

# Emotion Regulation, Mental Health, and Social Wellbeing in a Young Adolescent Sample: A Concurrent and Longitudinal Investigation

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Previous research has established that the ability to manage emotions effectively is critical to healthy psychological and social development in adolescents. However, less research has considered the relationships between specific emotion regulation (ER) strategies, such as reappraisal and suppression, and social wellbeing in this age group. The current study investigated the concurrent and longitudinal relationships between 2 ER strategies (reappraisal and suppression) and social outcomes (peer victimization, friendship satisfaction, and family satisfaction) in young adolescents. Analyses also controlled for mental health (anxiety and depression). Given likely gender differences in these variables, key analyses were conducted in parallel for males and females. There were 232 Australian adolescents who completed measures in Grade 7 (*Age Mean* = 11.97, *SD* = .35; 64% female) and a year later in Grade 8. Zero-order correlations indicated an inverse relationship between suppression use and social wellbeing variables, although a number of these associations were no longer significant when controlling for mental health. There was limited evidence that reappraisal was uniquely related to social outcomes. However, interaction effects suggested that greater use of reappraisal might have provided some protection against the negative social effects of poorer mental health. Poorer mental and social wellbeing also appeared to be related to ER strategy use, particularly greater suppression use. The findings suggest that ER strategy use, mental health, and social outcomes all play important and interrelated roles in adolescent wellbeing.

*Keywords:* emotion regulation, suppression, reappraisal, social, bullying

Adolescence refers to a transitional period between childhood and adulthood, during which people experience psychological, social, and biological changes (Blakemore & Mills, 2014; Casey, Duhoux, & Malter Cohen, 2010). As the adolescent brain experiences continuous change and growth, adolescents can become particularly sensitive and vulnerable to social cues and influences (Blakemore & Mills, 2014; Powers & Casey, 2015). Adding to this challenge, the social world undergoes many shifts and changes during adolescence. Some of the most notable changes include an increasing focus on developing friendships and interacting with peers (Blakemore & Mills, 2014; Casey et al., 2010; Spear, 2000), an increasing incidence of bullying experiences (especially during the earlier years of adolescence; Álvarez-García, García, & Nunez, 2015; Hymel & Swearer, 2015), and reduction in time spent with parents in the context of developing greater autonomy and the changing nature of child–parent relationships (Larson, Richards, Moneta, Holmbeck, & Duckett, 1996; Laursen & Hartl, 2013). Although adolescence can be a time full of new and exciting experiences, it can also be a time of great difficulty and many social challenges as one tries to navigate an increasingly complex social world. The experiences that people have during this time can

greatly influence and shape their future social interactions and general psychosocial wellbeing. For this reason, it is paramount that research explores factors that contribute to the development of healthy and satisfying interactions and relationships in adolescents, and in turn, understand which factors are related to poorer interactions with peers, friends, and family.

The success with which adolescents are able to interact socially can have a major impact on their general psychological wellbeing (Blakemore & Mills, 2014; O'Brien & Bierman, 1988; Sebastian, Viding, Williams, & Blakemore, 2010; Weymouth, Buehler, Zhou, & Henson, 2016). Research has consistently demonstrated that a number of negative social experiences (e.g., social stress, bullying, social isolation, and poor social support) are related to poorer psychological outcomes, including lower self-esteem, higher levels of anxiety and depression, and higher internalizing symptoms (Arseneault, Bowes, & Shakoor, 2010; Bowes, Joinson, Wolke, & Lewis, 2015; Delfabbro et al., 2006; Demaray, Malecki, Davidson, Hodgson, & Rebus, 2005; Hazel, Oppenheimer, Technow, Young, & Hankin, 2014; Hodges & Perry, 1999; Stapinski, Araya, Heron, Montgomery, & Stallard, 2015; Stewart & Suldo, 2011; Witvliet, Brendgen, Van Lier, Koot, & Vitaro, 2010). Furthermore, even though adolescence is marked by a growing desire for autonomy and independence from parents (Casey et al., 2010; Laursen & Hartl, 2013), maintaining close and positive relationships with one's parents throughout this life stage is crucial to psychological wellbeing and adjustment (Weymouth et al., 2016). In particular, those adolescents who have poorer and more dysfunctional familial interactions and relationships experience greater general psychological maladjustment, higher levels of depression, and engage

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in self-injury more frequently (Andrews, Martin, Hasking, & Page, 2014; Demaray et al., 2005; Kelly et al., 2016; Sheeber, Hops, Alpert, Davis, & Andrews, 1997; Stewart & Suldo, 2011).

The research strongly suggests that the interactions adolescents have with their peers, friends, and family can have a major impact on psychological wellbeing. For this reason, it is important to consider factors that may contribute to an increase in damaging negative interpersonal interactions during this vulnerable stage of life. Although internalizing symptoms are often identified as a consequence of poor interpersonal interactions, they are also a cause of interpersonal difficulties (Bierman, Kalvin, & Heinrichs, 2015; Platt, Cohen Kadosh, & Lau, 2013; Stice, Ragan, & Randall, 2004). In one study (Connolly, Geller, Marton, & Kutcher, 1992), adolescents with or without depression were asked to interact with adolescent confederates. They found that confederates rated girls and boys with depression less favorably than those adolescents without depressive symptoms, highlighting the immediate social disadvantage that adolescents with internalizing problems can face upon entering a social interaction with other people their age. Consistent with this finding, longitudinal studies show that adolescents experiencing greater anxiety and depression symptoms experience a deterioration in social wellbeing over time, including more frequent social problems, lower social support, and increased peer victimization (Bierman et al., 2015; Card & Hodges, 2008; Crawford & Manassis, 2011; Fekkes, Pijpers, Fredriks, Vogels, & Verloove-Vanhorick, 2006; Hodges & Perry, 1999; Karlsson, Stickley, Lindblad, Schwab-Stone, & Ruchkin, 2014; Lester, Dooley, Cross, & Shaw, 2012; Stice et al., 2004). In addition, several studies have also found that symptoms of depression and anxiety predict poorer child–parent relationships, including poorer communication, lower parental support, and poorer relationship quality (Branje, Hale, Frijns, & Meeus, 2010; Brière, Archambault, & Janosz, 2013; Hale, Klimstra, Branje, Wijsbroek, & Meeus, 2013; Kelly et al., 2016; Needham, 2008).

### Emotion Regulation and Social Adjustment

Emotion regulation (ER) is also important to consider in the context of adolescent social outcomes. ER can be defined as the process by which a person increases, maintains, or decreases his or her experience and/or expression of positive and negative emotions (Gross, 1998b; Gross, Richards, & John, 2006; Singh & Mishra, 2011). People vary in their ER use and skill. The ability to regulate one's emotions in an adaptive manner is critical to the development and maintenance of social wellbeing, and difficulties in ER have been implicated in a number of social difficulties, including social dysfunction, bullying victimization, and poorer parent–child relationships (Bierman et al., 2015; Eisenberg et al., 1995; Eisenberg, Spinrad, & Eggum, 2010; Godleski, Kamper, Ostrov, Hart, & Blakely-McClure, 2015; McDowell, O'Neil, & Parke, 2000; Rosen, Milich, & Harris, 2012; Schäfer, Naumann, Holmes, Tuschen-Caffier, & Samson, 2017; Zeman, Cassano, Perry-Parrish, & Stegall, 2006). ER involves the use of a number of different strategies, some of which are considered to be more and some less adaptive to one's immediate or longer-term psychosocial goals and wellbeing.

Reappraisal and emotion suppression are two ER strategies that have major differences in their psychological and social effects (Gross & John, 2003; Webb, Miles, & Sheeran, 2012). Reappraisal

is used to change the interpretation of a situation, thereby “reappraising” it (Gross, 2007; Gross et al., 2006; Webb et al., 2012). For example, in a situation where a girl is ignored by her friend, the girl may initially interpret this as her friend being angry and intentionally avoiding the interaction. However, with the use of reappraisal she may choose to reinterpret the situation as her friend being preoccupied and unable to respond, and as a result experience an alleviation of her anxiety or concern. Indeed, reappraisal has been shown to alter the emotional impact of a situation, with a more positive reinterpretation effectively reducing anxiety (Hofmann, Heering, Sawyer, & Asnaani, 2009), anger (Ray, Wilhelm, & Gross, 2008), and sadness (Ehring, Tuschen-Caffier, Schnulle, Fischer, & Gross, 2010). Not surprisingly, adolescents and adults who use reappraisal more frequently also report better psychological functioning, including lowered levels of depression and anxiety (Garnefski, Kraaij, & Spinhoven, 2001; Garnefski, Teerds, Kraaij, Legerstee, & van den Kommer, 2004; Haga, Kraft, & Corby, 2009; Hu et al., 2014).

Unlike reappraisal, suppression is generally implemented later in the emotion response sequence and is used to inhibit the verbal, gestural, and facial components of emotional expression, once an emotional response has already been activated (Gross, 1998a, 2001, 2007; Gross et al., 2006; Webb et al., 2012). For example, upon giving a presentation in class, a boy may stumble on a word or forget his next line, triggering some laughter from his classmates. Feeling his embarrassment rise, the boy may try to suppress any visible expression of this emotion. Although suppression is somewhat effective at reducing the expression of emotion (Gross & Levenson, 1997; Jackson, Malmstadt, Larson, & Davidson, 2000), it is not very effective at reducing the experiential components of that emotion (Butler et al., 2003; Gross, 1998a; Gross & Levenson, 1993, 1997; Muraven, Tice, & Baumeister, 1998; Richards & Gross, 1999; Webb et al., 2012). Furthermore, the chronic use of suppression is related to increases in psychopathology, including higher levels of depression and anxiety (Amstadter, 2008; Beblo et al., 2012; Haga et al., 2009; Hu et al., 2014).

Studies of specific ER strategies have found that adult samples using reappraisal enjoy higher social status, experience better, closer, and more positive relationships with others, and are generally liked more by others (English, John, Srivastava, & Gross, 2012; Gross & John, 2003). A number of reasons may account for these results. First, people that tend to reappraise situations may be more likely to appraise or reappraise their social interactions as positive and enjoyable, leading to more positive responding on measures of social wellbeing. In addition, reappraisal use is positively correlated with positive affect (Gross & John, 2003; Haga et al., 2009), which in turn is associated with higher interpersonal functioning and greater social satisfaction (Lyubomirsky, King, & Diener, 2005). Lastly, when negative social interactions arise, the use of reappraisal may help reduce negative emotional reactivity, allowing for a more civil and less hostile interaction, in turn reducing the likelihood of negative social experiences. Taken together, the research suggests that reappraisal may be an adaptive and helpful strategy to use in social situations. However, to date, the use of reappraisal in younger adolescents has been largely overlooked.

Research has suggested that emotion suppression is associated with far less favorable social outcomes. A recent meta-analysis conducted by Chervonsky and Hunt (2017) found that greater use

of emotion suppression was related to poorer social support, and lower social satisfaction and quality. Furthermore, experimental studies that induced the use of suppression during an interaction between two adult strangers found that participants that used suppression (as instructed) were perceived as less friendly and were disliked by the people they interacted with (Butler et al., 2003; Butler, Lee, & Gross, 2007). Suppression may be particularly detrimental in social interactions because of its inhibition of important social cues usually communicated through facial, verbal, and gestural behaviors (Gross & Levenson, 1993, 1997; Keltner & Haidt, 1999; Keltner & Kring, 1998). Such social cues, usually transmitted through positive and negative emotion expression, are necessary for positive and effective interpersonal interactions (Keltner & Haidt, 1999; Keltner & Kring, 1998). Although there have been several studies exploring the relationship between suppression and social outcomes, the vast majority of this research has been conducted with adults and older adolescents that have already left the primary and secondary schooling system. One study by Larsen et al. (2012) did consider the use of emotion suppression in younger adolescents in Netherlands. They found some evidence that suppression was associated with concurrent higher levels of victimization in the earlier years of adolescence, although it was not predictive of victimization longitudinally. Another study by Chervonsky and Hunt (2016a) found that university students who tended to use suppression more often also retrospectively reported greater victimization during high school, although it is noted that causality could not be determined. Longitudinal designs are needed to better understand the direction of the relationship between suppression and victimization in youth.

### Current Study

Previous research has demonstrated a link between emotion dysregulation and social difficulties in children and adolescents (Bierman et al., 2015; Zeman et al., 2006). However, research examining social outcomes related to specific ER strategies, such as reappraisal and suppression, has almost exclusively been focused on adults, rather than children and adolescents (Chervonsky & Hunt, 2017; English et al., 2012; Gross & John, 2003). This means that the research to date has largely overlooked a critical development period during which there are considerable changes and developments in both ER and social interactions. In the first years of life, a child has little control over his or her emotions and is primarily dependent on caregivers for ER (Rawana, Flett, McPhie, Nguyen, & Norwood, 2014; Thompson, 1991). However, structural and neurobiological change and development in the brain across childhood increase its capacity for self-regulation (Rawana et al., 2014; Thompson, 1991). As children become adolescents, their ability to use more sophisticated ER strategies develops considerably (Rawana et al., 2014; Zeman et al., 2006). Furthermore, the increasing importance of social relationships across this same life stage means that the regulation and expression of emotion may be influenced considerably by social goals (e.g., maintaining, improving, and/or increasing social interactions). Essentially, adolescence is a unique life stage during which individuals learn to manage their emotions and social interactions more independently, and the success with which such skills are developed and shaped during this critical life stage continue to have

influence far into adulthood (Roza, Hofstra, van der Ende, & Verhulst, 2003).

Given the clear importance of investigating ER and social interactions during adolescence and the apparent lack of research to date with this age group, the current study aimed to close this gap by investigating the role of two ER strategies, reappraisal and suppression, in social outcomes in school students in the early years of adolescence. Several social outcomes were considered in this research, including bullying victimization experiences, social satisfaction, and family relationship satisfaction, which were all considered to be important and major determinants of an adolescents' wellbeing. A longitudinal design was implemented to assess whether the use of reappraisal and/or suppression in the first year of high school was related to social outcomes a year later. The way in which people regulate and express their emotions differs by gender, with such differences becoming apparent by early childhood (Chaplin & Aldao, 2013; Zahn-Waxler, Shirtcliff, & Marcceau, 2008). A contributing factor that has been implicated in these differences is social norming, which dictates that varying levels and types of emotionality are appropriate for each gender. Of particular relevance to the current study, reduced emotional expression has been found to be both a social expectation and reality for males in Western societies (Chaplin, 2015; Fischer & LaFrance, 2015). It is also the case that gender differences have been consistently found in levels of reported victimization (e.g., Cook, Williams, Guerra, Kim, & Sadek, 2010) and in rates of emotional disorders (e.g., Kessler et al., 2012). Given the evidence for gender differences across a number of the study variables, we argue it is important to consider the relationship between social outcomes and different emotion regulation strategies separately in boys and girls.

Given the prior research in adult populations that demonstrate links between greater use of suppression and/or lower use of reappraisal and poorer social adjustment and functioning, the following predictions were made: (a) Higher use of suppression would be associated with higher levels of victimization, and lower levels of social and family satisfaction, both concurrently (in Grade 8) and longitudinally (from Grade 7 to 8); (b) higher use of reappraisal would be associated with lower levels of victimization, and higher levels of social and family satisfaction, both concurrently (in Grade 8) and longitudinally (from Grade 7 to 8). Although not the main focus of the study, the alternative direction of causality was also investigated, as it plausible that certain social factors contribute to the increased or decreased use of ER strategies. For example, in situations where there is low social support, ostracism, and poor family communication, a person may suppress his or her emotions because of reluctance and discomfort in sharing emotions with people they are unfamiliar with or do not trust. Similarly, people who have chronically poor social interactions may find it more difficult to reappraise yet another seemingly negative social interaction. Furthermore, as reappraisal and suppression are related to general mental health outcomes (Garnefski et al., 2001; Haga et al., 2009; Schäfer et al., 2017), which in turn have been shown to be related to social outcomes (Bierman et al., 2015; Connolly et al., 1992; Stice et al., 2004), the relationships between ER strategies and social outcomes were assessed while also controlling for mental health (anxiety and depression), to see whether ER strategy use could account for social outcomes, above the effects of these mental health factors. As noted earlier,



we expected different patterns of responding in males and females, specifically in relation to suppression where we expect use of suppression to have a significant impact on social outcome for females but not males, given normative expectation of reduced emotional expression in males.

## Method

### Participants

At Time 1 (T1), 262 Grade 7 students (*Age Mean* = 11.97, *SD* = .35) from five independent high schools across urban and semirural Sydney, Australia, participated in the study. Approximately 1 year later (Time 2; T2), 232 of these students completed follow up measures. At T2, the students were in Grade 8 and were between 12 and 14 years old (*M* = 12.90, *SD* = .43). Independent-samples *t* tests revealed no significant differences on any of the measures between those who completed T2 measures and those who were absent (29 participants) or excluded for incomplete questionnaires at T2 (1 participant). At T2, there were 148 female students (64%) and 84 male students. Further demographic information about the original sample is reported in Chervovsky and Hunt (2016b).

### Measures

**Emotion Regulation Questionnaire (ERQ; Gross & John, 2003).** The ERQ is 10-item questionnaire measuring habitual use of cognitive reappraisal and emotion suppression. Items are rated on a 7-point Likert scale (1 = *strong agree*, 4 = *neutral*, 7 = *strongly agree*). The cognitive reappraisal subscale contains 6 items (e.g., “When I want to feel less negative emotions . . . I change what I’m thinking about”) and the emotion suppression subscale contains 4 items (e.g., “When I am feeling negative emotions, I make sure not to express them.”). The ERQ has good reliability and internal consistency (Gross & John, 2003). Cronbach’s  $\alpha$  was .82 at T1 and .83 at T2 for the reappraisal subscale. Cronbach’s  $\alpha$  was .64 at T1 and .68 at T2 for the suppression subscale.

**Center for Epidemiological Studies Depression Scale for Children (CES-DC; Faulstich, Carey, Ruggiero, Enyart, & Gresham, 1986).** The CES-DC is a 20-item self-report questionnaire assessing symptoms of depression in children and adolescents. Items are rated on a 4-point Likert scale (1 = *not at all*, 4 = *a lot*) and participants are asked to rate how often they felt symptoms, such as sadness or tiredness, in the last week. The CES-DC has been shown to have adequate reliability and internal consistency in adolescents (Faulstich et al., 1986). Cronbach’s  $\alpha$  was .86 at T1, and .88 at T2.

**Spence Children’s Anxiety Scale (SCAS; Spence, 1997).** The SCAS is a 38-item measure of anxiety in children and adolescents. Participants rate how often they experience symptoms such as “worry about things” and “feel afraid” on a 4-point Likert scale (1 = *never*, 4 = *always*). The SCAS contains several subscales, including separation anxiety, social phobia, obsessive-compulsive, panic/agoraphobia, physical injury fears, and generalized anxiety. However, for the purposes of this study, only the total scores were used. The SCAS has good reliability and internal

consistency (Spence, 1998). Cronbach’s  $\alpha$  for the total scale was .91 at T1 and .92 at T2.

**Bullying Prevalence Questionnaire (BPQ; Rigby & Slee, 1993).** The BPQ is a 20-item self-report measure of bullying victimization, perpetration, and prosocial behavior. Items are rated on a 4-point Likert scale (1 = *never*, 4 = *very often*). Analyses were only conducted on the victimization subscale in this study. Examples of items in the victimization scale included “I get picked on by others” and “others leave me out on purpose.” The subscale total was averaged across the number of items and this average score was used in all analyses. Cronbach’s  $\alpha$  was .85 at T1 and .85 at T2.

**The Multidimensional Students’ Life Satisfaction Scale (MSLSS; Huebner, 1994).** The MSLSS is a 40-item measure of satisfaction across several life domains. The current study used the friends’ satisfaction subscale, which contained 9 items (e.g., my friends treat me well), and the family satisfaction subscale, which contained 7 items (e.g., I like spending time with my parents). Items are rated on a 6-point Likert scale (1 = *strongly disagree*, 3/4 = *mildly disagree/agree*, 6 = *strongly agree*). Subscale totals were averaged across number of items to create an average score for each subscale. The MSLSS has adequate reliability and validity in children and adolescents (Huebner, 1994; Huebner, Laughlin, Ash, & Gilman, 1998). In the current sample, Cronbach’s  $\alpha$  was .82 at T1 and .86 at T2 for the friendship satisfaction subscale, and Cronbach’s  $\alpha$  was .89 at T1 and .90 at T2 for the family satisfaction subscale.

### Procedure

Ethics approval to contact independent schools was granted by the Human Research Ethics Committee (HREC) at the University of Sydney. Of the approximately 60 independent schools that were contacted, five agreed to participate in both phases of the study. This response rate is not unusual for such a study in Australia that relies on voluntary participation. Both students and parents were required to provide consent to participate in the study. Both phases of testing took place in school halls under exam-like conditions. Both participating and nonparticipating students were present during testing to ensure that staff members were blinded to the students’ consenting status. Participating students completed the study questionnaires while nonconsenting students completed word puzzles or their homework. The initial phase of testing occurred at the start of Grade 7. The second phase of testing occurred 1 year later, when the participants were in Grade 8. All measures were completed at both time points.

### Analysis

Statistical analyses were conducted on IBM SPSS Statistics 24. For all analyses, data were only included from participants who completed both phases of testing. Findings related only to the first phase of testing can be found in Chervovsky and Hunt (2016b). Paired sample *t* tests were generated to evaluate the stability of the measures from T1 to T2. Time by gender analysis of variances (ANOVAs) were used to assess for the stability of measures across time, as well as gender differences. Bivariate correlations assessed significant associations between the main variables of interest. Multiple regressions investigated whether reappraisal, suppress-

sion, depression, and anxiety at T1 uniquely predicted social outcomes (victimization, social satisfaction, and family satisfaction) at T2. For each variable, two regression models were run—one for male and one for female participants. Interaction effects were also entered into the multiple regressions (T1 Reappraisal  $\times$  Depression, T1 Reappraisal  $\times$  Anxiety, T1 Suppression  $\times$  Depression, T1 Suppression  $\times$  Anxiety) to assess whether anxiety and depression at T1 differed in their effects on social outcomes at T2 when ER strategy use (reappraisal, suppression) differed. T1 variables were centered. Significant interaction effects were further assessed by dividing the ER variable into three equal groups—bottom third, middle third, and top third percentile—and assessing for group differences in the association between symptom scores and ER strategy use.

## Results

### Stability and Change in Measures Across Time

Descriptive statistics of the main variables are presented in Table 1. Time by gender ANOVAs revealed that the emotional regulation and social satisfaction variables did not change over time across gender (suppression  $F(1) = 0.255, p = .614$ ; reappraisal  $F(1) = 0.321, p = .572$ ; family satisfaction  $F(1) = 1.255, p = .264$ ; friends satisfaction  $F(1) = 1.882, p = .172$ ). Victimization increased between T1 and T2,  $F(1) = 6.903, p = .009$ , anxiety decreased,  $F(1) = 4.765, p = .030$ , and depression remained unchanged ( $F(1) = 1.930, p = .166$ ). Although there was some variation between the two time points, all measures also demonstrated moderate stability, with correlations between T1 and T2 ranging from .364–.684 ( $p < .001$ ).

### Gender Differences

The time by gender ANOVAs revealed no significant interaction effects, indicating that there was no difference between the

male and female samples in terms of change in these variables over time. In regards to the between subjects effects, the only gender differences were for victimization, where boys reported higher levels of victimization than girls,  $F(1) = 11.318, p = .001$ , and family satisfaction, where boys reported lower levels of satisfaction,  $F(1) = 6.574, p = .011$ .

### Concurrent Correlations at T2

We were interested in differential patterns of relationship between the variables for boys and girls. Concurrent zero-order correlations at T2 are presented in Table 2. Greater reappraisal use was related to higher family satisfaction, while greater suppression use was related to lower family satisfaction, for both samples. For boys only, higher suppression use was also related to lower levels of friendship satisfaction. Suppression and reappraisal were not associated with victimization for either gender.

In both genders, higher depression levels were associated with greater victimization, lower friendship satisfaction, and lower family satisfaction, while higher anxiety was related to higher levels of victimization and lower friendship satisfaction.

Of note, greater use of suppression was associated with higher depression and anxiety levels for both male and female students. Greater reappraisal use was associated with lower depression levels in boys only.

### Longitudinal Correlations Between Variables at T1 and T2

T1 reappraisal use was unrelated to any social outcomes at T2 for both male and female participants. For boys only, T1 suppression was associated with lower levels of friendship satisfaction at T2.

In both genders, greater T1 depression levels were associated with higher T2 victimization and lower T2 friendship satisfaction, while greater T1 anxiety levels were associated with greater T2 victimization. In girls only, higher T1 depression was associated with poorer family satisfaction at T2 and greater T1 anxiety was related to lower friendship satisfaction at T2.

The possibility that T1 social factors influenced T2 psychological functioning was also considered. For both genders, lower T1 family satisfaction was associated with greater use of suppression at T2. For boys, greater T1 victimization and lower T1 friendship satisfaction was also related to higher use of suppression at T2. T1 social outcomes were not significantly correlated with reappraisal at T2.

In both genders, higher levels of depression and anxiety at T1 were associated with higher T2 suppression use. In boys, higher depression at T1 was also associated with lower use of reappraisal at T2.

### Prediction of Social Outcomes

For each social outcome, regression analyses were conducted separately for boys and girls. As noted above, gender differences have been found in emotional regulation, emotional symptoms and victimization in prior research. We wanted to examine predictors of social outcome in our current sample in more depth, where boys and girls reported different levels of victimization and family

Table 1  
Descriptive Statistics

Main variables	Boys ( <i>n</i> = 84)		Girls ( <i>n</i> = 148)		Total ( <i>n</i> = 232)	
	Mean	<i>SD</i>	Mean	<i>SD</i>	Mean	<i>SD</i>
<b>Time 1</b>						
Reappraisal	26.68	7.60	27.53	6.50	27.22	6.92
Suppression	15.30	4.26	14.12	4.38	14.55	4.36
Depression	14.78	8.46	13.31	8.60	13.85	8.56
Anxiety	25.83	12.68	27.06	14.72	26.61	13.99
Victimisation	1.47	.54	1.32	.39	1.37	.46
Friendship	5.18	.82	5.37	.62	5.30	.70
Family	4.76	.92	5.14	.84	5.01	.89
<b>Time 2</b>						
Reappraisal	26.46	6.73	27.03	7.18	26.82	7.01
Suppression	14.92	5.02	14.82	4.50	14.85	4.69
Depression	13.14	8.06	13.35	8.98	13.28	8.65
Anxiety	23.36	13.54	26.18	16.07	25.15	15.23
Victimisation	1.59	.57	1.36	.42	1.45	.49
Friendship	5.15	.79	5.26	.76	5.22	.77
Family	4.80	.88	5.01	.94	4.93	.92

Note. Data at Time 2 was collected approximately 1 year after Time 1. Family and friendship scales refer to satisfaction within each social area.

Table 2  
Zero-Order Correlations by Gender

Main variables	1. Reap	1. Supp	1. Dep	1. Anx	1. Victim	1. Friend	1. Family	2. Reap	2. Supp	2. Dep	2. Anx	2. Victi	2. Friend	2. Family
1. Reap	—	<b>.198*</b>	-.133	-.059	.045	.093	<b>.228**</b>	<b>.344***</b>	.055	.021	-.060	.077	-.012	.020
1. Supp	.090	—	<b>.279**</b>	.109	.104	-.245**	-.202*	.159	<b>.539***</b>	.120	.039	.098	-.051	-.108
1. Dep	<b>-.323**</b>	.133	—	<b>.443***</b>	<b>.401***</b>	<b>-.426***</b>	<b>-.336***</b>	-.109	<b>.328***</b>	<b>.445***</b>	<b>.365***</b>	<b>-.226**</b>	<b>-.206*</b>	<b>-.206*</b>
1. Anx	.011	<b>.281**</b>	<b>.477***</b>	—	<b>.323**</b>	<b>-.239**</b>	-.102	-.079	<b>.170*</b>	<b>.235**</b>	<b>.704***</b>	<b>.239**</b>	<b>-.250**</b>	-.069
1. Victim	-.195	<b>.226*</b>	<b>.639***</b>	<b>.520***</b>	—	<b>-.492***</b>	-.046	.016	.025	<b>.218*</b>	<b>.238**</b>	<b>.625***</b>	<b>-.206*</b>	-.031
1. Friend	.213	-.173	<b>-.616***</b>	-.195	<b>-.490***</b>	—	.148	-.040	<b>-.207*</b>	<b>-.212*</b>	<b>-.400***</b>	<b>.310***</b>	-.132	.079
1. Family	.202	-.062	<b>-.364**</b>	-.179	<b>-.276*</b>	.194	—	.145	<b>-.275**</b>	<b>-.311***</b>	-.061	-.099	.059	<b>.604***</b>
2. Reap	<b>.493***</b>	.168	<b>-.260*</b>	.139	-.121	.205	.128	—	.086	-.134	-.027	.038	.093	<b>.251**</b>
2. Supp	-.210	<b>.460***</b>	<b>.315**</b>	<b>.242*</b>	<b>.286*</b>	<b>-.246*</b>	<b>-.261*</b>	.069	—	<b>.351***</b>	<b>.198*</b>	.074	-.132	<b>-.265**</b>
2. Dep	<b>-.408***</b>	.033	<b>.593***</b>	<b>.267*</b>	<b>.415***</b>	<b>-.421***</b>	<b>-.444***</b>	<b>-.275*</b>	<b>.313**</b>	—	<b>.486***</b>	<b>.377***</b>	<b>-.452***</b>	<b>-.447***</b>
2. Anx	<b>-.216*</b>	<b>.236*</b>	<b>.437**</b>	<b>.634***</b>	<b>.492***</b>	<b>-.226*</b>	<b>-.234*</b>	-.038	<b>.428***</b>	<b>.546***</b>	—	<b>.352***</b>	<b>-.363***</b>	-.135
2. Victim	-.196	.170	<b>.339**</b>	<b>.304**</b>	<b>.503***</b>	<b>-.257*</b>	<b>-.260*</b>	.006	.175	<b>.549***</b>	<b>.486***</b>	—	<b>-.537***</b>	<b>-.222**</b>
2. Friend	.210	<b>-.274*</b>	<b>-.475***</b>	-.202	<b>-.412***</b>	<b>.427***</b>	<b>.381***</b>	.161	<b>-.385***</b>	<b>-.579***</b>	<b>-.389***</b>	<b>-.514***</b>	—	<b>.192*</b>
2. Family	.204	-.053	-.183	.076	-.060	.147	<b>.689***</b>	<b>.268*</b>	<b>-.300**</b>	<b>-.446***</b>	-.156	-.150	<b>.336**</b>	—

Note. 1. = Time 1; 2. = Time 2 (approximately 1 year after T1); reap = reappraisal; sup = suppression; dep = depression; anx = anxiety; victim = bullying victimization; family = family satisfaction; friend = friendship satisfaction. Significant correlations in bold. Boys ( $n = 84$ ) below diagonal, girls ( $n = 148$ ) above diagonal.

\*  $p < .05$ . \*\*  $p < .01$ . \*\*\*  $p < .001$ .

satisfaction as well as different patterns of concurrent and longitudinal correlations between suppression and social satisfaction in particular. The regression model (see Table 3) explained 20.9% of the variance in male T2 victimization ( $R^2 = .209$ ;  $F(8, 75) = 2.474$ ,  $p = .019$ ), and 23.9% of the variance in T2 female victimization ( $R^2 = .239$ ;  $F(8, 135) = 5.287$ ,  $p < .001$ ). For boys, there were no T1 variables that were significantly associated with T2 victimization. For girls, greater T1 depression was uniquely associated with increased T2 victimization.

There was also a significant interaction effect for Reappraisal  $\times$  Anxiety in girls. For girls using low levels of reappraisal at T1, higher levels of T1 anxiety was related to greater T2 victimization ( $\beta = .482$ ,  $p = .001$ ). This association between T1 anxiety and T2 victimization was not significant for girls using moderate ( $\beta = .229$ ,  $p = .144$ ) or high levels of reappraisal ( $\beta = .021$ ,  $p = .876$ ).

For T2 friendship satisfaction, the model (see Table 4) explained 40.4% of the variance in boys ( $R^2 = .404$ ,  $F(8, 75) = 6.361$ ,  $p < .001$ ) and 12.8% of the variance in girls ( $R^2 = .128$ ,  $F(8, 134) = 2.459$ ,  $p = .016$ ). For boys, T1 higher levels of depression and suppression were each uniquely associated with lower levels of friendship satisfaction at T2. For girls, higher levels of T1 anxiety were uniquely associated with lower levels of friendship satisfaction at T2.

There was a significant interaction effect between T2 friendship satisfaction and T1 reappraisal  $\times$  depression in boys. For boys using low ( $\beta = -.557$ ,  $p = .001$ ) or moderate ( $\beta = -.546$ ,  $p = .005$ ) levels of reappraisal at T1, higher levels of depression were associated with lower levels of friendship satisfaction at T2. For boys reporting high level of reappraisal use at T1, T1 depression and T2 friendship satisfaction was unrelated ( $\beta = -.017$ ,  $p = .934$ ).

There was also a significant interaction effect for between T1 reappraisal  $\times$  anxiety and T2 friendship satisfaction for both boys (see Figure 1) and girls (see Figure 2). For those girls that used low levels of reappraisal at T1, greater T1 anxiety was related to lower social satisfaction at T2 ( $\beta = -.418$ ,  $p = .006$ ). For those girls using moderate ( $\beta = -.267$ ,  $p = .092$ ) or high ( $\beta = -.113$ ,  $p = .389$ ) levels of reappraisal, T1 anxiety was not significantly related to T2 social satisfaction. No significant findings were found within

the three split samples for boys but visual inspection of the interaction effect (see Figure 1) suggests that male students with high levels of reappraisal showed less of a relationship between anxiety and social satisfaction, relative to those with low or moderate level of reappraisal. For T2 family satisfaction, the model (see Table 5) explained 13.9% of the variance in boys ( $R^2 = .139$ ,  $F(8, 75) = 1.516$ ,  $p < .166$ ) and 8% of the variance in girls ( $R^2 = .080$ ,  $F(8, 134) = 1.453$ ,  $p = .180$ ).

For boys, the interaction effect of T1 Suppression  $\times$  Anxiety on T2 family satisfaction was significant. However, when split into thirds, there were no significant coefficients in any suppression subgroup. No other variables or interaction effects were uniquely associated with family satisfaction.

### Assessing Change in Social Outcome Variables

Additional analyses were run to assess whether T1 variables (reappraisal, suppression, depression, and anxiety) predicted a change in T2 social outcomes (victimization, friendship satisfac-

Table 3  
T1 Mental Health and Emotion Regulation Strategies on T2 Victimization

T1 variables	Boys			Girls		
	<i>B</i>	<i>SE B</i>	$\beta$	<i>B</i>	<i>SE B</i>	$\beta$
Reap	-.078	.062	-.152	.046	.036	.104
Supp	.082	.063	.142	-.003	.035	-.008
Dep	.068	.079	.118	.153	.038	.367***
Anx	.068	.089	.108	.037	.034	.092
Reap $\times$ Dep	-.008	.054	-.021	.080	.040	.209
Reap $\times$ Anx	-.098	.059	-.222	-.122	.042	-.294**
Supp $\times$ Dep	-.031	.061	-.061	-.056	.031	-.167
Supp $\times$ Anx	.022	.061	.045	.008	.032	.020
$R^2$		.209			.239	
<i>F</i>		2.474			5.287	
<i>Sig</i>		.019			<.001	

Note. Supp = suppression; reap = reappraisal; dep = depression; anx = anxiety.

\*\*  $p < .01$ . \*\*\*  $p < .001$ .

Table 4  
T1 Mental Health and Emotion Regulation Strategies on T2 Friendship Satisfaction

T1 variables	Boys			Girls		
	B	SE B	β	B	SE B	β
Reap	-.036	.075	-.050	-.013	.070	-.016
Supp	-.173	.077	-.214*	.009	.067	.011
Dep	-.329	.095	-.412**	-.117	.075	-.155
Anx	.074	.107	.085	-.139	.067	-.192*
Reap × Dep	.215	.065	.407**	-.092	.079	-.133
Reap × Anx	-.146	.072	-.237*	.164	.081	.218*
Supp × Dep	-.143	.074	-.202	.089	.060	.144
Supp × Anx	.141	.074	.208	.020	.063	.029
R <sup>2</sup>	.404			.128		
F	6.361			2.459		
Sig	<.001			.016		

Note. Supp = suppression; reap = reappraisal; dep = depression; anx = anxiety.

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

tion, and family satisfaction). Hierarchical multiple regressions, with two steps within the models, were performed for each social outcome. In the first step, only the T1 social outcome variable was included, while in the second step, the remaining T1 variables were included (i.e., reappraisal, suppression, depression, anxiety, and the interaction variables). The pattern of results was similar, although a few associations were no longer significant. For victimization, the findings were unchanged, that is, depression ( $\beta = .167, p = .048$ ) and the interaction effect of Reappraisal × Anxiety ( $\beta = -.215, p = .016$ ) remained significant predictors in girls, having controlled for T1 victimization. For friendship satisfaction, the interaction effects of Reappraisal × Depression ( $\beta = .410, p = .001$ ) and Reappraisal × Anxiety ( $\beta = -.269, p = .023$ ) remained significant predictors, and depression remained a marginally significant ( $\beta = -.279, p = .050$ ) predictor of male friendship satisfaction, when controlling for T1 friendship satisfaction. Suppression was no longer a significant predictor of friendship satisfaction

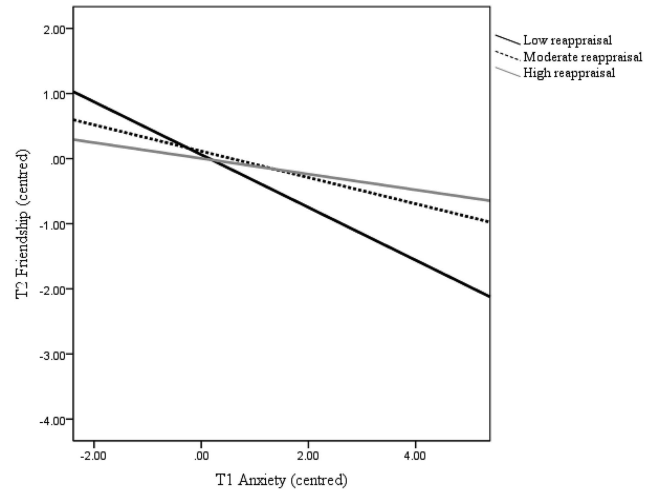


Figure 2. T1 Anxiety × Reappraisal on T2 friendship satisfaction, in girls.

in boys. For girls, neither anxiety ( $\beta = -.168, p = .060$ ) nor the interaction effect of Reappraisal × Anxiety ( $\beta = .142, p = .186$ ) remained significant predictors of friendship satisfaction. For family satisfaction, the Suppression × Anxiety interaction effect ( $\beta = .139, p = .157$ ) was no longer significantly related to male family satisfaction, when controlling for it at T1.

### Discussion

The relationship between ER difficulties and lower social functioning has been documented numerous times in psychological research (Bierman et al., 2015; Eisenberg et al., 1995; McDowell et al., 2000; Shields & Cicchetti, 2001). Furthermore, several studies (primarily focused on adults) have uncovered that the use of emotion suppression, a seemingly maladaptive ER strategy, co-occurs with as well as predicts negative social outcomes (Butler

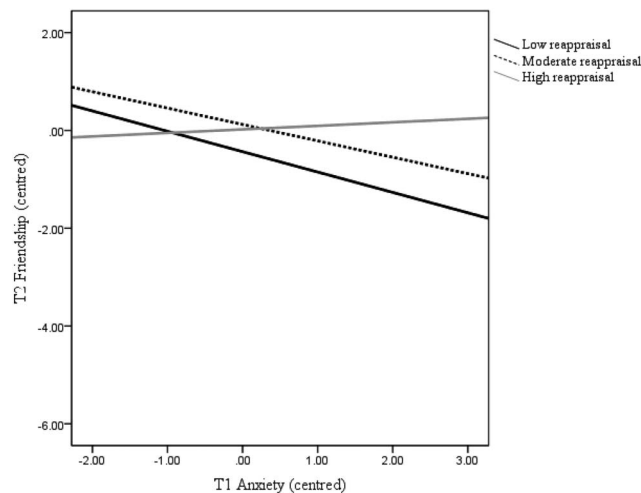


Figure 1. T1 Anxiety × Reappraisal on T2 friendship satisfaction, in boys.

Table 5  
T1 Mental Health and Emotion Regulation Strategies on T2 Family Satisfaction

T1 variables	Boys			Girls		
	B	SE B	β	B	SE B	β
Reap	.109	.101	.136	.057	.090	.057
Supp	-.059	.103	-.066	-.039	.086	-.042
Dep	-.149	.128	-.168	-.188	.096	-.200
Anx	.080	.144	.083	.041	.085	.045
Reap × Dep	.001	.087	.001	.087	.100	.101
Reap × Anx	-.043	.096	-.062	.055	.104	.058
Supp × Dep	-.122	.099	-.154	.122	.077	.160
Supp × Anx	.200	.099	.263*	.057	.081	.068
R <sup>2</sup>	.139			.080		
F	1.516			1.453		
Sig	.166			.180		

Note. Supp = suppression; reap = reappraisal; dep = depression; anx = anxiety.

\*  $p < .05$ .



et al., 2003, 2007; Chervonsky & Hunt, 2017). On the other hand, the use of the more adaptive ER strategy, reappraisal, has been found to be related to better social outcomes in adults (English et al., 2012; Gross & John, 2003). The current study is one of the first to look at the role of the specific ER strategies, suppression and reappraisal in social adjustment in young adolescents. The male and female samples were treated as different populations for the key analyses, based on the rationale that gender differences in a number of the study variables have been reported in prior research. It was expected that the use of emotion suppression would predict greater victimization and poorer friendship/family satisfaction for female students particularly, while reappraisal would predict lower levels of victimization and higher friendship/family satisfaction for both male and female students. For both the male and female samples, there was only limited evidence that suppression and reappraisal were uniquely related to social outcomes, particularly when controlling for the effects of mental health (anxiety and depression) on social functioning.

Contrary to our expectations, there were no gender differences in the average level or change in reports of suppression or reappraisal across time. Prior studies have found that males use suppression more frequently and express their emotions less often than females (Chaplin & Aldao, 2013; Gross & John, 2003; Gullone & Taffe, 2012; Haga et al., 2009; Melka, Lancaster, Bryant, & Rodriguez, 2011; Perry-Parrish & Zeman, 2011). Theorists propose that this reduction in emotion-expressive behavior is at least in part because of social gender norms and expectations, particularly in Western cultures, where often there is an expectation that males generally be less expressive than females (Chaplin, 2015; Fischer & LaFrance, 2015). However, this was not the case in our younger adolescent sample, with possibly the social normative effects having more of an influence as males reach adulthood.

There was some evidence of a relationship between ER strategy use and some aspects of social satisfaction. Consistent with prior research, both male and female adolescents who reported a higher level of family satisfaction in Grade 8 tended to concurrently report higher use of reappraisal and lower use of suppression. However, neither reappraisal nor suppression showed an effect over time on family relationships in this young age group whether or not family satisfaction at Grade 7 was controlled in the analyses. One explanation for these findings may be that family satisfaction is more changeable and reactive to immediate factors during the adolescent years, meaning that changes in ER strategy use could lead to relatively transient changes in the quality of family interactions. If true, this would mean that interventions focused on improving adolescent ER could see changes in the family environment, in a relatively short period of time.

In relation to friendship satisfaction, reappraisal was not associated with or predictive of this social outcome for either gender, suggesting that this ER strategy does not have a significant role to play in developing rewarding friendships. Contrary to our expectations, emotion suppression was not only associated with lower concurrent levels of friendship satisfaction in boys (although not girls), but also predicted lower friendship satisfaction in the following year, even when controlling for mental health issues (anxiety and depression). However this relationship was diminished when friendship satisfaction was controlled at Grade 7, suggesting that the effect is significant for predicting absolute levels of friendship satisfaction at Grade 8, rather than changes in friendship

satisfaction over time. The significant finding, together with the larger amount of variance explained in the regression model for boys, suggests that factors hypothesized to impact on social satisfaction (including suppression) appeared to be playing a significant role in social outcomes for boys but not for girls. Replication and further research is needed to explore whether gender differences in emotion expression emerge at a young age and begin to impact differently on social functioning and wellbeing in boys and girls. It is also worth noting that by Grade 7, boys were already experiencing lower levels of family satisfaction and higher levels of victimization than girls. This may have made them particularly vulnerable to the negative effects of emotion suppression use. Further research is needed to explore the mechanisms by which the use of emotion suppression may make boys particularly vulnerable to negative social effects over time.

As with friendship satisfaction, reappraisal was not related to victimization for either gender. Based on previous research demonstrating a link between reappraisal use and better social outcomes in older populations (English et al., 2012; Gross & John, 2003), it was expected that some positive relationship would exist between reappraisal and social wellbeing in adolescents. However, the results of the current study suggest that during adolescence (at least in its early years), reappraisal does not appear to play a major role in interpersonal functioning with friends and peers. Suppression was also unrelated to victimization. Previous research has demonstrated that use of suppression leads to unfavorable first impressions, disinterest in friendship, and less liking (Butler et al., 2003, 2007)—factors that may play a part in increasing vulnerability to victimization. In addition, a relationship between suppression use and higher victimization has been found in younger adolescents (Chervonsky & Hunt, 2016b; Larsen et al., 2012). For this reason it was expected that this relationship would remain as the participants entered Grade 8. However, the results of the current study, suggest that while suppression may play a role in victimization in early adolescence, its effect is diminished in later adolescent years.

Given that poor ER and maladaptive strategy use are related to the greater psychopathology (Aldao, Nolen-Hoeksema, & Schweizer, 2010), which in turn is related to poorer social outcomes (Bierman et al., 2015; Platt et al., 2013; Stice et al., 2004), it may be the case that the effects of mental health problems on social functioning overshadow the role of ER in later years. Indeed, the findings in this paper show stronger and more consistent correlations between greater mental health issues and poorer social outcomes. Of note, the number of significant relationships decreased when controlling for the other mental health outcome (anxiety or depression). However, given the moderate correlations between anxiety and depression, it is unsurprising that the effects of one reduced in significance when controlling for the other. The association between depression and victimization in girls is worthy of further mention. Greater levels of depression were not only related to higher concurrent victimization, but also predicted an increase in victimization levels a year later, suggesting that girls suffering from depression are particularly at risk of victimization. An association between depression and victimization existed for boys as well; however, this relationship did not remain when controlling for anxiety, perhaps because of the overlapping variance between the two mental health conditions.



Much of the research looking at suppression and reappraisal has assumed that ER strategy use leads to or causes social outcomes. Primarily, this assumption has come from studies that have shown that manipulating ER strategy use leads to differing social or emotional outcomes (Butler et al., 2003, 2007; Gross, 1998a). However, it is just as possible that negative psychological and social experiences lead to the use of particular ER strategies (Abe & Izard, 1999). For example, adolescents who experience significant mental health issues may feel uncomfortable expressing such negative emotional states and might use suppression as a way of concealing their difficulties from other peers. Indeed, in the current study, adolescents experiencing poorer mental health reported higher use of emotion suppression concurrently and 1 year later. On the other hand, adolescents experiencing fewer internalizing symptoms may find it easier to reinterpret a situation more positively. This relationship was found only in boys in this study, with lower depression levels relating to higher concurrent levels of reappraisal, as well as predicting greater use of this strategy in the following year. Furthermore, those experiencing social difficulties may feel the necessity to hide their emotions, particularly in the absence of a social support network where they feel able to express their true feelings. Again, the current results were consistent with this idea, with poor family satisfaction in Grade 7 related to suppression use the following year in both genders, and greater victimization and lower social satisfaction in Grade 7 showing a similar relationship in boys. In summary, while there was some evidence that psychosocial factors contributed to the use of ER strategies, the results were mixed.

The results from this study appear to demonstrate that the relationships between ER strategies (reappraisal and suppression), mental health (anxiety and depression), and social outcomes (victimization, social satisfaction, and family satisfaction) are bidirectional. Although no one variable stood out to uniquely account for overall social wellbeing, the substantive amount of variance explained in the regression models suggest that variables together are important determinants of adolescent psychosocial outcomes.

The way in which these variables work together is important to consider. There was considerable support for the role of reappraisal in the relationship between mental health problems and social outcomes that for the most part remained when controlling for social outcomes at T1. Greater use of reappraisal when experiencing negative mental health symptoms may have some protective social benefits, as evidenced by relationships between emotional symptoms and social outcomes found only for adolescents with low levels of reappraisal. Perhaps those adolescents experiencing mental health symptoms who are able to reappraise interpret their symptoms as unrelated to social outcomes, leading them to maintain more positive and satisfying social interactions. This finding highlights that while no one variable may account for social outcomes, a closer look at the interplay between ER strategy use and mental health may paint a clearer picture. Of note, it may well be that by early adolescence the interaction between ER and mental health is well established, making the independent effects of each difficult to disentangle. Indeed, in the current study, several significant associations existed between ER and mental health at both time points. Studies on younger populations are needed to gain a better understanding of the unique effects of ER and mental health on social outcomes.

## Limitations and Further Considerations for Future Research

The study findings need to be considered in the light of its limitations. First, the length of time between the first and second phase of testing requires some consideration. Effects of ER strategy use have been demonstrated immediately (Butler et al., 2003, 2007), after a few weeks (Srivastava, Tamir, McGonigal, John, & Gross, 2009), and after a few years (English et al., 2012), suggesting that ER has observable short and long-term effects. More important, these effects were found in studies on older populations who may have experienced less emotional and social change between testing dates, compared with adolescents. No doubt, effects of ER strategies would be more pronounced sooner after their use, rather than a year later. It may have been that during the year between testing, the rapid psychological and social shifts and changes that occur during adolescent development clouded the specific effects of ER on social outcomes over the year. Future research could measure ER strategies and social outcomes in adolescents at shorter intervals to see whether the effects of these ER strategies are more pronounced.

It may also be useful to run experimental studies such as those conducted by Butler et al. (2003, 2007), in which older participants were instructed to use particular ER strategies during a social interaction. This approach is particularly valuable as it allows for the implementation of an ER strategy specifically during a social interaction, and an immediate observation and measurement of any positive or negative effects. While participants in the current study were able to report on their general use of reappraisal and suppression, it was not assessed whether they were using these strategies specifically during social interactions. Perhaps the social effects would have been more pronounced if a distinction could have been made between those adolescents that used reappraisal or suppression during versus outside of these social interactions.

Overall, the study relied on self-reporting for assessment of all variables, meaning that shared method variance may have played a part in some of the associations between variables. Furthermore, the use of the ERQ to measure reappraisal and suppression may also have been problematic in this population sample, as the version used in this study was originally designed for use in adults. It was believed that the language used in this questionnaire was simple enough to be understood by young adolescents. However, it is possible that the adult version of the ERQ was not a strong measure of ER strategy use in children and adolescents, particularly for the suppression subscale, which had a relatively low Cronbach's  $\alpha$  ( $\alpha = .64$  at T1;  $.68$  at T2). Future studies looking at suppression and reappraisal in children and adolescents could benefit from using the revised questionnaire that has been designed for this younger population and has been shown to have sound reliability and validity (Gullone & Taffe, 2012). However, it is important to note that even in this revised questionnaire, Cronbach's  $\alpha$  for the suppression subscale was  $.69$  in the youngest adolescence age group (Gullone & Taffe, 2012). It may be that the lower  $\alpha$  value is at least in part because of the small number of items in the suppression questionnaire. However, it is also possible that younger adolescents may be particularly lacking in insight into their use of emotion suppression, as this is a relatively complex process that requires good understanding of mental processes, motivations, and self-awareness.

This study was also limited to two ER strategies. Reappraisal and suppression are widely researched in the literature, although studies are lacking in children and adolescents. For this reason it was decided that these would be the primary ER strategies investigated in the current study. However, there are a number of other ER strategies, such as attention redirection, acceptance, or avoidance, that could be used during adolescent social interactions that may be worthy of further investigation.

The ERQ does not allow for a differentiation between emotionally inexpressive and emotionally suppressive individuals. Had this distinction been made, a clearer pattern of results may have emerged. Furthermore, there is a clear difference between a calm emotionally expressive person and a person who is dysregulated and expressing emotion at a socially inappropriate level. Differentiation between these two categories may have also led to greater distinctions in the social effects of regulating the expressive components of emotion. Future research could look into distinguishing between different categories of emotion expression and investigating the social effects of each.

Lastly, the decision to run parallel analyses for the male and female samples, while we believe defensible on the basis of expected gender differences in key variables of interest and our theoretical interest in examining the differential patterns of emotional regulation on social outcomes in both boys and girls, may have had methodological limitations. For example, the male sample was close to half the size of the female sample, and there may have been less power to establish the significance of relationships.

### Conclusion

Considerable research in adults has found that reappraisal is related to better social outcomes, while suppression is related to poorer social functioning and wellbeing (Chervonsky & Hunt, 2017; English et al., 2012; Gross & John, 2003). The current study was only able to find partial support for this association in a younger, adolescent age group, particularly when the effects of mental health factors were also considered in the analyses. The findings in this study suggest that ER, mental health issues, and social functioning are all interrelated and, in the absence of further research that might differentiate their contribution, all require consideration during this early, yet very important, stage of a person's life. Emotional wellbeing and social interactions during adolescence can have major long-term effects on a person's general psychological and social functioning well into adulthood. For this reason, it is crucial to introduce psychological interventions that target mental health, social functioning, and ER in combination and early, before habitual social and emotional responses are formed.

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