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Emotion regulation styles and Adolescent adjustment following a COVID-19 lockdown

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Abstract

This study explored the effect of emotion regulation styles - integrative emotion regulation (IER), suppressive emotion regulation, and dysregulation—on adolescents' psychosocial adjustment following a Covid-19-related lockdown. 114 mother-adolescent dyads were surveyed after lockdown and at two additional time points (three and six months later). Adolescents were aged 10–16 years, 50.9% females. Adolescents reported on their emotion regulation styles. Mothers and adolescents reported on adolescents' well-being (depressive symptoms, negative and positive emotions) and social behaviour (aggression and prosocial behaviour). Results of multilevel linear growth models showed IER predicted optimal well-being and social behaviour reported by both mothers and adolescents at baseline and a self-reported reduction in prosocial behaviours over time. Suppressive emotion regulation predicted reduced self-reported well-being after lockdown, evident in higher levels of negative affect and depressive symptoms and reductions in mother-reported prosocial behaviour over time. Dysregulation predicted reduced well-being and impaired social behaviour after lockdown, reported by both mothers and adolescents, and a reduction in self-reported depressive symptoms over time. Results suggest adolescents' adjustment to lockdown was affected by their habitual emotion regulation styles.

KEYWORDS
adolescence, Covid-19, emotion regulation, psychosocial adjustment, self-determination theory

1 | INTRODUCTION

Since the Covid-19 pandemic, children and adolescents have shown increased adjustment problems compared to the pre-pandemic period (De France et al., 2022). This may not be surprising, given the common experience of isolation during the pandemic when most countries enforced lockdowns and social distance regulations, and children could not see their friends and teachers. As a consequence, children and adolescents experienced long-term psychosocial difficulties (e.g., Luijten et al., 2021). The current study examined emotion regulation abilities as possible antecedents of short- and long-term adjustment among adolescents following lockdown. To explore emotion regulation, we drew on a self-determination theory (SDT) framework (Deci & Ryan, 2008).

1.1 | The effect of COVID-19 lockdowns on adolescents' emotional and social adjustment

The Covid-19 outbreak was accompanied by uncertainty and inadequate information, leading to concerns about infection of oneself or others and creating the need to adjust to rapidly changing circumstances (Restubog et al., 2020). In 2020, the Israeli government announced several lockdowns to slow the spread of the pandemic. During these lockdowns, adolescents could not participate in social interactions or outdoor activities - known contributors to teens' mental health (Loades et al., 20200). As a result, many adolescents reported increased loneliness, boredom, intrafamily conflicts, and reduced well-being (Luijten et al., 2021; Magson et al., 2021; Orgilés et al., 2020; Sibley et al., 2021).

In addition to well-being, an important indicator of adolescents' adjustment is social behaviour, specifically prosocial or aggressive behaviours. Prosocial behaviours represent an adaptive coping strategy whereas aggressive behaviours may indicate a lack of adequate strategies to handle distress in socially acceptable ways (Arbel et al., 2022). By helping others, people strengthen their social bonds, and this, in turn, can contribute to their long-term well-being and alleviate stress (Inagaki & Orehek, 2017). Compared to pre-pandemic levels, during Covid-19 lockdowns, adolescents exhibited lower levels of empathic concern and prosocial behaviours, as well as increased aggressive behaviours (Giannotti et al., 2022; van de Groep et al., 2020). These adverse effects on adolescents' psychosocial functioning lasted weeks and even months following lockdowns (e.g., Alvis et al., 2022; Breaux et al., 2021; Lee et al., 2022; Loades et al., 2020; Nearchou et al., 2020; van de Groep et al., 2020). However, there is some evidence that the pandemic also provided opportunities to exhibit prosocial behaviours, such as volunteering or supporting others, and these could have increased adolescents' sense of meaningfulness and connectedness even under stressful conditions (Alvis et al., 2022).

To understand what differentiates adolescents who adjusted well after lockdown from those who did not, we focussed on adolescents' emotion regulation, a known contributor to adjustment (McLaughlin et al., 2011).

1.2 | Adolescents' emotion regulation: A self-determination theory perspective

Emotion regulation is the process by which one modifies the intensity, length, and expression of one's emotions (Gross, 2015). Compared to children, adolescents have advanced cognitive abilities and can use them in sophisticated ways to regulate emotions (Steinberg, 2020). Family conflict, academic-related stress, and fear of the coronavirus could have triggered negative emotions and elevated stress during the pandemic. Adolescents who were better able to regulate their emotions may have adapted better in both the short and the long term.

However, effective emotion regulation is not merely a function of the quantity of emotion regulation strategies a person employes. It is also a matter of the quality of the emotion regulation efforts. People differ in the ways they habitually regulate emotions, and these differences may lead to distinct outcomes (Aldao et al., 2010). We used SDT's emotion regulation framework to explore how different emotion regulation styles predicted adolescent adjustment following lockdown.

Emotions carry important information on the significance of events to individuals' well-being (Izard et al., 2011). Appraisals of the desirability, value, and malleability of emotions are followed by action tendencies aimed at regulating the self or others and increasing self-preservation and adaptive functioning (Greenberg, 2008; Tamir et al., 2007). Based on a eudemonic view of wellness, SDT postulates emotions comprise informational inputs that guide action and growth (Deci & Ryan, 2008). The ability to assimilate all types of experiences, both negative and positive, constitutes psychological thriving. Self-determination theory distinguishes between different habitual emotion regulation styles based on how people attend to emotions (Roth et al., 2019). Integrative emotion regulation (IER) is considered an adaptive emotion regulation style. It is characterised by a curious, non-judgemental stance towards one's emotions, accompanied by a capacity to volitionally take an interest in them once they appear. The volitional nature of this interest-taking allows people to adaptively manage their emotional experiences in the long run (Roth et al., 2018). Suppressive emotion regulation (SER) and dysregulation are considered maladaptive emotion regulation styles. Suppressive emotion regulation refers to a tendency to ignore or avoid expressing emotions when they arise (Benita, 2020). Dysregulation involves the experience of emotions as overwhelming and an inability to regulate their intensity and duration (McLaughlin et al., 2011). People using SER and dysregulation styles do not attend to their emotions autonomously (Roth et al., 2019). Those using SER attempt to avoid their emotions, and dysregulated individuals are unable to gain volitional awareness of their emotions, since they are expressed uncontrollably, and they lack the resources to grasp their meaning (Benita, 2020).

Importantly, these emotion regulation styles can be assessed both as state- and trait-like variables (e.g., Benita et al., 2021). When assessed as state-like variables, they reflect momentary use of regulation strategies in a specific context and at a specific time. When assessed as habitual or trait-like variables, they reflect dispositional tendencies in appraisals of and reactions to emotions that individuals use across situations and associate with different outcomes (Roth et al., 2019). We were interested in the effects of these styles as habitual or trait-like tendencies, as we were interested in global predictors of healthy versus unhealthy adjustment following lockdown.

1.3 | Differential effects of emotion regulation styles: Intrapersonal and interpersonal outcomes

Habitual IER, SER, and dysregulation differentially relate to psychological health outcomes. Integrative emotion regulation has been associated with a range of positive outcomes in adolescents and

adults, including increased empathy and prosocial behaviour (Benita et al., 2017), higher self-esteem, and lower levels of depression (Benita et al., 2020; Brenning et al., 2015), while both SER and dysregulation have been associated with depressive mood and externalising problems (Brenning et al., 2012, 2022). In the interpersonal domain, researchers have found IER is associated with a more tolerant and empathic attitude towards the emotions of others (Benita et al., 2017; Roth et al., 2018), whereas emotional dysregulation predicts behaviour problems, including increased aggression and externalising symptoms (e.g, McLaughlin et al., 2011). Other studies, not anchored in the SDT framework, have found SER is negatively associated with prosocial behaviour (Lockwood et al., 2014) and positively associated with trait hostility (Kim et al., 2022), suggesting awareness and expression of emotions may be essential to interpersonal relationships.

The pandemic experience may have been different for adolescents with different regulation styles. Adolescents with high levels of IER are hypothesised to be able to share their experiences with close others, because of their tendency to take an interest in their emotions and not be overwhelmed by them (Benita et al., 2017). They may have adjusted better to the pandemic, becoming more involved in family activities, acknowledging others' needs and difficulties, and offering assistance when needed. In contrast, those high on SER are unlikely to disclose interpersonal difficulties to close others (Roth & Assor, 2012). They were thus more likely to avoid relying on others or offer assistance during the pandemic. Unable to acknowledge and process their negative emotions, they were also at a greater risk of depressive symptoms (Brenning et al., 2015). Lastly, adolescents with high levels of dysregulation were likely to experience the pandemic as extremely stressful and overwhelming. They may have struggled to ameliorate their emotional distress and to adjust their behavioural reactions to the rapidly changing conditions (Brenning et al., 2022). They may have been more prone to quarrel with family members.

In support of these claims, Waterschoot et al. (2022), using a person-centred approach, found that during the pandemic, adults with high SER and high dysregulation experienced greater depressive and anxiety symptoms and reduced sleep quality and life satisfaction relative to adults with high IER. Similarly, Brenning et al. (2022) found adults' SER and dysregulation predicted weekly self-reports of anxiety, depressive symptoms, and reduced sleep quality and life satisfaction. Integrative emotion regulation was unrelated with these outcomes.

1.4 | The present study

We aimed to extend previous studies in several respects. First, we focussed on adolescents rather than adults. Adolescence involves biological and socio-emotional changes that can be accompanied by heightened emotionality, sensitivity to stress. And increased vulnerability for psychopathology (Guyer et al., 2016). Thus, it seems essential to examine how lockdown-related stress impacted adolescents. Second, as the lockdowns affected adolescents' social lives and may have increased their interpersonal stress, we examined their prosocial and aggressive behaviours, in addition to their well-being and ill-being. Third, since previous studies demonstrated both resilience and mental health difficulties during lockdowns (van de Groep et al., 2020), we tracked adolescents' long-term adjustment after lockdown, examined how their psychological and social adjustment changed over time, and asked whether their emotion regulation styles contributed to these changes.

This study was conducted following the second lockdown in Israel (September 18 to 8 November 2020). Our goal was to explore emotion regulation characteristics typifying young adolescents' adaptive vs. maladaptive psychosocial adjustment following lockdown. Specifically, we asked whether IER, SER, and dysregulation would differentially associate with adolescents' emotional and social adjustment. We collected data from both mothers and adolescents and utilised a longitudinal design to address this research question. The first measurement took place in the immediate aftermath of lockdown (up to 2 months after lockdown). The second and third measurements took place 3 and 6 months later.

To explore our research questions, we used a linear growth curve approach. This approach enables researchers to explore between-subjects differences in both the intercept and slope of an outcome variable. The intercept represents the level (mean) of a variable at baseline (after lockdown), and the slope represents the rate of change in the variable over time (at follow-up). We inspected whether habitual or trait-like emotion regulation styles would predict both the intercept and the slope of well-being (measured as positive affect, negative affect, and depressive symptoms), aggression, and prosocial behaviour. Emotional well-being is a broad construct composed of both positive and negative indicators (e.g., happiness, negative emotionality; Diener et al., 2010). Individuals may feel different emotions ranging in valence and arousal (i.e., fear, distress, happiness) in response to external experiences (Brose et al., 2015). Whereas depressive symptoms may portray a relatively chronic picture of well-being, positive and negative emotions better capture fluctuations in affective states (Brose et al., 2015). We therefore included both constructs as independent markers of psychological well-being that appeared relevant in the aftermath of lockdown.

We expected IER to predict optimal emotional and social adjustment at both baseline (after lockdown) and follow-up (three and 6 months later). Thus, we expected IER to negatively predict baseline levels of negative affect, depressive symptoms, and aggressive behaviours and positively predict baseline levels of positive affect and prosocial behaviour. We did not make an a priori assumption about whether IER would predict changes in adjustment at follow-up. Those high on IER were unlikely to experience an increase in their symptoms over time. However, since we expected low maladjustment symptoms for these adolescents at baseline, we could not anticipate an improvement in their symptoms.

We expected SER and dysregulation to predict adjustment problems at baseline, but these would be manifested differently for each style. Following Brenning et al. (2022), we expected SER to

negatively predict well-being and prosocial behaviour at baseline. We also anticipated adolescents high on SER would exhibit a rise in ill-being and aggressive behaviour in the months following lockdown, as their problems during lockdown were more likely to go untreated. In sum, we hypothesised SER would positively predict baseline levels and slopes of negative affect, depressive symptoms, and aggressive behaviours and negatively predict baseline levels of positive affect and prosocial behaviours.

Following Brenning et al. (2022), we expected dysregulation to positively predict baseline levels of negative affect, depressive symptoms, and aggressive behaviours and negatively predict baseline levels of positive affect and prosocial behaviour. We did not have an a priori hypothesis about the slope of symptoms for these adolescents. It is plausible that their state improved after restrictions were lifted, and they were able to return to their routines.

2 | METHOD

2.1 | Sample and procedure

Participants were Israeli Jewish mothers (M_{age} = 40.67, SD_{age} = 4.60 at measurement one) and their adolescent children (M_{age} = 11.59, SD_{age} = 1.29 at measurement one) who filled in questionnaires following the second lockdown in Israel. In our sample,94.7% of mothers attended higher education, and 75.4% reported having an average or above average income. Adolescents' age and gender ranged as follows: 23.7% were in fifth grade, 40.7% males; 51.8% were in sixth grade, 49.2% males; 17.5% were in seventh grade, 65% males; 7% were in eighth grade, 50% males. For school type, 46.1% of adolescents attended public schools, 40.2% attended religious-public schools, and 13.7% attended ultra-orthodox schools. Parents received US$30 vouchers, and adolescents received US$10 after each measurement.

In Israel, the 2020 school year started on September 1. However, an outbreak of Covid-19 led to quarantines of exposed staff members and students all over the country. As a result, the government closed schools and kindergartens starting on September 13 and then announced a full lockdown on September 18. Although the lockdown was formally lifted on November 8, schools remained closed for several more weeks. Schools reopened for grades 5 and 6 on November 24 and for grades 7–10 on December 6.

Our first wave was collected over a period of two months (from mid-November 2020 to mid-January 2021) beginning on November 9 (immediately after the formal end of the lockdown). Around 60% of adolescents in our sample were still studying at home when they filled out Time 1 questionnaires. *T* tests revealed no differences in the outcome variables for those who filled out the questionnaires while studying at home and those who did so when already attending school. The second and third waves took place at 3-month intervals following the first wave. During this period, schools were open, but with restrictions. For example, students were required to wear masks throughout the day and eat their meals outdoors.

Participants were recruited by social media platforms. Parents provided active consent for their children's participation in the study. 114 dyads of mothers and adolescents participated in the first wave; 93 dyads participated in the second wave, and 88 in the third wave. Attrition rate was 22.8%. Chi square tests between participants with complete data and those with incomplete data in the second or the third wave revealed no significant sociodemographic differences. *T* tests revealed only one significant difference in the study variables—mothers who completed all assessments reported lower child depression levels (M = 0.57, SD = 0.52) than mothers who dropped out before completion (M = 0.88, SD = 0.92), t (112) = −1.63, p = 0.03, d = 0.672, 95% confidence interval [0.137, 1.039].

2.2 | Measures

Adolescents and their mothers completed the questionnaires at all three measurement points. Descriptive statistics and Cronbach's alpha reliability estimates for scales are presented in Table 1. As can be seen, all reliability estimates were adequate, with one exception. Reliability estimates for adolescents' reports on aggression were unsatisfactory at Time 1 and Time 3. This will be discussed in a subsequent section. Scales were averaged across items to create variables.

2.2.1 | Adolescents' reports

Emotion regulation

Adolescents' emotion regulation styles were measured using the Emotion Regulation Inventory (ERI; Roth et al., 2009). The ERI includes three 6-item subscales: IER (e.g., 'When I feel stressed or anxious, I usually try to understand the reasons'), dysregulation (e.g., 'When I am anxious or stressed, I can't concentrate on other things I have to do'), and SER (e.g., 'I almost always try not to express my stress or anxiety'). Responses are rated on a 6-point Likert scale ranging from 1 (not true at all) to 6 (very true). Although emotion regulation styles were assessed at all three time points, we were interested in their effect as a global trait-like variable on adjustment following lockdown. We therefore only used Time 1 measurements in our analyses.

Well-being

Adolescents completed the short version of the Positive and Negative Affect Schedule for Children (PANAS-C; Ebesutani et al., 2012). The PANAS-C is a 10-item instrument that measures positive and negative emotions separately during the past weeks as indicators of subjective well-being. The PANAS–C comprises five negative emotions (e.g., upset, afraid, and nervous) and five positive emotions (e.g., excited, proud), using a 5-point Likert-type scale ranging from 1 (very slightly or not at all) to 5 (extremely).

Adolescents reported depressive symptoms over the past weeks using the 10-item depression subscale (e.g., 'I felt sad or empty') from

TABLE 1 Descriptive statistics reliabilities and intraclass correlations (ICCs).

	Time 1		Time 2		Time 3		
	Mean (*SD*)	Alpha	Mean (*SD*)	Alpha	Mean (*SD*)	Alpha	ICC
Child emotion regulation							
IER	3.83 (1.04)	0.83	N/A		N/A		N/A
SER	3.56 (1.01)	0.79	N/A		N/A		N/A
Dysregulation	3.59 (1.21)	0.87	N/A		N/A		N/A
Adolescents' reports of adjustment							
Positive affect	3.60 (0.95)	0.87	3.62 (0.91)	0.86	3.79 (0.84)	0.89	0.62
Negative affect	1.93 (0.82)	0.83	1.96 (0.77)	0.85	1.87 (0.68)	0.82	0.59
Depressive symptoms	0.75 (0.59)	0.88	0.72 (0.57)	0.90	0.63 (0.51)	0.89	0.70
Aggression	0.66 (0.48)	0.55	0.65 (0.55)	0.72	0.56 (0.35)	0.28	0.43
Prosocial behaviour	2.08 (0.52)	0.78	2.08 (0.56)	0.78	2.09 (0.53)	0.74	0.47
Mothers' reports of adjustment							
Positive affect	3.38 (0.88)	0.90	3.38 (0.81)	0.93	3.54 (0.86)	0.90	0.71
Negative affect	1.99 (0.82)	0.90	2.02 (0.74)	0.83	1.96 (0.79)	0.87	0.70
Depressive symptoms	0.60 (0.69)	0.91	0.66 (0.64)	0.89	0.53 (0.53)	0.85	0.70
Aggression	1.09 (0.65)	0.92	1.04 (0.64)	0.92	1.00 (0.66)	0.94	0.74
Prosocial behaviour	1.70 (0.61)	0.83	1.62 (0.61)	0.85	1.70 (0.65)	0.89	0.71

Abbreviations: IER, integrative emotion regulation; SER, suppressive emotion regulation.

the Revised Child Anxiety and Depression Scale (RCADS; Chorpita et al., 2000). Items are rated on a 4-point Likert scale ranging from 0 (never) to 3 (always).

Social behaviour

Adolescents reported prosocial and aggressive behaviours over the past weeks using the 5-item prosocial behaviour (e.g., 'I was helpful if someone was hurt, upset or felt ill') and conduct (e.g., 'I often had temper tantrums or hot tempers') subscales of the Strengths and Difficulties Questionnaire (SDQ; Goodman, 1997). Subscales are rated on a 4-point Likert scale ranging from 0 (never) to 3 (always). As can be seen in Table 1, reliability estimates for the aggression scale were relatively low at Time 1 and very poor at Time 3. Therefore, we did not include Time three in our analysis, marking all values as missing.

2.2.2 | Mothers' reports

Well-being

Using the parent version of the 10-item Positive and Negative Affect Schedule for Children (PANAS-C-P; Ebesutani et al., 2012), mothers rated the extent to which their child had displayed each mood in the previous month on a 5-point Likert scale ranging from 1 (very slightly) to 5 (extremely).

Depressive symptoms were measured using the depression scale from the Child and Adolescent Symptom Inventory-4 (CASI-4; Gadow & Sprafkin, 2005). This scale contains six items (e.g., 'Is depressed for most of the day'). Mothers reported on their child's symptoms over the past few weeks on a 4-point Likert scale ranging from 0 (never) to 3 (very often).

Social behaviour

Aggressive behaviours were measured using the 8-item oppositional defiant scale (e.g., 'Loses temper') in CASI-4 (Gadow & Sprafkin, 2005). Prosocial behaviour was measured using 5-item scale of the parent version of the SDQ (Goodman, 1997). For both scales, mothers reported on their child's symptoms over the past few weeks on a 4-point Likert scale ranging from 0 (never) to 3 (very often).

2.3 | Analytic plan

Our analyses were conducted using Mplus 8.4 (Muthén and Muthén (2017). Missing data ranged from 0% to 4.4%. Little's missing completely at random test (Little, 1988) was non-significant, χ^2 (353) = 373.74; p = 0.22, suggesting the data could be considered missing completely at random. Therefore, our estimation method was maximum likelihood with robustness to nonnormality. Sensitivity analyses were conducted using G*Power (Faul et al., 2009) to determine whether sample size was adequate to infer effect with a desired power of 0.80 and an alpha level of 0.05 (Murayama et al., 2022). Analysis indicated our sample was sufficient to detect a

level 2 medium effect of 0.13. We initially calculated descriptive statistics and intercorrelations between the study variables for level 1 and level 2. Then, we tested a multilevel growth curve model. This approach captures two levels of information derived from the data: level 1 provides information on within-participant variability in adjustment over time (deviation from personal mean), and level 2 provides information on between-participants variability in initial adjustment levels (at Time 1) and in changes over time (deviations from sample mean). Because our first measurement took place immediately after lockdown, significantly positive or negative baseline levels indicate that for some individuals, adjustment levels were significantly above or below zero at this time. In addition, when significant baseline levels are combined with non-significant slopes (i.e., change over time), this indicates initial adjustment levels remained stable over time.

We first tested an unconditional growth model with no predictors. This model estimated the degree of variance for level 1 and level 2. Based on these variance components, we calculated the intraclass correlations (ICCs) to explore the proportion of variability explained by the within-participant and between-participants factors. Intraclass correlations are presented in Table 1. As can be seen, all ICCs were above 0.43, indicating a sufficient amount of variance at both levels and allowing us to explore multilevel effects. We then calculated intercorrelations between variables. We used a multilevel structural equation modelling (MSEM; Preacher, 2011) approach to calculate level 1 (within-participant) and level 2 (between-participants) correlations. Multilevel structural equation modelling partitions the variance in observed variables containing multiple sources of variance to their within-participant (level 1) and between-participants (level 2) latent components. We calculated correlations between the uncentered variables at both levels. Emotion regulation styles, as measured at the first time point, were solely included in the between-participants level.

We then continued with a partially conditional growth model, in which time of measurement was entered as a level 1 predictor of change in adjustment over time. We created separate models for well-being (positive and negative affect and depressive symptoms) and social behaviours (aggressive and social behaviours). This separation was done on theoretical grounds and also because we did not have enough degrees of freedom to include all outcome variables in one model. Time was centred on the first measurement using the following coding scheme: Time 1 = 0, Time 2 = 1, Time 3 = 2. We next inspected our main research questions using a fully conditional model, in which emotion regulation styles were entered as level 2 predictors of the intercepts (baseline levels) and slopes (change over time) of psychological adjustment. Thus, when predicting the slope by level 2 variables (emotion regulation styles), we examined cross-level interactions. We probed the interactions and examined the significance of simple slopes using the Johnson-Neyman approach (Hayes & Matthes, 2009). This approach produced areas of significance for the conditional effects of emotion style on the slope.

3 | RESULTS

3.1 | Preliminary analysis

We tested the associations between the demographic variables and our dependent variables. Three significant correlations emerged. First, adolescents' age was negatively correlated to their reports of positive affect ($r = -0.23$, $p < 0.05$). Second, mothers' reports of prosocial behaviours indicated girls were more likely to engage in prosocial behaviours than boys (t (2,112) = −2.73, $p < 0.01$). Third, mothers with above average income reported significantly lower levels of adolescents' negative affect (F (2,112) = 3.54, $p = 0.03$) and depressive symptoms (F (2,112) = 3.77, $p = 0.03$) than mothers with below average income. Given these correlations, we controlled for these variables in our latent growth curve model (LGCM) analysis.

Table 2 presents intercorrelations between the study variables. Coefficients above the diagonal represent level 1 correlations (within-participant), and coefficients below the diagonal represent level 2 correlations (between-participants). We were more interested in level 2, as our predictor variables (emotion regulation styles) had only level 2 variance. Specifically, we looked at the relations between emotion regulation styles and the outcome variables.

Integrative emotion regulation was positively associated with adolescents' reports of positive affect and prosocial behaviour. It also had a marginally significant negative correlation with mothers' reports of depressive symptoms. Suppressive emotion regulation was negatively associated with adolescents' and mothers' reports of positive affect and positively associated with adolescents' reports of negative affect and depressive symptoms. Finally, dysregulation was positively associated with adolescents' and mothers' reports of negative affect, depressive symptoms, and aggressive behaviour.

3.2 | Primary analyses

3.2.1 | Predicting well-being

Table 3 presents the results of the multilevel growth model for well-being. Adolescents' reports of negative emotions and depressive symptoms had a positive slope, indicating that adolescents experienced an increase in ill-being over time. We next tested the effects of emotion regulation styles on baseline levels and slopes of the outcome variables.

Positive affect

Integrative emotion regulation positively predicted baseline levels of adolescents' reports of positive affect. Suppressive emotion regulation negatively predicted baseline levels of adolescents' and mothers' reports of positive affect. Dysregulation did not predict baseline levels of positive affect. Emotion regulation styles did not predict the slope of positive affect. Results suggest that whereas adolescents high on IER were more likely to experience (but not necessarily to

TABLE 2 Intercorrelations between the study variables for level 1 and level 2.

	1	2	3	4	5	6	7	8	9	10	11	12	13
1. IER	-	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2. SER	0.07	-	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3. Dysregulation	0.17†	0.15†	-	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
4. Positive affect$_a$	0.33**	−0.25*	−0.16	-	−0.44**	−0.35**	−0.20	0.41**	0.13	−0.08	0.14	0.11	0.58***
5. Negative affect$_a$	−0.17	0.22*	0.33**	−0.70**	-	0.39**	0.17	−0.23**	−0.17**	0.25**	0.09	0.00	−0.10
6. Depressive symptoms$_a$	−0.15	0.29**	0.37**	−0.74**	0.81**	-	0.29**	−0.15	−0.16**	0.11	0.21**	0.03	−0.06
7. Aggression$_a$	−0.07	0.16	0.52**	−0.28*	0.49**	0.65**	-	−0.20	−0.18*	0.01	0.09	0.11	−0.15
8. Prosocial behaviour$_a$	0.47**	0.04	−0.14	0.58**	−0.32**	−0.41**	−0.43**	-	0.17*	−0.03	0.04	−0.09	−0.08
9. Positive affect$_m$	0.10	−0.27**	−0.12	0.65**	−0.29**	0.47**	−0.29*	0.35**	-	−0.31**	−0.32**	−0.21*	0.35**
10. Negative affect$_m$	0.04	0.08	0.41**	−0.40**	0.56**	0.60**	0.44**	−0.02	−0.65**	-	0.41**	0.38**	−0.19*
11. Depressive symptoms$_m$	−0.17†	0.05	0.28**	−0.45**	0.64**	0.60**	0.51**	−0.17	−0.64**	0.86**	-	0.41**	−0.29**
12. Aggression$_m$	−0.06	0.00	0.37**	−0.31**	0.42**	0.41**	0.48**	−0.05	−0.57**	0.77**	0.75**	-	−0.26**
13. Prosocial behaviour$_m$	0.09	−0.14	−0.09	0.46**	−0.38**	−0.40**	−0.30*	0.45**	0.64**	−0.44**	−0.33**	−0.26**	-

Note: The subscript 'a' denotes adolescents' reports. The subscript 'm' denotes mothers' reports. Coefficients above the diagonal represent level 1 correlations (within-participants), and coefficients below the diagonal represent level 2 correlations (between-participants).
*$p < 0.05$; **$p < 0.01$.

express) positive affect at baseline, those high on SER were less likely to both experience and exhibit positive affect.

Negative affect

Suppressive emotion regulation positively predicted baseline levels and negatively predicted the slope of adolescents' reports of negative affect. As seen in Figure 1, the slope of adolescents' reports of depressive symptoms was positive for all levels of SER. However, adolescents with high levels of SER exhibited little change in their negative emotions over time. Dysregulation positively predicted baseline levels of adolescents' and mothers' reports of negative affect. Results suggest that adolescents high on SER were more likely to experience (but may have not expressed) negative affect directly after lockdown, and those high on dysregulation were more likely to both experience and exhibit negative affect.

Depressive symptoms

Integrative emotion regulation negatively predicted baseline levels of adolescents' and mothers' reports of depressive symptoms. Suppressive emotion regulation positively predicted baseline levels of adolescents' reports of depressive symptoms. Dysregulation positively predicted baseline levels of adolescents' and mothers' reports of depressive symptoms. In addition, dysregulation negatively predicted the slope of adolescents' reports of depressive symptoms. As seen in Figure 2, when dysregulation was at least 0.1 above the mean, the slope of adolescents' reports of depressive symptoms was negative. The results suggest that adolescents high on IER were less likely to experience and present depressive symptoms at baseline, and those high on dysregulation were more likely to do so. In addition, adolescents high on SER were more likely to experience but not necessarily to present depressive symptoms at baseline. Finally, adolescents with mean and above dysregulation levels were more likely to experience a decrease in depressive symptoms over time.

3.2.2 | Predicting social behaviour

Table 4 presents the results of the multilevel growth model for social behaviour. The slopes at level 1 were not significant, indicating there was no consistent change in social behaviour in the months following the lockdown. We next tested the effects of emotion regulation styles on baseline levels and slopes of the outcome variables.

Aggression

Integrative emotion regulation negatively predicted baseline levels of adolescents' reports of aggression. Dysregulation positively predicted baseline levels of adolescents' and mothers' reports of aggression. Suppressive emotion regulation negatively predicted baseline levels of mothers' reports of aggression. In addition, SER significantly predicted the slope of mothers' reports of aggressive behaviour (the effect of SER on adolescents' slope was marginally significant). As seen in Figure 3, when SER was at least 0.5 standard deviations below the mean, the slope of mothers' reports of aggression was negative, but when SER was at least 1.2 standard deviations above the mean, the slope was positive. These results suggest adolescents high on IER were less likely to report aggressive behaviour at baseline, adolescents with high dysregulation levels were more likely to report and present aggressive behaviour at baseline, and those high on SER were less likely to present aggressive behaviour at baseline. In addition, adolescents

TABLE 3 Results of multilevel growth models predicting adolescents' well-being and ill-being.

	Adolescents' reports			Mothers' reports		
Predictors	**Positive affect**	**Negative affect**	**Depressive symptoms**	**Positive affect**	**Negative affect**	**Depressive symptoms**
Level 1 fixed effect						
Time	−0.50 (0.44); [0.256]	**0.49 (0.20); [0.015]**	**0.22 (0.11); [0.044]**	0.09 (0.24); [0.965]	0.11 (0.22); [0.628]	−0.12 (0.21); [0.570]
Level 2 fixed effect						
IER	**0.30 (0.08); [0.000]**	−0.13 (0.08); [0.094]	**−0.11 (0.05); [0.049]**	0.10 (0.09); [0.280]	−0.02 (0.08); [0.852]	**−0.12 (0.06); [0.035]**
SER	**−0.23 (0.06); [0.000]**	**0.18 (0.07); [0.008]**	**0.14 (0.04); [0.000]**	**−0.15 (0.07); [0.031]**	−0.00 (0.06); [0.995]	−0.01 (0.05); [0.890]
Dysregulation	−0.12 (0.07); [0.091]	**0.22 (0.05); [0.000]**	**0.19 (0.040); [0.000]**	−0.10 (0.06); [0.112]	**0.25 (0.07); [0.000]**	**0.17 (0.05); [0.000]**
Level 2 random effect						
IER	−0.04 (0.03); [0.307]	−0.01 (0.03); [0.780]	0.00 (0.03); [0.973]	−0.00 (0.04); [0.937]	0.01 (0.04); [0.838]	0.02 (0.03); [0.164]
SER	0.05 (0.04); [0.221]	**−0.08 (0.04); [0.039]**	−0.02 (0.03); [0.418]	−0.05 (0.03); [0.120]	0.02 (0.03); [0.611]	0.02 (0.03); [0.379]
Dysregulation	0.01 (0.03); [0.816]	−0.05 (0.03), [0.064]	**−0.05 (0.02); [0.001]**	0.02 (0.01); [0.085]	−0.03 (0.03); [0.369]	−0.03 (0.02); [0.085]

Note: Values listed are unstandardised coefficients. Numbers in round brackets are standard errors. Numbers in square brackets are *p* values. Bold values represent significant effects. Level 1 fixed effect refers to the effect of time on change in outcomes. Level 2 fixed effects refers to the effect of emotion regulation styles on level 1 intercept. Level 2 random effect refers to the effect of emotion regulation styles on level 1 slope.

Abbreviations: IER, integrative emotion regulation; SER, suppressive emotion regulation

FIGURE 1 Suppressive emotion regulation (SER) moderates the effect of time on adolescents' reports of negative affect.

FIGURE 2 Dysregulation moderates the effect of time on adolescents' reports of depressive symptoms.

below the mean on SER presented reduced aggressive behaviour over time, whereas those high on SER presented increased aggression over time.

Prosocial behaviour

Integrative emotion regulation positively predicted baseline levels of adolescents' reports of prosocial behaviour, and dysregulation negatively predicted it. The effect of IER on mothers' reports of prosocial behaviour was positive, but only marginally significant ($p < 0.060$). Additionally, IER negatively predicted the slope of adolescents' reports of prosocial behaviour. As seen in Figure 4, when IER was at least 0.9 standard deviations below the mean, the slope of adolescents' reports of prosocial behaviour was positive, but when IER was at least 1.1 standard deviations above the mean, the slope was negative. Finally, SER negatively predicted the slope of mothers' reports of prosocial behaviour. As seen in Figure 5, when SER was at least 1.3 standard deviations above the mean, the slope was negative.

TABLE 4 Results of multilevel growth models predicting adolescents' social behaviour.

	Adolescents' reports		Mothers' reports	
Predictors	**Aggression**	**Prosocial behaviour**	**Aggression**	**Prosocial behaviour**
Level 1 fixed effect				
Time	0.06 (0.07); [0.424]	0.01 (0.01); [0.261]	0.01 (0.01); [0.529]	0.00 (0.01); [0.739]
Level 2 fixed effect				
IER	**−0.09 (0.04); [0.018]**	**0.25 (0.04); [0.000]**	−0.08 (0.05); [0.117]	0.10 (0.05); [0.054]
SER	−0.02 (0.04); [0.685]	0.04 (0.04); [0.332]	**−0.11 (0.05); [0.045]**	0.01 (0.05); [0.836]
Dysregulation	**0.16 (0.03); [0.000]**	**−0.08 (0.04); [0.037]**	**0.19 (0.05); [0.000]**	−0.03 (0.05); [0.568]
Level 2 random effect				
IER	0.08 (0.06); [0.153]	**−0.08 (0.03); [0.003]**	0.02 (0.03); [0.612]	−0.05 (0.03); [0.094]
SER	0.10 (0.06); [0.095]	−0.03 (0.03); [0.315]	**0.08 (0.02); [0.001]**	**−0.08 (0.03); [0.008]**
Dysregulation	−0.01 (0.06); [0.846]	0.02 (0.03), [0.503]	−0.01 (0.02); [0.721]	−0.01 (0.02); [0.529]

Note: Values listed are unstandardised coefficients. Numbers in round brackets are standard errors. Numbers in square brackets are *p* values. Bold values represent significant effects. Level 1 fixed effect refers to the effect of time on change in outcomes. Level 2 fixed effects refers to the effect of emotion regulation styles on level 1 intercept. Level 2 random effect refers to the effect of emotion regulation styles on level 1 slope.

Abbreviations: IER, integrative emotion regulation; SER, suppressive emotion regulation.

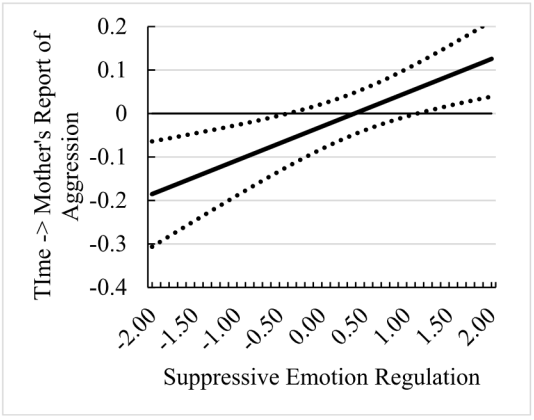

FIGURE 3 Suppressive emotion regulation (SER) moderates the effect of time on mothers' reports of aggression.

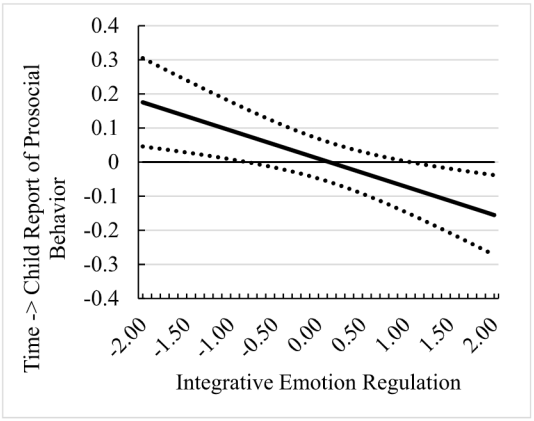

FIGURE 4 Integrative emotion regulation (IER) moderates the effect of time on adolescents' reports of prosocial behaviour.

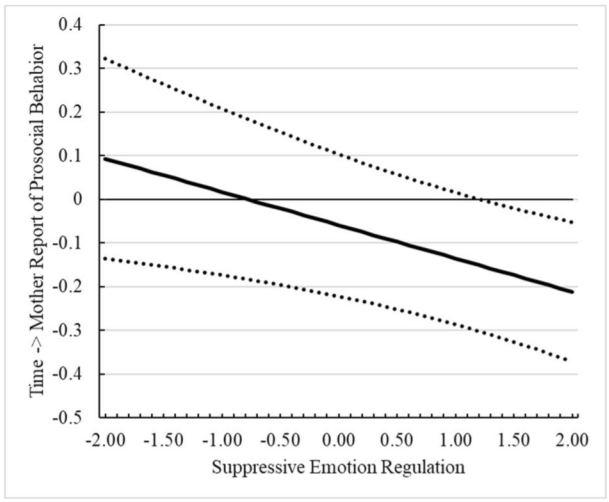

FIGURE 5 Suppressive emotion regulation (SER) moderates the effect of time on mothers' reports of prosocial behaviour, controlling for adolescent gender.

Taken together, these results indicate that adolescents high on IER were more likely to report engaging in prosocial behaviour at baseline, and adolescents with high dysregulation levels were less likely to do so. In addition, adolescents below the mean on IER reported engaging in increased prosocial behaviour over time, whereas those high on IER reported decreased levels of prosocial behaviour over time. Finally, adolescents who were very low on SER reported an increase in prosocial behaviour, while those above the mean on SER reported a decrease over time.

4 | DISCUSSION

This study examined the impact of habitual emotion regulation styles on adolescents' emotional and social adjustment following a Covid-19-related lockdown. Overall, the results support our hypotheses, as IER was related to optimal adjustment, while SER and dysregulation were related to maladjustment. However, we had several unexpected findings. In what follows, we discuss the findings for each emotion regulation style and suggest their implications.

Consistent with previous findings on the effect of the pandemic on adolescents' well-being (e.g., De France et al., 2022), adolescents in our sample reported an increase in negative affect and depressive symptoms over time. However, they showed different adjustment patterns depending on their emotion regulation style.

4.1 | Integrative emotion regulation

In line with previous findings (Benita et al., 2020; Brenning et al., 2022; Waterschoot et al., 2022), IER was positively related to adolescents' positive affect and prosocial behaviour and negatively related to depressive symptoms and aggressive behaviours at baseline. This suggests these adolescents adjusted well immediately after the lockdowns. In addition, their stable, heightened positive affect implies they continued to adjust well to the pandemic as it continued. Results add to previous findings in several respects. First, our study goes beyond self-reports to include mothers' reports of adolescents' well-being. In addition, mothers reported their adolescent children presented fewer depressive symptoms, thus highlighting the advantages of IER. Second, our longitudinal design and LGCM approach suggest adolescents' habitual IER was related to stable levels of heightened well-being over time.

Our study also extends previous work by finding IER was negatively related to self-reports of aggressive behaviour after lockdown. Together, these findings suggest the ability of some adolescents to view emotions as legitimate and to take an interest in them, thus providing them with an important interpersonal resource. Previous research has suggested a tolerant stance towards emotions enables people to accept and tolerate similar emotions in others and cultivates empathy (Benita et al., 2017; Roth et al., 2018). Therefore, in stressful times, such as a global pandemic, adolescents with high IER levels are likely to exhibit an improved ability to identify the needs of others and offer assistance.

Interestingly, our moderation analysis showed adolescents with high IER levels reported a reduction in prosocial behaviour over time, while those low on IER reported an increase. It is possible that the former adolescents' tendency to help peaked during lockdown and declined in its aftermath, as more assistance was gradually less needed. It is surprising, however, that self-reported prosocial behaviour increased over time for adolescents low on IER. Perhaps such adolescents struggled with their own emotional state and therefore were unable to recognize others' needs during lockdown, but later, in more benign situations, they were able to act prosocially.

4.2 | Suppressive emotion regulation

Adolescents' SER was negatively related to well-being at baseline, evident in low self-reported and mother-reported positive affect, in addition to high self-reported negative affect and depressive symptoms. Supporting previous findings, our results suggest efforts to conceal or avoid negative emotions impeded these adolescents' ability to cope with pandemic-related stress (Brenning et al., 2022; Low et al., 2021; Waterschoot et al., 2022). In addition, adolescents with high levels of SER appeared to have stable levels of negative affect over time. It is possible that the pandemic overstressed the already diminished regulation skills of these adolescents and left them vulnerable to experience negative emotions. At the same time, negative emotionality might have led to greater emotional suppression (Larsen et al., 2012).

Although our expectations were mostly confirmed, we had several unexpected findings. Despite their reduced well-being after lockdown, high-SER adolescents were less likely to behave aggressively, as reported by their mothers at baseline (but not by their self-reports). However, at follow-up, mothers reported increasing aggressive and decreasing prosocial behaviours, specifically for adolescents with high SER levels. This suggests a discrepancy between adolescents' and mothers' perceptions of adolescents' behaviour and experience.

This can be explained by high-SER adolescents' tendency to avoid disclosing their feelings to their mothers (Roth & Assor, 2012), making it difficult for their mothers to identify their negative emotions. Since suppression is related to more distant and less satisfying interpersonal relationships (Chervonsky & Hunt, 2017), adolescents with high SER levels possibly tried to avoid unpleasant social interactions. They may have attempted to suppress both the display (aggression) and the experience of negative emotions. As a result, their parents may have had limited access to their emotional experience and were less likely to notice their difficulties during lockdown and its aftermath.

These emotional and behavioural tendencies came with a cost. Mothers of adolescents with high SER levels reported an increase in adolescents' aggressive behaviour and a reduction in their prosocial behaviour at follow-up. Importantly, these adolescents did not report an improvement in their symptoms at follow-up. As depression might be perceived as the internalisation of self-aggression (Kashdan et al., 2008; Low et al., 2021), this finding may be indicative of a tendency to target aggression both inwardly and outwardly over time. The ongoing efforts of these adolescents to avoid negative emotions may have depleted their emotional resources and eventually resulted in less regulated behaviour, such as aggression. Finally, it is possible that their failure to disclose their difficulties resulted in communication problems with close others and in increased conflicts over time.

The results suggest a habitual tendency to avoid expressing or thinking about negative emotions is maladaptive. Although their difficulties may not be readily evident, such adolescents are very likely to experience prolonged adjustment difficulties in the context of a stressful situation such as a pandemic lockdown. Findings emphasise the importance of reaching out to adolescents in stressful times, even and especially if they do not express their difficulties.

4.3 | Dysregulation

In line with previous studies, emotional dysregulation was related to adolescents' emotional and social maladjustment at baseline, following lockdown (Brenning et al., 2022; Waterschoot et al., 2022). This suggests that adolescents with high dysregulation levels struggled significantly when adjusting to the aftermath of lockdown. They externalised their distress, as suggested by the parallel reports of mothers and adolescents. Thus, while adolescents with high SER levels only began externalising their symptoms at follow-up, adolescents experiencing increased dysregulation externalised them earlier.

Nevertheless, moderation tests revealed a decrease in depressive symptoms among adolescents with above-average dysregulation levels over time (mothers also reported a similar close-to-significant effect). Thus, while these adolescents likely experienced the lockdown and its aftermath as particularly adverse, they may have seen some improvement over time.

Adolescents with high SER and high dysregulation levels used maladaptive, albeit different, coping mechanisms after lockdown. Adolescents with high dysregulation levels may have felt and expressed an extreme unease during the lockdown and immediately afterwards. Lockdown lift and increased knowledge about the pandemic could have promoted their improvement. Because they expressed their difficulties, their parents may have been able to address their symptoms, provide parental support, and seek professional support. In contrast, adolescents with high SER levels, who also felt uneasy during and after lockdown, kept their feelings to themselves. In the long run, these efforts backfired. Because the problems of these adolescents were less identifiable, they and their parents were less likely to seek professional help, and this may have exacerbated their symptoms over time.

4.4 | Limitations

This study's longitudinal design and multi-informant approach allowed us to examine adolescents' symptoms over a relatively long period of time during a global pandemic. Nevertheless, it had several limitations. First, despite the longitudinal design, it was a correlational study, and we cannot make strong causal inferences. Second, we did not measure participants' symptoms prior to lockdown, so we cannot determine whether the correlations observed at Time 1 between emotion regulation styles and symptoms reflect dispositional relationships between the variables. However, other studies reported increased psychopathology symptoms among children, adolescents, and adults after Covid-19 lockdowns (Luijten et al., 2021; Magson et al., 2021), suggesting the effects we observed were unique to the lockdown period.

Third, our sample size was relatively small. Therefore, some of our close-to-significant effects might be the result of underpowered analysis. It is noteworthy that all close-to-significant effects were reported by mothers, and they were backed up by corresponding significant effects in the adolescents' self-reports. Therefore, these marginal effects might reflect actual relationships between variables.

Fourth, our attrition analysis revealed that mothers who completed all assessments reported lower child depression levels than mothers who dropped out of the study. It is possible that mothers of adolescents who experienced higher depression levels were overwhelmed and drained, making them reluctant to continue participating in the study. This attrition limits the generalisability of our findings.

Fifth and finally, the reliability estimates of the adolescents' reports of aggressive behaviour at Time 1 and particularly at Time 3 were poor. Recall that we measured self-reported aggressive behaviour using the conduct problems scale from the SDQ (Goodman, 1997). Although this is a well-validated questionnaire, previous studies similarly found this scale suffers from low internal consistencies (di Riso et al., 2010; Essau et al., 2012), possibly attesting to its heterogenous scope. In our study, this heterogeneity might have resulted from the timing of data collection at Time 1 and Time 3. Both measurements were conducted when a large proportion of the adolescents in our sample were not attending school. At Time 1, many schools were still closed, and at Time 3, some adolescents filled out the questionnaire during summer vacation. As some items in the aggression questionnaire reflect behaviours typically observed at school, students may have interpreted items differently at each time point, especially at Time 3. Accordingly, we removed Time 3 from our analysis.

5 | CONCLUSION

This study emphasises the importance of autonomy in emotion regulation in adolescents' adjustment, especially in the face of adversity. Specifically, it suggests IER, manifested in adolescents' ability to take a volitional interest in their emotions, may provide resilience during adversity. In contrast, lack of autonomy in emotion regulation, manifested in SER or dysregulation, puts adolescents at risk for long-term maladjustment. Thus, parents, educators, and clinicians should target their socialisation efforts to increasing adolescents' autonomous orientation towards emotions. Past research has found parental autonomy support plays an important role in fostering adolescents' IER, while controlling parental environments predict SER and dysregulation (Roth et al., 2009). By supporting adolescents' autonomy, acknowledging negative emotions and legitimising them, socialising agents, especially parents, can contribute to adolescents' adjustment in the face of adversity.

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CONFLICT OF INTEREST STATEMENT

The authors declare none.

DATA AVAILABILITY STATEMENT

The data that support the findings of this study is available at the Center for Open Science (OSF) at the following address: https://osf.io/ay5ds/?view_only=de714296124e446f92c48b1ca97ae6b6.

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REFERENCES

Aldao, A., Nolen-Hoeksema, S., & Schweizer, S. (2010). Emotion-regulation strategies across psychopathology: A meta-analytic review. *Clinical Psychology Review*, *30*(2), 217–237. https://doi.org/10.1016/j.cpr.2009.11.004

Alvis, L. M., Douglas, R. D., Shook, N. J., & Oosterhoff, B. (2022). Associations between adolescents' prosocial experiences and mental health during the covid-19 pandemic. *Current Psychology: A Journal for Diverse Perspectives on Diverse Psychological Issues*. https://doi.org/10.1007/s12144-021-02670-y

Arbel, R., Maciejewski, D. F., Ben-Yehuda, M., Shnaider, S., Benari, B., & Benita, M. (2022). Prosocial behavior and aggression in the daily school lives of early adolescents. *Journal of Youth and Adolescence*, *51*(8), 1636–1652. https://doi.org/10.1007/s10964-022-01616-2

Benita, M. (2020). Freedom to feel: A self-determination theory account of emotion regulation. *Social and Personality Psychology Compass*, *14*(11), e12563. https://doi.org/10.1111/spc3.12563

Benita, M., Benish-Weisman, M., Matos, L., & Torres, C. (2020). Integrative and suppressive emotion regulation differentially predict well-being through basic need satisfaction and frustration: A test of three countries. *Motivation and Emotion*, *44*(1), 67–81. https://doi.org/10.1007/s11031-019-09781-x

Benita, M., Levkovitz, T., & Roth, G. (2017). Integrative emotion regulation predicts adolescents' prosocial behavior through the mediation of empathy. *Learning and Instruction*, *50*, 14–20. https://doi.org/10.1016/j.learninstruc.2016.11.004

Benita, M., Shechter, T., Nudler-Muzikant, S., & Arbel, R. (2021). Emotion regulation during personal goal pursuit: Integration versus suppression of emotions. *Journal of Personality*, *89*(3), 565–579. https://doi.org/10.1111/jopy.12599

Breaux, R., Dvorsky, M. R., Marsh, N. P., Green, C. D., Cash, A. R., Shroff, D. M., Buchen, N., Langberg, J. M., & Becker, S. P. (2021). Prospective impact of COVID-19 on mental health functioning in adolescents with and without ADHD: Protective role of emotion regulation abilities. *Journal of Child Psychology and Psychiatry*, *62*(9), 1132–1139. https://doi.org/10.1111/jcpp.13382

Brenning, K., Soenens, B., Van Petegem, S., & Vansteenkiste, M. (2015). Perceived maternal autonomy support and early adolescent emotion regulation: A longitudinal study. *Social Development*, *24*(3), 561–578. https://doi.org/10.1111/sode.12107

Brenning, K., Soenens, B., Vansteenkiste, M., De Clercq, B., & Antrop, I. (2022). Emotion regulation as a transdiagnostic risk factor for (non)clinical adolescents' internalizing and externalizing psychopathology: Investigating the intervening role of psychological need experiences. *Child Psychiatry and Human Development*, *53*(1), 124–136. https://doi.org/10.1007/s10578-020-01107-0

Brenning, K. M., Soenens, B., Braet, C., & Bosmans, G. (2012). Attachment and depressive symptoms in middle childhood and early adolescence: Testing the validity of the emotion regulation model of attachment. *Personal Relationships*, *19*(3), 445–464. https://doi.org/10.1111/j.1475-811.2011.01372.x

Brose, A., Voelkle, M. C., Lövdén, M., Lindenberger, U., & Schmiedek, F. (2015). Differences in the between-person and within-person structures of affect are a matter of degree. *European Journal of Personality*, *29*(1), 55–71. https://doi.org/10.1002/per.1961

Chervonsky, E., & Hunt, C. (2017). Suppression and expression of emotion in social and interpersonal outcomes: A meta-analysis. *Emotion*, *17*(4), 669–683. https://doi.org/10.1037/emo0000270

Chorpita, B. F., Yim, L., Moffitt, C., Umemoto, L. A., & Francis, S. E. (2000). Assessment of symptoms of DSM-IV anxiety and depression in children: A revised child anxiety and depression scale. *Behaviour Research and Therapy*, *38*(8), 835–855. https://doi.org/10.1016/S0005-7967(99)00130-8

Deci, E. L., & Ryan, R. M. (2008). Self-determination theory: A macrotheory of human motivation, development, and health. *Canadian Psychology/Psychologie Canadienne*, *49*(3), 182–185. https://doi.org/10.1037/a0012801

De France, K., Hancock, G. R., Stack, D. M., Serbin, L. A., & Hollenstein, T. (2022). The mental health implications of COVID-19 for adolescents: Follow-up of a four-wave longitudinal study during the pandemic. *American Psychologist*, *77*(1), 85–99. https://doi.org/10.1037/amp0000838

Diener, E., Wirtz, D., Tov, W., Kim-Prieto, C., Choi, D. W., Oishi, S., & Biswas-Diener, R. (2010). New well-being measures: Short scales to assess flourishing and positive and negative feelings. *Social Indicators Research*, *97*(2), 143–156. https://doi.org/10.1007/s11205-009-9493-y

Di Riso, D., Salcuni, S., Chessa, D., Raudino, A., Lis, A., & Altoè, G. (2010). The Strengths and Difficulties Questionnaire (SDQ): Early evidence of its reliability and validity in a community sample of Italian children. *Personality and Individual Differences*, *49*(6), 570–575. https://doi.org/10.1016/j.paid.2010.05.005

Ebesutani, C., Regan, J., Smith, A., Reise, S., Higa-McMillan, C., & Chorpita, B. F. (2012). The 10-item Positive and Negative Affect Schedule for Children, child and parent shortened versions: Application of item response theory for more efficient assessment. *Journal of Psychopathology and Behavioral Assessment*, *34*(2), 191–203. https://doi.org/10.1007/s10862-011-9273-2

Essau, C. A., Olaya, B., Pasha, G., O'Callaghan, J., & Bray, D. (2012). The structure of anxiety symptoms among adolescents in Iran: A confirmatory factor analytic study of the spence children's anxiety scale. *Journal of Anxiety Disorders*, *26*(8), 871–878. https://doi.org/10.1016/j.janxdis.2012.08.001

Faul, F., Erdfelder, E., Buchner, A., & Lang, A.-G. (2009). Statistical power analyses using G*Power 3.1: Tests for correlation and regression analyses. *Behavior Research Methods*, *41*(4), 1149–1160. https://doi.org/10.3758/BRM.41.4.1149

Gadow, K. D., & Sprafkin, J. (2005). The symptom inventories: An annotated bibliography. [*On-line*]. Retrived from www.checkmateplus.com

Giannotti, M., Mazzoni, N., Bentenuto, A., Venuti, P., & de Falco, S. (2022). Family adjustment to COVID-19 lockdown in Italy: Parental stress, coparenting, and child externalizing behavior. *Family Process*, *61*(2), 745–765. https://doi.org/10.1111/famp.12686

Goodman, R. (1997). The Strengths and difficulties questionnaire: A research note. *Child Psychology & Psychiatry & Allied Disciplines*, *38*(5), 581–586. https://doi.org/10.1111/j.1469-7610.1997.tb01545.x

Greenberg, L. (2008). Emotion and cognition in psychotherapy: The transforming power of affect. *Canadian Psychology / Psychologie Canadienne*, *49*(1), 49–59. https://doi.org/10.1037/0708-5591.49.1.49

Gross, J. J. (2015). Emotion regulation: Current status and future prospects. *Psychological Inquiry*, *26*(1), 1–26. https://doi.org/10.1080/1047840X.2014.940781

Guyer, A. E., Silk, J. S., & Nelson, E. E. (2016). The neurobiology of the emotional adolescent: From the inside out. *Neuroscience & Biobehavioral Reviews*, *70*, 74–85. https://doi.org/10.1016/j.neubiorev.2016.07.037

Hayes, A. F., & Matthes, J. (2009). Computational procedures for probing interactions in OLS and logistic regression: SPSS and SAS implementations. *Behavior Research Methods*, *41*(3), 924–936. https://doi.org/10.3758/BRM.41.3.924

Inagaki, T. K., & Orehek, E. (2017). On the benefits of giving social support: When, why, and how support providers gain by caring for others.

Current Directions in Psychological Science, *26*(2), 109–113. https://doi.org/10.1177/0963721416686212

Izard, C. E., Woodburn, E. M., Finlon, K. J., Krauthamer-Ewing, E. S., Grossman, S. R., & Seidenfeld, A. (2011). Emotion knowledge, emotion utilization, and emotion regulation. *Emotion Review*, *3*(1), 44–52. https://doi.org/10.1177/1754073910380972

Kashdan, T. B., Zvolensky, M. J., & McLeish, A. C. (2008). Anxiety sensitivity and affect regulatory strategies: Individual and interactive risk factors for anxiety-related symptoms. *Journal of Anxiety Disorders*, *22*(3), 429–440. https://doi.org/10.1016/j.janxdis.2007.03.011

Kim, E., Gentile, D. A., Anderson, C. A., & Barlett, C. P. (2022). Are mindful people less aggressive? The role of emotion regulation in the relations between mindfulness and aggression. *Aggressive Behavior*, *48*(6), 546–562. https://doi.org/10.1002/ab.22036

Larsen, J. K., Vermulst, A. A., Geenen, R., van Middendorp, H., English, T., Gross, J. J., Ha, T., Evers, C., & Engels, R. C. M. E. (2012). Emotion regulation in adolescence: A prospective study of expressive suppression and depressive symptoms. *The Journal of Early Adolescence*, *33*(2), 184–200. https://doi.org/10.1177/0272431611432712

Lee, T. K., Benish-Weisman, M., Vos, S. R., Garcia, M. F., Marquez, M. C. D., Calderón, I. A., Konshina, T., Elizarov, E., & Schwartz, S. J. (2022). Psychological distress, employment, and family functioning during the COVID-19 outbreak among recent immigrant families in Israel: Moderating roles of COVID-19 prevalence. *PLoS One*, *17*(11), e0277757. https://doi.org/10.1371/journal.pone.0277757

Little, R. J. A. (1988). A test of missing completely at random for multivariate data with missing values. *Journal of the American Statistical Association*, *83*(404), 1198–1202. https://doi.org/10.1080/01621459.1988.10478722

Loades, M. E., Chatburn, E., Higson-Sweeney, N., Reynolds, S., Shafran, R., Brigden, A., Linney, C., McManus, M. N., Borwick, C., & Crawley, E. (2020). Rapid systematic review: The impact of social isolation and loneliness on the mental health of children and adolescents in the context of COVID-19. *Journal of the American Academy of Child & Adolescent Psychiatry*, *59*(11), 1218–1239. https://doi.org/10.1016/j.jaac.2020.05.009

Lockwood, P. L., Seara-Cardoso, A., & Viding, E. (2014). Emotion regulation moderates the association between empathy and prosocial behavior. *PLoS One*, *9*(5), e96555. https://doi.org/10.1371/journal.pone.0096555

Low, R. S. T., Overall, N. C., Chang, V. T., Henderson, A. M. E., & Sibley, C. G. (2021). Emotion regulation and psychological and physical health during a nationwide COVID-19 lockdown. *Emotion*, *21*(8), 1671–1690. https://doi.org/10.1037/emo0001046

Luijten, M. A. J., van Muilekom, M. M., Teela, L., Polderman, T. J. C., Terwee, C. B., ZijlmansKlaufus, L., Popma, A., Oostrom, K. J., van Oers, H. A., & Haverman, L. (2021). The impact of lockdown during the COVID-19 pandemic on mental and social health of children and adolescents. *Quality of Life Research: An International Journal of Quality of Life Aspects of Treatment, Care & Rehabilitation*, *30*(10), 2795–2804. https://doi.org/10.1007/s11136-021-02861-x

Magson, N. R., Freeman, J. Y. A., Rapee, R. M., Richardson, C. E., Oar, E. L., & Fardouly, J. (2021). Risk and protective factors for prospective changes in adolescent mental health during the COVID-19 pandemic. *Journal of Youth and Adolescence*, *50*(1), 44–57. https://doi.org/10.1007/s10964-020-01332-9

McLaughlin, K. A., Hatzenbuehler, M. L., Mennin, D. S., & Nolen-Hoeksema, S. (2011). Emotion dysregulation and adolescent psychopathology: A prospective study. *Behaviour Research and Therapy*, *49*(9), 544–554. https://doi.org/10.1016/j.brat.2011.06.003

Murayama, K., Usami, S., & Sakaki, M. (2022). Summary-statistics-based power analysis: A new and practical method to determine sample size for mixed-effects modeling. *Psychological Methods*, *27*, 1014–1038. https://doi.org/10.1037/met0000330

Muthén, L. K., & Muthén, B. O. (2017). *Mplus user's guide* (8th ed.). Muthén & Muthén.

Nearchou, F., Flinn, C., Niland, R., Subramaniam, S. S., & Hennessy, E. (2020). Exploring the impact of COVID-19 on mental health outcomes in children and adolescents: A systematic review. *International Journal of Environmental Research and Public Health*, *17*(22), 8479. https://doi.org/10.3390/ijerph17228479

Orgilés, M., Morales, A., Delvecchio, E., Mazzeschi, C. E. J., & Espada, J. P. (2020). Immediate psychological effects of the COVID-19 quarantine in youth from Italy and Spain. *Frontiers in Psychology: Developmental Psychology*, *11*. Article 579038. https://doi.org/10.3389/fpsyg.2020.579038

Preacher, K. J. (2011). Multilevel SEM strategies for evaluating mediation in three-level data. *Multivariate Behavioral Research*, *46*(4), 691–731. https://doi.org/10.1080/00273171.2011.589280

Restubog, S., Ocampo, A., & Wang, L. (2020). Taking control amidst the chaos: Emotion regulation during the COVID-19 pandemic. *Journal of Vocational Behavior*, *119*, 103440. https://doi.org/10.1016/j.jvb.2020.103440

Roth, G., & Assor, A. (2012). The costs of parental pressure to express emotions: Conditional regard and autonomy support as predictors of emotion regulation and intimacy. *Journal of Adolescence*, *35*(4), 799–808. https://doi.org/10.1016/j.adolescence.2011.11.005

Roth, G., Assor, A., Niemiec, C. P., Ryan, R. M., & Deci, E. L. (2009). The emotional and academic consequences of parental conditional regard: Comparing conditional positive regard, conditional negative regard, and autonomy support as parenting practices. *Developmental Psychology*, *45*(4), 1119–1142. https://doi.org/10.1037/a0015272

Roth, G., Shahar, B., Zohar, S. Y., Benita, M., Moed, A., Bibi, U., Kanat, M. Y., & Ryan, R. M. (2018). Benefits of emotional integration and costs of emotional distancing. *Journal of Personality*, *86*(6), 919–934. https://doi.org/10.1111/jopy.12366

Roth, G., Vansteenkiste, M., & Ryan, R. M. (2019). Integrative emotion regulation: Process and development from a self-determination theory perspective. *Development and Psychopathology*, *31*(3), 945–956. https://doi.org/10.1017/S0954579419000403

Sibley, M. H., Ortiz, M., Gaias, L. M., Reyes, R., Joshi, M., Alexander, D., & Graziano, P. (2021). Top problems of adolescents and young adults with ADHD during the COVID-19 pandemic. *Journal of Psychiatric Research*, *136*, 190–197. https://doi.org/10.1016/j.jpsychires.2021.02.009

Steinberg, L. (2020). *Adolescence* (12th ed.). McGraw-Hill Education.

Tamir, M., John, O. P., Srivastava, S., & Gross, J. J. (2007). Implicit theories of emotion: Affective and social outcomes across a major life transition. *Journal of Personality and Social Psychology*, *92*(4), 731–744. https://doi.org/10.1037/0022-3514.92.4.731

van de Groep, S., Zanolie, K., Green, K. H., Sweijen, S. W., & Crone, E. A. (2020). A daily diary study on adolescents' mood, empathy, and prosocial behavior during the COVID-19 pandemic. *PLoS One*, *15*(10), e0240349. https://doi.org/10.1371/journal.pone.0240349

Waterschoot, J., Morbée, S., Vermote, B., Brenning, K., Flamant, N., Vansteenkiste, M., & Soenens, B. (2022). Emotion regulation in times of covid-19: A person-centered approach based on self-determination theory. *Current Psychology: A Journal for Diverse Perspectives on Diverse Psychological Issues*. https://doi.org/10.1007/s12144-021-02623-5

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