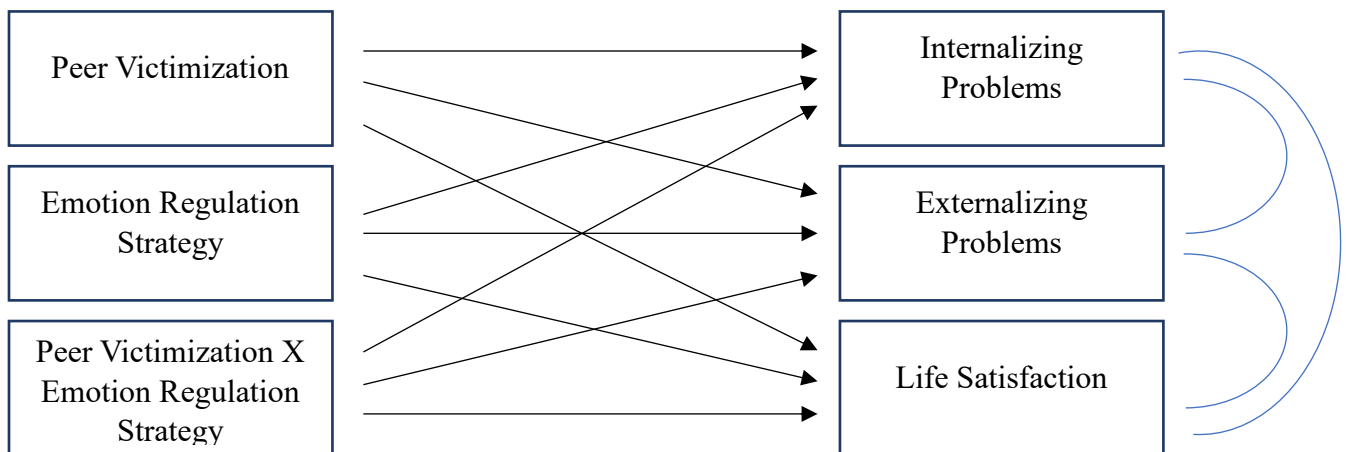


Figure 2.

Moderation Models.

Note. Cognitive reappraisal and expressive suppression will be analyzed as moderators in separate models. Models will separately analyze the full sample and then multiple groups (i.e., boys and girls; Model 1b and Model 1g, respectively).

The final research question is whether the interactions significantly differ by gender. There seem to also be differences in past moderation studies regarding gender in related contexts (Jiang et al., 2021; McClain et al., 2020; Rogier et al., 2019). Overall, there is a gap in research regarding different facets of mental health including externalizing problems and well-being as internalizing problems have most often been studied. Similar to mediation studies, more research is needed in this area for American, high school aged youth and for all forms of peer victimization. The final hypothesis is that cognitive reappraisal will significantly decrease internalizing problems and externalizing problems and increase life satisfaction despite peer victimization for both genders, but more strongly for females than males. Moreover, there is no hypothesis put forth regarding expressive suppression and analyses will be exploratory in nature.

Methods

Participants

Participants of the current study were students at an urban public high school in the mid-southern region of the United States. In the 2019 and 2020 school year, the school had an enrollment of 2,033 students with 71% identified as racial minority students. The current study sample included 396 participants who were in grades nine through twelve and ranged in age from 14 to 18 ($M = 16.21$, $SD = 1.21$). Specifically, the sample included 141 9th grade students, 75 students in 10th grade, 93 students in 11th grade, and 86 12th grade students. The sample's gender included 57.5% of students identifying as female, 40.2% identifying as male, and 1.3% identified as gender-nonconforming or gender variant. Youth identifying as gender non-

conforming were not included in the analyses due to the small sample size, so the final sample consisted of 392 adolescents (56.6% female and 41.2% male). Most participants reported living with a set of two parents (71.8%), and there was diversity in reported parental education levels with the highest being a graduate degree (26.7%) and an undergraduate degree (26.2%), followed by high school (17.4%), professional school (14.5%), and middle school (4.7%). Parent education levels were based on the parent with the highest education level obtained between both parents. The majority of the sample identified as Black (34.5%), while other racial/ethnic groups reported were Asian American (11.1%), White (30.1%), Hispanic or Latinx (12.4%), and Biracial or Multiracial (9.6%). “Other racial/ethnic identity” included Native American and Middle Eastern, and they were reported in a very small number of students (1%).

Procedure

The current study was a part of a larger project that investigates psychological stresses and strengths in youth. The dataset was used in other studies but the analyses in the current study are new. The procedure was described in other published works including Walker and Jiang (2022), Jiang and colleagues (2022), and Topps and Jiang (2023). The project was approved through the Institutional Review Board at the University of Memphis in Fall of 2019. The data were collected via a paper-and-pencil survey in January 2020 (prior to when the COVID-19 pandemic began in the United States). All students were given parental consent to take home, and if the consent was brought back signed, they were given the measures to fill out in their first period class. Additionally, student assent was shown on the front page of the survey and students were instructed that participation was voluntary. It took approximately 30 minutes to complete the anonymous survey. Homeroom teachers followed a standard script of instructions, and the whole administration process was facilitated by graduate research assistants as needed. Students

who participated were given snacks (e.g., fruit snacks, cookies, etc.) as a small incentive for participating.

Measures

Bullying Victimization. Traditional peer victimization and cybervictimization were measured by the Bullying and Cyberbullying Scale for Adolescents (BCS-A; Thomas et al., 2019). The instrument includes both a victimization scale and a perpetration scale, but only the victimization scale was used in the current study. Although the term “bullying” is used here, the current study did not include directions stating that behaviors were repeated, therefore, given the specific differentiation between bullying and victimization, this scale is used to capture adolescents’ experiences with peer victimization. There were 8 items used to measure traditional peer victimization (i.e., physical, verbal, and relational) and 5 items used to measure cybervictimization. Participants were directed to indicate how many times (1 = *Never*, 2 = *Once*, 3 = *Two times*, 4 = *Three times*, to 5 = *Four or more times*) they experienced certain aspects of peer victimization in the past 3 months. Examples include “Said mean or hurtful things to me” offline or face-to-face and “Sent or posted mean or hurtful pictures/videos about me” online/on the internet or mobile phones. Based on Thomas and colleagues (2019) psychometric analyses, factorial validity was confirmed through exploratory and subsequent confirmatory factor analyses resulting in four factors (i.e., physical, verbal, relational, and cyber). Adequate concurrent validity was found based on multiple regressions with the Olweus Global Bullying items and the Forms of Bullying Scale. Additionally, convergent validity was demonstrated based on associations with other variables including increased internalizing and externalizing problems, social support, psychoticism, neuroticism, and decreased school connectedness and extraversion. Predictive validity was also acceptable across about 6 to 7 months (Thomas et al.,

2019). Regarding reliability, the internal consistencies of the scales in the current sample are $\alpha = .83$ (traditional) and $\alpha = .78$ (cyber) and the scales combined is $\alpha = .87$.

Internalizing and Externalizing Problems. The Strengths and Difficulties Questionnaire (SDQ) is a self-report instrument that was used to measure internalizing and externalizing problems in the current study (Goodman, 1998). This measure is widely used across countries and populations to screen mental health (Graybill et al., 2021). Only the internalizing problems and externalizing problems subscales were used in the current study. These subscales included 20 items based on the past 6 months on a 3-point Likert scale including *Not True*, *Somewhat True*, and *Very True*. An example item of the internalizing problems subscale is “I worry a lot.” Additionally, an example item from the externalizing problems subscale is “I get very angry and often lose my temper.” Based on exploratory and confirmatory factor analyses, a 3-factor model (internalizing, externalizing, and prosocial behavior) yields a good fit for American adolescents with adequate subscale reliabilities (Ruchkin et al., 2008). Test-retest reliability was found to be acceptable over the course of two months for Dutch youth aged 12 to 15 (Muris et al., 2003). Concurrent validity was supported by a high correlation with the Youth Self Report ($r = .74$) for the SDQ total scores (Muris et al., 2003). The internal consistencies of the subscales used in the current study are .73 for the externalizing problems subscale and .71 for the internalizing problems subscale.

Life Satisfaction. The Brief Multidimensional Students’ Life Satisfaction Scale (BMSLSS) was used to measure self-reported life satisfaction in the current study (Seligson et al., 2003). This measure was 6 items about specific domains of life (e.g., “I would describe my satisfaction with my friendships as...”) and an item about overall satisfaction of life. This instrument used a 7-point Likert scale including 1 = *Terrible*, 2 = *Unhappy*, 3 = *Mostly*

Dissatisfied, 4 = *Mixed* (about equally satisfied and dissatisfied), 5 = *Mostly Satisfied*, 6 = *Pleased*, and 7 = *Delighted*. The following psychometric properties were examined based on a sample of middle school students (Seligson et al., 2003). Concurrent validity was acceptable as examined by correlations of the BMSLSS and two other life satisfaction measures ($r = .66$, $r = .62$). Evidence of some construct validity was also demonstrated by examining correlations between the BMSLSS and other different but related constructs (i.e., positive affect and negative affect). Convergent and discriminant validity was found for the BMSLSS in high school students through a multi-trait multi-method matrix (Seligson et al., 2003). Furthermore, factor analysis demonstrated a one factor solution and inter-item correlation were mostly moderate indicating items are related but can also be separate domains (Funk et al., 2006). Additionally, the same high school sample supported test-retest reliability across two weeks was strong ($r = .91$). Regarding reliability, internal consistency in a high school sample was adequate ($\alpha = .75$). Similarly, the internal consistency of the scale in the current study is $\alpha = .82$.

Emotion Regulation. The Emotion Regulation Questionnaire for Children and Adolescents (ERQ-CA) is a 10 item self-report measure for youth aged 10 to 18 (Gullone & Taffe, 2012). The measure has a two-factor structure of emotion regulation strategies, cognitive reappraisal and expressive suppression. The instrument rates items using a 5-point Likert scale including 1 = *Strongly Disagree*, 2 = *Disagree*, 3 = *Half and Half*, 4 = *Agree*, and 5 = *Strongly Agree*. An example of an item is “I control my feelings by not showing them.” A confirmatory factor analysis showed good fit of the two-factor structure. Past internal consistency coefficient alphas were .83 for the cognitive reappraisal scale and .75 for the expressive suppression subscale. The internal consistencies for the current sample were .85 for the cognitive reappraisal scale and .75 for the expressive suppression scale. Convergent validity was found to be adequate

based on correlations in the expected directions between the ERQ-CA subscales and the Children's Depression Inventory and the Big-Five Questionnaire for Children (Gullone & Taffe, 2012).

Data Analytic Plan

Preliminary Analyses. Preliminary analyses were completed using the IBM Statistical Package for Social Sciences 27.0 (IBM SPSS, IBM CORP, 2020). The data were initially examined by graduate research assistants to ensure there were no problematic patterns or responses on the surveys. Identified problems were addressed via consultation with advanced graduate students and faculty supervisor to decide whether to retain data. Ten survey responses were discarded from the data file due to not being completed and three responses were discarded due to inappropriate patterns of answering (e.g., 1s for all items on all instruments). The remaining data were checked for missing data, normality, and outliers (Tabachnik & Fidell, 2013). Z-scores of variables were used to detect univariate outliers using a cut score of 3.29, while the mahalanobis distance method was used to detect multivariate outliers (Leys et al., 2013). Univariate outliers were handled by substituting extreme outlier z-scores (i.e., at or above 3.29) to the next lowest z-score and into the normal distribution (Tabachnick & Fidell, 2013). Multivariate outliers were deleted (Tabachnick & Fidell, 2013) and corrected using the missing data method. Missing data were missing completely at random and the full information maximum likelihood (i.e., FIML) estimation was used for missing data in Mplus (Dong & Peng, 2013). Descriptive statistics are provided including means, standard deviations, minimum and maximum values, skewness, and kurtosis. Correlations were computed to examine the strength and directions of associations between main variables as well as to identify any issues of multicollinearity or singularity (Field, 2018). Cognitive reappraisal, expressive suppression,

internalizing problems, externalizing problems, and life satisfaction were analyzed to assess group differences for binary gender using *t*-tests.

Main Analyses. Main analyses were conducted in Mplus 8.7. To better understand the relations between observed variables, a type of structural equation modeling category, path analysis, was used (Preacher & Hayes, 2004). All models were tested through maximum likelihood estimation and rejection of the null hypothesis was determined by $p \leq .05$. Additionally, magnitudes of the effects were reported and interpreted. Gender was added as a covariate in all four models due to past literature indicating gender differences in emotion regulation strategy and mental health outcomes. Additionally, missing data was handled via the full information maximum likelihood estimation.

Moderation Analyses. Moderation refers to examining whether the strength of a relation between two (or more) variables changes as a function of a third variable (Field, 2018). In the first set of the moderation models, cognitive reappraisal, which is a continuous variable, was the moderator. Endogenous variables included internalizing problems, externalizing problems, and life satisfaction, and the exogenous variable was peer victimization. For Model 1, cognitive reappraisal was added as the moderator and an interaction term between peer victimization and cognitive reappraisal was created to examine whether cognitive reappraisal moderated the relation between cognitive reappraisal and the endogenous variables. Analysis of this model utilized the full sample with both gender groups (i.e., boys and girls). In the second set of the moderation models, the same model was tested in separate gender groups through multi-group comparison. That is, Model 1 was evaluated separately for boys (Model 1b) and girls (Model 1g). In the second set of moderation models, expressive suppression was the moderator variable instead of cognitive reappraisal and an interaction term between expressive suppression and peer

victimization was created. Everything else remained the same to test the moderation effects of expressive suppression and whether the causal relationships in the model differed by gender through multi-group comparison. Main effects and interaction effects were interpreted. See Figure 1.

Mediation Analyses. Mediation exists when the direct relationship between variables can be explained partially or fully by another variable (Field, 2018). In the current study, two mediation models were analyzed using path analysis, and direct and indirect effects were evaluated and interpreted. In both models, the one exogenous variable is peer victimization; the endogenous variables are internalizing problems, externalizing problems, and life satisfaction. The first mediation model, Model 2cr included cognitive reappraisal as a mediator and the second model (Model 2es) examined expressive suppression as a mediator. See Figure 2. In all, four models were analyzed.

Guided by the literature, in all models, bivariate correlations between all three mental health variables were included a priori. Based on the guidelines from Hu and Bentler (1999), model fit was assessed by chi-square goodness-of-fit, the comparative fit index (CFI) greater than .95, the standardized root mean square (SRMR) equal to or less than .08, and the root mean square error of approximation (RMSEA) equal to or less than .06. Any post-hoc analyses that are recommended were only added if past research supports such modifications.

Results

Descriptive statistics, correlations, and group differences were analyzed using SPSS 28.0 (IBM Corp. 2020), and main analyses were tested using Mplus Version 8 (Muthén & Muthén, 1998-2017).

Missing Data and Normality. Missing data for all variables were missing completely at random as evidenced via Little's MCAR test's not significant p -value. Missing data were handled via FIML as is the default for Mplus 8.0. Based on skewness and kurtosis statistics in the current study, that data were normally distributed. Univariate outliers, identified by discovering and inspecting z -scores > 3.29 , were not found for cognitive reappraisal, expressive suppression, externalizing problems, or life satisfaction (Tabachnick & Fidell, 2013). There were five univariate outliers identified for the peer victimization variable and one for the internalizing problems variable. Values with extreme z -scores were substituted for the next lowest value with an associated z -score closest to 3, to bring them into the average range. Regarding multivariate outliers, there were a total of 2 identified through the Mahalanobis distance technique and subsequently deleted then corrected using FIML for the main analyses (Tabachnick & Fidell, 2013).

Descriptive Statistics. The numbers on the scale that measured peer victimization were frequency of the incidents (e.g., 1 = one instance of peer victimization, 2 = experienced twice, etc.) in the past 3 months from the time data were collected. The average level of peer victimization reported by the participants in the current sample ($M = 1.35$, $SD = 0.51$) suggested that on average frequency of peer victimization was relatively low (i.e., 1 to 2 instances of peer victimization in the past 3 months). The measure of externalizing problems and internalizing problems used a 3-point scale that assessed the degree of the problems that participants believe applied to themselves from 0 = *Not True* to 2 = *Very True*. The average levels of externalizing behaviors reported by participants in the sample ($M = 0.57$, $SD = 0.34$) and internalizing problems ($M = 0.70$, $SD = 0.35$) fell between *Not True* and *Somewhat True*, suggested that on average externalizing and internalizing problems were low. The life satisfaction scale had 7-

points that assessed the level of satisfaction. The reported average level of life satisfaction ($M = 5.25$, $SD = 1.03$) fell between *Mostly Satisfied* and *Pleased* and suggested that, on average, adolescents in this sample were satisfied with life. On the 5-point scale of emotion regulation, the average levels for both strategies, cognitive reappraisal ($M = 3.38$, $SD = 0.75$) and expressive suppression ($M = 3.21$, $SD = 0.83$) fell between *Half and Half* and *Agree* and suggested that adolescents in the current study used these strategies more times than not. See Table 1 for descriptive statistic results in detail.

Table 1

Descriptive Statistics of Peer Victimization, Mental Health, and Emotion Regulation.

Measure	Mean	SD	Range	Skewness	Kurtosis
Peer Victimization	1.35	0.51	1 – 5	1.74	2.35
Expressive Suppression	3.21	0.83	1 - 5	-0.01	-0.65
Cognitive Reappraisal	3.38	0.75	1 - 5	-0.19	0.16
Life Satisfaction	5.25	1.03	1 - 7	-0.70	0.69
Internalizing Problems	0.70	0.35	0 – 2	0.36	-0.22
Externalizing Problems	0.57	0.34	0 - 2	0.59	-0.02

Correlations. To determine whether a statistically significant relation was present between any of the main variables of interest, a Pearson r was calculated. All correlation size conclusions utilized Cohen’s (1988) interpretation of correlation coefficient’s magnitude. First, the relation between peer victimization and internalizing problems was statistically significant, $r(362) = .37$, $p < .001$, indicating the presence of a moderate and positive correlation. Peer victimization was also shown to have a positive, statistically significant, and moderate

correlation with externalizing problems $r(367) = .34, p < .001$. In a similar vein, peer victimization and life satisfaction had a negative, statistically significant, though small correlation $r(365) = -.25, p < .001$.

Additionally, cognitive reappraisal and expressive suppression were positively correlated at a low level with statistical significance, $r(368) = .15, p < .01$. Cognitive reappraisal had a statistically significant correlation with all mental health variables. Cognitive reappraisal was also negatively correlated at low levels with internalizing problems $r(357) = -.21, p < .001$ and externalizing problems $r(364) = -.27, p < .001$. The relation between cognitive reappraisal and life satisfaction had a small positive correlation $r(362) = .26, p < .001$. The other emotion regulation variable, expressive suppression, had a positive, small correlation with internalizing problems $r(357) = .18, p < .001$ but not a statistically significant correlation with externalizing problems. However, expressive suppression and life satisfaction had a negative and small correlation $r(363) = -.17, p < .01$.

All mental health variables were correlated with each other in expected directions at statistically significant levels. The relation between internalizing problems and externalizing problems had a positive, medium correlation, $r(372) = .39, p < .001$. Life satisfaction had a negative and strong correlation with internalizing problems, $r(365) = -.52, p < .001$ and a negative, moderate correlation with externalizing problems, $r(371) = -.33, p < .001$. See Table 2 for correlation results.

Table 2.***Correlations between Main Variables***

Variable	1.	2.	3.	4.	5.	6.
1. Peer Victimization	--	--	--	--	--	--
2. Life Satisfaction	-.25**	--	--	--	-	--
3. Externalizing Problems	.34**	-.33**	--	--	--	--
4. Internalizing Problems	.37**	-.52**	.39**	--	--	--
5. Expressive Suppression	.03	-.17**	.09	.18**	--	--
6. Cognitive Reappraisal	-.08	.26**	-.27**	-.21**	.15**	--

Note: ** Correlation is significant at the 0.01 level (2-tailed).

Group Mean Differences. Independent samples t-tests were conducted to compare gender differences across main variables including peer victimization, emotion regulation variables, and mental health variables. No gender differences were found for peer victimization, cognitive reappraisal, expressive suppression, or externalizing problems. Female perceived peer victimization ($M = 1.37$, $SE = 0.04$) was higher than male peer victimization ($M = 1.31$, $SE = .04$), but this difference was not statistically significant, $t(388) = -1.22$, $p = .225$, two-tailed. Cognitive reappraisal was higher in males ($M = 3.40$, $SE = 0.06$) than females ($M = 3.36$, $SE = 0.05$), but this difference was not statistically significant, $t(388) = 0.42$, $p = .674$, two-tailed. For expressive suppression, males reported higher levels ($M = 3.21$, $SE = 0.06$) than female students ($M = 3.19$, $SE = 0.06$); however, this was not a statistically significant difference, $t(388) = 0.23$, $p = .821$, two-tailed. Regarding mental health variables, male ($M = 0.58$, $SE = 0.03$) and female students ($M = 0.56$, $SE = 0.02$) reported higher levels of externalizing problems but was not a statistically significant difference, $t(388) = 0.41$, $p = .679$. On average, females reported more internalizing problems ($M = 0.78$, $SE = 0.02$) than male students ($M = 0.58$, $SE = 0.02$), and this

difference was statistically significant, $t(388) = -5.75, p < .001$. Lastly, life satisfaction was reported to be higher among male students ($M = 5.45, SE = 0.07$) than female students ($M = 5.11, SE = 0.07$), and this difference was statistically significant, $t(388) = 3.26, p < .01$.

Main Analyses

Mediation Cognitive Reappraisal. To investigate whether cognitive reappraisal mediated the relation between peer victimization and mental health, a path model was tested. The baseline model demonstrated a fit that was close to the acceptable range. Model fit indices were as follows: a significant chi-square value ($\chi^2 = 9.55, df = 2$), RMSEA = 0.098, CFI = 0.977, and SRMR = 0.033. The modification index results suggested that adding a path where gender predicted life satisfaction would reduce chi-square by 9.21 and improve model fit and other options put forth for direct paths were in the model as correlated variables. Also, despite some studies not finding gender differences in life satisfaction reports, there were also studies that had reported gender differences (Chen et al., 2020; Supervía et al., 2023). Thus, this path was added to the model. After this path was added, model fit of the data was improved and acceptable as evidenced by a non-significant chi-square value ($\chi^2 = 0.134, df = 1$) and the following goodness of fit index values: RMSEA = 0.000, CFI = 1.00, and SRMR = 0.004. Thus, this model was accepted as the final model. Model fit indices of all models are presented in Table 3.

Table 3

Model Fit Indices.

Model	Chi-square	Df	CFI	SRMR	RMSEA
Cognitive Reappraisal Mediation	0.134	1	1.000	0.004	0.000
Expressive Suppression Mediation	0.109	1	1.000	0.004	0.000
Cognitive Reappraisal Moderation	6.385*	1	0.982	0.024	0.123

Table 3 (Continued)					
Model	Chi-square	Df	CFI	SRMR	RMSEA
Expressive Suppression Moderation	10.784*	1	0.967	0.032	0.166
Supplemental Cognitive Reappraisal Mediation	1.009	1	1.000	0.011	0.005
Supplemental Expressive Suppression Mediation	0.549	1	1.000	0.008	0.000

*Significant chi-squares ($p < .05$)

Results indicated that peer victimization significantly predicted all three mental health variables. First, peer victimization significantly and negatively predicted life satisfaction ($\beta = -0.470$, $SE = .098$, $p < .001$), accounting for approximately 14.5% of the variance ($R^2 = .145$). Second, peer victimization significantly and positively predicted internalizing problems ($\beta = .239$, $SE = .032$, $p < .001$), accounting for 23.9% of the variance ($R^2 = .239$). Lastly, peer victimization significantly and positively predicted externalizing problems ($\beta = .224$, $SE = .032$, $p < .001$), accounting for 18.6% of the variance ($R^2 = .186$). Gender was also significantly predictive of life satisfaction ($\beta = -0.309$, $SE = .100$, $p < .005$), internalizing problems ($\beta = .187$, $SE = .032$, $p < .001$), but not externalizing problems ($\beta = -0.037$, $SE = .032$, $p = .354$). Specifically, females reported lower levels of life satisfaction and higher levels of internalizing problems compared to males. Additionally, cognitive reappraisal significantly predicted all three mental health variables: life satisfaction ($\beta = 0.322$, $SE = .067$, $p < .001$), internalizing problems ($\beta = -0.077$, $SE = .021$, $p < .001$), and externalizing problems ($\beta = -0.111$, $SE = .022$, $p < .001$). However, peer victimization was not a significant predictor of cognitive reappraisal ($\beta = -0.110$, $SE = .077$, $p = .152$). Cognitive reappraisal accounted for 0.6% of the variance ($R^2 = .06$). Indirect effects (cognitive reappraisal as a mediator) were also nonsignificant for all dependent variables including life satisfaction ($\beta = -0.035$, $SE = .026$, $p = .170$), internalizing problems ($\beta = 0.009$, $SE = .006$, $p = .182$), and externalizing problems ($\beta = 0.012$, $SE = .009$, $p = .167$). See

Table 4 for direct and indirect effect results. See Figure 3 for a diagram of significant paths.

These findings did not support the hypothesized mediation model.

Table 4

The Direct, Indirect, and Total Effect Sizes for the Cognitive Reappraisal Mediation Model.

To	From	Unstandardized Effects		
		Direct	Indirect	Total
Life Satisfaction	Peer Victimization	0.240**	-0.036	0.204
	Cognitive Reappraisal	-0.244**	--	-0.244
	Gender	0.208**	--	0.208
Internalizing Problems	Peer Victimization	0.354**	0.008	0.362
	Cognitive Reappraisal	-0.169**	--	-0.169
	Gender	0.208**	--	0.208
Externalizing Problems	Peer Victimization	0.337**	0.009	0.346
	Cognitive Reappraisal	-0.247**	--	0.247
	Gender	-0.085	--	-0.085
Cognitive Reappraisal	Peer Victimization	-0.073	--	-0.073

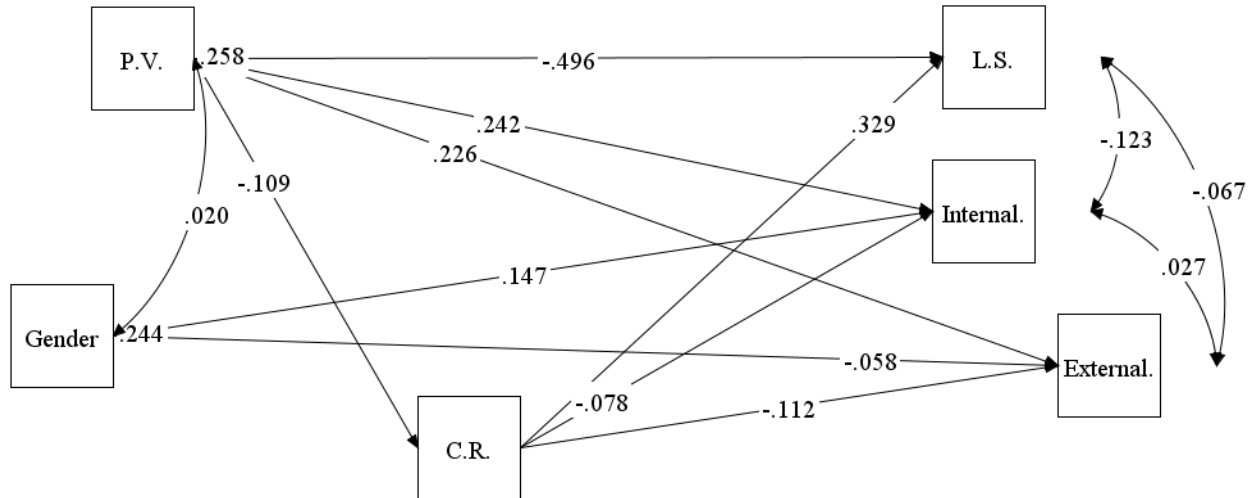


Figure 3.

Paths from the Cognitive Reappraisal Mediation Model.

Mediation Expressive Suppression. Next, the potential mediating effect of expressive suppression between peer victimization and mental health was examined in the same way as cognitive reappraisal. The model fit indices of the original model were borderline acceptable ($\chi^2 = 10.373$, $p = .006$, $RMSEA = 0.103$, $CFI = 0.972$, and $SRMR = 0.034$). Given modification indices provided, the path from gender to life satisfaction was added to improve fit. After the path was added, the model fit indices improved and were as follows: $\chi^2 = 0.109$, $p = .741$, $RMSEA = .000$, $CFI = 1.00$, and $SRMR = .004$. Results indicated that peer victimization significantly predicted all three mental health variables. First, peer victimization significantly and negatively predicted life satisfaction ($\beta = -.487$, $SE = .100$, $p < .001$), accounting for approximately 11.6% of the variance ($R^2 = .116$). Second, peer victimization significantly and positively predicted internalizing problems ($\beta = .242$, $SE = .032$, $p < .001$), accounting for 24.2% of the variance ($R^2 = .242$). Lastly, peer victimization significantly and positively predicted externalizing problems ($\beta = .234$, $SE = .033$, $p < .001$), accounting for 13% of the variance ($R^2 =$

.130). Gender also significantly predicted life satisfaction ($\beta = -0.328$, $SE = .102$, $p < .005$) and internalizing problems ($\beta = .193$, $SE = .032$, $p < .001$), but not externalizing problems ($\beta = -0.032$, $SE = .033$, $p = .341$). Specifically, compared to being male, being female was more predictive of lower life satisfaction and higher internalizing problems. Additionally, expressive suppression significantly and positively predicted internalizing problems ($\beta = 0.070$, $SE = .019$, $p < .001$) and negatively predicted life satisfaction ($\beta = -0.197$, $SE = .063$, $p < .005$). Externalizing problems were not predicted by expressive suppression ($\beta = -0.030$, $SE = .020$, $p = .126$). Furthermore, peer victimization was not a significant predictor of expressive suppression ($\beta = 0.064$, $SE = .084$, $p = .449$). Expressive suppression accounted for 0.2% of the variance ($R^2 = .002$). Similar to the cognitive reappraisal model, the indirect effects, were nonsignificant in this model for all dependent variables including life satisfaction ($\beta = -.013$, $SE = .017$, $p = .461$), internalizing problems ($\beta = .004$, $SE = .006$, $p = .457$), and externalizing problems ($\beta = .002$, $SE = .003$, $p = .497$). See Table 5 for direct and indirect effect results. See Figure 4 for a diagram of significant paths. These findings did not support the hypothesized mediational model.

Table 5

The Direct, Indirect, and Total Effect Sizes for the Expressive Suppression Mediation Model.

To	From	Unstandardized Effects		
		Direct	Indirect	Total
Life Satisfaction	Peer Victimization	-0.516**	-0.012	-0.528
	Expressive Suppression	-0.192*	--	-0.192
Internalizing Problems	Peer Victimization	0.246**	0.004	0.250
	Expressive Suppression	0.069**	--	0.069
	Gender	0.150**	--	0.150

Table 5 (Continued)				
To	From	Unstandardized Effects		
Endogenous	Exogenous	Direct	Indirect	Total
Externalizing Problems	Peer Victimization	0.236**	0.002	0.238
	Expressive Suppression	0.030	--	0.030
	Gender	-0.060	--	-0.060
Expressive Suppression	Peer Victimization	0.064	--	0.064

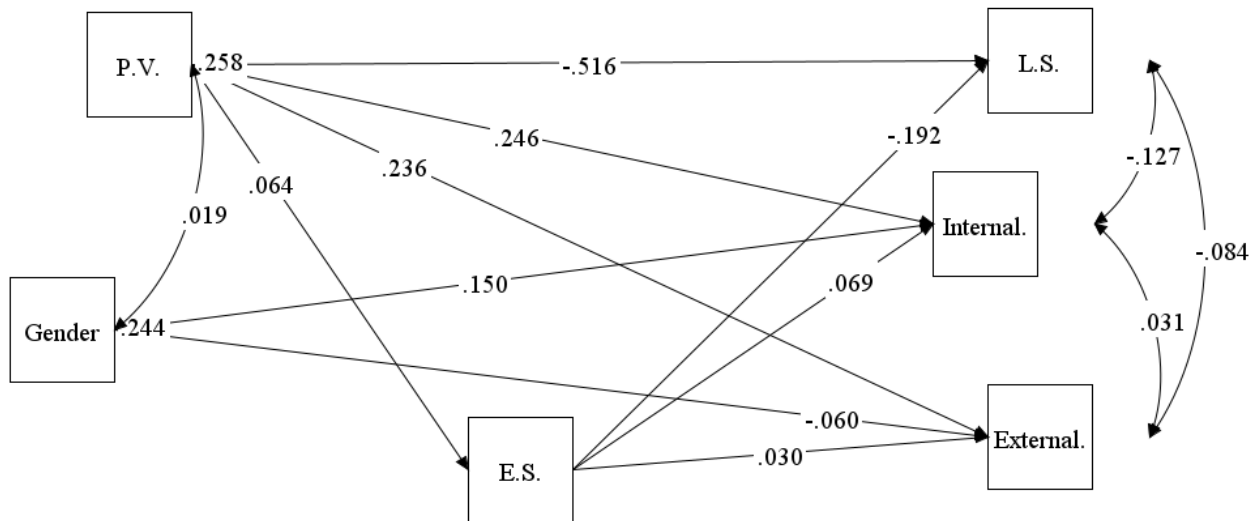


Figure 4.

Paths from Expressive Suppression Mediation Model.

Moderation Cognitive Reappraisal. Interaction effects of cognitive reappraisal between peer victimization and mental health was examined. Model fit indices were acceptable, because even though there was a significant chi-square value ($\chi^2 = 6.385, df = 1, p < .05$) and a poor RMSEA value (0.123) there was a CFI value (0.982) greater than .96 and an SRMR value (0.024) lower than .09. The modification indices did not lead reasonable changes considering the conceptual and semantic meaning of the suggested changes and thus no modifications were made.

Model results indicated that peer victimization significantly predicted all three mental health variables as previously shown: life satisfaction ($\beta = -0.844$, $SE = .209$, $p < .001$), accounting for approximately 14.3% of the variance ($R^2 = .143$), internalizing problems ($\beta = 0.533$, $SE = .200$, $p < .05$), accounting for 21.1% of the variance ($R^2 = .211$), and externalizing problems ($\beta = .499$, $SE = .202$, $p < .05$), accounting for 18.2% of the variance ($R^2 = .182$). Gender was also significantly predictive of internalizing problems ($\beta = 0.215$, $SE = .044$, $p < .001$) but not externalizing problems ($\beta = -0.086$, $SE = .048$, $p = .077$). Cognitive reappraisal did not significantly predict life satisfaction ($\beta = -0.135$, $SE = .133$, $p = .310$), internalizing problems ($\beta = -0.046$, $SE = .128$, $p = .721$), or externalizing problems ($\beta = -0.137$, $SE = .131$, $p = .294$). The interaction of cognitive reappraisal and peer victimization did not significantly predict internalizing problems ($\beta = -0.128$, $SE = .116$, $p = .273$) or externalizing problems ($\beta = -0.098$, $SE = .118$, $p = .410$). Significant paths are presented in Figure 5. However, the interaction between peer victimization and cognitive reappraisal significantly and positively predicted life satisfaction ($\beta = 0.364$, $SE = .121$, $p < .05$). Regarding cognitive reappraisal as a moderator in the model with life satisfaction as an outcome, results showed that at all levels of cognitive reappraisal, life satisfaction had a positive association with peer victimization, but such association was only statistically significant for above average levels of cognitive reappraisal (1 SD above the mean level). This result also indicated that at higher levels of peer victimization, the association between cognitive reappraisal and life satisfaction was stronger compared to those at lower levels of peer victimization. See Table 6 for direct effects for life satisfaction as an outcome. See Figures 6 and 7 for plots.

Table 6

The Interaction Effects of Cognitive Reappraisal and Peer Victimization on Life Satisfaction.

Exogenous Variables	Endogenous Variable (Life Satisfaction)			
	B	SE	95% Confidence Interval	
			Lower Bound	Upper Bound
Peer Victimization	-0.844**	0.209	-1.187	-0.501
Cognitive Reappraisal	-0.135	0.133	-0.355	0.084
Peer Victimization x Cognitive Reappraisal (Interaction)	0.364*	0.121	0.164	0.564
Lower Cognitive Reappraisal	0.120	0.129	-0.092	0.333
Mean Cognitive Reappraisal	0.386	0.213	0.035	0.737
Higher Cognitive Reappraisal	0.652*	0.300	0.158	1.146

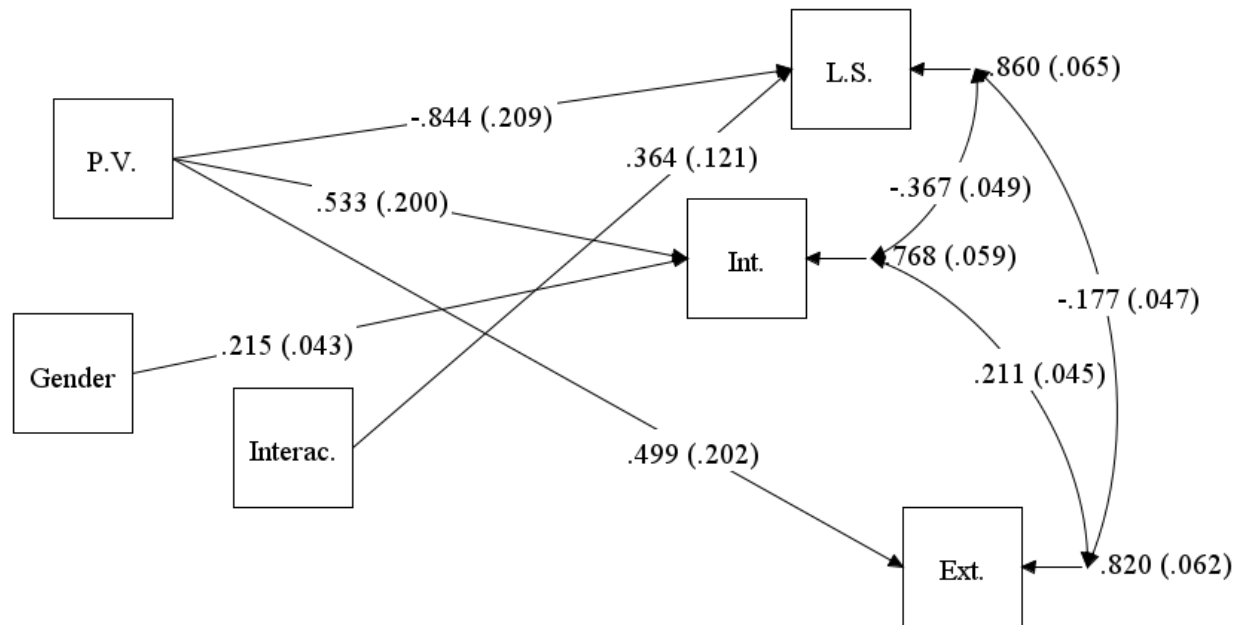


Figure 5.

Significant Paths from the Cognitive Reappraisal Moderation Model.

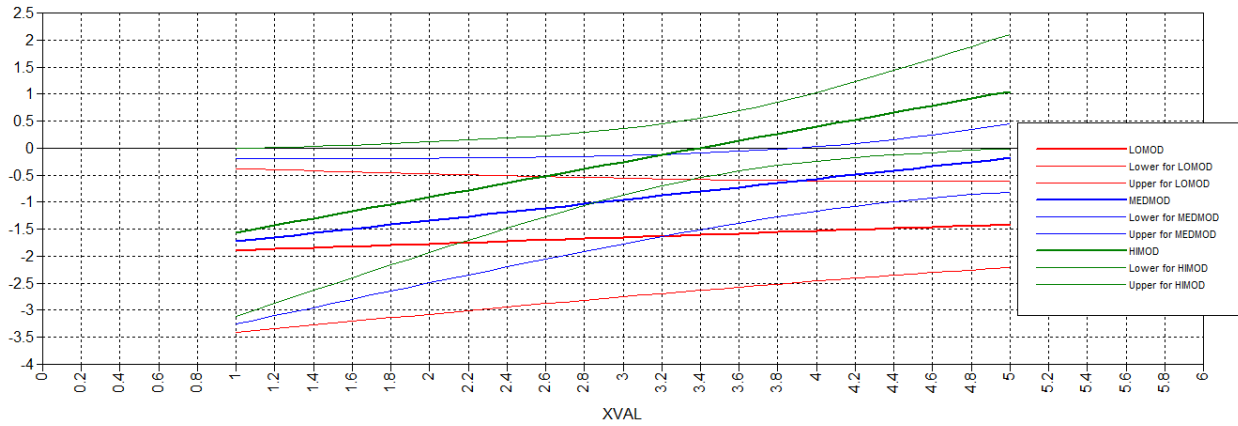


Figure 6.

Interaction between Peer Victimization and Cognitive Reappraisal Impacts on Life Satisfaction Plot.

Note. 1. Low levels of cognitive reappraisal are equated to 1 standard deviation below the mean of self-reported levels of cognitive reappraisal. Medium levels of cognitive reappraisal are equated to the average self-reported levels of cognitive reappraisal. High levels of cognitive reappraisal are equated to 1 standard deviation above the mean of self-reported levels of cognitive reappraisal. 2. Thin lines represent confidence intervals.

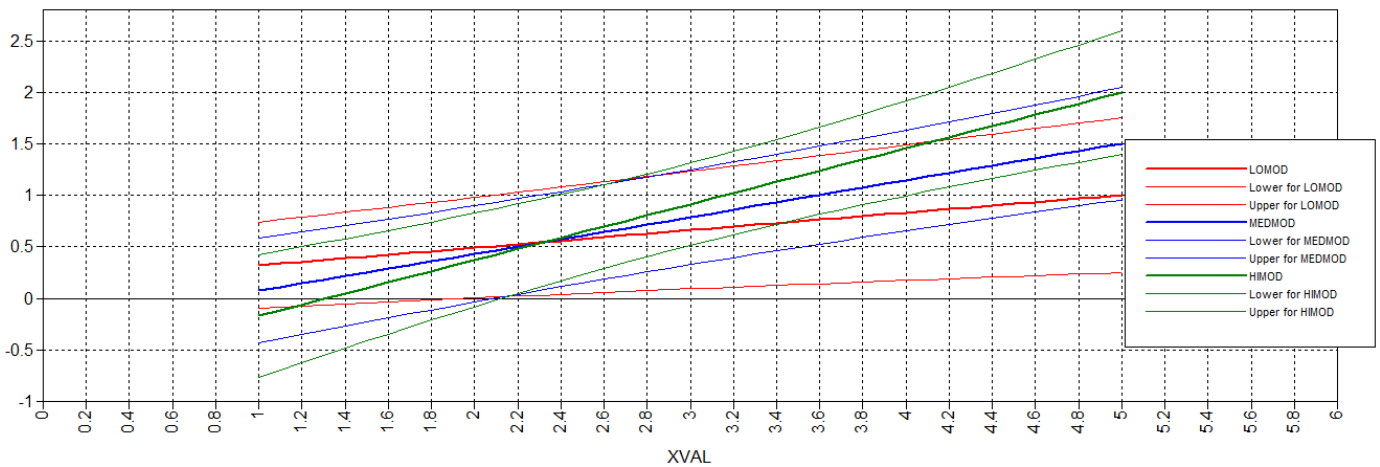


Figure 7.

Interaction between Peer Victimization and Cognitive Reappraisal Impacts on Life Satisfaction Plot.

Note. Peer victimization is the moderator and cognitive reappraisal is the exogenous variable.

Moderation Expressive Suppression. The potential interaction effect of expressive suppression between peer victimization and mental health was examined. Model fit indices were acceptable. Although there was a larger and significant chi-square value ($\chi^2 = 10.784, df = 1, p < .05$) and a poor RMSEA value (0.166) there was a CFI value (0.967) slightly greater than .96 and an SRMR value (0.032) less than .09. No modification was made based on the modification indices because no suggested changes made sufficient conceptual and semantic sense. Model results indicated that peer victimization significantly predicted all three mental health variables as previously shown: life satisfaction ($\beta = -1.393, SE = .373, p < .001$), accounting for approximately 10.2% of the variance ($R^2 = .102$), internalizing problems ($\beta = 0.285, SE = .120, p < .05$), accounting for 20.7% of the variance ($R^2 = .207$), and externalizing problems ($\beta = .423, SE = .123, p < .05$), accounting for 13.1% of the variance ($R^2 = .131$). Gender significantly

predicted internalizing problems ($\beta = 0.158$, $SE = .030$, $p < .001$) but not externalizing problems ($\beta = -0.054$, $SE = .034$, $p = .106$). Expressive suppression did not predict internalizing problems ($\beta = 0.091$, $SE = .053$, $p = .085$). Expressive suppression negatively predicted life satisfaction ($\beta = -0.553$, $SE = .164$, $p < .05$) and positively predicted externalizing problems ($\beta = 0.117$, $SE = .054$, $p < .05$). The interaction of expressive suppression and peer victimization did not significantly predict internalizing problems ($\beta = -0.017$, $SE = .036$, $p = .629$) or externalizing problems ($\beta = -0.062$, $SE = .036$, $p = .090$). Significant paths are presented in Figure 8 and the conditional effects plot is presented in Figure 9. The interaction between peer victimization and expressive suppression significantly and positively predicted life satisfaction ($\beta = 0.275$, $SE = .110$, $p < .05$). Specifically, at higher levels of expressive suppression, life satisfaction was higher regardless of the level of peer victimization. See Table 7 for direct effects for life satisfaction as an outcome.

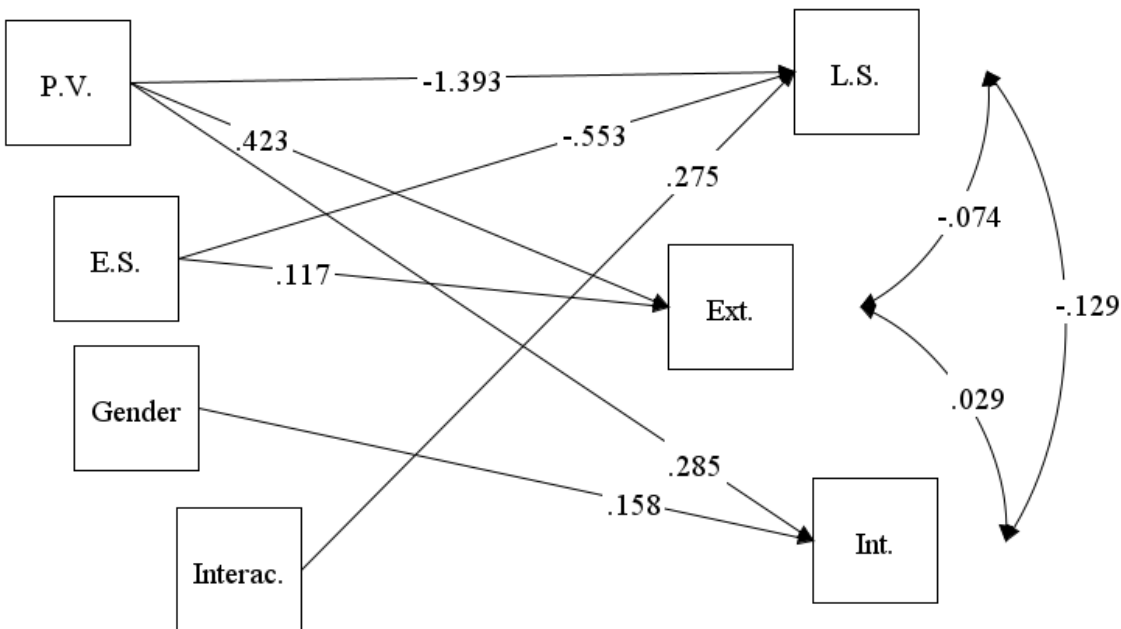


Figure 8.

Significant Paths from the Expressive Suppression Moderation Model.

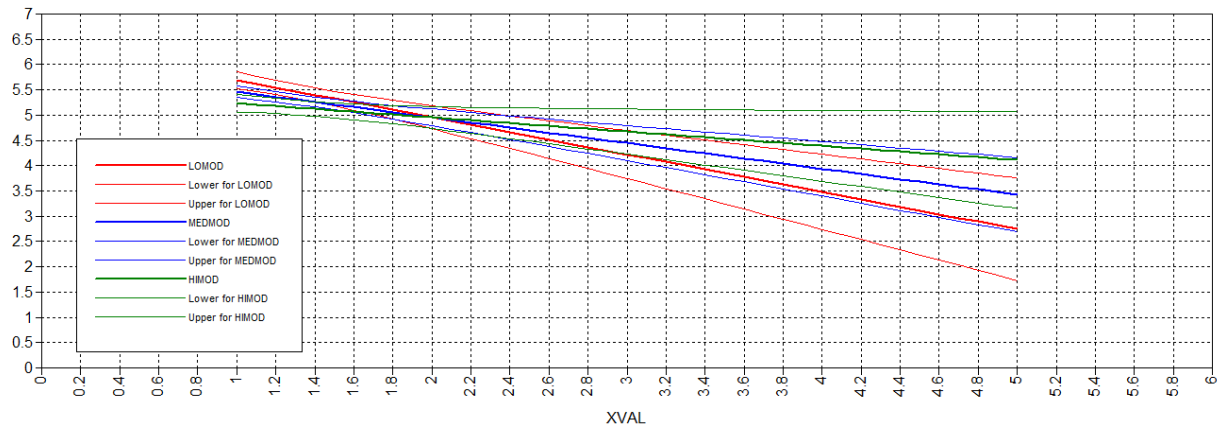


Figure 9.

Interaction between Peer Victimization and Expressive Suppression Impacts on Life Satisfaction.

Note. 1. Low levels of expressive suppression are equated to 1 standard deviation below the mean of self-reported levels of expressive suppression. Medium levels of expressive suppression are equated to the average self-reported levels of expressive suppression. High levels of expressive suppression are equated to 1 standard deviation above the mean of self-reported levels of expressive suppression. 2. Thin lines represent confidence intervals.

Table 7

The Interaction Effects of Expressive Suppression and Peer Victimization on Life Satisfaction.

Exogenous Variables	Endogenous Variable (Life Satisfaction)			
	<i>B</i>	SE	95% Confidence Interval	
			Lower Bound	Upper Bound
Peer Victimization	-1.393**	0.373	-2.006	-0.780
Expressive Suppression	-0.553*	0.164	-0.823	-0.284
Peer Victimization x Expressive Suppression (Interaction)	0.275*	0.110	0.094	0.457
Lower Expressive Suppression	-0.737**	0.140	-0.968	-0.507

Table 7 (Continued)		Endogenous Variable (Life Satisfaction)		
Exogenous Variables	<i>B</i>	SE	95% Confidence Interval	
			Lower Bound	Upper Bound
Mean Expressive Suppression	-0.509**	0.102	-0.676	-0.342
Higher Expressive Suppression	-0.280*	0.133	-0.500	-0.061

Multigroup Moderation. Following moderation analyses, multigroup analyses were attempted to compare the potential interaction effects of peer victimization and emotion regulation by binary gender (i.e., male and female). Cognitive reappraisal and expressive suppression were examined separately as potential moderators for both males and females to determine if there was a significant difference in the prediction of mental health outcomes. First, male adolescents and female adolescents were examined separately to determine the acceptability of model fit in each sample. Both the male sample and the female sample for each emotion regulation strategy were uninterpretable due to saturation and there were no modifications that were appropriate to make, and no further comparison could be conducted.

Supplemental Mediation Analyses.

Based on initial mediation results and past studies, it was posited that mental health is not just an outcome but could possibly be a process factor leading to other changes. For example, Schleider & Weisz (2016) found that in early adolescence, internalizing problems predicted fixed mindset over time rather than vice versa. Jiang et al. (2019) found life satisfaction to predict coping in adolescents in a longitudinal study. Therefore, investigation of the potential role of mental health variables as an antecedent or mediator to emotion regulation was a relevant hypothesis. Specifically in this study, I tested the alternative models to examine the hypothesis of mental health mediating the relation between peer victimization and emotion regulation. The

baseline model of peer victimization as an exogenous variable, cognitive reappraisal as an endogenous variable, and mental health as mediator variables demonstrated an unacceptable fit of the data (large chi-square value [$\chi^2 = 40.778$, $p < .05$], RMSEA [0.178], CFI [0.885], and SRMR [0.060]). Based on presented modification indices, a path was added between gender and internalizing problems. Model fit indices of the modified model were acceptable with a not significant chi-square value ($\chi^2 = 1.009$, $df = 1$), small RMSEA (0.005) value, large CFI (1.000), and a small SRMR (0.011). No further modifications were made.

Results indicated that peer victimization significantly predicted all three mental health variables. First, peer victimization significantly and negatively predicted life satisfaction ($\beta = -0.503$, $SE = .101$, $p < .001$), accounting for approximately 9.5% of the variance ($R^2 = .095$). Second, peer victimization significantly and positively predicted internalizing problems ($\beta = .246$, $SE = .033$, $p < .001$), accounting for 21.9% of the variance ($R^2 = .219$). Lastly, peer victimization significantly and positively predicted externalizing problems ($\beta = .234$, $SE = .033$, $p < .001$), accounting for 12.3% of the variance ($R^2 = .213$). Gender also significantly predicted internalizing problems ($\beta = .200$, $SE = .031$, $p < .001$). Gender did not predict cognitive reappraisal use ($\beta = 0.017$, $SE = .080$, $p = .833$). Additionally, cognitive reappraisal was significantly predicted by life satisfaction ($\beta = 0.131$, $SE = .044$, $p < .05$) and externalizing problems ($\beta = -0.476$, $SE = .128$, $p < .001$), but not internalizing problems ($\beta = -0.110$, $SE = .141$, $p = .432$). Peer victimization was not a significant predictor for cognitive reappraisal ($\beta = 0.098$, $SE = .082$, $p = .231$). Cognitive reappraisal accounted for 11.0% of the variance, $R^2 = .110$. For the mediating effect, the indirect effects of peer victimization predicting cognitive reappraisal and mental health variables as mediators, were significant for life satisfaction ($\beta = -0.066$, $SE = .026$, $p < .05$) and externalizing problems ($\beta = -0.111$, $SE = .034$, $p < .05$), but not

internalizing problems ($\beta = -0.027$, $SE = .035$, $p = .435$). See Table 8 for direct and indirect effect sizes and Figure 10 for a significant paths diagram.

Table 8

The Direct and Indirect Effect Sizes for the Cognitive Reappraisal Supplemental Mediation

Model.

To	From	Unstandardized Effects		
		Mediator	Direct	Indirect
Cognitive Reappraisal	Peer Victimization		0.098	--
		Life Satisfaction	--	-0.066*
		Internalizing Problems	--	-0.027
		Externalizing Problems	--	-0.111*
		Life Satisfaction	0.131*	--
		Internalizing Problems	-0.110**	--
		Externalizing Problems	-0.476**	--
		Gender	0.017	--
	Life Satisfaction	Peer Victimization	-0.503**	--
	Internalizing Problems	Peer Victimization	0.246**	--
Externalizing Problems	Peer Victimization	0.234**	--	

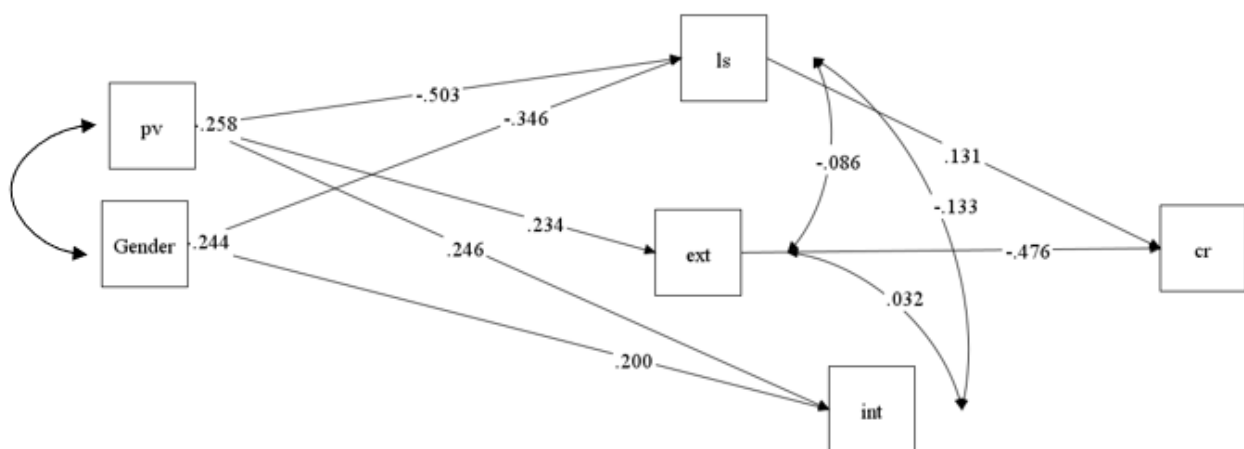


Figure 10.

Significant Paths from the Supplemental Cognitive Reappraisal Mediation Model.

Next, the potential mediating effect of mental health between peer victimization and expressive suppression was examined in the same way as cognitive reappraisal. The model fit indices of the original model were unacceptable (significant chi-square value [$\chi^2 = 41.404, df = 3$], RMSEA = 0.180, CFI = 0.873, and SRMR = 0.061). Based on presented modifications, a path was added between gender and internalizing problems leading to improved model fit indices ($\chi^2 = 0.549, df = 1, p = .459$), RMSEA = 0.000, CFI = 1.000, SRMR = 0.008, which was considered acceptable model fit. Results indicated that peer victimization significantly predicted all three mental health variables. First, peer victimization significantly and negatively predicted life satisfaction ($\beta = -0.477, SE = .105, p < .001$), accounting for approximately 8.8% of the variance ($R^2 = .088$). Second, peer victimization significantly and positively predicted internalizing problems ($\beta = 0.227, SE = .033, p < .001$), accounting for 20.0% of the variance ($R^2 = .200$). Lastly, peer victimization significantly and positively predicted externalizing problems ($\beta = .226, SE = .033, p < .001$), accounting for 11.5% of the variance ($R^2 = .115$). Gender also

significantly predicted internalizing problems ($\beta = 0.195$, $SE = .032$, $p < .001$), and did not predict expressive suppression use ($\beta = -0.143$, $SE = .092$, $p = .121$). The path from peer victimization to expressive suppression was not significant ($\beta = -0.063$, $SE = .093$, $p = 0.499$). Additionally, expressive suppression was significantly and positively predicted by internalizing problems ($\beta = 0.362$, $SE = .162$, $p < .05$), but not predicted by life satisfaction ($\beta = -0.077$, $SE = .051$, $p = .136$) or externalizing problems ($\beta = 0.045$, $SE = .145$, $p = .754$). Expressive suppression accounted for 4.2% of the variance ($R^2 = .042$). For the mediating effect, indirect effects indicated that internalizing problems was a significant mediator in the path from peer victimization to expressive suppression ($\beta = 0.082$, $SE = .039$, $p < .05$). However, life satisfaction ($\beta = 0.037$, $SE = .026$, $p = .156$) and externalizing problems ($\beta = .010$, $SE = .033$, $p = .755$) were not significant mediating variables. See Table 9 for direct and indirect effect sizes and Figure 11 for a significant paths diagram.

Table 9

The Direct and Indirect Effect Sizes for the Expressive Suppression Supplemental Mediation

Model.

To	From	Unstandardized Effects		
Endogenous	Exogenous	Mediator	Direct	Indirect
Expressive Suppression	Peer Victimization		-0.063	--
		Life Satisfaction	--	0.037
		Internalizing Problems	--	0.082*
	Externalizing Problems	--	0.010	
	Life Satisfaction		-0.077	--
	Internalizing Problems		0.362*	--

Table 9 (Continued)				
To	From	Unstandardized Effects		
Endogenous	Exogenous	Mediator	Direct	Indirect
	Externalizing Problems		0.045	--
	Gender		-0.143	--
Life Satisfaction	Peer Victimization		-0.477**	--
Internalizing Problems	Peer Victimization		0.227**	--
Externalizing Problems	Peer Victimization		0.226**	--

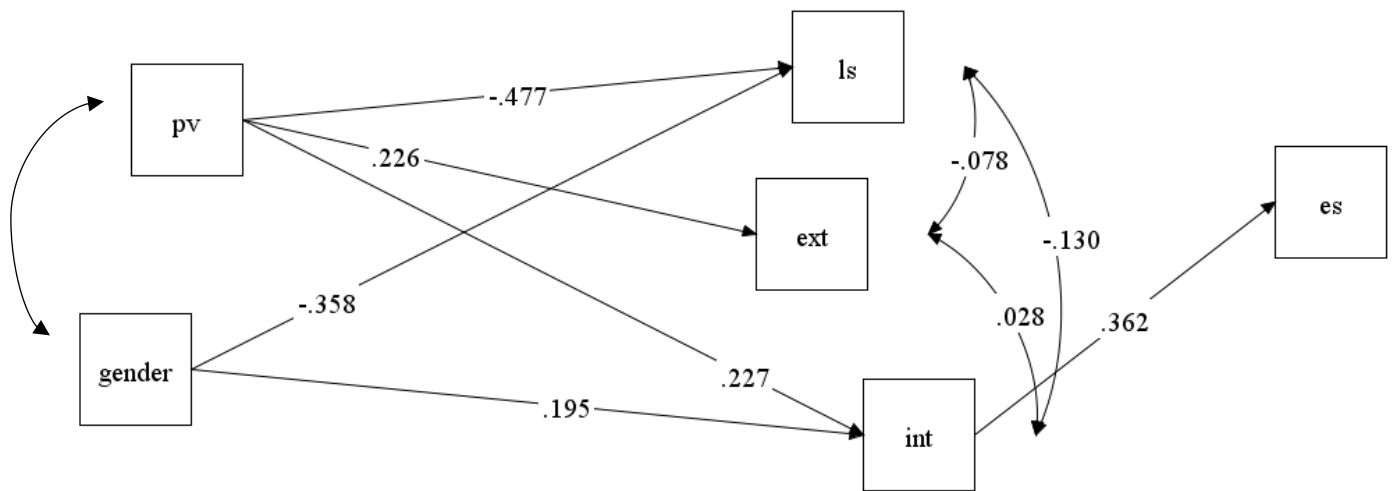


Figure 11.

Significant Paths from the Supplemental Expressive Suppression Mediation Model.

Discussion

The current study investigated how adolescents' use of specific emotion regulation strategies played a role in the relation between peer victimization and mental health. Specifically, the possible mediating or moderating roles of two commonly researched emotion regulation strategies (cognitive reappraisal and expressive suppression) were examined within the associations between peer victimization and three mental health variables (i.e., life satisfaction,

internalizing problems, and externalizing problems). Gender was included as a covariate in the initial four mediation and moderation models. In the present study, two mediation models were initially analyzed using two commonly researched emotion regulation strategies as mediators, and no mediating effects of emotion regulation were found. Supplemental mediation analyses were conducted to test mental health variables as mediators and cognitive reappraisal and expressive suppression as endogenous variables in two separate models. Interestingly, life satisfaction and externalizing problems were mediators for the negative relation between peer victimization and cognitive reappraisal, while internalizing problems did not show mediating effects. In contrast, internalizing problems was a mediator for the positive association between peer victimization and expressive suppression, but life satisfaction and externalizing problems were not significant mediators. Moreover, two separate moderation models were analyzed. The moderation effect of cognitive reappraisal was significant in the relation between peer victimization and life satisfaction, though not two other mental health variables, providing further evidence for the importance of the dual factor model of mental health with mental health's multifaceted nature. Further, within the significant moderation model with life satisfaction as the outcome, compared to lower levels cognitive reappraisal, the positive association between peer victimization and life satisfaction was stronger at high levels of cognitive reappraisal. Lastly, expressive suppression had a significant moderation effect in one model, with higher levels of expressive suppression buffering the negative association between peer victimization and life satisfaction. The major findings are discussed in detail below.

Descriptive statistics showed that adolescents reported peer victimization frequency average of less than one time in the past 3 months. Overall, about 13% of the adolescent sample reported peer victimization (traditional and cyber combined). About 10% of the sample reported

experiencing some amount of peer cyber victimization in the past 3 months whereas around 16% reported at least one instance of traditional peer victimization. This statistic aligns with past research reporting 10-15% of adolescents reporting experiencing peer victimization (Juvonen & Graham, 2001); however, the CDC (2016) reported that 20% of high school students reported experiencing peer victimization in the past year. Past research differed in what kind of victimization (i.e., traditional or cyber) was more common (Klomek et al., 2008; Landstedt & Persson, 2014). The current study found cybervictimization to be less reported than traditional peer victimization despite the popularity of engaging with peers via cell phones or the internet (i.e., social media). Regarding mental health, most adolescents in this sample reported relatively low levels of internalizing behaviors and externalizing behaviors. Additionally, high levels of life satisfaction were reported which addressed the dual-factor model of mental health which includes psychological symptoms and a well-being construct (Antaramian et al., 2010). Given that the data was collected at a large, well-resourced public school, these levels of self-reported mental health were expected.

There were no significant gender differences in mean levels of peer victimization frequency, mental health, or emotion regulation. These findings were somewhat consistent with past research. Specifically, findings for gender differences in use of cognitive reappraisal and expressive suppression were mixed (Verzeletti et al., 2016; Zhao et al., 2014). In past studies, peer victimization was reported to be higher among male adolescents (Cheng et al., 2008) but also seems to depend on the type of peer victimization (Riley et al., 2019; Tsitsika et al., 2015). Regarding mental health, there are clear gender differences for internalizing and externalizing in past studies but not the current (Ara, 2016; Murray et al., 2022; Vugteveen et al., 2022). Gender differences in life satisfaction are even less consistent, in that some studies show males report

higher levels (Chen et al., 2020; Supervía et al., 2023) while others found that in older adolescent girls report higher levels of life satisfaction (Moksnes et al., 2013), and, further, others found no gender differences (Huebner et al., 2000a; Okwaraji et al., 2016; Piko & Hamvai, 2010; Steinmayr et al., 2019). Therefore, taking the literature together, no path was included from gender to life satisfaction in the following mediation models initially. These findings suggested that gender differences are complex and mixed. Future studies should continue to examine potential gender differences in these variables as gender continues to evolve and should examine differences for other gender identities (transgender youth, agender youth, etcetera).

Mediation model results. Two mediation models were initially conducted based on past research, with peer victimization as the exogenous variable and life satisfaction, internalizing problems, and externalizing problems as endogenous variables, and controlling gender as a covariate. When taking a look at the mediation model paths closely, in the first model, path b (Figure 3) indicated that cognitive reappraisal as an emotion regulation strategy had a positive impact on adolescent mental health. This finding aligns with past research that found cognitive reappraisal to be beneficial for adolescents' mental health (Aldao et al., 2010; Hsieh & Stright, 2012; Li et al., 2021). However, path a (see Figure 3) showed that peer victimization did not predict self-reported use of cognitive reappraisal. In the second model, for path a (see figure 4) peer victimization did not predict self-reported use of expressive suppression similar to cognitive reappraisal results. For path b (see figure 4), as expressive suppression increased, internalizing problems increased, and life satisfaction decreased but there were no significant impacts regarding self-reported externalizing problems. Past literature illustrated similar findings that expressive suppression was associated with negative effects (Aldao et al., 2010; Gross & John, 2003; Li et al., 2021; Zahniser & Conley, 2018).

Mediating Effects. Mediation model hypotheses were based on previous research that established the mediating effect of emotion regulation in the relation between peer victimization and mental health outcomes, such as well-being, school loneliness, and depression and anxiety, though findings have been mixed in which emotion regulation strategy including cognitive reappraisal (Gardner et al., 2017), expressive suppression (Boca-Zamfir, 2019), and neither (Schunk et al., 2022), mediated different relations. However, in the present study, though cognitive reappraisal and expressive suppression did predict mental health outcomes, they were not found to be the mediators in the relation between peer victimization and mental health in adolescents. These findings also did not support the victim schema model (Rosen et al., 2007) which the mediation models were built upon. There may be different reasons for why these findings did not align with the theory presented.

First, the present study was conducted with middle to late adolescents (ages 14-18, grades 9th – 12th), and developmental differences between these samples might contribute to the findings that did not support this theory. The Victim Schema Model (Rosen et al., 2007) was initially developed based on a study of children and early adolescents (ages 9-13, 5th – 7th graders). This theoretical model described a cyclical pattern of negative social interactions that have dire impact on children, such as peer victimization, that lead to biased perceptions in understanding similar social interactions, and such perception would further result in emotional arousal and difficulty regulating emotions. Subsequently, children would have difficulty managing emotional responses effectively, which increases the risk of mental health problems. This theory might be particularly applied to youths in these developmental stages, but not older adolescents. Notably, in the present study, peer victimization was *not* a significant predictor of either emotion regulation strategy, which did not enable this mediation link in the first place. Specifically, as

children grow older, the use of emotion regulation strategies intertwine with the development of personality, abilities, or relationships, and links become less clear (Beduna & Perrone-McGovern, 2019). For adolescence in particular, pubertal changes, fluctuating mood changes, and changing relationship dynamics all add complexity to adolescents' ability to regulate their emotions, which may not be a linear development (e.g., the older individuals are, the better they handle emotions). For example, during high emotional arousal situations such as peer victimization, adolescents may have immediate, strong negative emotions, and respond to either the situation or their own emotions using their habitual emotional regulation, rather than choosing and utilizing a strategy after deliberation and reflection (Adrian et al., 2019). That said, their use of emotional regulation might not be consequential to the situation (e.g., peer victimization), in other words, peer victimization might also not be a direct antecedent to the use of an emotion regulation strategy for this age group.

The sequence of other variables in the mediation model also could be reversible. That is, mental health symptoms might occur prior to the election of emotion regulation strategies in the context of responding to peer victimization. Taking a developmental perspective, as a severe form of stressor, when encountering peer victimization, adolescents at this age may not have the ability to withhold the emotional reaction and utilize reappraisal for such emotionally triggering experiences, to control mental health symptoms. Gross (2015) developed a process model of emotion regulation and then extended it, which may explain this process. It posits that a person first identifies their emotion and whether it needs regulated, then selects a strategy to use to regulate, then implements that strategy. Related to these mediation results and temporal dynamics, Gross stated that emotion perceptions trigger whether regulatory processes are needed. In this same vein, Kuppens and Verduyn (2009) commented that emotion regulation

may change as emotions change across situations. Results of the alternative model showed that life satisfaction and externalizing problems both fully mediated the relation between peer victimization and cognitive reappraisal while internalizing problems fully mediated the relation between peer victimization and expressive suppression. Based on these findings contrasted with the initial mediation models, the process seemed to be that peer victimization had a direct impact on mental health which led to the use of emotion regulation strategy for high schoolers. Taken together with Gross's (2015) emotion regulation process model which theorized that there is an initial discrepancy in emotions that one hopes to experience and what they are actually experiencing, and one's goal is to regulate those emotions based on the situation. According to this model, emotions were already being experienced prior to one attempting to regulate emotions, it was reasonable that emotions dictate internalizing problems, externalizing problems, and reports of life satisfaction and these responses occurred prior to emotion regulation strategy use.

Direct effects within the mediation models are discussed next. The direct impact of peer victimization and different aspects of mental health was clear based on past literature (Reijntjes et al., 2010; Reijntjes et al., 2011; Sumter et al., 2012). Notably, mental health indicators worked differently in relation to emotion regulation strategy. In adolescents, mental health symptoms, specifically depression symptoms, have predicted expressive suppression in past studies (De France et al., 2019; Larsen et al., 2012), while whether well-being predicted reappraisal was less clear (De France & Hollenstein, 2019; Everaert & Joormann, 2020; Haines et al., 2016). Cognitive reappraisal has been found to be positively associated with life satisfaction (Haga et al., 2009; Verzeletti et al., 2016) and negatively predict depressed mood (Haga et al., 2009).

Integrating both the initial and alternative model findings, it seemed emotion regulation as a subsequent result of mental health was plausible given that when people experienced unwanted emotions stemming from a stressful situation, mental health was impacted, and there was a greater need to regulate emotions through specific strategies. Between all 4 mediation models, these findings added to the literature in a unique way in that it furthered our understanding regarding the processes of how adolescents who have experienced peer victimization may regulate their emotions dependent upon an experienced mental health symptom. These findings further knowledge related to both the Victim Schema Model and the extended process model of emotion regulation in the contexts of adolescent development and peer victimization. Clinical implications are further outlined below.

Moderation model results. First, results showed the cognitive reappraisal and peer victimization interaction did not have significant moderating effects on internalizing or externalizing problems. These are inconsistent with previous research having shown that positive reappraisal weakened the positive association between peer victimization and depressive symptoms (Ferraz de Camargo & Rice, 2020) and between bully victimization and anxiety (Garnefski & Kraag, 2014). Similarly, no interaction effects were found between peer victimization and expressive suppression for either negative indicator of mental health as an outcome either. Second, there were significant moderating effects found for both expressive suppression and cognitive reappraisal as moderators with life satisfaction as an outcome. These results suggested that potentially in the context of peer victimization, interaction effects with emotion regulation were more effective at easily impacting life satisfaction than more severe mental health difficulties, manifested as internalizing or externalizing problems. Related to the foundational theory that supported moderation models, the cognitive-behavioral model, it was

theorized that using a traditionally adaptive (cognitive reappraisal) strategy would improve mental health symptoms, while using a maladaptive (expressive suppression) strategy to attempt to regulate those associated emotions would exacerbate mental health symptoms. However, the results did not align with the theory as predicted. Additionally, Jiang and colleagues (2021) found protective effects of cognitive reappraisal and some buffering effects for suppression in the association between social stress and life satisfaction.

In the current study, when adolescents reported higher levels of cognitive reappraisal, life satisfaction was increased as peer victimization increased, though only at above average levels of cognitive reappraisal, the association between peer victimization and life satisfaction was statistically significant. This finding was interesting since we would have expected a negative relation between peer victimization and life satisfaction, and such relation weaken when cognitive reappraisal was stronger, but the finding showed that such association was positive, and it was strengthened as cognitive reappraisal use increased. The effects of high levels of cognitive reappraisal seemed to be strong enough to change the direction of the relation between peer victimization and life satisfaction to have a positive impact on one's life satisfaction. This is initially puzzling, and I needed to draw research findings from broader literature regarding changes or consequences resulting from elevated stress or trauma, especially stress-related growth. Some studies have found that growth may be experienced and impact positive outcomes (Tomich & DiBlasio, 2020). According to this line of discovery in literature, potentially, a high level of stress may become a condition that activates cognitive reappraisal for some individuals, and it had a positive impact, such as life satisfaction, in that stressful situation, such as peer victimization. Nevertheless, this interpretation is tentative and points to a mechanism of

cognitive reappraisal in the context of peer victimization that is not readily recognized. More research is warranted to examine this direction further.

Regarding suppression, findings suggested suppression could be beneficial at least in the context of peer victimization and life satisfaction in the short term. Specifically, the negative association between life satisfaction and victimization weakened as expressive suppression increased. These results indicated expressive suppression had a buffering effect to the well-being aspect of mental health for adolescents in the face of peer victimization. Given the theoretical basis of this investigation and past research, the hypothesis was that suppression as a strategy to regulate emotions for peer victimization would have deleterious effects on mental health. However, some studies showed that suppressing one's emotions was not always a maladaptive strategy, or even could be a protective factor under some conditions (Franz et al., 2021; Jiang et al., 2021). Perhaps in some contexts suppression of emotions provided effectiveness of reducing intensity of certain negative emotions leading to benefit (Franz et al., 2021). Additionally, when dealing with peer victimization, showing one's emotions versus suppressing may have reinforced victimization (McClain et al., 2020) and due to the sample's age and developmental level, youth had likely learned how to avoid some aspects of peer victimization targeting (Gross & Cassidy, 2019). However, current findings should be interpreted with caution since positive effects of suppression may be temporary and overreliance or long-lasting use of suppression could be detrimental (Betts et al., 2009; Dryman & Heimberg, 2018).

Both moderation model findings were not consistent with the hypothesis; but can be related back to the broader resilience literature. Resilience is not just a singular trait within a person but a process of adapting despite risk and includes both individual factors and broader contextual factors like the environment (Luthar, 2006). A comprehensive understanding of

resilience processes includes both individual factors and environmental factors, but the current study only examined the role of an individual factor, emotion regulation (Compas & Reeslund, 2009). Perhaps there were broader or more distal contextual factors at play that determined how outcomes were affected by situations like peer victimization. One of those contextual factors could be the school environment/climate. For example, Kaufman and colleagues (2020) found, unexpectedly, that interactions between peer victimization and growth mindset (a concept expected to be protective) exacerbated depressive symptoms. This study highlighted that broader context (frequency of victimization) matters alongside individual factors and unexpected findings may be an outcome when both contextual and individual factors intersect in models. For the sample of this study, the school was well-resourced and well-structured with an expected good climate, and the descriptive results indeed showed low levels of self-reported peer victimization. Therefore, it was possible that level of peer victimization and school context play a bigger role in how these adolescents deal with peer victimization and might affect the effect of emotion regulation in the process to impact mental health. Since peer victimization occurred, on average, less than twice in the past three months from data collection, cognitive reappraisal and suppression may have had different roles compared to a school in which there was a higher average frequency of peer victimization occurring. Inspired by stress related growth literature, a more beneficial effect of cognitive reappraisal in protecting youth well-being may be activated when stress levels are high, rather than low; thus, it might be difficult to detect for adolescents in a supportive school environment with low levels of peer victimization (Tomich & DiBlasio, 2020). Furthermore, emotion regulation may not be the only factor that benefited life satisfaction, but other contextual factors may also have been at play in tandem that were not analyzed here such as school climate. Those broader contextual factors, like environment, may

have been of equal or greater importance in impacting an individual's life satisfaction. Future studies should integrate both emotion regulation, an individual level factor, and social-contextual level factors in this area.

To the best of my knowledge, this was the first study that examined moderation effects of cognitive reappraisal and expressive suppression in the relation between peer victimization and life satisfaction in high school students in the United States. These findings implied that when adolescents were experiencing high levels of peer victimization, a high level of cognitive reappraisal may have been a helpful emotion regulation strategy and expressive suppression across levels was also a beneficial strategy that buffered the negative effects of peer victimization on life satisfaction at least in the short term. More research is needed to further elucidate why the moderating effects were not found for psychopathology domains. These findings also highlighted the importance of the dual factor model of mental health and the necessity of using both negative and positive indicators of mental health, as well as contextualizing specific situations and processes in youth development research (Antaramian et al., 2010). Also, emotion regulation seemed to work differently in the context of peer victimization than the traditional findings of emotion regulation research for mental health outcomes. These findings have potentially important clinical implications discussed in more detail below.

Limitations and Future Directions

There were a few strengths of the study. First, the sample was a relatively large sample size and included diverse students, allowing for greater generalizability when interpreting and inferring about findings. Second, the developmental age of the sample was high school aged students and included all levels (i.e., 9th – 12th). The current study was novel to our

understanding of emotion regulation, peer victimization, and mental health in high school students in the United States as much of the past research had focused on younger children or adolescents in other countries.

Despite the strengths, the study also included limitations that future research can address. First and foremost, this study was based on cross-sectional data so causal inferences cannot be made and as Gross and John (2003) highlight, the timing of emotion regulation strategies is crucial. This was also not ideal for mediation analyses in general, given the assumption of temporal precedence of the predictor and the mediator, so the process was not highly informative here. Also, the victim schema model posits a possible vicious cycle in which victimization potentially occurs again following maladaptive emotion regulation and negative mental health symptoms for peer victimized youth, indicating a reciprocal relation. But the present study was unable to test such direction of the relation from this data. Theories (e.g., the victim schema model; Rosen et al., 2007) and empirical findings (e.g., Forbes et al., 2019; Morabito et al., 2021) also suggest the possibility of mental health being an antecedent to peer victimization in the victimization and coping process. Future studies should investigate these research questions through longitudinal designs. Second, concerning omitted variables, according to past literature there were other factors that could have been analyzed as mediating variables as well. For example, Schunk et al. (2022) found the emotion regulation strategy, rumination, to be a mediator, and Gardner and colleagues (2017) found maladaptive coping to be a mediator serially with cognitive reappraisal. Future research should include rumination and maladaptive coping as a mediator variable in analyses as well.

Third, regarding sample representativeness, even though the sample was diverse in a lot of ways and analyses were unaffected, there are many identities (e.g., gender diverse youth, rural

youth, youth from different geographic regions) missing from the sample and peer victimization and interactions and processes may look different for these youth. Specifically, future studies should focus on gender diverse youth as they likely experience peer victimization differently than cisgender youth. Fourth, related to reporting methods, self-report methods are not always the most accurate and honest given adolescents' levels of insight and potentially attempting to give socially desirable responses. Future studies should include other respondents such as parent reports as parents may perceive mental health symptoms and how their children regulate their emotions differently. Peer victimization could also be investigated differently aside from self-reports as well such as teacher reports or case vignettes. Fifth, gender differences could not be examined in the current study due to saturation of model fit indices for both cognitive reappraisal and expressive suppression which limits our understanding of how these strategies potentially differ in the context of peer victimization by gender. Next, the RMSEA model fit index was outside the acceptable range in both moderation models, potentially due to sample size, a misspecified model with inadequate number of indicators. The traditional guidelines from Hu and Bentler (1999) are found to be increasingly controversial, especially calculating RMSEA for models with low degrees of freedom (Kenny et al., 2015). The RMSEA should still be reported and taken into consideration but with this knowledge in mind and other goodness of fit indices considering all indices evaluate "good" model fit from a different perspective (Lai & Green, 2016). Future studies should replicate to determine goodness of fit and interpretation including more variables to complicate the model and potentially increase RMSEA. Finally, regarding design and analyses, future studies should investigate moderation further through double moderation models and other models to include other coping variables that are potentially involved in the protective effects on mental health following peer victimization.

Implications

Peer victimization was found to negatively impact mental health, which is consistent in the literature. 20% of high school students reported incidents of peer victimization in the past year according to the CDC (2016). Therefore, prevention and intervention strategies are needed to reduce peer victimization and increase prosocial behavior among peers. This study found preliminary information for clinical implications related to peer victimization, emotion regulation, and mental health. Generally, integrating the primary and supplemental mediation model results, it seems that in the context of peer victimization the mechanism includes mental health symptoms predict emotion regulation strategy rather than the opposite. Additionally, emotion regulation interacts with peer victimization to impact the relation with life satisfaction, though not internalizing or externalizing problems. This information provides psychologists and other related professions with a foundation for prevention and intervention methods with adolescents.

Clinically, prevention and early intervention are areas to target especially since moderating effects occurred for life satisfaction but not internalizing or externalizing problems; as life satisfaction may be initially recognized by adolescents prior to greater mental health difficulties (Haranin et al., 2007). A first step implication in assessing mental health symptoms in adolescents, especially when there is known peer victimization or a known risk factor, is to assess levels of life satisfaction rather than only problem behaviors or depressive and anxiety symptoms. Assessment of cognitive reappraisal and expressive suppression usage may also be a helpful first step in working with adolescents in the context of peer victimization.

Given the mixed results comparing the current study and previous studies regarding the moderating effects of cognitive reappraisal, it raises the doubt that using teaching cognitive

reappraisal as a primary strategy to mitigate peer victimization' impacts on mental health. It appears that this finding provides evidence that school/environmental factors should be considered in tandem with individual factors. Also, by showing the mixed effect of suppression based on the current and past studies, if suppression is a harmful or beneficial emotional regulation strategy does not have a straightforward answer, especially when including the time factor, the situation factor, and if used in conjunction with other adaptive strategies in (Betts et al., 2009; Dryman & Heimberg, 2018). Thus, it is recommended for clinicians to consider these findings and put them into specific contexts when assessing or evaluating clients' use of emotion regulation strategy and its effect (Granefski & Kraaj, 2014). Also, derived from the mediation model findings, targeting the mental health symptoms would seemingly impact emotion regulation strategy usage in a beneficial way. For example, if one is experiencing certain mental health symptoms like externalizing behaviors then it may be especially beneficial to monitor one's use of reappraisal. Taken together, the results may aid in the understanding of adolescents' use of emotion regulation and the process of mental health in dealing with peer victimization.

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