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Incidence of Emotional Disorder Symptoms and Emotional Intelligence in Slovak Secondary School Students Before and During the COVID-19 Pandemic

Abstract

The study aimed to replicate our research findings of 2019 by comparing the incidence of emotional disorder symptoms and global trait emotional intelligence (EI) and assessing the closeness of relationships of the observed variables in the context of the new COVID-19 pandemic situation. The data were gathered by self-report tests measuring levels of fears (KSAT), anxiety (STAI), depression (CDI) and trait emotional intelligence (TEIQue-ASF) in Slovak adolescents (N 270) aged 18 to 20 years (AM 18.42; SD 0.59) before (N 138) and during (N 132) the COVID-19 pandemic. Results revealed an increased incidence of emotional disorders (situational anxiety, stage fright, fear, and trait anxiety) and also a decreased level of global trait EI in the pandemic of 2019. Strong negative relationships were identified between global trait EI and trait anxiety (r -0.578; p ≤ .001), as well as medium negative relationships with overall fear (r 0.398; p ≤ .01) and stage fright (r 0.398; p ≤ .01). There were weak or no relationships between global trait EI and the other variables. Thus, higher global trait EI is related to a lower incidence of symptoms of specific emotional disorders. Our findings point to the validity of implementing socio-emotional learning elements into secondary school students' education.

Keywords: *emotional disorder symptoms, COVID-19, global trait emotional intelligence, adolescence, replication study*

Introduction

Under the influence of the COVID-19 pandemic, adolescent mental health got worse more than twice in the previous period (MNFORCE, 2022; Watson et al., 2021; Winkler et al., 2020; WHO, 2020). The most severe causes included several quarantine measures, such as the closure of schools and leisure facilities, restriction of outdoor movement, separation from loved ones, absolute change in the daily regiment, uncertainty, overwhelming negative news from the media, etc. (Tłuści-ak-Deliowska, 2022). The increase in emotional disorders arising in adolescence is crucial because they tend to persist throughout adult life (Blakemore, 2019).

Adolescence is a critical developmental period in terms of the need to form an identity to strive for autonomy and independence from parents (Kohútová et al., 2021). Relationships with peers fulfilling their basic social and emotional needs also become determining. At the beginning of the pandemic, WHO (2020) and UNO (2020) declared the need to support the mental health of adolescents whose basic developmental needs were suppressed for a long time due to the observance of pandemic regulations. Also, in the current situation of the war in Ukraine, about 75% of respondents experience an increased incidence of emotional disorder symptoms comparable with the second wave of the pandemic when the rate of experienced symptoms was the highest (MNFORCE, 2022). In terms of aetiology, these are disorders not caused by any defect in the development or brain functions. The main trigger is the individual's mental state, accompanied by abnormal thoughts and emotions, not in an optimal state (MKCH-10, 2023).

Global trait EI as a proactive factor of adolescents´ emotional disorders

Several studies dealing with the protection of adolescent mental health (Bio-lik-Moron, 2021; Gebregergis et al., 2020; Przybylska, 2016; Zysberg, 2018) show that a higher level of global trait EI, the level of which can be developed in the normal educational process (Kaliská et al., 2019), is related to lower incidence of psychopathology and more effective coping with stressful situations.

Global trait EI as a psychological construct reflecting the subjective perception of the emotional world in qualitatively different styles of behaviour and emotional reactions was conceptualised by the English psychologist K. V. Petrides (2009). Its model consists of the following factors and related features (Kaliská et al., 2019): well-being (self-esteem, happiness, optimism), emotionality (emotion perception and expression, relational competence, empathy), sociability (social awareness, assertiveness, emotion management), and self-control (stress management, emo-

tion regulation, impulsiveness). They are personal and behavioural dispositions closely related to the "Big Five" dimensions. For instance, individuals scoring high in neuroticism score low in the factors of global trait EI (Petrides, 2009).

Findings of a quasi-experimental research study by Ruiz-Andra et al. (2012) suggest that adolescents´ level of EI influences the occurrence of psychopathology and confirm that adolescents with higher EI scores have a better ability to successfully regulate the intensity and the frequency of stressors arising from everyday life events. Other research confirms that participation in repeated EI development programmes positively increases adolescents´ EI levels (Nelis et al., 2011; Ruttledge & Petrides, 2012). It creates the premise of eliminating the emergence of emotional disorders through interventions implemented in schools aimed at developing pupils´ socio-emotional traits and skills.

Research Methodology

General Research Background

The research aimed to compare the incidence of emotional disorders and the trait EI level in secondary school students before and during the COVID-19 pandemic and assess the closeness of relationships of the observed variables. Based on the theoretical and empirical backgrounds, two research questions and two research hypotheses were set:

RQ 1: How many secondary school students suffered from extreme values of symptoms of trait anxiety, depression, classical social-situational anxiety and stage fright before and during the COVID-19 pandemic?

RQ 2: Are there any statistically significant differences between secondary school students´ levels of global trait EI and its factors before and during the COVID-19 pandemic?

RH 1: The incidence of symptoms of trait anxiety, depression, classical social-situational anxiety and stage fright in secondary school students during the COVID-19 pandemic was higher than before the beginning of the pandemic.

RH 2: There are negative relationships between global trait EI, including its factors and the incidence of symptoms of trait anxiety, depression, classical social-situational anxiety and stage fright in secondary school students.

Research Sample

The research sample consisted of 270 Slovak students aged 18 to 20 (AM 18.42; SD 0.59) from five secondary schools in Bánovce nad Bebravou and Topoľčany districts. The basic sample consisted of 296 respondents, with 283 (96%) deciding to participate in our research. The rate of return of questionnaires was 95%. 138 respondents (AM 18.45; SD 0.63) participated in the research in 2019 before the pandemic outbreak (55.1% girls), and 132 respondents (AM 18.39; SD 0.55) in 2021, during the pandemic (56.8% girls). The representation of respondents by sex and school class was about the same as in 2019. The sampling was intentional, combined with convenience sampling. The basic sampling criterion was adolescence (15 to 20 years old). In the end, only respondents aged 18 to 20 who signed informed consent were included in the research. Participation was voluntary; students were informed about its purpose and could withdraw from it without giving a reason.

Instrument and Procedures

The following battery of self-report tests was used: *The Scale Measuring Classical Fear, Social-Situational Anxiety and Stage Fright for Children and Youth* (KSAT – Kondráš, 1973) with 31 items and a 5-point scale, measuring the level of subjectively experienced negative emotions associated with concrete objects of classical fears/phobias, social situations as well as stage fright situations (2019: α = 0.89; 2021: α = 0.84). *The Questionnaire Measuring the State of Anxiety and Trait Anxiety* (STAI – Ruisel et al., 1980) based on Spielberg's concept, differentiating between anxiety as a current state (20 items) and anxiety as a usual state of the individual (20 items). Our research used only the trait anxiety scale (2019: α = 0.87; 2021: α = 0.83). *Children Depression Inventory* (self-report questionnaire of depression for children and youth) (CDI-Preiss, 1998) built based on Beck's concept, with 27 items and a 3-point scale, measuring the total depression score and factors: ineffectiveness, negative mood, and negative self-esteem, anhedonia, interpersonal problems (2019, *α = 0.87; 2021: α = 0.86*). *Trait EI Questionnaire – Adolescent Short Form* (TEIQueASF, Petrides, 2009, adapted by Kaliská et al., 2019) with 30 items measuring global trait EI and its factors (well-being, sociability, emotionality, self-control) on a 7-point scale (global EI α = 0.86; well-being α = 0.89; emotionality α = 0.71; sociability α = 0.68; self-control α = 0.69; 2021: global EI α = 0.82; well-being α = 0.85; emotionality α = 0.71; sociability α = 0.66; self-control α = 0.67). Internal consistency of all questionnaires yielded satisfactory results.

The aim was to replicate the results before and after the pandemic in a comparable research sample from the same schools and with the same research methods. The test battery was administered at personal meetings from September to December 2019 and October to December 2021. Testing took about 35 minutes.

Data Analysis

Parametric inferential statistics tests were used based on the data homogeneity test, data distribution normality test (Shapiro-Wilk), skewness and kurtosis values not exceeding the interval in the range <-1.1>. Statistical significance was determined at the ≤ 0.05 level.

Research Results

In the first phase of results processing, the occurrence of extreme values of emotional disorder symptoms was analysed (classical fears, situational anxiety, stage fright, overall fear, trait anxiety and depression) in adolescents before and during the COVID-19 pandemic. The occurrence was determined based on the total sum of individuals with extreme values in the tests as determined by their authors (STAI ≥ 60, CDI ≥ 19, boys´ total score in KSAT ≥ 85, girls´ total score in KSAT ≥ 95, boys´ classical fears ≥ 35, girls´ ≥ 40, situational anxiety ≥ 35, stage fright ≥ 35). The analyses are presented in Graph 1.
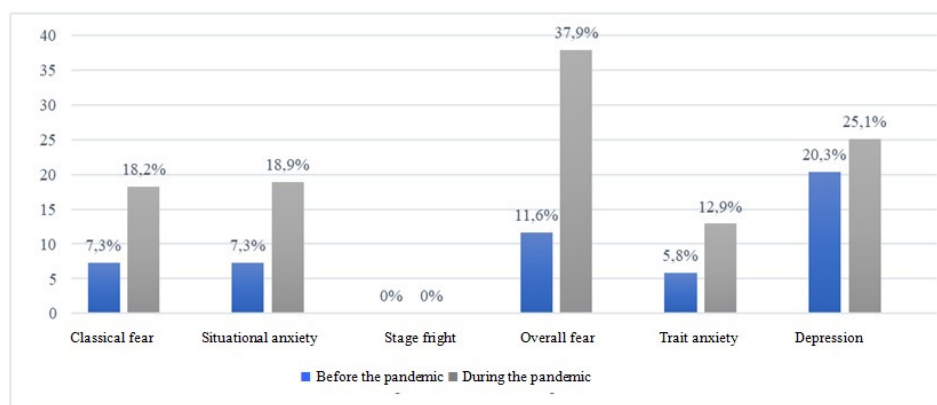
Graph 1. Occurrence of extreme values of emotional disorder symptoms in adolescents before (N 138) and during (N 132) the COVID-19 pandemic

Before the COVID-19 pandemic outbreak, fewer adolescents had extreme values of emotional disorder symptoms than during the pandemic. Significant differences of small to medium practical significance were found in overall fear ($p = < 0.001$; $\varphi = 0.31$), classical fear ($p = 0.003$; $\varphi = 0.18$, situational anxiety ($p = 0.002$; $\varphi = 0.19$, and trait anxiety ($p = 0.03$; $\varphi = 0.13$).

Next, the incidence of adolescents´ emotional disorder symptoms (Table 1) and trait EI (Table 2) before and during the COVID-19 pandemic were analysed by Student's T-test for two independent samples.

Table 1. Incidence of emotional disorder symptoms in adolescents before and during the COVID-19 pandemic (N 270)

Variable	Before			During			Test	p	Effect size
	AM	SD	MED	AM	SD	MED			
Classical fear	26.43	7.94	25.00	26.32	8.15	26.00	0.11	0.979	0.01
Situational anxiety	25.69	6.67	26.00	27.70	7.23	27.00	-2.38	0.018	-0.29
Stage fright	20.42	5.42	20.00	22.92	7.05	22.00	-3.28	0.001	-0.40
Overall fear	72.54	16.24	71.50	76.94	18.23	78.00	-2.10	0.037	-0.26
Trait anxiety	43.18	9.66	42.00	47.18	10.39	46.50	-3.27	< .001	-0.40
Depression	12.49	7.45	11.00	13.54	8.28	12.00	-1.10	0.274	-0.14

Legend: AM – arithmetic mean; SD – standard deviation; MED – median; Test – Student's T-test; p – T-test statistical significance; Effect size – Cohen's d

Statistically significant differences of weak to medium practical significance were found in the incidence of emotional disorder symptoms before and during the COVID-19 pandemic in situational anxiety ($p = 0.018$; $d = -0.29$), stage fright ($p = 0.001$; $d = -0.40$), overall fear ($p = 0.037$; $d = -0.26$) and trait anxiety ($p < 0.001$; $d = -0.40$). RH 1 was accepted.

Table 2. Adolescents´ global trait EI level before and during the COVID-19 pandemic (N 270)

Variable	Before			During			Test	p	Effect size
	AM	SD	MED	AM	SD	MED			
Well-being	4.74	1.26	4.83	2.77	1.14	2.67	-13.47	< .001	-1.64
Emotionality	4.84	0.86	4.88	3.22	0.96	3.25	-14.54	< .001	-1.77
Sociability	4.49	0.91	4.33	3.29	0.91	3.33	-10.41	< .001	-1.27
Self-control	4.09	1.07	4.17	3.67	1.07	3.58	-3.25	< .001	-0.40
EI total score	4.74	0.79	4.78	4.53	0.74	0.74	-13.59	< .001	-1.66

Legend: AM – arithmetic mean; SD – standard deviation; MED – median; Test – Student's T-test; p – T-test statistical significance; Effect size – Cohen's d

There were statistically significant differences (p < 0.001) of medium to strong practical significance in adolescents´ total score of global trait EI and all its factors against the pandemic.

The relationship between emotional disorders and global trait EI, including its four factors, was analysed by Pearson's correlation test. The results are presented in Table 3.

Table 3. Relationships between emotional disorders and global trait EI and its factors during the COVID-19 pandemic (N 132)

Variable	Depression	Trait anxiety	Classical fear	Situational anxiety	Stage fright	Overall fright
Well-being	r = -0.401***	r = -0.500***	r = 0.133	r = -0.045	r = -0.246**	r = -0.053
Self-control	r = -0.240**	r = -0.559***	r = -0.253**	r = -0.445***	r = -0.417***	r = -0.446***
Sociability	r = -0.151	r = -0.338***	r = -0.054	r = -0.263*	r = -0.348***	r = -0.223**
Emotionality	r = -0.235**	r = -0.226**	r = 0.108	r = -0.056	r = -0.172*	r = -0.004
EI total score	r = -0.182	r = -0.578***	r = -0.012	r = -0.192*	r = -0.398***	r = -0.436**

*p ≤0.05; **p ≤0.01; ***p ≤ .001

During the pandemic, negative correlations were found between the total score of global trait EI and emotional disorders. A strong negative relationship between the total score of global trait EI and trait anxiety (r = -0.578; p ≤ 0.001), a medium negative relationship with stage fright (r = -0.398, p ≤ 0.01) and overall fear (r = -0.436; p ≤ 0.01) were observed. Relationships between the factors of global trait EI and emotional disorders were also negative, with the strongest significant

correlation between trait anxiety and all factors of global trait EI and its total score. RH 2 was accepted.

Discussion

The results show a significant increase in the incidence of emotional disorder symptoms in secondary school students with critical values in trait anxiety (p < .001), stage fright (p = .001), situational anxiety (p = .018) and overall fears (p = .037) against of 2019 before the pandemic outbreak. During the COVID-19 pandemic, up to 25.1% (N 33) of secondary school students had critical values of depression, 12.9% (N 17) critical values of trait anxiety; 37.9% (N 50) of overall fear; 18.2% (N 24) suffered from classical fears and 18.9% (N 25) from social anxiety. No respondent had critical values in stage fright. We believe this finding is related to their possible adjustment to socially tense situations in school, increasing their resilience. Other authors (MNFORCE, 2022, Watson et al., 2021; Winkler et al., 2020; WHO, 2020) also refer to an increase in emotional disorders in secondary school students during the COVID-19 pandemic. That is why WHO (2020) considers focusing on the social-emotional health of primary and secondary school students the highest priority.

Regarding global trait EI, during the COVID-19 pandemic, secondary school students (N 132) reached the 35th percentile relative to the late adolescence standardisation sample (N 1191, in Kaliská et al., 2019, p. 77). Before the pandemic outbreak, they (N 138) reached the 45th percentile. It is a significant decrease in the global trait EI level (p < .001) and its specific factors. Issa et al. (2021) and Richwood et al. (2017) state that the global trait EI negatively correlates with the feeling of social isolation. Another important aspect is education transferred to the online space, which lacks space for educational activities during instruction. Thus, during the pandemic, the inability of secondary school students to understand their own emotions and the emotions of others to cope with the stressors of everyday life due to new circumstances (restricted social contacts, leisure activities, relationships with peers, opportunities for social sharing, and long-term exposure to other stressors) deepened.

In terms of replication, these are significant findings regarding the relevance and reliability of the results of 2019, measuring relationships between global trait EI and emotional disorders in secondary school students. During the pandemic, we identified close relationships between global trait EI and trait anxiety (r = -0.578; p ≤ .001), a medium negative relationship with overall fear (r = -0.436;

p ≤ 0.01), and stage fright (r = -0.398; p ≤ .01) and weak to zero relationships with the other variables. We state that the results were almost identical to 2019, before the COVID-19 pandemic. The only difference was between global trait EI and depression, where the relationship was strongly negative (r = -0.697; p ≤ .01). Our findings are consistent with the research analysing mental health and trait EI (Biolik-Moron, 2021; Gebregergis et al., 2020; Przybylska, 2016; Zysberg, 2018) stating that higher trait EI is related to lower occurrence of emotional problems, as well as lower incidence of emotional disorder symptoms. Our replication highlights the robustness of the identified relationships appearing stable in various contexts. In such a perspective, we also see other scientific perspectives, such as a quasi-experiment to reveal the causality of emotional disorders and emotional intelligence or research on direct and indirect effects of global trait EI on the level of emotional disorders through various mediators.

In terms of practical use of the results in educational practice, the validity of implementing elements of socio-emotional learning into the normal educational process through existing programmes for EI development can be pointed out.

Limitations of our research can be seen in the unrepresentativeness of the research sample (N 270), selected by convenience and available sampling, which does not allow generalisations of our findings. Another limitation is self-report methods, which depend on the level of persons´ self-reflection and are prone to distortion of results by socially desirable statements. Also, it cannot be claimed that individuals with critical values have specific emotional disorders, mainly because diagnosing emotional disorders is much more complex.

Conclusions

The study highlights the alarming incidence of emotional disorders in secondary school students, which is a challenge for the Department of Education in (but not only) Slovakia. Referring to the lack of school psychologists in Slovak secondary schools (148 school psychologists; 0.23 school psychologist per secondary school (CTVI SR, 2022)), we see the need to find such protective variables for strengthening secondary school students´ emotional health, the level of which can be developed also by the teacher during normal education. One important protective factor is the strengthening of trait EI and its factors through education. Application of interactive, cooperative and discussion methods may turn an often unheard to teacher imparting "bare" facts and procedures into a qualified, active,

empathic and tolerant guide on the path of self-knowledge and development of positive socio-emotional traits of his/her students.

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