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Ľubor Pilárik[1], Petr Mikoška[2], Jakub Helvich[2], Alica Melišíková[3]

[1]*Matej Bel University in Banská Bystrica, Slovak Republic*
[2]*University of Hradec Králové, Czech Republic*
[3]*Reeducation Center, Vráble, Slovak Republic*

CORRESPONDING AUTHOR - Jakub Helvich, jakub.helvich@uhk.cz

Effective emotion regulation as a protective factor of depression symptoms in Slovak adolescents during a COVID-19 pandemic

Abstract: The aim of our study was to verify relationships between individual difficulties in emotion regulation (ER), ER strategies (cognitive reappraisal and expressive suppression), and compassion (to self and others) with the presence of depressive symptomatology in a sample of Slovak adolescents during the second wave of the COVID-19 pandemic. In the sample of 140 Slovak adolescents (age between 17–19 years) was administrated The Beck Depression Inventory-II. (Beck et al., 1996), The Overall Depression Severity and Impairment Scale (Bentley et al., 2014), The Emotion Regulation Questionnaire (Gross & John, 2003), The Difficulties in Emotion Regulation Scale (Gratz & Roemer, 2004), The Sussex-Oxford Compassion for the Self Scale and The Sussex-Oxford Compassion for Others Scale (Gu et al., 2019). Results revealed that difficulties in ER (all subscales) and expressive suppression were in positive relationships with depression symptoms. Cognitive reappraisal and self-compassion were in negative relationships with depression symptoms. Lack of ER strategies and cognitive reappraisal (inversely) were the strongest predictors of depressive symptoms. These findings suggest that ER strategies (mainly cognitive reappraisal) could be assumed as protective factors in adolescent depression symptoms development in stressful circumstances of the COVID-19 pandemic.

Keywords: *emotion regulation, difficulties, cognitive reappraisal, expressive suppression, compassion, adolescents*

INTRODUCTION

According to the National Institute of Mental Health, around 3.2 million Americans between 12 and 17-years-old had at least one major depressive episode in 2017. With the advent of the COVID-19 pandemic, people's mental health has deteriorated even more. In the United Kingdom, between 2018 and 2020, the prevalence of clinically significant levels of mental illness increased from 18.9% to 27.3% (Pierce et al., 2020). A nationwide study from Italy reported that 19.4% of participants experienced mild and 18.6% moderate-to-severe psychological distress respectively (Moccia et al., 2020). The prevalence of depression in Spain was 18.7% (González-Sanguino et al., 2020) and in Turkey 23.6% (Özdin and Özdin, 2020). Nationwide studies in the Czech Republic show a threefold higher incidence of affective disorders in 2020 compared to previous years 2017 and 2019 (Winkler et al., 2020; Czeisler et al., 2020). A similar result was achieved by Hajdúk and Pečeňák (2021) on a sample of Slovak university students, where up to 34.3% of them experienced symptoms of depression in 2020. Social isolation and increased stress associated with lockdown during the COVID-19 pandemic have become a risk factor for the development of depressive symptomatology in adolescents. The risk of depression affects not only adolescents with a history of mental health problems, but also previously healthy adolescents (Galea et al., 2020).

Emotion regulation as a transdiagnostic approach to mental disorders

Recent research has supported the hypothesis that emotion regulation difficulties may play a central role in the development of psychopathology (e. g. Aldao et al., 2010). Emotion regulation is part of the self-regulatory system by which adaptive emotion regulation interacts with cognitions and behaviors (Calkins & Marcovitch, 2010). Emotion regulation is defined as "the extrinsic and intrinsic processes responsible for monitoring, evaluating, and modifying emotional reactions, especially their intensive and temporal features, to accomplish one's goal" (Thompson, 1994, p. 27-28). Nowadays, there are two perspectives on emotional regulation primarily from two perspectives: a) the clinical-contextual model of emotion regulation focuses on the difficulties in regulating emotions and presents trait-level abilities (Gratz & Roemer, 2004); b) models of emotion regulation derived from basic affective science conceptualize emotion regulation more narrowly and tend to focus more on the process of emotion regulation (Gross, 1998).

Difficulties in emotion regulation

The Gratz and Roemer (2004) model proposes four broad facets of emotion regulation: (a) awareness and understanding of emotions; (b) acceptance of emotions; (c) the ability to control impulses and behave in accordance with the goals in the presence of negative affect, and (d) access to emotion regulation strategies that are perceived to be effective for feeling better. Earlier findings confirm that all four facets of emotion regulation are related to depression symptomatology (Neumann et al., 2009) and the recent studies supported this relationship in Ecuador adolescents (Zumba-Tello & Moreta-Hereera, 2022) and American university students (Rufino et al., 2022) during a Covid-19 pandemic. The hypothesis, that adolescents with a lower level of emotional awareness and understanding have more depression symptoms was verified by longitudinal studies (Kranzler et al., 2015; Flynn & Rudolph, 2014) and by meta-analysis of 21 studies (Sendzik et al., 2017). Problems in accepting emotions are also related to a higher level of depression symptoms in the American adolescent population (Weinberg & Klonsky, 2009), The Dutch young adult population (Ehring et al., 2008) and in meta-analyses of Aldao et al. (2010) and Schäfer et al. (2016). There are also studies that show a correlation between impulsivity and depression in clinical (Swann et al., 2008) and non-clinical population (Regan et al., 2019). Depression is also related to lower success in smoking cessation in the adult population (Chase et al., 2018) and Iranian (Khokpoor et al., 2019) and American university students (Tull & Gratz, 2008). There is also a positive correlation between limited use of emotion regulation strategies and depression in adult smokers (Chase et al., 2018), young Indian adults (Saxen et al., 2011) and the nonclinical population of Japanese university students (Moriy & Takahaski, 2013).

Emotion regulation strategies

Gross (1998) developed the Process model of emotion regulation, which specifies the sequence of processes included in emotion generation. Cognitive reappraisal and expressive suppression are two of the most common emotion regulation strategies (Gross, 2015). Cognitive reappraisal is an antecedent-focused strategy involving the reinterpretation of the emotional salience of emotion-eliciting situations. By contrast, expressive suppression is a response-focused strategy involving the conscious inhibition of emotional expression of emotion-eliciting situations. Expressive suppression is positively associated with depression symptoms in adolescent and adult population (Eastabrook et al., 2014), which is proofed in large meta-analyses on the adult (Aldao et al., 2010) and adolescent population (Schäfer et al., 2016; Compas et al., 2017). A systematic review of Dryman and Heimberg (2018) showed mixed results about the relationship between expressive suppression and depression. However, cognitive reappraisal is associated with a lower level of depression symptomatology. This relationship was found out in Australian (Betts et al., 2009), American (Eastabrook et al., 2014) and Canadian adolescents (Lanteigne et al., 2014), and also in the meta-analysis (Aldao et al., 2010; Schäfer et al., 2016). However, these findings were not confirmed by a meta-analysis by Compas et al. (2017) in children and adolescents.

During the Covid-19 pandemic, several studies investigated the association between the use of emotion regulation strategies and depression. Cardi et al. (2021) found in a sample of Italian adults that during the first wave of the pandemic, the use of cognitive reappraisal was associated with greater resilience to negative emotions. A study by Haver et al. (2023) provided evidence that COVID-19 pandemic-related stress was easier to deal with for those Norwegian adults who have the tendency to cognitively reappraise, whereas suppression was associated with higher depression. A weak positive relationship of emotional suppression with depressive symptoms during the pandemic was also found by Low et al. (2021) in a sample of New Zealand adults. On the other hand, this study found that cognitive reappraisal was positively associated with well-being and general health, but not with depressive symptoms. Current knowledge about relationships between emotion regulation strategies and depression symptoms requires further empirical studies.

Compassion as a strategy for emotion regulation

Compassion entails five elements that apply to the self or others: (a) recognizing suffering; (b) understanding the universality of suffering in human experience; (c) feeling for the person suffering and emotionally connecting with their distress; (d) tolerating any uncomfortable feelings aroused (e.g., fear, disgust, distress, anger) so that we remain accepting and open to the person in their suffering; and (e) acting or being motivated to act to alleviate the suffering (Strauss et al., 2016). There is empirical evidence that compassion predicts fewer

symptoms of depression (e. g. Ehret et al., 2014). Bakker et al. (2019) confirmed the hypothesis that self-compassion may be a protective factor that reduces the tendency to rumination as a response to a negative affection. Dietrich et al. (2014) experimentally confirmed the relatively similar effectiveness of self-compassion and cognitive reappraisal and acceptance in reducing depressed mood. The protective role of self-compassion against the onset of depression was also observed during the Covid-19 pandemic. Several studies have supported the association of self-compassion with the prevalence of depressive symptoms in China (Liang et al., 2023; Xue et al., 2023) as well as in Europe (e.g., in Greece; Karakasidou et al., 2023). Self-compassion could be another adaptive strategy by helping to regulate emotions to a manageable extent and to support the effectiveness of other regulation strategies (Diedrich et al., 2016). Compassion for others was examined in connection with depression in a study by Saarinen et al. (2019). They found out a negative relationship between the level of compassion to others and depression in young adults. However, they also found out that these associations weakened over the years and became non-significant in middle age.

Current study

The aim of our study was to verify the presumed relationships between individual difficulties in emotion regulation, emotion regulation strategies (cognitive reappraisal and expressive suppression) and depression symptomatology in a sample of adolescents. At the same time, we verified the connection between self-compassion and compassion for others – as potential strategies for regulating emotions – and depression symptoms in Slovak adolescents.

Based on the previous research presented above, we hypothesized the following:

H1: Difficulties in emotion regulation are positively related to the frequency of depressive symptoms (H1a) as well as to the severity and impairment of depressive symptoms (H1b).

H2: Expressive suppression is positively related to the frequency of depressive symptoms (H2a) as well as to the severity and impairment of depressive symptoms (H2b).

H3: Cognitive reappraisal is negatively related to the frequency of depressive symptoms (H3a) as well as to the severity and impairment of depressive symptoms (H3b).

H4: Self-compassion is negatively related to the frequency of depressive symptoms (H4a) as well as to the severity and impairment of depressive symptoms (H4b).

H5: Compassion for others is negatively related to the frequency of depressive symptoms (H5a) as well as to the severity and impairment of depressive symptoms (H5b).

Finally, we explored to which extend could be depression symptoms of Slovak adolescents predicted by mentioned difficulties and strategies of emotion regulation.

METHODS

Participants

140 participants took part in the study, of whom 50 were men (36%) and 90 were women (64%). The participants were grammar school students. The mean age of the participants was 18.1 years (SD = 0.62) and ranged from 17 (15%) to 19 (24%) years. According to scores on The Beck Depression Inventory-II, 65.7% of participants scored minimal depression, 16.4% mild depression, 8.6% moderate depression, and 9.3% severe depression. Participants were approached for research by a school psychologist. All participants or their legal guardians gave informed consent to participate anonymously in the research. Data were collected via pen and paper method using convenience sampling in a school during February 2021.

Sample size estimation

To estimate the necessary sample size for correlation analysis, we conducted power analysis, in which we set the alpha level at 0.05, power at 80% and expected effect size of $r = 0.3$. Power analysis indicated that the minimum required sample size for this study is 82. Power analysis for multiple regression analysis with the same alpha level and 80% power indicated that with the expected effect size ($f = 0.15$), there are 56 participants needed. Power analysis was conducted in the G*Power 3.1 package (Faul et al., 2009).

Measurements

BDI II, The Beck Depression Inventory-II (Beck et al., 1996), is a 21-item self-report inventory that assesses symptoms of depression in the last 14 days. Each item is scored on a four-point scale (0 – 3). Scores can range from 0 to 63, with higher scores reflecting greater symptom severity (0 to 13 = no to minimal depression, 14 to 19 = mild depression, 20 to 28 = moderate depression, and ≥29 = severe depression). Consistent with prior research, Cronbach's alpha reliability estimates in the present sample were excellent (.90).

ODSIS, The Overall Depression Severity and Impairment Scale (Bentley et al., 2014), was developed to assess depression during last week in the following domains: frequency (Item 1), intensity (Item 2), functional impairment in pleasurable activity (Item 3), work or school (Item 4), and interpersonal relationships (Item 5). Items of ODSIS are scored on a five-point Likert scale of 0–4. The sum of the scores is used to obtain the total score, which can be a maximum of 20. Consistent with prior research, Cronbach's alpha reliability estimates in the present sample were excellent (.92).

ERQ, The Emotion Regulation Questionnaire (Gross & John, 2003), is a ten-item self-report questionnaire that consists of two scales: a cognitive reappraisal (six items) and expressive suppression (four items). The items are rated on a seven-point Likert-type scale from strongly disagree to strongly agree. A higher score means a higher level of the use of cognitive reappraisal or expressive suppression. Consistent with prior research, Cronbach's

alpha reliability estimates in the present sample were .82 and .72 for cognitive reappraisal and expressive suppression, respectively.

DERS, The Difficulties in Emotion Regulation Scale (Gratz & Roemer, 2004), assesses the individuals' typical levels of emotion dysregulation across six domains: non-acceptance of negative emotions, inability to engage in goal-directed behaviors when experiencing negative emotions, difficulties controlling impulsive behaviors when experiencing negative emotions, limited access to emotion regulation strategies that are perceived as effective, lack of emotional awareness, and lack of emotional clarity. It contains 36 items rated on a 5-point scale ranging from 1 (almost never applies to me) to 5 (almost always applies to me). Consistent with prior research, Cronbach's alpha reliability estimates for total score in the present sample was excellent (.93) and ranged between .75–.84 across domains.

SOCS-S and *SOCS-O*, *The Sussex-Oxford Compassion for the Self Scale* and *The Sussex-Oxford Compassion for Others Scale* (Gu et al., 2019), are two 20-item self-report scales that consist of five subscales (recognizing suffering, understanding the universality of suffering, feeling for the person suffering, tolerating uncomfortable feelings, acting or motivation to act to alleviate suffering). Participants were instructed to indicate how true each statement was using a five-point Likert-type scale ranging from 1 (not at all true) to 5 (always true). Consistent with prior research, Cronbach's alpha reliability estimates for total SOCS-S score in the present sample was .86 (ranged between .62–.82 across subscales) and for total SOCS-O score was .92 (ranged between .63–.83 across subscales).

Statistical analyses were performed using IBM SPSS ver. 19.

RESULTS

Preliminary analysis

At the beginning of the data analysis, we verified the gender differences in the study variables using the T-test for independent samples (if the data were normally distributed) or the Mann-Whitney test for independent samples (if the data were not normally distributed). We found out only two significant differences between males and females. Females experienced more compassion to others in two subscales – Feeling for the person suffering, $t(138) = 2.48$, $p = .014$, $d = 0.44$, and Acting or motivation to act to alleviate suffering, $t(79) = 2.08$, $p = .041$, $d = 0.40$, than males – however, after correction for multiple comparisons the second result become non-significant. Then we made correlation analysis between age and study variables using Pearson or Spearman (in the dependence of the normality data distribution) correlation coefficients. We found only three weak significant correlations between age and Difficulties controlling impulsive behaviors, $r = -.17$, $p = .047$, age and Recognizing suffering in Self, $r = -.20$, $p = .019$, and age and Feeling for the person Self suffering, $r = -.19$, $p = .025$.

Main analysis

We used Spearman correlations to explore associations between depression symptoms and study variables (Table 1). We found that all ER difficulties positively correlated (mostly moderately) with both depression scales. Both ER strategies correlated with both depression symptoms scales, too. Depression scales correlated negatively and moderately with Cognitive reappraisal and weakly positively with Expressive suppression. In the compassion scales, we found out that Self-compassion was in moderate negative correla-

Table 1. Means, standard deviations, and Spearman correlation coefficients between difficulties in emotion regulation, strategies of emotion regulation, compassion and depression symptoms

		BDI II	ODSIS	*M*	*SD*
ER Difficulties	Non-acceptance of negative emotions	.37**	.33**	*13.4*	*5.4*
	Inability to engage in goal-directed behaviors	.34**	.29**	*15.3*	*4.8*
	Difficulties controlling impulsive behaviors	.39**	.31**	*14.5*	*5.8*
	Lack of emotional awareness	.23**	.19*	*15.1*	*5.1*
	Limited access to emotion regulation strategies	.53**	.49**	*20.2*	*6.7*
	Lack of emotional clarity	.40**	.37**	*11.3*	*4.0*
	DERS sum	.51**	.46**	*89.8*	*23.1*
ER strategies	Cognitive reappraisal	-.43**	-.38**	*29.7*	*7.1*
	Expressive suppression	.22**	.23**	*14.7*	*5.0*
Self-compassion	Recognizing suffering	-.17*	-.12	*16.2*	*2.6*
	Understanding the universality of suffering	-.14	-.01	*17.7*	*2.4*
	Feeling for the person suffering	-.41**	-.31**	*12.6*	*3.3*
	Tolerating uncomfortable feelings	-.28**	-.30**	*12.5*	*3.0*
		-.35**	-.32**	*14.4*	*3.5*

Table 1 cont.

		BDI II	ODSIS	*M*	*SD*
	Acting or motivation to act to alleviate suffering				
	SOCS-S sum	-.39**	-.29**	*73.3*	*10.8*
Compassion to others	Recognizing suffering	-.13	.04	*14.7*	*2.9*
	Understanding the universality of suffering	-.09	.09	*17.3*	*2.8*
	Feeling for the person suffering	-.07	.10	*14.8*	*3.4*
	Tolerating uncomfortable feelings	-.07	.12	*14.8*	*3.0*
	Acting or motivation to act to alleviate suffering	-.12	.02	*15.5*	*3.2*
	SOCS-O sum	-.12	.10	*77.1*	*12.6*
	M	*12.2*	*3.2*		
	SD	*9.5*	*4.0*		

*Note. ER: emotion regulation; BDI II: depression measured by The Beck Depression Inventory-II; ODSIS: depression measured by The Overall Depression Severity and Impairment Scale; DERS: Difficulties in Emotion Regulation; SOCS-S: Compassion for the Self; SOCS-O: Compassion for Others; * p <.05; ** p <.01.*

tion with both depression scales. Any of Compassion to others subscales were in a statistically significant relationship with depression scales.

In the next step, we tested the prediction of depressive symptoms by studying variables using the multiple linear regression analysis. At the beginning of the analysis, we tested variables for autocorrelation by the Durbin-Watson test and for multicollinearity by VIF. We made regression models separately for BDI II and ODSIS and we inserted predictors in four steps.

In the first model, the BDI II scale score was set as a dependent variable. In the further step, the ER difficulties were inserted as predictors, $F(6, 132) = 10.73$, $p < .001$. Limited access to ER strategies subscale was a significant predictor of the BDI II score. In the second step, the ER strategies were added in the model, $F(8, 130) = 9.73$, $p < .001$. Limited access to ER strategies subscale persisted as a significant predictor of depressive symptoms and Cognitive reappraisal was shown as a significant predictor of BDI II score. In the third step, the Self-compassion subscales were added in the model, $F(13, 125) = 6.72$, $p < .001$. And in the fourth step, the Compassion to others subscales were added in the model, $F(18, 120) = 4.80$, $p < .001$. In both models, Limited access to ER strategies subscale and Cognitive reappraisal persisted as the BDI II score predictors, but none of the compassion subscales were significant predictors of the BDI II score (Table 2).

In the second model, the ODSIS scale score was set as a dependent variable. In the first step, the ER difficulties were inserted as predictors, $F(6, 132) = 7.10$, $p < .001$. Limited access to ER strategies subscale was a significant predictor of the ODSIS score. In the second step, the ER strategies were added in the model, $F(8, 130) = 7.24$, $p < .001$. Limited access to ER strategies subscale persisted as a significant predictor of ODSIS score and

Table 2. Standardized regression coefficients Beta in BDI II scale as depend variable and Difficulties in emotion regulation, Strategies of emotion regulation, Self-compassion and Compassion to others subscales as predictors

		steps			
	Predictors	**1.**	**2.**	**3.**	**4.**
ER Difficulties	Non-acceptance of negative emotions	-.07	-.13	-.09	-.09
	Inability to engage in goal-directed behaviors	.01	.00	-.02	.00
	Difficulties controlling impulsive behaviors	.09	.13	.16	.15
	Lack of emotional awareness	.03	.00	-.05	-.03
	Limited access to emotion regulation strategies	.47**	.38**	.35*	.33*
	Lack of emotional clarity	.13	.11	.14	.12
ER strategies	Cognitive reappraisal		-.24**	-.17*	-.18*
	Expressive suppression		.08	.06	.06

Table 2 cont.

		steps			
	Predictors	**1.**	**2.**	**3.**	**4.**
Self-compassion	Recognizing suffering			.01	.00
	Understanding the universality of suffering			.09	.07
	Feeling for the person suffering			-.19	-.22
	Tolerating uncomfortable feelings			.11	.11
	Acting or motivation to act to alleviate suffering			-.11	-.10
Compassion to others	Recognizing suffering				.03
	Understanding the universality of suffering				.02
	Feeling for the person suffering				-.02
	Tolerating uncomfortable feelings				.11
	Acting or motivation to act to alleviate suffering				-.04
	Adj. R^2	*.30*	*.34*	*.35*	*.33*

*Note. Dependent variable: depression measured by The Beck Depression Inventory-II (BDI II); ER - emotion regulation; * p <.05; ** p <.01.*

Cognitive reappraisal was shown as a significant predictor of the ODSIS score. In the third step, the Self-compassion subscales were added in the model, $F(13, 125) = 5.10$, $p < .001$. Limited access to ER strategies subscale and Cognitive reappraisal persisted as significant predictors. The understanding of the universality of suffering was shown as a positive predictor that significantly predicted a higher ODSIS score. In the fourth step, the Compassion to others subscales were added in the model, $F(18, 120) = 4.27$, $p < .001$. Limited access to ER strategies subscale and Cognitive reappraisal persisted as significant predictors of the ODSIS score, but any of the compassion subscales did not become significant predictors of the ODSIS score (Table 3).

Table 3. Standardized regression coefficients Beta in ODSIS scale as dependent variable and Difficulties in emotion regulation, Strategies of emotion regulation, Self-compassion and Compassion to others subscales as predictors

		steps			
	Predictors	1.	2.	3.	4.
ER Difficulties	Non-acceptance of negative emotions	-.01	-.08	-.04	-.01
	Inability to engage in goal-directed behaviors	-.05	-.07	-.10	-.09
	Difficulties controlling impulsive behaviors	.02	.08	.10	.09
	Lack of emotional awareness	.00	-.03	-.03	.02
	Limited access to emotion regulation strategies	.49**	.38**	.39**	.35**
	Lack of emotional clarity	.04	.03	.04	.01
ER strategies	Cognitive reappraisal		-.28**	-.29**	-.28**
	Expressive suppression		.10	.08	.11
Self-compassion	Recognizing suffering			.06	.06
	Understanding the universality of suffering			.18*	.11
	Feeling for the person suffering			.00	-.09
	Tolerating uncomfortable feelings			-.03	-.04
	Acting or motivation to act to alleviate suffering			-.07	-.04
Compassion to others	Recognizing suffering				-.09
	Understanding the universality of suffering				.08
	Feeling for the person suffering				.02
	Tolerating uncomfortable feelings				.24
	Acting or motivation to act to alleviate suffering				-.02
	Adj. R^2	*.21*	*.27*	*.28*	*.30*

*Note. Dependent variable: depression measured by The Overall Depression Severity and Impairment Scale (ODSIS); ER - emotion regulation; * p <.05; ** p <.01.*

DISCUSSION

The results of the study support that up to 34.3% of Slovak adolescents in our sample showed symptoms of depression during the COVID-19 pandemic, with up to half of them (17.9%) at the level of moderate or severe symptoms of depression. These findings are consistent with the Slovak study of Hajdúk and Pečeňák (2021) from the period of the first wave of the pandemic as well as large-scale foreign epidemiological studies (e.g. Pierce et al., 2020; Moccia et al., 2020; etc.). An increase in symptoms of depression in adolescents can lead to serious consequences in this population. Even subclinically depressed adolescents have a higher risk of a suicide attempt, impulsive risk behavior, or engaging in substance use (Glied & Pine, 2002). Consistent with our hypotheses (H1 to H4), our findings confirm that higher rates of depression symptomatology were significantly associated with ER difficulties, more frequent emotion expressive suppression, and less frequent use of cognitive reappraisal, as well as lower self-compassion. On the other hand, we did not support the expected relationship between depressive symptoms and compassion for others (H5).

Difficulties in ER predicts the occurrence of a wide range of mental disorders such as eating disorders (e.g. Cooper et al., 2014), bipolar disorder (van Rheenen et al., 2015), obsessive-compulsive disorder (Yap et al., 2018), psychosomatic disorders (e.g. functional gastrointestinal disorders; Mazaheri, 2015), etc. The results of our study confirm previous findings that adolescents with ER difficulties had more symptoms of depression before the COVID-19 pandemic (Neumann et al., 2009) as well as during the pandemic (Zumba-Tello & Moreta-Hereera, 2022; Rufino et al., 2022). Difficulties in awareness and understanding of emotions can influence other processes of emotion regulation; such an adolescent has limited access to negative emotions and/or is unable to name them, and thus does not know what needs to be regulated. The connection between lack of emotional awareness, lack of emotional clarity and depression symptoms among adolescents has been found in previous studies (Kranzler et al., 2015; Flynn & Rudolph, 2014; Sendzik et al., 2017). On the other hand, in our study, lack of emotional awareness was the weakest correlate of depression symptoms. This may be because the very awareness of negative emotions without their subsequent regulation can lead to rumination. Ruminative response without subsequent regulatory processes influence the onset, severity and duration of depressive episodes (Nolen-Hoeksema, 1991).

Non-acceptance of emotional responses was associated with an increase of depressive symptoms in our sample of adolescents, which confirms previous findings (Weinberg & Klonsky, 2009; Aldao et al., 2010; Schäfer et al., 2016). Experiential avoidance can lead to suppression of the primary emotions such as loneliness and to loss of contact with the primary emotional need of close relationships. This response pattern can lead to a deepening of severity and/or duration of the depression, especially in times of increased stress during the COVID-19 pandemic (Shallcross et al., 2010).

Negative emotion may leave an adolescent unable to engage in goal-directed behaviors and control impulsive behaviors. Both of these difficulties in emotion regulation were associated with depression symptoms in our sample. The same pattern of association was found in previous studies in late adolescence (Regan et al., 2019; Khokpoor et al., 2019; Tull & Gratz, 2008). Abramson et al. (2002) hopelessness theory posits that people are vulnerable to depression because they tend to generate interpretations of stressful life events that have negative implications for their future and for their self-worth. People who generate these negative interpretations develop hopelessness, which is a proximal and sufficient cause of hopelessness depression. Similar to an inability to engage in goal-directed behavior, an adolescent may engage in rash, impulsive behavior in response to negative emotion induced by pandemic threats.

Limited access to ER strategies correlated positively with depressive symptoms in our study, which is in accordance with previous studies (Chase et al., 2018; Saxen et al., 2011; Moriy & Takahaski, 2013). Limited access to ER strategies was also the strongest predictor of depression symptoms among all difficulties in RE. We can assume that ER strategies play a major role in managing the painful negative emotions associated with depression. An adolescent may have access to these emotions, but without the ability to regulate their intensity and/or duration, there will be rumination and/or dysregulated behavior, which in turn will increase the intensity of the emotion and prolong its duration. It creates an emotional cascade, an emotional phenomenon that occurs when an individual intensively ruminates on negative affect, thus increasing the magnitude of that negative affect to the point that an individual engages in a dysregulated behavior in order to distract from that rumination (Selby et al., 2008). The central role of ER strategies in adolescent depression was found in a longitudinal study by Gonçalves et al. (2019).

Both ER strategies correlated in the expected way with depression symptoms in our sample, which supported previous findings before the COVID-19 pandemic (Eastabrook et al., 2014; Schäfer et al., 2016; Aldao et al., 2010; Betts et al., 2009; Lanteigne et al., 2014) as well as during the pandemic (Haver et al., 2023; Low et al., 2021). Expressive suppression was only in a weak relationship with depression symptoms. This finding is consistent with Dryman & Heimberg's (2018) systematic review on the relationship between expressive suppression and depressive symptoms prior to the onset of the COVID-19 pandemic. Our findings suggest that the role of emotion expression in the development of depressive symptoms was not seriously altered by the advent of the pandemic (e. g., due to the maintenance of social relationships and support through the use of social networks).

On the other hand, cognitive reappraisal was a significant predictor of symptoms of depression in adolescents in our sample. The central role of cognitive response

in our study can be attributed to the global level of depression symptoms of adolescents in our sample. Approximately 65% of the adolescents in our sample did not have symptoms of depression. We can assume that cognitive reappraisal can be an effective RE strategy for adolescents with lower levels of depression (Dietrich et al., 2014). Our findings thus support previous research (Cardi et al., 2021; Haver et al., 2023) regarding the protective role of cognitive reappraisal in the development of depressive symptoms during the COVID-19 pandemic.

As in previous studies before the COVID-19 pandemic (e.g. Ehret et al., 2014 and during the pandemic (e.g. Liang et al., 2023), we supported that adolescents with fewer depression symptoms were open to connect with the distress, tolerate uncomfortable feelings, and act to alleviate suffering. Self-compassion helps people to hold negative thoughts and emotions in mindful and non-judgmental awareness, and not fixate on them. Thus, being more self-compassionate may impede the cycle of rumination and worsening depression symptoms. Second, self-compassion may protect against recurrent depression is by bolstering people's capacity to use cognitive reappraisal (Bakker et al., 2019). These statements clarify our finding that self-compassion was not a significant predictor of depression symptoms when it was controlled for cognitive reappraisal. Self-compassion could be an antecedent of the use of ER strategies (Bakker et al., 2019; Diedrich et al., 2016).

LIMITATIONS

The study sample was not representative of the Slovak adolescent population and thus any generalizations could be made. Although 34.3% of participants exhibited symptoms of depression, the sample didn't represent people with a clinically diagnosed depressive disorder. There are other limitations in measurements due to self-report questionnaires which may have distorted the responses by inadequate self-knowledge of the participants or social desirability. Situational measurement of the ER might support the validity of our findings in the future. Furthermore, the experimental research design would make it possible to verify the presumed causality of the impact of ER difficulties/strategies on depression symptoms.

CONCLUSION

The study highlights the profound impact of the COVID-19 pandemic on the mental health of Slovak adolescents, with 34.3% exhibiting symptoms of depression and 17.9% experiencing moderate to severe levels. The study emphasizes the crucial role of emotional regulation (ER) strategies, revealing a significant negative association between cognitive reappraisal and self-compassion and depressive symptoms, offering valuable insights for targeted interventions. The identification of these ER strategies, especially cognitive reappraisal, as potent protective measures in the face of stressors like the pandemic underscores the need for preventative measures and early interventions. Importantly, the study identifies the lack of ER strategies, expressive suppression, and, inversely, cognitive reappraisal as the strongest predictors of the development of depression symptomatology, providing a foundation for designing interventions to enhance these skills. This research signifies the potential of tailored interventions focusing on cognitive reappraisal and self-compassion to positively impact adolescent mental health, not only in crisis situations but also in everyday life. Ultimately, these findings contribute significantly to evidence-based strategies for addressing mental health challenges in adolescents.

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