




“Examination of the psychological well-being of students during the coronavirus pandemic: The case of Hungarian economic universities”

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EXAMINATION OF THE PSYCHOLOGICAL WELL-BEING OF STUDENTS DURING THE CORONAVIRUS PANDEMIC: THE CASE OF HUNGARIAN ECONOMIC UNIVERSITIES

Abstract

A long, familiar stage of life ends with graduation from secondary school. The closure of this phase can also be seen as a loss or mourning: saying goodbye to high school, parting with old friends, teachers, environment, etc. After entering the university, young people will be not only new students of higher education, but also new participants in the labor market, which means that they will have to satisfy both needs at the same time. The COVID-19 coronavirus pandemic complicates this situation. With this in mind, the purpose of this study is to understand the mental health status and problems of first-year students currently enrolled for three undergraduate business courses in Budapest. This research paper investigates whether the pressures, isolation, uncertainty, financial worries, loss of control, and moving back in with parents caused by the pandemic have had an impact on students' mental health. This study used the EPOCH model. The EPOCH-H questionnaire was filled in by 1,719 first-year full-time students. Based on the results, a total of 8 main groups and its subgroups of factors were affected by the negative impact of the coronavirus pandemic. These students will be workers in the future carrying these effects with them. According to the results, students' mental health needs to be strengthened in typical educational processes, and maintaining and improving students' mental health should be the focus of all higher education institutions in the future.

Keywords

connectedness, engagement, EPOCH model, EPOCH-H questionnaire, happiness, mental health, optimism, perseveration, significance analysis, two-sample t-test

JEL Classification

A20, I31, Z13

INTRODUCTION

A new stage in the life of secondary school graduates is an important step on the way to adulthood, which not all young people experience in the same way. Any change can become a crisis. Friends from school no longer provide security: in a new, unfamiliar environment, new relationships are formed, a new way of life becomes dominant (Leist Balogh & Jámbori, 2016). These circumstances become more obvious in case of changing the country of studying which is typical for many young emigrants from unstable educational environment (Mishchuk et al., 2019). Some students feel lost in a large university. Teachers no longer know students personally. For them, education becomes impersonal, and it is not easy to cope with it. In lectures, exams, and student services, they are often identified not by name, but by the NEPTUN code. They be-

come a tiny twist in the huge university building (Vasa et al., 2014). An additional burden to the above-mentioned problems is that a significant part of students must earn to support themselves during their studies.

Consequently, they are new students at universities and new entrants to the labor market at the same time, and they must respond to both factors simultaneously. The realization that from now on learning and working will be central to their lives can be a huge shock for a young person. Therefore, the quarter-life crisis (Agarwal et al., 2020) can start at this stage of life and cause a serious crisis for the students.

This situation can be made more difficult if they are not able to cope with university and work at the same time to the extent, they would expect of themselves, which can lead to a steep path towards youth burnout. If this happens, young people will not find a place for themselves at university or work. The solution for a student in such a case may be to leave the university for a radical change in his life.

A further mental strain is that for some young people, university life is associated with a sense of boundless freedom. For example, there are no constant and ad-hoc exams, no compulsory attendance at lectures, which can be amazing for the students concerned in the first period. It is the period of parental relaxation control and huge parties. In this case, a new problem may appear in their lives, the question of harmful addictions and dependencies may arise. The COVID-19 coronavirus pandemic complicates this situation.

Initially, there was not much information in the academic literature about the impact of the COVID-19 pandemic on the mental health of university students, but the early studies suggested that students were a vulnerable group (Kaparounaki et al., 2020).

Analyzing this situation from the side of the university, the question of what exactly the role of universities and the purpose of work of university teachers is often raised at various professional and academic events. However, there is no consensus, as some people believe that the most important goal of a university is to develop the intellectual capacities of its students based on the transfer of modern and up-to-date knowledge. Others argue that in addition to the transfer of lexical knowledge, it is also important to transfer modern practical knowledge (i.e. lectures by renowned practitioners with valuable experience and a high reputation).

A large proportion of students, however not all students, successfully complete university, which can be helped, for example, by a well-established mental health and life skills counselling system in the higher education institution (Vágány, 2021a; Khovrak, 2020). This study explores the following questions: Do universities have a responsibility to educate their students in a holistic way? Should different resources (money, people, time, space, etc.) be allocated to support the physical, mental, and social development of students, as well as their spiritual development? One of the most important research areas in positive psychology is psychological well-being. These students will be workers in the future carrying the negative effects with them, therefore what is the psychological well-being of students at economic universities in Hungary.

1. LITERATURE REVIEW

The COVID-19 coronavirus outbreak appeared in China at the end of 2019, and then spread to all the continents. Governments have implemented strict self- and enforced quarantine measures around the world, putting people in quarantine in their homes to prevent the spread of the vi-

rus. COVID-19 has been a threat to both physical and mental health since 2019 (Nguyen, 2021; Lesmez-Peralta et al., 2022; Smutchak et al., 2022; Goncharuk et al., 2023).

To look at the secondary sources, it can be seen that there is a growing body of academic literature on mental health problems and psychiatric mor-

bidity among university students. Two-thirds of Americans reported depression, anxiety, loneliness, or hopelessness as reported by the University of Chicago (Webber & Fingerhut, 2020). The results of many authors (Kitukutha et al., 2021; Bogdan & Lomakovych, 2021; Volosovych et al., 2021; Storonyanska et al., 2021; Bhama, 2022; Hukom & Lubis, 2023; Joshipura & Lamba, 2023; Kim et al., 2023) show the negative impact of COVID-19 on society and the economy. Similar findings are obtained by Ginevičius et al. (2022), Mishchuk et al. (2023), and Streimikiene (2022).

The coronavirus pandemic has also brought unprecedented changes to education methods in the world. Due to the pandemic, colleges and universities have been encouraged or required to teach online, and e-learning, however the self-directed home learning for students can pose challenges to their self-discipline. Kim and Jeong (2018) mention that online learning is the future of hospitality and tourism education and that it is necessary and urgent to develop more digital learning materials. According to Réthy (2003), an individual's learning motivation is best guaranteed by the educational process that provides self-regulation. Madleňák et al. (2021) propose the flipped classroom method. Another study examined in Hungary how the COVID-19 epidemic and the resulting social changes, influenced the education of theoretical economics (Fenyvesi et al., 2023). According to the analysis of Pu et al. (2022), higher education institutions should make improvements in digitalized teaching and education quality. These improvements should be aligned with the emotional sphere of personal well-being according to Jackson and Konczos Szombathelyi (2022). However, according to Davidovitch and Eckhaus (2022), the need to adapt to the new reality and the advantages of technological modernization in the 21st century is inevitable for the academic establishment.

First-year Japanese university students experienced high anxiety in 2020, as they had to adapt to a new e-learning environment (Horita et al., 2020). Due to the pandemic, most Japanese universities postponed the start of new semester. Instead of face-to-face contact hours, classes were conducted remotely. In addition, freshmen had no opportunity to visit their campuses at all in 2020,

leaving them more isolated. Financial insecurity and isolation tend to have a negative impact on people's mental health. Many students have suffered financial hardship due to the drop in income caused by the pandemic and the additional difficulty of finding a job to cover tuition fees and living costs (FREE Student advocacy group since 2018, 2020).

Other studies show that a persistent lack of well-being is associated with a spectrum of forms of mental illness. Growing concerns about the mental health and well-being of students have been highlighted in the UK, with increasing student suicide and the need for greater use of mental health services on campus (Thorley, 2017; UUK, 2017, 2020). It is important to add here that the number of completed suicides also increased by 10% in the first quarter of 2020 in Hungary. Mental health and well-being issues are also linked to the increasing number of students leaving university without completing their studies. According to Houghton and Anderson (2017), well-being is at the center of challenging learning tasks.

The same problems are also being raised in other countries, such as the United States (Benedetti et al., 2020) and Australia (Usher & Curran, 2019). According to Greek university students, 12.43% of young people experienced major depression due to quarantine, and 13.46% experienced severe anxiety (Patsali et al., 2020). The behavior of Vietnamese students, their decisions related to daily routine and their future travel plans were severely affected by the virus due to health concerns (Nguyen et al., 2020). According to a study by Martínez-Lorca et al. (2020), Spanish university students' fear of the pandemic was considered moderate. Their results are similar to Reznik et al.'s (2020) study in Eastern Europe.

Fear is an emotional response (Ahorsu et al., 2020; Lin, 2020; Pan et al., 2005; Reynolds et al., 2008; Rubin & Wessely, 2020; Shigemura et al., 2020). Wanjie Tang et al. (2020) showed the prevalence of post-traumatic stress disorder and depression in university students quarantined at home. Their results suggest that the psychological consequences of COVID-19 can be severe. In their study, Vai et al. (2021) compared the effect of COVID-19 on people with mental disorders to those with-

out mental disorders after infection. Their results showed that patients with mental disorders have an increased risk of death from COVID-19.

It is important to note that the transition from secondary school to university is in itself a major life change and source of stress, which can be associated with adjustment problems (Fisher & Hood, 1987). Based on their descriptive analysis and bivariate linear regression calculations, Khan et al. (2020) found that among college and university students in Bangladesh, 28.5% of respondents had stress, 33.3% had anxiety, and 46.9% had depression ranging from mild to extremely severe. Problems caused by depression can be treated, if necessary, by involving family members (i.e. with family therapy) (Rihmer, 2020). Thomas (2020) draws attention to the fact that universities have closed important opportunities such as school counselling for young people with depression due the virus. As a solution to these problems, it is suggested that, for example, Ohio universities should offer services and programs to students that maximize protective factors and minimize risk factors to reduce or prevent students' alcohol use during the pandemic (Lechner et al., 2020). A study by Bird et al. (2021), conducted with nearly 400 people during the UK's first pandemic lockdown, focuses on the extent to which motives for physical activity are linked to mental health.

Husky et al. (2020) explored mental health of French university students during the pandemic. Their study involved students from social sciences, health sciences, engineering, law, and economics. They found increased anxiety and moderate to severe stress. These findings contrast with recent statistics on outcomes in China (Cao et al., 2020), where less than 4% of students reported at least moderate anxiety since the COVID-19 pandemic. Jiang's (2020) results showed that Chinese university students lacked sufficient epidemiological knowledge and high-risk perceptions. A study by Savage et al. (2020) shows that both mental well-being and physical activity were impaired during the pandemic.

As can be seen, previous studies have shown that university students in particular are facing various environmental and mental health struggles

due to COVID-19. The issue of mental health is particularly exciting at universities in business studies, where competitive spirit is very strong. This study examined the mental health of university students in economic studies in Hungary during the pandemic (in 2020), for which no research has been done in previous years.

2. METHODS

This study presents the partial results of a complex, multiannual research series. This publication is a continuation of a study conducted in February 2020, whose results have already been published by Vágány (2021a).

The quantitative questionnaire research method has focused on the data collection of students enrolled in the undergraduate business education in Budapest. The questionnaire was filled in by first-year full-time students (1,719 students), bachelor of economics studies, at three universities. Therefore, the most important generation to study is Generation Z (Vágány, 2021b). It is important to note that this paper has not addressed the issues of educational methodology and performance assessment at universities.

This study used a questionnaire that has been validated both abroad and in Hungary (they used different methods to check that the questionnaire really measures what it was designed to measure). The overall questionnaire consisted of mostly closed and two open questions. Responses were voluntary and anonymous. Data collection was self-completed via an online interface use by Google Form, which included instructions for completion.

This article focuses on the EPOCH questionnaire and examination of positive and negative factors of the coronavirus pandemic, therefore the dimensions of the psychological well-being, and the positive and negative factors of the coronavirus pandemic. Using open-ended questions in the fourth topic, this study looked at what the coronavirus pandemic took away from students and what the pandemic contributed to students. One student could mention several factors. Data collection took place between September 1, 2020

and September 30, 2020. The research period was chosen deliberately: by this time, the first wave of the pandemic had ended (spring 2020), the respondents had not been able to finish their high school years in the usual way (i.e. graduation, serenade, oral exams, etc.). Due to the pandemic, the students were starting university life in an uncertain situation, the students were still getting to know their teachers, university exams, new online education programs and the hybrid format was introduced. For many students, these factors represented a significant mental strain or a huge sense of achievement.

3. RESULTS

The questionnaire was completed by 1,171 women (68.1%) and 548 (31.9%) men. The youngest student was 18 years old and the oldest 52. The average age was 22.01 years. More than half of the respondents live in Budapest (51.4%), while the rest live in a county town (9.1%), city (28.3%) or village (11.2%). The questionnaire consisted of 80 questions in four main sections.

1. EPOCH questionnaire (Hungarian validated version: EPOCH-H): It is expected that adolescents do not have fully developed components of psychological well-being at an early age. This challenge is addressed by the EPOCH questionnaire (Láng, 2019). The dimensions represented in the EPOCH model describe the adolescent who will be able to soar as an adult, taking into account the age-specific characteristics of adolescence. Kern et al. (2016) provide the following definitions for the meaning of the five dimensions, which were used in 100%:
 - Engagement: It refers to involvement in an activity, a high level of interest. Its expressed form is identical to the flow experience as formulated by Csikszentmihályi (2016).
 - Perseveration: It refers to the persistence that enables us to remain committed to our long-term plans despite challenges and obstacles.
 - Optimism: It refers to hope, the belief that the future is bright, and the ability to envision a

positive future. It involves seeing negative experiences as temporary and looking to the future with a positive attitude.

- Connectedness: It refers to feeling loved, supported, and valued by others. It is more than simply having people in the life, but also feeling close to others.
- Happiness: It is not a momentary feeling, but a lasting sense of contentment and positivity. Its target variables include general well-being, life satisfaction, satisfaction of psychological needs, general attachment dimensions.

The study used a 5-point Likert scale. Respondents rated the extent to which they consider the statements to be true about themselves (1 = almost never true; 5 = almost always true).

2. Attachment Style Questionnaire (ASQ) (Feeney et al., 1994), Hungarian validated version: ASQ-H (Hámori et al., 2016).
3. Assessment of students' competences.
4. Examination of positive and negative factors of the coronavirus pandemic.

Based on the evaluable feedback of 1,719 students, a total of 8 main groups of factors were affected by the negative impact of the coronavirus pandemic (marked with N), therefore what it took away from students (A-H). Subgroups (1-6) have been identified within each main groups.

These indicate that the pandemic has taken away some things from the students (Table 1).

In total, seven major groups of factors were defined by the positive effect (P) of the coronavirus pandemic, i.e. what it has given to students. Within each major group (A-G), the paper identified several subgroups (1-5).

The pandemic has provided students with the following positive factors (Table 2).

The open responses given by students from the above groups of factors were as shown in Figure 1 and Figure 2.

Table 1. Main groups and subgroups of what the pandemic has taken away from students

A. Personal characteristics					
1	2	3	4	5	6
Freedom, sense of freedom, spontaneity, informality, liberation, unrestraint	Sense of safety, stability, comfort, confidence, self-assurance, predictability, planning	Positive outlook, optimism, enthusiasm, cheerfulness, happiness, openness	Calmness, patience, tolerance, faith in the world, view of people	Motivation, momentum, energy, perseverance, diligence, helpfulness	Mental health, love of life, physical and mental balance, hope, common sense, plans, vision, possibilities, dreams
B. Programs that are precious to the student					
1	2	3	4		
Opportunities and memories of 'once in a lifetime' (e.g. big wedding, graduation, serenade, freshman camp, childhood, young years, tradition high school graduation)	Parties, fun, leisure, experiences, recreation, events, festivals, games, hobbies	Travel, holidays, excursions	Sports, exercise, training, professional competition, careers in sport		
C. Social environment					
1	2	3	4		
Personal contact (with family, friends, partner, child, colleagues), social life, physical touching of people, hugging, personal contact with classmates, personal education, oral exams	Love, partner (break-up, divorce)	Love, partner, family member (loss, death)	Possibility of relationship and future love		
D. Work environment					
1	2				
Job, workplace, income (lost, reduced), standard of living, existence, financial security, financial well-being, lifestyle, savings	New job and employment opportunities, higher income opportunities, business and career opportunities, professional development, internships abroad, exchange programs, scholarships (e.g. Erasmus)				
E. University environment					
University life, experiences, atmosphere, daily school attendance					
F. Normal daily life					
Habitual system, regularity, routine, way of life, smooth running of the world, comfort, home, independence, privacy, previous life (e.g. rent, dormitory), normal, comfortable, and orderly everyday life, balance, hustle and bustle, activity, rhythm of life, dynamism, spin, rush, stress, tension, anxiety, difficulties, time					
G. Other factors					
Health, sense of smell, sense of taste, fresh air, life without a mask, need to conform, dependence on family and others, child self, health care, shape, healthy lifestyle, make-up, everything					
H. Nothing					

Table 2. Main groups and subgroups of what the pandemic gave to students

A. Changes in self and environment				
1	2	3	4	5
Being at home more, having more free time, rest, sleep, more time for themselves (health, weight loss, studying, hiking, hobbies, sports, reading, crafts, computer games)	Self-time, reflection, peace of mind, recharging, self-awareness, found self, physical-mental change, harmonious sense of life, personality development, change of attitude, new values, appreciation of what is important in life and small pleasures, redefined perception of life, rethinking life, better appreciation of human relationships, touch, better attention to the environment (home, hygiene, safety), the world and people have changed (caution, sticking together), better air, nature has regenerated	Awareness, perseverance, diligence, self-reliance, focus, confidence, determination, stronger, more mature, calmer, and less stressful life, patience, slowed down, adapting, calming down, quieting down, experience, discipline, balance, hope	Previous goals have changed: new goals, plans, life, tasks, opportunities, having children, normal life, new living place	Completed and achieved plans, studies in university
B. Work environment				
1	2	3		
New job, income, internship, fellowship, better performance at work, more space, success at work, new position	Better work (home office, home school), work-family balance, better time management, flexibility	Better money management, savings		
C. Social environment				
1	2	3		
Spend more time with family and friends (even online), more time with his/her pets	Improved and closer relationships with family, friends, people, who are real friends, living together with partner	New love, meet new people and new friends, new pets, car		
D. Educational environment				
1	2			
Better grades, easier and successful semester, successful high-school graduation	Online education, changed exams, less travel and commuting, better use of technology and online space			
E. Other factors				
Many things, health care changes, free parking, vaccination certificate, wearing a mask				
F. He sees only negative things instead of positive ones				
1	2	3	4	5
Worse job, disadvantage at work	Broken family and relationship, less time together, bad friendships	Boredom, loneliness, isolation, being alone	Strange situation, confusion, chaos, disappointment, uncertainty, fear, dread, bad mood, hating the mask and people, instability, lost youth, unable to make friends, difficulties, hardship, stress, tension, anxiety	Illness, giving up, harmful addiction (smoking, alcohol), obesity, suffering, mental breakdown, depression, insanity, nervous panic attack
G. Nothing				

Based on the above, the following top three factors were taken away from first-year students by coronavirus (1. most mentioned):

- NCI: Personal contact (with family, friends, partner, child, colleagues), social life, physical touching of people, hugging, personal con-

tact with classmates, personal education, oral exams.

- NDI: Job, workplace, income (lost, reduced), standard of living, existence, financial security, financial well-being, lifestyle, savings.

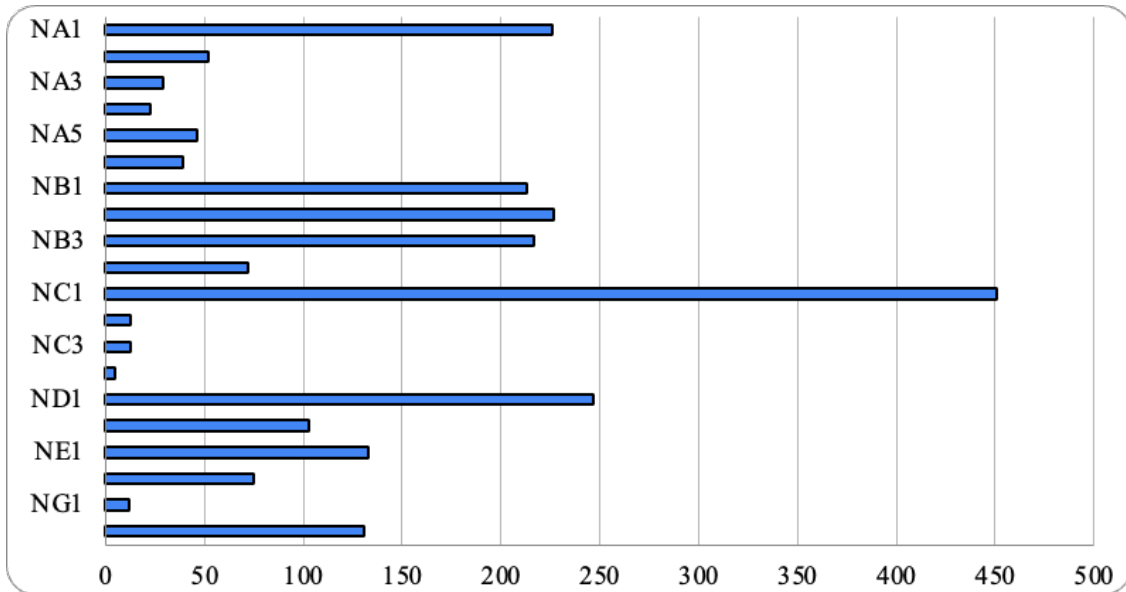


Figure 1. Main groups and subgroups of what the pandemic has taken away from the students

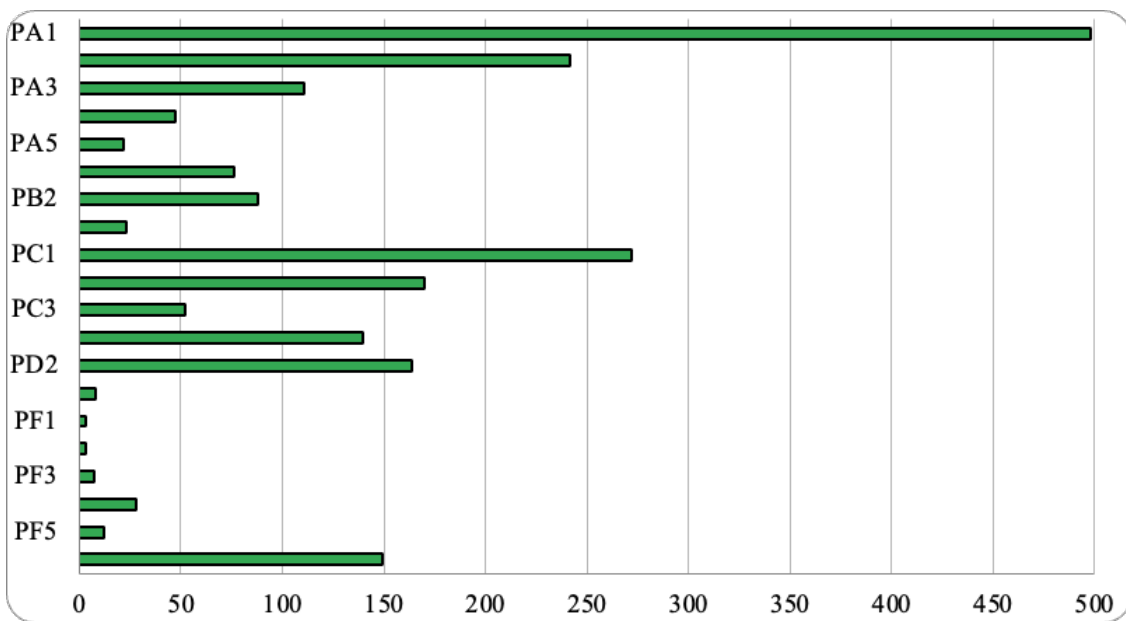


Figure 2. Main groups and subgroups of positive factors

- NB2: Parties, fun, leisure, experiences, recreation, events, festivals, games, hobbies.

PC1: Spend more time with family and friends (even online), more time with his/her pets.

The following top three factors were given by the pandemic to first-year students:

PA1: Being at home more, having more free time, rest, sleep, more time for themselves (health, weight loss, studying, hiking, hobbies, sports, reading, crafts, computer games).

PA2: Self-time, reflection, peace of mind, recharging, self-awareness, changed, found self, physical-mental change, harmonious sense of life, personality development, change of attitude, appreciation of what is important in life and small pleasures, redefined perception of life, new values, rethinking life, better appreciation of human relation-

ships, touch, better attention to the environment, the world and people have changed, better air, nature has regenerated.

However, from a psychological point of view, it is of great importance and, as described in the introduction, it is important to deal with the PF1-PF5 factors separately, with the 'critical' responses, because in this case, the students, when asked what they attributed to the coronavirus pandemic, gave negative factor(s) instead of some positive factor(s) (i.e. stress, tension, anxiety, etc.). This is a total of 54 students, which is 3.1% of the total database, or 3 students out of 100! They perceive their situation as so bad that they could not mention any positive factor, nor even the 'nothing' factor. These students are in such a state of mind when they are at university, at the courses. On the statistical side, it could be said that 'only' 3% of the total sample is affected by this poor mental health, it does not give us the possibility to draw any definitive statistical conclusions, but from an educational and psychological point of view, this number is a lot. These students see their situation as so desperate, negative, bad, and dark, under so much pressure from the pandemic that their mental health and psychological well-being need to be addressed.

Of 54 students, 3 students 'owe' it to the pandemic that they have a worse job and have been disadvantaged at work (PF1), 3 students have a broken family, a broken relationship, less time with their family and unfortunately a worse relationship with friends (PF2). Seven students experienced boredom, loneliness, isolation, loneliness (PF3) during the quarantine. Twenty-eight respondents received strange situations, confusion, chaos, disappointment, uncertainty, fear, dread, bad mood, hatred of masks and people, instability, lost their youth, no friends, difficulties, hardships, stress, tension, anxiety as positive aspects of the pandemic (PF4). Twelve students received illness, harmful addiction (smoking, alcohol), obesity, suffering, mental breakdown, depression, mental illness, nervous breakdown, panic attack or giving up from the pandemic situation (PF5).

Analyzing only the PF4 and PF5 factors, it can be seen that 28 women and 12 men are affected. The youngest student was 18 years old and the oldest 27. Their average age was 20.38 years and 23 (57.5%)

lived in the capital. The 5-dimensional student responses to the EPOCH-H questionnaire were examined separately, and the mean of the responses to the statements was presented by gender using a one-factor analysis of variance (Table 3). It is important to highlight that the EPOCH model focuses primarily on individual strengths and does not distinguish between, for example, what triggers the experience of immersion: studying or watching an interesting movie (Láng, 2019). The responses were analyzed using IBM SPSS Statistics 27.

Scores are calculated for each domain as the mean of the four items, and results can be presented as a profile across domains. The data in Table 3 show that there are three factors that show significant differences between males and females in terms of mean responses:

- for the factor 'engagement', the average score was higher for women;
- the factor 'perseveration' also had a higher score for women;
- for the factor 'optimism', men had a higher mean score for all statements.

In a meta-analytic study of gender differences in impulsivity, it can be said that men show higher impulsivity, especially in the motivational domain (Cross et al., 2011; Tu et al., 2022; Kireyeva et al., 2023). In light of this, the finding that women reported higher levels of involvement (immersion) and long-term investment in tasks and higher persistence is not surprising and is in line with Láng (2019). The current study showed that men had significantly more positive expectations for their future (optimism) than women. Research findings (Avison & McAlpine, 1992; Cyranowski et al., 2000) show that women have higher rates of depression from adolescence onwards, which is associated with negative affectivity and hopelessness, precisely as an inverse of happiness and optimism (Perczel-Forintos et al., 2001). The results of this study are inconsistent with previous research findings that have shown higher peer support (Cheng & Chan, 2004) and relationship satisfaction (Calmes & Roberts, 2008; Thomas & Daubman, 2001) in adolescent girls compared to boys.

Table 3. Trends in average ‘critical’ responses by gender

EPOCH sentences	Items	Gender	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean	
						Lower Bound	Upper Bound
Engagement							
I get completely absorbed in what I am doing	E1	Male	3.92	0.900	0.016	3.88	3.95
		Female	3.93	0.979	0.012	3.91	3.95
		Total	3.93	0.944	0.009	3.91	3.94
I get so involved in activities that I forget about everything else	E2	Male	3.25	1.215	0.022	3.21	3.29
		Female	3.43	1.200	0.014	3.40	3.46
		Total	3.38	1.192	0.012	3.35	3.40
When I am learning something new, I lose track of how much time has passed	E3	Male	3.25	1.422	0.026	3.20	3.30
		Female	3.68	1.090	0.013	3.65	3.70
		Total	3.55	1.197	0.012	3.53	3.57
When I do an activity, I enjoy it so much that I lose track of time	E4	Male	4.25	0.866	0.016	4.22	4.28
		Female	4.54	0.793	0.009	4.52	4.55
		Total	4.45	0.815	0.008	4.43	4.47
Perseveration							
I finish whatever I begin	P1	Male	3.58	0.900	0.016	3.55	3.62
		Female	4.04	0.793	0.009	4.02	4.05
		Total	3.90	0.841	0.008	3.88	3.92
Once I make a plan to get something done, I stick to it	P2	Male	3.17	0.937	0.017	3.13	3.20
		Female	3.75	0.887	0.011	3.73	3.77
		Total	3.58	0.931	0.009	3.56	3.59
I am a hard worker	P3	Male	3.17	1.030	0.019	3.13	3.20
		Female	4.36	0.559	0.007	4.34	4.37
		Total	4.00	0.906	0.009	3.98	4.02
I keep at my schoolwork until I am done with it	P4	Male	3.42	1.165	0.021	3.37	3.46
		Female	3.89	1.133	0.013	3.87	3.92
		Total	3.75	1.149	0.011	3.73	3.77
Optimism							
In uncertain times, I expect the best	O1	Male	4.17	0.577	0.010	4.15	4.19
		Female	3.25	1.236	0.015	3.22	3.28
		Total	3.53	1.154	0.011	3.50	3.55
I think that good things are going to happen to me	O2	Male	4.17	1.115	0.020	4.13	4.21
		Female	3.93	0.900	0.011	3.91	3.95
		Total	4.00	0.961	0.010	3.98	4.02
I believe that things will work out, no matter how difficult they seem	O3	Male	4.25	0.866	0.016	4.22	4.28
		Female	3.93	1.086	0.013	3.90	3.95
		Total	4.03	1.025	0.010	4.00	4.05
I am optimistic about my future	O4	Male	4.33	0.778	0.014	4.31	4.36
		Female	3.82	0.945	0.011	3.80	3.84
		Total	3.98	0.920	0.009	3.96	3.99
Connectedness							
When something good happens to me, I have people in my life that I like to share the good news with	C1	Male	4.42	0.669	0.012	4.39	4.44
		Female	4.82	0.390	0.005	4.81	4.83
		Total	4.70	0.516	0.005	4.69	4.71
There are people in my life who really care about me	C2	Male	4.92	0.289	0.005	4.91	4.93
		Female	4.68	0.723	0.009	4.66	4.70
		Total	4.75	0.630	0.006	4.74	4.76
I have friends that I really care about	C3	Male	4.67	0.492	0.009	4.65	4.68
		Female	4.61	0.916	0.011	4.59	4.63
		Total	4.63	0.807	0.008	4.61	4.68
When I have a problem, I have someone who will be there for me	C4	Male	4.25	1.055	0.019	4.21	4.29
		Female	4.21	1.067	0.013	4.19	4.24
		Total	4.23	1.050	0.010	4.20	4.25

Table 3 (cont.). Trends in average ‘critical’ responses by gender

EPOCH sentences	Items	Gender	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean	
						Lower Bound	Upper Bound
Happiness							
I feel happy	H1	Male	3.67	0.888	0.016	3.63	3.70
		Female	3.43	0.920	0.011	3.41	3.45
		Total	3.50	0.906	0.009	3.48	3.52
I love life	H2	Male	4.33	0.651	0.012	4.31	4.36
		Female	3.82	1.056	0.013	3.80	3.85
		Total	3.98	0.974	0.010	3.96	3.99
I am a cheerful person	H3	Male	3.92	0.900	0.016	3.88	3.95
		Female	3.93	1.052	0.012	3.90	3.95
		Total	3.93	0.997	0.010	3.91	3.94
I have a lot of fun	H4	Male	3.67	1.073	0.019	3.63	3.71
		Female	3.79	1.031	0.012	3.76	3.81
		Total	3.75	1.032	0.010	3.73	3.77

However, the other two sets of factors (‘connectedness’ and ‘happiness’) can be considered fairly balanced in terms of average scores. They experienced the same positive emotions (happiness) and the supportive nature of their relationships (connectedness) is similar. The lowest male mean scores were for the ‘Once I make a plan to get something done, I stick to it’ and ‘I am a hard worker’ statements for the ‘perseverance’ dimension factors (3.17). The highest score (4.92) was given by men for the ‘connectedness’ dimension the statement ‘There are people in my life who really care about me.’

The study considers a score of 4.0 for the EPOCH-H questionnaire as a good, acceptable threshold, our results show that men gave a minimum mean score of 4.0 on the ‘optimism’ and ‘connectedness’ dimensions, while women gave a minimum mean score of 4.0 on all four items of the ‘connectedness’ factor only. The high score on the ‘connectedness’ dimension is also very important because quality human relationships are, beyond their basic psychological functions, a fundamental prerequisite for an individual’s physical and mental well-being; they provide protection and support against loneliness, illness or even poverty.

However, it is of concern that women gave the lowest score (3.25) to the statement ‘In uncertain times, I expect the best’ in the ‘optimism’ dimension, which could cause serious psychological problems in the current era of the coronavirus pandemic, when uncertainty is one of the most significant mental distresses. It is also worth noting that the

students’ interest in the activities is weak, with the lowest score (3.38) for the following statement on the ‘engagement’ dimension: ‘I get so involved in activities that I forget about everything else.’

Of the 40 ‘problem’ students, 17 gave a total score below the average of 4.0 for the 5 factors, i.e. they have a very negative perception of their situation, of which 9 (7 women and 2 men) did not even reach 3.50. Some (women) gave a score of 1 (almost never true) for the dimensions ‘optimism’ and ‘engagement’ for 2-3 out of 4 definitions.

Then the paper examined the results statistically. For comparability, two samples were created: students with no psychological problems ($n_{np} = 1,679$) and students with problems ($n_p = 40$). The study analyzed at distributions for age, gender, place of residence, and siblings and conducted significance tests. It found a significant difference for age. On average, students with mental health problems were 2 years younger (20.38 years) than other students (22.05 years). There is also no significant difference in the gender ratio and the distribution by type of municipality, the two samples are almost identical (Table 4). However, there is a significant difference for siblings.

Then, the paper examined the distributions along all variables and conducted a two-sample T-test for all 20 variables. For the significance test, it found significant differences in six cases (Table 5):

- Engagement dimension: ‘I get completely absorbed in what I am doing.’

Table 4. Comparison of students with and without mental health problems (% within problem)

Question	Answers	Problem		Total
		n _{np} = 1,679	n _p = 40	
Gender	Male	31.9%	30.0%	31.9%
	Female	68.1%	70.0%	68.1%
	Total	100.0%	100.0%	100.0%
Address	Capital city (Budapest)	51.2%	57.5%	51.4%
	Village	11.1%	15.0%	11.2%
	County seat	9.1%	10.0%	9.1%
	City	28.5%	17.5%	28.3%
	Total	100.0%	100.0%	100.0%
I have brothers / sisters.	Yes, one.	50.1%	70.0%	50.6%
	Yes, three or more.	11.2%	0.0%	10.9%
	Yes, two.	21.6%	25.0%	21.7%
	I have not.	17.1%	5.0%	16.8%
	Total	100.0%	100.0%	100.0%

- Perseveration dimension: ‘Once I make a plan to get something done, I stick to it.’
- Optimism dimension: ‘I think that good things are going to happen to me.’
- Happiness dimension: ‘I feel happy.’ ‘I love life.’ ‘I have a lot of fun.’

These young people, on average, aged 20, feel their future is unstable. They do not see anything good happening to them in the future. They are studying in universities, they must solve problems, but their mental capabilities in the process is weak. The ‘happiness’ dimension is very damaged, as they feel unhappy, sad, and even dislike life. These factors clearly reflect their feelings of depression and the importance of addressing their mental health.

Table 5. Significance analysis of EPOCH responses

EPOCH sentences	No.	Mean	Levene’s Test for Equality of Variances		t-test for Equality of Means						
			F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
										Lower	Upper
Engagement											
I get completely absorbed in what I am doing.	1679	4.24	0.312	0.577	2.445	1 717	0.015	0.313	0.128	0.062	0.563
	40	3.93	–	–	2.077	40.330	0.044	0.313	0.151	0.008	0.617
I get so involved in activities that I forget about everything else	1679	3.58	3.752	0.053	1.279	1 717	0.201	0.202	0.158	-0.108	0.512
	40	3.38	–	–	1.064	40.273	0.294	0.202	0.190	-0.182	0.586
When I am learning something new, I lose track of how much time has passed	1679	3.86	9.731	0.002	2.060	1 717	0.040	0.311	0.151	0.015	0.606
	40	3.55	–	–	1.629	40.143	0.111	0.311	0.191	-0.075	0.696
When I do an activity, I enjoy it so much that I lose track of time	1679	4.64	6.274	0.012	1.790	1 717	0.074	0.192	0.107	-0.018	0.402
	40	4.45			1.479	40.253	0.147	0.192	0.130	-0.070	0.454
Perseverance											
I finish whatever I begin	1679	4.10	0.002	0.964	1.537	1 717	0.125	0.201	0.131	-0.055	0.457
	40	3.90	–	–	1.492	40.765	0.143	0.201	0.134	-0.071	0.472
Once I make a plan to get something done, I stick to it	1679	3.87	1.682	0.195	2.068	1 717	0.039	0.297	0.144	0.015	0.579
	40	3.58	–	–	1.996	40.744	0.053	0.297	0.149	-0.004	0.597

Table 5 (cont.). Significance analysis of EPOCH responses

EPOCH sentences	No.	Mean	Levene's Test for Equality of Variances		t-test for Equality of Means						
			F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
										Lower	Upper
I am a hard worker.	1679	4.14	0.700	0.403	1.077	1 717	0.282	0.145	0.134	-0.119	0.408
	40	4.00	-	-	1.000	40.608	0.323	0.145	0.145	-0.148	0.437
I keep at my schoolwork until I am done with it	1679	3.91	4.806	0.028	1.079	1 717	0.281	0.164	0.152	-0.134	0.463
	40	3.75	-	-	0.897	40.269	0.375	0.164	0.183	-0.206	0.534
Optimism											
In uncertain times, I expect the best	1679	3.75	0.476	0.490	1.349	1 717	0.177	0.227	0.168	-0.103	0.558
	40	3.53	-	-	1.233	40.553	0.225	0.227	0.184	-0.145	0.600
I think that good things are going to happen to me	1679	4.34	0.952	0.329	2.881	1 717	0.004	0.345	0.120	0.110	0.580
	40	4.00	-	-	2.254	40.118	0.030	0.345	0.153	0.036	0.654
I believe that things will work out, no matter how difficult they seem	1679	4.24	0.291	0.590	1.588	1 717	0.112	0.214	0.135	-0.050	0.479
	40	4.03	-	-	1.313	40.255	0.197	0.214	0.163	-0.116	0.545
I am optimistic about my future	1679	4.18	0.008	0.929	1.453	1 717	0.146	0.204	0.140	-0.071	0.479
	40	3.98	-	-	1.386	40.700	0.173	0.204	0.147	-0.093	0.501
Connectedness											
When something good happens to me, I have people in my life that I like to share the good news with	1679	4.78	2.154	0.142	1.055	1 717	0.291	0.084	0.079	-0.072	0.240
	40	4.70	-	-	1.015	40.731	0.316	0.084	0.083	-0.083	0.251
There are people in my life who really care about me.	1679	4.75	0.001	0.982	-0.045	1 717	0.964	-0.004	0.097	-0.194	0.185
	40	4.75	-	-	-0.043	40.719	0.966	-0.004	0.101	-0.208	0.199
I have friends that I really care about	1679	4.70	1.522	0.218	0.650	1 717	0.516	0.072	0.111	-0.146	0.291
	40	4.63	-	-	0.563	40.388	0.577	0.072	0.129	-0.188	0.332
When I have a problem, I have someone who will be there for me	1679	4.26	1.683	0.195	0.257	1 717	0.797	0.039	0.151	-0.258	0.335
	40	4.23	-	-	0.232	40.512	0.818	0.039	0.168	-0.300	0.377
Happiness											
I feel happy	1679	3.93	1.083	0.298	2.975	1 717	0.003	0.433	0.146	0.148	0.719
	40	3.50	-	-	2.990	40.899	0.005	0.433	0.145	0.141	0.726
I love life	1679	4.34	0.082	0.774	2.632	1 717	0.009	0.362	0.137	0.092	0.631
	40	3.98	-	-	2.327	40.448	0.025	0.362	0.155	0.048	0.675
I am a cheerful person	1679	4.19	0.228	0.633	1.874	1 717	0.061	0.264	0.141	-0.012	0.540
	40	3.93	-	-	1.658	40.451	0.105	0.264	0.159	-0.058	0.585
I have a lot of fun	1679	4.21	8.984	0.003	3.552	1 717	0.000	0.464	0.131	0.208	0.720
	40	3.75	-	-	2.823	40.155	0.007	0.464	0.164	0.132	0.796

4. DISCUSSION

The pandemic situation has had a negative impact on the mental health of university students, suggesting that the mental health of students needs to be strengthened in typical teaching processes. According to this study, 3 out of 100 students (3%) are seriously affected and need quick

and immediate help to improve their mental health and psychological well-being! The doors of the universities were closed during the study period, with no or restricted access to help. Therefore, the paper considers it very important to further investigate this issue. It is important not to wait for a young person to ask for help when they are in trouble because the research knows that this

usually comes at the last minute. Instead, the staff need to be proactive in making them aware of the help available in their own community.

Based on Vágány's (2021a) study, improving students' psychological well-being should be a priority for any higher education institution that wants to attract high-achieving students and maintain high positions in national and international higher education rankings. In Hungary, Government Decree 51 of 2007 (III. 26.) on benefits and certain allowances paid to students of higher education defines student allowances, which are provided from the state budget. It also includes psychologi-

cal health and lifestyle recommendations (§10.6). According to the Law, universities must provide a certain level of life guidance, mental health, or psychological counseling. However, higher education institutions have very different approaches to this issue, with different solutions in Hungary. Vágány (2021b) investigated the life coaching, mental health, or psychological counseling activities of 17 business higher education institutions by examining their websites. Her research findings show that universities have very different mental health and life skills counseling networks and different levels of importance for student and staff mental health.

CONCLUSION

Taken together, these findings suggest that the COVID-19 pandemic is negatively impacting student mental health. Universities should pay more attention to the mental health and well-being of students. The changing environment and increasing competition in higher education are making it clear to a growing number of universities that protecting the mental health and psychological well-being of their students, staff, and faculty is essential to ensuring long-term student and faculty satisfaction. These research results show high efficiency and significant results can be achieved by people with high psychological well-being and mental strength, regardless of whether they are university students, high performers at work, or top athletes.

Based on the study, the following results were formulated. The pandemic situation has had a negative impact on the mental health of the first-year students for undergraduate business courses in Budapest. Due to the impact of the COVID-19 coronavirus pandemic, some of the first-year students for undergraduate business courses in Budapest are studying with critical mental health status. The mental health of students needs to be strengthened in typical teaching processes. The universities have very different mental health and life skills counselling networks and different levels of importance for the mental health of students and staff.

The questionnaire was repeated in the period following the completion of the research presented in this study. The results are still being evaluated.

AUTHOR CONTRIBUTIONS

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