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Mental Resilience of Polish Adolescents During the COVID-19 Pandemic in 2021 *

<http://dx.doi.org/10.12775/PBE.2022.027>

Abstract

Introduction. As reported in the literature, the severity of anxiety and depression symptoms in students due to social isolation during the COVID-19 pandemic prompted research on the psychosocial resources of adolescents, which was revealed in the form of resilience. **Research Aim.** Answers were sought to three research questions concerning: a) the resilience of Polish adolescents during the pandemic in 2021, b) the differentiation within the measured components of resilience, and c) the comparison of resilience between female and male students. **Method.** The electronic version of the Polish Mental Resilience Scale (SPP-18), standardised in the group of Polish adolescents and teenagers aged 12–18, was used for the online assessment of $n = 263$ students ($F = 137$; $M = 126$) aged 12–16. **Results.** The analysis of the students' responses indicates the raised level of their resilience in the pandemic (7/10 in standard ten), differentiation within the components with the highest score for the sense of humour and the lowest for negative affect tolerance. Differences in the level of resilience due to gender were statistically insignificant, although the results of girls were slightly higher in all dimensions compared to those of boys. **Conclusion.** The

* I would like to express my appreciation to Ms Paulina Bizek for her assistance in conducting surveys at the schools and to Tomasz Knopik, Ph.D., UMCS Lublin, Poland, for his statistical suggestions on the results of the study.

raised level of resilience in the assessed sample seems optimistic, especially with respect to the majority of the students (about 70%). However, about 10% of the students in each of the 18 items declared low personal resilience competencies. Such groups of adolescents should be looked after, and if possible, periodically re-assessed to observe the changes in their level of resilience over time.

Keywords: mental resilience, adolescents, education, COVID-19 pandemic.

Introduction

The COVID-19 pandemic has altered the conditions of everyday life on a macro- and micro-social scale. The need for isolation following WHO recommendations to inhibit transmission of the deadly virus has forced students in many countries to undertake remote education. Using computer applications, students were able to connect with the teacher and their classmates while isolating at home. It was a novel situation for adults and children, raising uncertainty and anxiety, as indicated by research reports on a national and global scale (Lee, 2020; Giménez-Dasí et al., 2021; Santomauro, 2021; Wu et al., 2021). Remote education did not require standing in front of the blackboard; however, it generated new areas of anxiety (Active Minds, 2020). As a consequence of social separation, low physical activity, and limited life of focusing on the computer screen, many students developed sleep disorders, panic attacks, and depression (Santomauro, 2021).

The most frequently reported symptom observed by parents was the anxiety faced by their children. According to reports (Active Minds, 2020; Wu et al., 2021), the intensification of anxiety among students was caused by several, simultaneous reasons: a) lack of access to psycho-pedagogical help in school during the period of remote education; b) disturbance of the constancy and stability of school life; c) new life and educational situations; d) fear of the virus and the consequences of contracting a serious disease; e) cancellation of many additional school activities and reduction of peer contacts; f) new home situation, such as spending more time with family members at home, working and learning with the use of a computer, or having no equipment or room to study; g) intensification of family conflicts, frustration, aggression; h) concerns regarding the health of loved ones; and i) the need to care for sick parents,

siblings, grandparents (Lee, 2020). The reported research mainly focused on negative emotions following the closure of schools during a pandemic, while few measured the students' resources to overcome difficulties, such as mental resilience.

Mental resilience: definition and models

Mental resilience is a term used to describe the processes and mechanisms that help maintain an individual's well-being despite facing obstacles, difficulties and blockades (Masten, 2001; Borucka, 2011; Hernandez-Martinez & Williams, 2013). It includes adequate development despite difficulties, good social functioning, and recovery following difficult experiences (Luthar et al., 2000). Resilience is understood as a process as well as a personality trait. The process consists of three resource groups: individual, family and social protective factors (Ahern et al., 2006). Resilience as a feature of the psyche is not stable but rather changes over time, depending on the age of the individual and other factors (Junik, 2011). In the longitudinal studies conducted in Sweden that lasted a period of 13 years, fivefold measurements were made on 137 children aged 2, 3, 7, 8 and 15 years old (Chuang et al., 2006). First, the child's resilience was assessed by the mother (2, 3, and 7 years old), then the teachers (8 years old), and then the children themselves (15 years old). Initially, a higher level of resilience was observed in boys, whereas in girls, the level of resilience stabilised with age, since a marked increase in resilience at the age of 15 was observed (Ogińska-Bulik & Juczyński, 2011).

The resilience models consider the analysis of the raised level of risk factors disturbing well-being and positive adaptation as an expression of overcoming adversity. The individual traits have been also taken into account as a) factors of susceptibility to loss of well-being due to trauma, and b) factors protecting against such loss. The group of the raised risk factors includes the family situation, biological and genetic susceptibility and the environmental component (Luthar, 2006). Researchers pay attention to the necessity of many factors occurring simultaneously, as well as the minute individual control over such factors (Borucka, 2011; Junik, 2011; Sikorska, 2016). Positive adaptation

concerns a) external criteria, such as achieving success despite difficulties, as well as b) internal criteria, such as maintaining well-being in the face of adversity. These criteria are not always convergent, implying that a person may achieve high results despite disruptions in well-being. The factors of the raised susceptibility to disturbances include a) gender, i.e., men show lower resilience abilities than women; b) intelligence, as people with lower intelligence have greater difficulties in facing adversities, and c) age (Masten, 2001; Luthar, 2006).

The model of protective factors takes into account the family, individual and social resources. The analysis of resilience mechanisms points to three directions: a) risk balancing, b) risk reduction, and c) gaining resistance to risk factors (Masten, 2001). Based on factor analyses, multi-dimensional models of resilience have been constructed with various components. Nina Ogińska-Bulik and Zygryd Juczyński (2011) designed a four-component model of resilience with a) an optimistic mindset and energy, b) perseverance and determination, c) a sense of humour and openness to new experiences, and d) personal competences and tolerance of the negative emotions. Along with this model, a measuring scale was also constructed for adults as well as for children and adolescents (Ogińska-Bulik & Juczyński, 2011). This model of resilience was adopted as a basis for the conceptual framework, measurement and directions of analyses in the referred study.

Resilience studies have been performed for several decades (Masten, 2001). In these studies, the immune resources of students have been correlated with various variables (Oszwa et al., 2017). Scales for measuring resilience in various age groups have been also constructed (Junik, 2011; Sikorska, 2016). In recent years, the phenomenon of mathematical resilience has been subjected to empirical exploration (Johnston-Wilder, 2010; Hernandez-Martinez & Williams, 2013; Lee, 2020; Oszwa, 2020). The trend of research on resilience in education has been a key player in a broader context of research on self-determination (Niemiec & Ryan, 2009), fostering internal motivation of the students (Knopik & Oszwa, 2019) and their growth mindset (Yeager & Dweck, 2012). The COVID-19 pandemic changed the optics of these studies towards assessing the level of resilience of students in the situation of difficulties in an

individual life, resulting from the global threat. Therefore, in the context of the literature review, the referred research attempted to find answers to questions regarding the mental resilience of adolescents during the COVID-19 pandemic as a time of unexpected individual and systemic difficulties.

Research aim and questions

The aim of the study was to assess mental resilience as a state (in a single measurement) in Polish adolescents (12–16 years old) and to analyse its diversity within the four components of the dimensional model: a) optimistic mindset and energy, b) perseverance and determination, c) sense of humour and openness to new experiences, and d) personal competences and tolerance of negative emotions. Moreover, an attempt was made to establish whether there would be a differentiation of resilience with respect to gender in the sample. Three research questions were formulated:

- Q1. What is the level of mental resilience of adolescents during the COVID-19 pandemic?
- Q2. Is there any differentiation of mental resilience in the group in respect of gender?
- Q3. Is there any differentiation in the four components of mental resilience displayed by the students?

Method and sample characteristics

The Mental Resilience Scale – SPP-18 was used in the study (Ogińska-Bulik & Juczyński, 2011). The SPP-18 consisted of 18 items and has been designed to measure the mental resilience of children and adolescents, with the general score indicating mental resilience. It is a Polish scale with satisfying internal reliability and consistency. Standardisation of the scale was carried out in a group of 332 adolescents, aged 12–19 ($F = 57.8\%$; $M = 42.2\%$). The Cronbach's alpha value for the overall score was 0.82; from 0.76 to 0.87 for particular components. The four-week test-retest stability reached $r = 0.78$. The four-factor structure of the scale was revealed, which explained 63.8% of the

total variance of the results. Moreover, high factor loadings (above 0.5) were obtained. The factor of optimistic mindset and energy illustrated the largest share in the variance (42.5%), while the remaining three factors explained about 20% of the variance.

The study sample was randomly selected through stratified sampling. Primary schools were drawn from the south-eastern region of Poland, following which random selection was applied to the classes with students at the second stage of education (12–16 years old). Special care was taken to ensure that schools were demographically diverse (large city, small town, rural) and equally represented in the study. The study included a total number of 263 students in grades 6–8 of primary school,¹ aged 12–16 ($F = 137$; $M = 126$). Approval was sought from the University Ethical Research Committee, after which the study was conducted. The research was carried out remotely using the electronic version of SPP-18 after individually obtaining the consent of the school principals and parents. The task was to respond to 18 items by selecting a number from 0 to 4 on Likert scale (0: definitely not; 4: definitely yes). One student was tested only once, and the session lasted about ten minutes. The study was conducted from April to June 2021 in Poland² when the entire country was following remote education (sudden stress), and intensive vaccination for adults against COVID-19 was being conducted (hope and partial relief).

Statistical data analysis procedure

The descriptive statistics analysis (M , SD , SKE , K) was used for the overall score of the scale and for the measured resilience components. The frequencies of responses to separate items within each component were also analysed. The analysis of the significance of differences between girls and boys was performed using the parametric t test for independent samples. In order to

¹ In Poland primary school lasts from 1 to 8 grades.

² I would like to express my appreciation to Ms. Paulina Bizek for her assistance in conducting surveys at the schools.

analyse the differences between the four components of resilience in the group ($n = 263$), ANOVA with repeated measurement was applied.

Results

The level of mental resilience in the sample (Q1). The overall score in the SPP-18 in the group ($M = 52.54$; $SD = 10.66$) was at the level of 7 out of 10 on the sten scores. This implies that the students declared a high level of mental resilience. This number constituted 73% of the maximum results possible to be obtained on the scale (Table 1). Such a result was obtained by 33.8% of the normalised population of 12–18-year-olds (Ogińska-Bulik & Juczyński, 2011).

Table 1. Indicators of mental resilience of the students ($n = 263$)

SPP-18	M	SD	SKE	K	%
Overall score	52.54	10.66	-.730	.747	73%
Optimistic mindset and energy	14.43	3.36	-.702	.342	72%
Perseverance and determination	14.83	3.37	-.918	1.182	74%
Sense of humour and openness to new experiences	12.22	2.61	-1.213	2.873	76%
Personal competences and tolerance of negative affect	11.07	3.15	-.705	.655	69%

Source: Author's research.

Within the mental resilience components distinguished in the model, all results were similar and ranged between 69–76%. The most strongly represented indicator of resilience in the students was the sense of humour and openness to new experiences (the average of the results was placed at the level of 76% of the maximum result in this subscale). The lowest scores among them, although still higher than average, were declared by the students

for personal competencies and tolerance of negative emotions (69% of the maximum result in this subscale). The values of the skewness indicator (SKE) in the overall score and in the results for the mental resilience components were negative, proving their left-skewed distribution in the studied group of students. This depicts the advantage of higher scores over lower scores. The values of the kurtosis coefficient (K) are positive, which implies a leptokurtic, slender distribution of results within the SPP-18 indices in the study group. These distributions were concentrated around the mean and were slightly stronger than a normal distribution. Simultaneously, no excess of extreme results was observed in the group. This was also indicated by the values of SD in all indicators, confirming a slight variation in the results.

As part of the measured components of the mental resilience of students, the analysis of single items included in each component was performed. The frequencies of answers provided by the students to the items within the component were analysed.

Optimistic mindset and energy. The responses within this component of mental resilience reveal a vast majority of choices that indicate compliance with a given statement. This posits that the students declared having an optimistic mindset and energy resources for everyday activities despite the difficulties caused by the pandemic. In particular, 79% of them claimed that they could draw conclusions from their own failures, 69% still assessed their own lives as exciting despite the difficult conditions during a pandemic, 68% said they could still deal with several issues at the same time in this particular time, 72% declared they were able to find a solution in a difficult situation, and 71.9% claimed they had enough energy to carry out the tasks they face despite the level of difficulty. Concurrently, responses indicating a low level of resilience were relatively rare in the group: 6.8%, 10.6%, 11.8%, 7.2%, and 9.5%, respectively, depicting 7–12% of the responses. This also shows the number of students who were strongly opposed or rather opposed to the items of the optimistic mindset and energy factor.

Perseverance and determination. This component of mental resilience consisted of a) reaching the goal, b) making efforts to deal with the problem, c) not giving up despite failures, d) taking decisive steps to achieve the goal and e) maintaining consistency in implementing plans and completing initiated projects. Responses to single items indicate the raised level of the declared persistence and determination of the students. In all items of this component, the answers prevailed, revealing compliance (*I agree and strongly agree*) with the content, i.e., declaring having the measured trait and behaviour. Among the respondents, a) as many as 81% said they could go straight to the goal without being distracted by adversity, b) 74% claimed that they made efforts to deal with difficulty despite its size, and c) 74% wrote about making determined efforts on the way to the goal, while d) only 69% declared consistency in implementing their plans and completing them, and e) 68% declared that they did not give up in the face of a hopeless situation. The respondents' answers revealing inconsistency with the item (*I disagree and strongly disagree*) were rare in the studied group and ranged between 4.2%, 6.1%, 7.9%, 7.6%, and 8.8%, respectively for a-e items described above in the section, demonstrating 4–9% of the respondents. Thus, less than 10% of the group declared low persistence and determination during the pandemic.

Sense of humour and openness to new experiences. Measurement of another component of psychological precondition of the students showed the raised level of their ability to function healthily despite difficulties of different nature during the pandemic. The students declared the ability a) to look for positive sides in a difficult situation, b) to notice the funny aspects of the events in which they participate, c) to be open to new experiences, and d) to try to see something joyful in difficult circumstances. The results obtained revealed that 74–80% of the students declared the ability a) to look for positive sides in their activities (74%), b) to notice the funny aspects of the events in which they participate (80%), c) to be open to new experiences (77%), as well as to try to perceive something enjoyable in a difficult or sad situation (77%). On the other hand, students who declared a low level of resilience in the statements of this component constituted, respectively, a) 3.8%, b) 6.4%, c) 6.9%, d) 9.1%

of the respondents in single items, and so their number ranged from 4–9% of the sample.

Personal competencies and tolerance of negative affect. This factor of mental resilience was measured by a) the declaration of coping with difficulties, b) clear thinking and concentration in difficult situations, c) considering oneself a mentally strong person, and d) being able to cope with unpleasant emotions. As in the responses to the statements in the factors of mental resilience analysed so far, this component was also characterised by the dominance of responses indicating compliance with the content of the items, i.e., declaring the students having a raised tolerance of negative affect and personal competencies in this regard. However, in comparison with the other measured factors of resilience, this component had the lowest results. Compared to all items on the scale of mental resilience, one of them related to the ability to concentrate and think clearly (item b) revealed that only 62% of the students declared such skill during the pandemic. The remaining items within this component indicate that the features listed in them were declared by approximately a) 73%, c) 67%, and d) 66% of the respondents, respectively. Thus, the pandemic situation differentiated the results in having a clear mind and the ability to focus on tasks and activities by the students. Simultaneously, the results showed that this trait of mental resilience was declared by a smaller group of respondents than the remaining factors measured. Students who did not agree with the content of the items in this component described themselves as people who a) were not able to cope with difficulties, b) were not able to think clearly in difficulties, c) were not mentally strong, d) did not have personal competences and tolerance of unpleasant feelings. These students constituted the largest part of the respondents compared to the previously analysed factors of mental resilience at a) 7.6%, b) 11.8%, c) 12.5% and d) 14.1%, respectively.

Differentiation of the results according to the gender of the students (Q2). Considering the results of the recent research that indicates the gender differentiation in mental resilience in the group of adolescents (Masten, 2001),

analyses were undertaken to find answers to the third research question, concerning the differences between girls and boys in mental resilience in the pandemic era. The mean results obtained by the girls and the boys in overall score (Table 2) indicate the same level as that of the whole sample, i.e. 7th sten on the standard ten scale (Ogińska-Bulik & Juczyński, 2011), which implies the raised level of the declared resilience of both the girls and the boys. It accounts for F = 74%, M = 72% of the possible maximum result.

Table 2. Descriptive statistics of resilience in the group of girls (n = 137) and boys (n = 126)

SPP-18	Gender	M	SD	%
Overall score	F	53.16	10.71	74%
	M	51.87	10.60	72%
optimistic mindset and energy	F	14.62	3.31	73%
	M	14.23	3.40	71%
perseverance and determination	F	15.12	3.48	76%
	M	14.50	3.23	73%
sense of humour and openness to experiences	F	12.32	2.54	77%
	M	12.10	2.70	76%
personal competences and tolerance of negative affect	F	11.09	3.19	69%
	M	11.04	3.13	69%

Source: Author's research.

The mean results for the four measured resilience components reveal their raised levels in comparison with the maximum possible results. The analysis of the mean results depicted that the girls declared a slightly higher level of persistence and determination (M= 15.2) than the boys (M = 14.5); however, the difference was not sufficient to reveal significant differences between the groups (Table 3). The percentage values demonstrated slight differences between the girls and boys, being in favour of the girls. The largest discrepancy between the genders was found in the component of persistence and determination (Female = 76%, Male = 73%).

Table 3. Significance of differences in mental resilience and its components between the group of girls (n = 137) and boys (n = 126) – parametric t-test for independent samples

SPP-18	F	p	t	df	p
Overall score	0.219	0.640	0.979	261	0.329
Optimistic mindset and energy	0.090	0.765	0.942	261	0.347
Perseverance and determination	0.480	0.489	1.505	261	0.134
A sense of humour and openness to new experiences	0.014	0.906	0.675	261	0.500
Personal competences and tolerance of negative affect	0.049	0.826	0.142	261	0.887

Source: Author's research.

Statistical inference using the parametric t-test indicated that the differences between the girls and the boys in the study were not statistically significant as a similar, raised level of resilience was found.

Differentiation of the results within the components of mental resilience in the surveyed adolescents (Q3). Due to the different number of items in the four measured components of mental resilience in the SPP-18, the mean group scores for each factor as well as their standard deviations were calculated. The comparison demonstrated a similar value of the means for the components of resilience. Amongst them, the lowest was declared tolerance of negative feelings and the assessment of personal competencies in coping with stress ($M = 2.77$; $SD = 0.788$), while the highest mean result related to the sense of humour and openness to new experiences ($M = 3.05$; $SD = 0.653$). The other two components, i.e., optimistic mindset and energy ($M = 2.88$; $SD = 0.696$), as well as perseverance and determination ($M = 2.97$; $SD = 0.674$) were at a similar level. Hence, in order to compare the results within the resilience components, ANOVA with repeated measurement was employed (Table 4A-C).

Table 4A. The significance of differences between the indicators of the components of the students' mental resilience (n = 263) – ANOVA with repeated measurement

Effect/ Factor 1	Value	F	df of hypothesis	df of error	p
Pillai's trace	0.208	22.752	3	260	0.000
Wilks Lambda	0.792	22.752	3	260	0.000
Hotelling's trace	0.263	22.752	3	260	0.000
Roy's greatest element	0.263	22.752	3	260	0.000

Source: Author's research.

Table 4B. The significance of differences between the indicators of the components of the students' mental resilience (n = 263) – ANOVA with repeated measurement

Factor 1	M	Standard error
1 Optimism	2.89	0.043
2 Perseverance	2.97	0.042
3 Humour	3.05	0.040
4 Tolerance	2.77	0.049

Source: Author's research.

Table 4C. The significance of differences between the indicators of the components of the students' mental resilience (n = 263) – ANOVA with repeated measurement

(I) Factor 1	(J) Factor 1	I-J (M difference)	Standard Error	p
1 Optimism	2 Perseverance	-.082	.033	.082
	3 Humour	-.171	.039	.000
	4 Tolerance	.116	.040	.023
2 Perseverance	1 Optimism	.082	.033	.082
	3 Humour	-.089	.042	.199
	4 Tolerance	.198	.039	.000
3 Humour	1 Optimism	.171	.039	.000
	2 Perseverance	.089	.042	.199
	4 Tolerance	.287	.038	.000
4 Tolerance	1 Optimism	-.116	.040	.023
	2 Perseverance	-.198	.039	.000
	3 Humour	-.287	.038	.000

Source: Author's research.

The comparison across the four indicators of resilience in the sample tested with ANOVA with repeated measurement (Table 4) showed the presence of significant differences among the components of students' resilience. Due to the different number of items in the subscales of SPP-18, the arithmetic mean (M), relating to each dimension (1–4), is the mean of the arithmetic means, rather than the mean calculated from the sums of the scores in the single component. The dimension of personal competence and tolerance of negative affect proved to be the most differentiated dimension in the study group compared to the other three components of resilience. This was indicated by statistically significant differences between this component and the students' optimistic mindset and energy (dimension 1), their perseverance and determination (dimension 2), and their sense of humour and openness to new experiences (dimension 3). Optimism (dimension 1) was observed to significantly vary from the students' sense of humour (dimension 3) and their tolerance of negative affect (dimension 4), while the component of the students' sense of humour (dimension 3) was significantly different from their optimism (dimension 1) and tolerance of negative affect (dimension 4). The least distinguishing component of resilience in these comparisons was perseverance and determination (dimension 2), which differed significantly only from the students' personal competence and their tolerance of negative affect (dimension 4).

Discussion

The aim of this study was to find answers to three research questions regarding the resilience of Polish adolescents in the period of remote education during the third wave of the COVID-19 pandemic. At that time, the pandemic situation was no longer new to the students, but rather a burdensome continuation of the difficult functioning in everyday life and education. The adolescents ($n = 263$) of Polish schools in the study showed raised mental resilience. This result may come as a surprise as several studies report of an increase in various types of anxiety and symptoms of depression in students during a pandemic (Lee, 2020; Santomauro, 2021). This finding might be explained by the fact

that the project was implemented in the next phase of social isolation and the gradual easing of restrictions related to the sanitary regime. The prolongation of life in limitations and difficulties could be the circumstance of activating the immune resources of several students. It is worth mentioning that each of the measured dimensions of mental resilience simultaneously revealed the presence of a small group of students at about 10%, signalling a low level of ability to cope with difficulty in this period. It would be worthwhile to surround them with psychological support and include them in further studies.

The comparison of the girls and the boys in the study did not reveal any differences in resilience observed between them. As shown in the literature, resilience as a process as well as a personality trait may change over time and is dependent on a person's age (Junik, 2011). In Swedish longitudinal studies, initially higher levels of resilience in boys were found in boys, whereas in girls, they stabilised with age (Chuang et al., 2006). In girls, a marked increase in resilience was observed at the age of 15 (Ogińska-Bulik & Juczyński, 2011). The results of the research described by Ann Masten (2001) indicate a lower resilience of boys during adolescence (Luthar, 2006). Thus, the obtained results have been inconsistent with the characteristics of adolescent boys and girls from the pre-pandemic time.

Moreover, the differentiation of indicators in the analysed model of resilience also deserves attention. On the one hand, a large group of respondents declared having a sense of humour, an optimistic mindset and energy at a time of instability during the COVID-19 pandemic, while on the other hand, the tolerance of unpleasant emotions was the component with the lowest level among the other three dimensions of resilience. The comparison across the components of resilience suggests that although the adolescents had a raised level of general resilience, it was not constant in all its dimensions.

To summarise, the higher-than-average general score of resilience in the whole studied sample may imply that for the young people, the situation of the next wave of the pandemic was an opportunity to activate personal resources in the form of resilience, which was found to be at a high level. It would be worthwhile to analyse the fear and anxiety level of the students simultaneously with the measurement of their resilience. The study of mental resilience as

a state of mind has been burdened with the risk of methodological error. However, while in the case of the measurement of anxiety, the tools for analysing it as a state and as a trait are available (Wrześniewski et al., 2002; Spielberger, 2006), in the case of resilience, such scales are not common, not mentioning about measuring resilience as a process (Sikorska, 2016). This could be done with greater success in longitudinal studies.

Conclusions

The presented analyses of the results of the research allow for the formulation of several conclusions that may serve as a starting point for further studies, as well as intervention processes in educational practice:

1. Polish adolescents during the time of the COVID-19 pandemic demonstrated a raised level of resilience despite difficulties and adversities in global systemic changes caused by the sanitary regime; the indicators of the measured components of resilience were also observed to be high.

2. The results showed no significant differences between the girls and the boys in the overall score of the SPP-18 and across the four resilience components.

3. Statistically significant differentiation occurred within the measured resilience components, indicating the model's value and its dimensions, as well as highlighting the need to understand resilience as a complex mental process.

4. Among the four measured resilience components in the students, the highest result was found in their declared sense of humour and openness to new experiences, while the lowest level was in the tolerance of unpleasant feelings and emotions.

5. It is worth remembering that although the majority of students showed a raised level of mental resilience in the middle of the pandemic, the detailed analysis demonstrated that in each item, about 10% of students were unable to cope with difficulties and declared a low level of measured competencies and behaviours. The SPP-18 used in the study seems to be a helpful tool in

making periodic measurements to identify and then nurture students with a lower level of resilience.

Study limitations

The research was conducted with the participation of a relatively large group of students ($n = 263$); however, the obtained results should be interpreted with great caution. It was a one-time study, resulting in an inevitable burden of uncontrolled variables such as the student's mood and psychosomatic state on the day of the assessment. The research was conducted online, relating to the specificity of remote education. This resulted in a lack of direct contact with the subjects and no possibility of their observation. Moreover, it was difficult to control independence and concentration on the task, and the conditions of the assessment were also unknown. However, these factors were present in most of the studies carried out in this period with the participation of students.

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