

## **The relationship between mental health, educational burnout and strategies for coping with stress among students. A cross-sectional study of Poland**

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### **Abstract:**

#### **Objective**

The study aims to investigate the risk factors of bad psychosomatic health among students in quarantine during the first wave of the COVID-19 pandemic.

#### **Method:**

The survey was conducted on-line, on a sample of 1,978 respondents in Poland. The study was carried out by the end of the summer semester. The questionnaire was designed in a way which allows for the observation of main risk factors which have impact on the students' mental health. The variance analysis and the hierarchical regression analysis were used to determine the predictors of mental health.

#### **Results:**

The results indicate that average and high levels of psychosomatic disorders were observed among 61% of respondents. The hierarchical regression analysis has revealed that the main factors influencing the level of mental health disorders were educational burnout, satisfaction with life, strategies for coping with stress and gender. As indicated by the respondents, mental health disorders increase in tandem with educational burnout, the application of emotion-focused coping strategies and the lack of satisfaction with one's life. Moreover, it was observed that female respondents scored higher on the scale of disorders in comparison to males.

#### **Conclusions:**

The results of research indicate that distance education and negative coping strategies are the main risk factors of mental health disorders among students during the pandemic.

**Keywords:** COVID-19, psychosomatic disorders, educational burnout, coping, students, Poland.

### **1. Introduction**

The coronavirus pandemic has been described as a perfect storm, which means that it has led to a tremendous shock, the psychosocial and economic effects of which cannot be

fully discovered and predicted. At the moment, a decrease in the mental and physical health indices and an increase in economic inequalities are expected [1]. The imposition of lockdown has led to the closing of schools and universities all over the world. It is estimated that approximately 1.5 billion learners - representing 91% of students in the world - have suffered as a result of the imposition of distance education [2]. Turning to distance learning on a global scale leads to the risk of an increase in educational inequalities and a deterioration of the students' mental health. It is worth bearing in mind that not only do schools have the educational function, but also they provide nutrition and health services, especially those related to mental health. It is estimated that as a result of the closing of schools in the USA, approximately 3 million teenagers got deprived of psychological assistance [3]. This may be the reason for a significant deterioration of mental health of young people in many countries [4, 5, 6].

Studies conducted in many countries indicate that students during the quarantine displayed high levels of stress, anxiety and depression [7, 8]. Different studies have also shown that apart from the symptoms of distress, the students declared suicidal thoughts, problems with concentration or self-mutilation [9]. In the USA, 71% of students maintain that during the pandemic they observed an increase in their levels of stress and anxiety [7]. Meta-analyses indicate that 9-54% of students all over the world experienced psychological distress [8].

The analyses have shown that the main mental health risk factors during the pandemic are: being a female [9], living on one's own [9, 10], uncertain financial situation [9], contact with people who contracted COVID-19 [8,9], final year of studies [8, 11], the lack of social support [9, 12], social media exposure [9] and using negative strategies for coping with stress [13]. What is more, as indicated by studies, being overloaded with distance education has a negative impact on mental health of youth [11].

The vast majority of studies is of cross-sectional nature and therefore it is impossible to determine unambiguously that the pandemic and its consequences have led to a deterioration of mental health of young people. Nonetheless, there are results of comparative research which indicate that mental health of youth has deteriorated during the pandemic [4, 5, 6]. There are also results of studies carried out in Poland which confirm a negative impact of lockdown on young people's mental health. In the age group 18-24, 26% of respondents experienced depression and being unhappy in 2019, and 32% of respondents felt depressed and unhappy in 2020. The feeling of helplessness and fatigue was experienced by 15% of respondents in 2019 and 44% of respondents in 2020. The feeling of fatigue and lack of

motivation was declared by 27% of respondents in 2019 and 47% of respondents in 2020 [14].

Since the majority of conducted research into mental health of youth was carried out among secondary school students, it was decided to delve into the situation of students whose lives changed dramatically during the quarantine. They returned to their homes, got deprived of contacts with their teachers and friends, and spend long hours in front of their computer screens. Their social lives have been limited significantly as well. What is more, the socio-economic circumstances may have impact on mental health of students. One should bear in mind the fact that the COVID-19 pandemic is a dangerous disease and the fear of it may have a negative impact on the students' health. Moreover, the economic context is important, as the lockdown might have led to an economic crisis and a decrease in the sense of economic security.

It is assumed that the main factor negatively influencing mental health of students is being exhausted from distance education. The higher the level of educational burnout, the worse psychosocial condition. The strategy for coping with stress may also determine the students' psychological condition. In the case of using emotion-focused strategies, a deterioration of mental health may occur. Socio-demographic features influence one's psychosomatic condition to a lesser extent.

## **2. Methods**

### **2.1. Sample**

This cross-sectional study was conducted using an on-line survey (Computer-Assisted Web Interview) to assess mental health problems. The research survey was conducted on-line (Computer-Assisted Web Interview) between the 1<sup>st</sup> of June 2020 and the 10<sup>th</sup> of June 2020. The study was conducted by the end of the summer semester on purpose, in order to determine the impact of distance education of the students' mental health in more depth. The survey was conducted on a sample of 1,987 students of the Pedagogical University of Kraków. In Kraków, there are 21 universities, in which more than 150,000 people were studying in the 2019/2020 academic year.

A non-random sampling method was used in the study. Convenience sampling was based on the availability of surveyed students. The respondents were selected by means of sending a link to the survey. The study was voluntary and anonymous. All procedures were conducted in accordance with the ethical standards of the institutional and/or Polish national

research committees, and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

The research form included questions regarding the following demographic factors: gender, personal evaluation of one's financial standing, place of birth and place of residence during research, type of studies, year of studies, social status, religiosity and university grades. In the study, attitudes towards the pandemic, satisfaction with life and strategies for coping with stress were measured as well.

## 2.2. Measured variables

### 2.2.1. The scale for measurement of psychosomatic disorders (HBSC-SCL)

The scale used to measure health disorders was derived from the HBSC-SCL research [15], which was modified for the purpose of the Polish HBSC research [16] and adapted to the research at hand. The following eight symptoms were measured: headache, stomach ache, dizziness, trouble sleeping, nervousness, gloom, bad mood, fatigue and irritability. The intensification of symptoms in the last 7 days was evaluated using an ordinal scale, which was developed by the authors of research. The responses are as follows: yes, several times—4; yes, a few times—3; yes, 1–2 times—2; I haven't felt—1. The Cronbach reliability score was  $\alpha=0.864$ .

### 2.2.2. Educational burnout

Educational burnout was defined as exhaustion due to stress and pressure which stem from the tasks and duties fulfilled by the students as regards their school and educational classes [17] The research used the LBQ Link Burnout Questionnaire [18] in the Polish version [19]. This questionnaire was adapted to the needs of the present research on educational burnout during distant learning. The scale used for measuring educational burnout had 16 items. The measurement was based on a five-point Likert scale, ranging from "I strongly agree" to "I strongly disagree." The Cronbach reliability score was  $\alpha=0.890$ .

The respondents were also asked for the evaluation of distant learning conducted within their major. The scale consists of the following answers: 1-Very good, 2-good, 3-average, 4-bad, 5-very bad.

### 2.2.3. Strategies for coping with stress

The construct put forward by Lazarus and Folkman [20] was used to measure the strategies for coping with stress. Its Polish version was used in the research conducted among students [21]. 3 dominant strategies were distinguished by means of factorial analysis. The first, problem-focused strategy covered the following responses: 1) I ask other people for help and advice; 2) I get mobilised and do my best to protect myself from it; 3) I comfort myself with a thought that it could have been worse, but at the moment I am healthy; 4) I pray to God for help; 5) I focus on different things which divert my attention and improve my mood. The emotion-focused strategy was indicated by the following responses: 1) I use alcohol, drugs, other psychoactive substances; 2) I give up, don't know what to do and what to expect; 3) I take sedatives.

#### 2.2.4. Financial stress

Financial stress was measured by means of a question whether the COVID-19 pandemic led to a deterioration of one's financial standing: definitely yes-1, yes-2, no-3, definitely not-4, hard to say-5.

#### 2.2.5. Satisfaction with life

Satisfaction with life was measured using the following ordinal scale: very satisfied—1, rather satisfied—2, rather dissatisfied—3, very dissatisfied—4, and hard to say—5.

#### 2.2.6. Attitudes towards the pandemic

The level of interest in the pandemic was measured using the following ordinal scale: highly interested—1, rather interested—2, rather not interested—3, and not interested at all—4.

The respondents were also asked whether the pandemic poses a serious threat for them. 1-Yes, it poses a serious threat, 2-it poses a minor threat, 3-it does not pose a threat, 4-hard to say.

The attitude towards the government was measured as well. The respondents were asked whether the government and relevant services undertook satisfactory measures in order to protect the country from the coronavirus epidemic or not. 1- yes, they do enough, 2- no, they don't do enough, 3-hard to say.

All statistical analyses were conducted using SPSS, version 25. Firstly, we conducted a descriptive statistical analysis of the scale of psychosomatic disorders. Secondly, we assessed associations between demographic data and the other variables, measured with the

HBSC-SCL scale by using the analysis of average values. Finally, a hierarchical regression analysis was used in order to identify the most relevant risk factors determined in the study, taking into account the social and economic contexts.

### 3. Results

On the applied HBSC-SCL scale of psychosomatic disorders, the result of 18.3 was obtained (SD=5.6), median=18, and dominant=17. The minimum value on the scale was 8, and the maximum value was 32. Considering the obtained results, the students may be divided into three categories: those who had low levels of psychosomatic disorders—score: 8–16 (39%), medium levels—score: 17–24 (46%), and high levels—score: 25–32 (15%).

The results of the conducted analyses indicate that  $\frac{3}{4}$  of students had health problems and experienced internalising disorders by the end of distance education.

Table 1. Relationship between independent variables and mental health

		n	M	SD
Gender	Male	321	16.2	5.8
	Female	1593	18.8	5.4
Financial standing	Bad	323	20.3	5.4
	Average	1279	18.0	5.5
	Good	307	17.7	5.7
Place of residence	Village	816	18.1	5.5
	City up to 100,000 inhabitants	442	18.6	5.4
	City between 100,000 and 500,000 inhabitants	133	18.8	5.1
	City larger than 500 000 inhabitants	519	18.5	5.8
Place of residence at the time of the survey	Family home	1465	18.4	5.6
	Rented apartment	427	18.5	5.6
	Dormitory	19	17.7	6.6
Type of studies	First-cycle studies	1076	18.6	5.6
	Second-cycle studies	458	17.7	5.5
	Long-cycle master's degree studies	316	18.7	5.5
Year of studies	First	827	18.5	5.6
	Second	511	18.2	5.4
	Third	290	18.8	5.8
	Fourth	111	18.4	5.7
	Fifth	145	17.7	5.3
Social status	Low	396	19.1	5.4
	Medium	1059	18.3	5.6
	High	385	17.7	5.7
Faith	Believers	1260	18.1	5.4
	Non-believers	322	18.8	5.8
	Undecided	329	19.1	5.7
School grades	Up to 3,5	200	19.1	5.6
	From 3,51 to 4,5	1474	18.3	5.5

	Higher than 4,51	211	18.7	6.0
Educational burnout	Low ( $\leq 36$ )	227	13.2	4.6
	Medium (37-58)	1112	17.6	4.9
	High ( $\geq 59$ )	531	22.3	4.7
Evaluation of distance learning	Bad	786	16.9	5.6
	Average	679	19.1	5.3
	Good	461	19.6	5.1
Problem-focused strategy	Yes	783	18.1	5.8
	No	1144	18.5	5.4
Emotion-focused strategy	Yes	1528	21.2	5.8
	No	399	17.6	5.3
Financial stress	Yes	895	19.3	5.6
	No	793	17.3	5.4
	Don't know	224	18.5	5.3
Satisfaction with life	Yes	1428	17.3	5.3
	No	299	21.9	5.2
	Don't know	184	21.1	5.0
Interest in the pandemic	Yes	1458	18.4	5.6
	No	455	18.2	5.4
Fear of COVID-19	Yes, it poses a threat	405	18.4	5.7
	Poses only a slight threat	868	18.6	5.4
	Does not pose a threat	364	17.4	5.8
	Hard to say	276	18.9	5.4
Evaluation of government	Positive	530	17.7	5.3
	Negative	534	19.1	5.8
	Hard to say	696	18.4	5.4

Table 1 presents how independent variables influence the value of average results on the HBSC-SCL scale. Female students, those who evaluate their financial status as bad, the students of first-cycle and long-cycle master's degree studies, those with lower social status and non-believers as well as undecided in terms of faith had a worse psychosomatic health. The most significant differences were observed in the case of the educational burnout. A high level of educational burnout; bad evaluation of distance education; passive, emotion-focused adaptive strategy, financial stress, lack of satisfaction with life, fear of contracting coronavirus and negative evaluation of activities undertaken by the government intensified the risk of a bad psychosomatic condition.

A hierarchical regression analysis was used in order to study the relationship between socio-demographic variables, attitudes towards the pandemic, psychological variables, other variables describing the experience with distance education and the level of psychosomatic disorders. In the first stage, the socio-demographic variables were introduced, in the second stage, the variables measuring the attitudes towards the pandemic were applied, in the third

stage, the psychological variables were introduced to the model, whereas in the fourth stage, the variables monitoring the educational burnout were included.

Table 2. Results of multiple regression analyses predicting the level of psychological distress

Variables	Model I		Model II		Model III		Model IV	
	$\beta$	p	$\beta$	p	$\beta$	p	$\beta$	p
Gender	.150	.000	.142	.000	.123	.000	.092	.000
Place of residence	.052	.072	.047	.105	.026	.316	.017	.464
Place of residence at the time of the survey	.018	.530	.016	.640	.018	.007	.007	.759
Faith	.077	.003	.077	.003	.022	.374	.019	.369
University grades	.032	.210	.032	.203	.006	.794	.018	.365
Relative evaluation of one's financial standing	.118	.000	.113	.000	.047	.080	.036	.119
Type of studies	.036	.158	.038	.134	.017	.470	.001	.816
Year of studies	.025	.340	.023	.375	.015	.523	.019	.342
Social status	.028	.338	.030	.303	.036	.178	.028	.222
Interest in the information about COVID-19			.022	.394	.012	.625	.013	.455
Fear of the disease			.019	.473	.037	.120	.013	.531
Evaluation of government			.025	.327	.011	.648	.022	.208
Probability of becoming infected			.060	.022	.039	.099	.043	.047
Satisfaction with life					.267	.000	.155	.000
Financial stress					.067	.005	.028	.174
Problem-focused strategy					-.071	.004	-.073	.001
Emotion-focused strategy					-.266	.000	-.151	.000
Educational burnout							.505	.000
Evaluation of distance learning							.038	.087
F ( $p \leq 0.000$ )	8.32		6.36		24.92		57.21	
R square	.041		.043		.210		.410	
Standard error	5.4		5.4		4.9		4.2	



The results of the hierarchical regression analysis indicate that demographic variables explain only 4% of the psychological discomfort variance. Females, people who evaluate their financial standing as bad and non-believers experienced higher levels of stress.

The introduction of variables measuring the attitudes towards the pandemic failed to increase the level of explained variance. In the third stage, upon the introduction psychological variables, the level of explained variance was 21%. The change in the explained variance was statistically relevant. A significant change in corrected R<sup>2</sup>, (delta corrected R<sup>2</sup> = .167; F change (4,1517) = 80.923, p <.000) was observed. In this model, the strongest predictor of psychosomatic disorders was the lack of satisfaction with life and the emotion-focused strategy for coping with stress. From the first model, only the gender remained statistically relevant.

In the fourth stage, upon introducing variables describing exhaustion with distance education, explained variance factor was 41%. The change in the explained variance was statistically relevant. A significant change in corrected R<sup>2</sup>, (delta corrected R<sup>2</sup> = .199; F change (2,1515) = 259.462, p <.000) was observed. In this model, the strongest predictor of health disorders was exhaustion from distance education. From the first model, only the gender remained statistically relevant. From the third model, the lack of satisfaction with life and the emotion-focused strategy were statistically relevant.

#### **4. Discussion**

The results of research indicate that psychosomatic health problems are observed among Polish students. Internalising disorders occur as well. After four months of quarantine, almost  $\frac{3}{4}$  of respondents displayed average and high levels of symptoms of internalising disorders. Similar results were obtained in other studies [7, 22, 23, 24]. This means that the quarantine, the lack of contact with peers, teachers, the stress occurring in their families and uncertainty have a negative impact on mental health of students in different cultures.

The results of analyses also allow for identification of the main sources of psychological distress among students during the lockdown. Educational burnout had the strongest impact on internalising disorders. Social isolation, lower motivation, the lack of contacts with peers and teachers, exhaustion from learning on the computer, the lack of physical activity constitute the educational burnout syndrome. The above findings are observed in other studies [25,26]. Different findings indicating a decrease in educational burnout among students during the quarantine have also come to being [27].

Yet another risk factor of a bad psychosocial condition was the passive, emotion-focused strategy for coping with the pandemic-related stress [20]. The students who undertook strategies such as using psychoactive substances, sedatives and passively observing events in the world have worse psychosomatic health. The confirmation of the above findings can be found in the works by other researchers [13]. A strong relationship between negative adaptive strategies and higher levels of anxiety, stress and depression is discussed therein. Negative strategies may result in the strengthening of the feeling of losing control over one's life and increase the sense of helplessness. In the situation of the pandemic, such attitudes will have a negative impact on mental health.

Satisfaction with life had a positive impact on the students' mental health, which was indicated in other studies as well [28, 29]. It may be assumed that psychological well-being is a deeper personality trait and constitutes a protection form the pandemic-related stress.

The results of research confirm prior assumptions that young females are more likely to display mental disorders during the pandemic [30].

The results of research failed to confirm the relationship between the year of studies, the type of studies and an increase in psychosomatic disorders. It is in contradiction to the results of meta-analysis [30]. Senior students have a similar level of health disorders to the students who have just taken up studies. Furthermore, the results of research indicate that returning to family homes and living with their parents did not result in mental discomfort. This may mean that living with their families did not result in the occurrence of domestic violence, which is also indicated by a range of studies [31,32]. The conducted studies indicate that loneliness occurring during distance education has a much stronger impact on young people's mental health.

## **5. Conclusions**

The studies conducted among students in a large academic city indicate that more than a half of respondents report psychosomatic symptoms. Educational burnout is the main risk factor of a bad mental health. Therefore, it shall be assumed that being overloaded with distance education is one of the threats to the students' mental health. This could be observed by the end of the semester during the first wave of the pandemic in Poland. Therefore, researchers should focus on delving into negative effects of distance education and indicating educational burnout risk factors. The obtained knowledge may allow for preparing teachers and students for lockdowns that may take place in the future.

## Limitations

The present study has certain limitations. Since data were collected from participants on a voluntary basis through an on-line application, generalizations should be made cautiously. Only after years have passed, it would be possible to determine the influence of historic events on the attitudes of youth. Therefore, the results of the present study should be perceived as a direction for future research on how the pandemic has influenced the mental condition of youth in Poland.

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