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PSYCHOLOGICAL WELL-BEING AND RESILIENCE OF SLOVENIAN STUDENTS DURING THE COVID-19 PANDEMIC

PSIHOLOŠKO BLAGOSTANJE IN ODPORNOST SLOVENSKIH ŠTUDENTOV V ČASU PANDEMIJE COVID-19

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ABSTRACT

Introduction: Students' mental health is recognised as an important public health issue, and the strict measures and many changes resulting from the COVID-19 pandemic may have exacerbated this. The aims of the study were thus to explore psychological well-being among university students in Slovenia during the beginning of the second lockdown, and to assess associations among their psychological well-being, demographic characteristics, presence of a chronic health condition, and resilience.

Methods: The Slovenian online cross-sectional survey was performed as part of a large-scale international survey led by the COVID-HL Consortium, between the 2nd and 23rd November 2020. The study was carried out on a sample of 3,468 university students (70% female) in Slovenia, aged between 18 to 40 (M=22/SD=3). In addition to sociodemographic data and that on the presence of a chronic health condition, data on subjective social status (SSS), psychological well-being (WHO-5) and resilience (CD-RISC 10) was also gathered.

Results: In our study 52% of university students reported good psychological well-being. Hierarchical binary logistic regression revealed that male, older students, those with higher perceived subjective social status, students without a chronic health condition, and those with higher score on resilience were more likely to have good psychological well-being. Resilience was the strongest predictor of psychological well-being in our study.

Conclusions: Systematic preventive approaches/interventions in the field of mental health should be implemented among students in Slovenia. In this context it is important to develop and deliver programmes for enhancing resilience, which is an important protective factor in times of mental distress.

Keywords:
Students
Psychological well-being
Resilience
COVID-19 pandemic

IZVLEČEK

Uvod: *Duševno zdravje študentov je prepoznano kot pomemben javnozdravstveni problem. Strogi ukrepi in številne spremembe, ki so posledica pandemije COVID-19, so lahko dodatno vplivale na duševno zdravje študentov. Cilj raziskave je bil preučiti psihološko blagostanje študentov v Sloveniji na začetku drugega "lockdowna" oz. zaprtja družbe. Prav tako smo želeli preveriti povezanost med psihološkim blagostanjem, sociodemografskimi značilnostmi, prisotnostjo kronične bolezni ter psihološko odpornostjo.*

Metode: *Slovenska spletna presečna raziskava je bila izvedena v obdobju med 2. in 23. novembrom 2020 v okviru obsežne mednarodne raziskave, ki jo je vodil konzorcij COVID-HL. Raziskava je bila opravljena na vzorcu 3.468 študentov (70 % žensk) v Sloveniji, starih 18-40 let (M = 22, SD = 3). Poleg sociodemografskih podatkov ter podatka glede prisotnosti kronične bolezni so bili zbrani tudi podatki o subjektivnem socialnem statusu (SSS), psihološkem blagostanju (WHO-5) in psihološki odpornosti (CD-RISC 10).*

Rezultati: *V naši raziskavi je 52 % študentov poročalo o dobrem psihološkem blagostanju. Hierarhična binarna logistična regresija je pokazala, da imajo višji obet za psihološko blagostanje moški, starejši študentje, študentje z višjim SSS, študentje brez kroničnih zdravstvenih težav ter študentje z višjim dosežkom pri psihološki odpornosti. Psihološka odpornost je bila najmočnejši napovednik dobrega psihološkega blagostanja.*

Zaključek: *Vpeljati je treba sistematične preventivne pristope/ukrepe na področju duševnega zdravja med študenti v Sloveniji. Razviti in izvajati bi bilo treba programe krepitve psihološke odpornosti, ki je pomemben varovalni dejavnik v času duševne stiske.*

Ključne besede:
študenti
psihološko blagostanje
psihološka odpornost
pandemija COVID-19

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1 INTRODUCTION

Mental health issues have been becoming more common, especially among adolescents and young adults (1). Mental illness is most likely to onset during the transition from adolescence to adulthood (2-4), which is why the mental health of university students is recognised as an important public health issue. Students' heightened psychological distress may be due to academic and financial pressures, isolation, and loneliness (3, 4). Despite the high prevalence of mental health problems in this population, research suggests that two thirds of students with mental health problems do not seek professional help (4-6).

Students were a group that was especially impacted by the COVID-19 crisis, due to the sudden change in life circumstances, school lockdowns (and thus home-based distance-learning), prolonged social isolation, loss of income or student jobs, potential health risks to family members and financial constraints (7-9). Students were also confronted with uncertainty about their futures, i.e. a greater risk of unemployment, career and economic prospects, all of which took a toll on the mental health of this vulnerable population (8), and the many other challenges imposed by the COVID-19 pandemic also affected the mental health of students (10-12).

The literature provides different measures and indicators of mental health, one of them being psychological well-being, which broadly covers the entire continuum of mental health. Definitions of psychological well-being as well as the measures used in the literature vary (13). One frequently used measure of psychological well-being is the World Health Organization Well-Being Index (WHO-5), which measures negative aspects such as presence of depression symptomology, but also positive aspects such as positive mood, vitality, and interest (14).

Studies which used the WHO-5 mostly report a high prevalence of poor psychological well-being among students during the COVID-19 pandemic. For example, in two distinct Australian studies, the prevalence of students with good psychological well-being was found to be similar, at 33.7% (15) and 34.7% (16). An even lower proportion of students with good psychological well-being (27.8%) was found in a study on German students (17). However, the results regarding the predictors were somewhat contradictory, as one of the Australian studies found being female and having a lower subjective social status were associated with lower well-being (16), while in the other age, gender and educational level did not emerge as predictors of well-being (15). A Slovenian survey reported the highest prevalence of poor psychological well-being in those aged 18 to 29 years as compared to all other age groups (18). This study also revealed poorer psychological well-being among participants with chronic health conditions (18).

In addition to psychological well-being, a number of studies also focused on the prevalence of depressive symptomology in students during the pandemic. The findings are inconclusive, however, as the reported prevalence ranges from 22% to 81% (19-21). For example, a study (19) conducted in Slovenia reported that 55% of students had moderate to severe symptoms of depression, while a longitudinal study (22) found that 26% of Slovenian young adults (20 to 40 years of age) showed a risk for depression at the baseline measurement, as did 23% at three-month follow-up.

An important building block of psychological well-being is resilience, and positive relationships between these two constructs have been found in different studies (23, 24). The American Psychological Association (APA) defines resilience as the process of adapting well in the face of adversity, trauma, tragedy, threats or even significant sources of stress, and that it involves the capability of "bouncing back" from difficult experiences (25). Moreover, recent studies have identified resilience as an important factor to cope with the mental health challenges derived from COVID-19 (26-29).

To date, the majority of research on students' mental health in Slovenia focused mainly on the negative aspects of such health (e.g. depressive, anxious symptomology, etc.). Our study attempts to expand this knowledge by 1) exploring psychological well-being among university students in Slovenia, and 2) examining the associations between the psychological well-being, demographic characteristics, presence of a chronic health condition, and resilience during the beginning of second wave of the epidemic in Slovenia (2nd to 23rd November 2020). Developing a better understanding of how psychological well-being and resilience present among a large population of university students will help guide the development of interventions as well as policies in the future.

2 METHODS

2.1 Subjects

The online cross-sectional survey was carried out as part of a large-scale international survey led by the COVID-HL Consortium (30). The adapted Slovenian version of the survey (a scale for measuring resilience, CD-RISC 10, was added in Slovenia) was conducted between November 2 – 23, 2020, as an online survey, designed with the 1KA or EnKlikAnketa (31). In Slovenia, the second wave of the epidemic was declared on 19th October 2020 (and lasted until 15th June 2021), and due to the deteriorating epidemiological situation strict measures were reintroduced for this period (32). Prior to completing the survey, the respondents were informed about its aims and that participation was voluntary, as well as the conditions of confidentiality and anonymity.

A non-probability sample was used, including a two-step invitation procedure. In the first step invitations to participate were sent via email to all faculties and colleges in Slovenia (16 colleges, 75 faculties, nine independent higher education institutions and two postgraduate schools). In the second step, all universities were asked to forward the invitation to their students by using internal communication channels (through websites, mailing lists, and social media).

Prior to any statistical analysis, participants older than 40 years were removed due to our focus on adolescents and young adults. After data cleaning and consistency checking, the final sample included 3,468 students (70% female), aged between 18 to 40 (M=22/SD=3). Based on a basic population of 71,957 university students in Slovenia (30th October 2020) (33), this corresponds to 4.8% of the total.

Detailed demographic characteristics of the sample are presented in Table 1.

Table 1. Sociodemographic characteristics of the sample.

	N	%
Gender		
Female	2,441	70.4
Male	1,022	29.5
Other	5	0.1
Age		
18-21 years	1,731	49.9
22-26 years	1,497	43.2
27-40 years	240	6.9
Education level		
Bachelor	1,961	56.5
Master	1,440	41.5
PhD, doctorate degree programme	55	1.6
Other	12	0.3
Subjective social status		
Low	497	14.3
Medium	2,251	64.9
High	720	20.8
Chronic health condition		
No	2,904	83.7
Yes	564	16.3

Notes: N – Number of participants

2.2 Measures

Sociodemographic variables, including age, gender, and current study degree level were collected, and a question regarding the presence of a chronic health condition (with a yes/no answer) was also included. Gender was categorised as female, male, or other; age as 18-21, 22-26, and 27-40; and study course as Bachelor, Master, PhD (enrolled in a doctorate degree programme) and other. In addition to this sociodemographic data, we also gathered the data described below.

2.2.1 Subjective social status (SSS)

SSS was assessed using the MacArthur Scale, which includes a ladder with 10 steps (34, 35). Respondents were asked to position themselves at the step that best reflected their status on the social hierarchy, with higher values indicating a higher subjective social status. Respondents were categorised into three groups: low SSS (1-4), medium SSS (5-7) and high SSS (8-10) (36).

2.2.2 Psychological well-being (World Health Organization Well-being Index (WHO-5))

The WHO-5 assesses psychological well-being (14). Each of the five items is scored on six-point response scale (0 = at no time, 5 = all of the time), considering the last 14 days. The raw score ranges from 0 (absence of psychological well-being) to 25 (maximal psychological well-being). Because scales measuring health-related quality of life are conventionally translated to a percentage scale from 0 (absent) to 100 (maximal), it is recommended to multiply the raw score by 4 (14). The Cronbach's alpha reliability coefficient in our sample was 0.89.

The WHO-5 score was dichotomised based on the existing cut-off points in literature (14). The two categories were "good psychological well-being" (scores>50) and "poor psychological well-being" (scores <=50). The scale has adequate validity both as a screening tool for depression and as an outcome measure in clinical trials, and has been applied successfully across a wide range of study fields (14). When applied as a screening tool for depression the literature provides different cut-offs (14), we decided to use a cut-off point of <=50, which is also recommend when screening for depression (14).

2.2.3 The Connor-Davidson Resilience Scale (CD-RISC 10)

The CD-RISC 10 is a 10-item scale that measures the ability to cope with adversity (sample items include: Having to cope with stress can make me stronger, Under pressure, I stay focused and think clearly) (37, 38). Respondents' rate items on a five-point scale from 0 (not true at all) to 4 (true nearly all of the time), considering the past month. A respondent's total score can range from 0-40 (38). Previous studies have shown good psychometric properties (38). The Cronbach's alpha reliability coefficient in our sample was 0.86. The total score on the CD-RISC 10 resilience scale was converted into a binary outcome variable based on the median split (<26 and ≥26). Scores below 26 were labelled as low resilience and scores 26 or above as high resilience.

2.3 Statistical analysis

Statistical analysis was performed on complete data (N=3,468). To examine the associations among gender, age, educational level, presence of a chronic condition, resilience and psychological well-being, chi-square tests were performed. To limit the bias due to the small cell count we decided to remove both categories "other" in the variables gender (N=5) and education (N=12). Hierarchical binary logistic regression was performed with the WHO-5 result (good/poor psychological well-being) as the dependent variable. In the first step, sex, age, degree of study, and subjective social status were entered as covariates in the model, and then the presence of a chronic health condition was added in the second step. In the last step, resilience was added to the model. For all the results a p-value <0.05 was considered statistically significant. The data was analysed using SPSS version 26.

3 RESULTS

The average sum score on WHO-5 was 51.1 (SD=21.0). Overall, 52% of university students reported good psychological well-being, and 48% poor psychological well-being. The average sum score on resilience was M=25.2, SD=6.7.

The chi-square tests revealed statistically significant associations between gender, age, educational level, presence of a chronic condition, and resilience with good psychological well-being (Table 2). Good psychological well-being was more common among male and older university students, those studying for a higher educational level, students with higher SSS, those with no chronic health condition, and those with a higher score for resilience. Effect sizes were weak for the majority of associations, except for resilience (Phi=0.374).

The results of the hierarchical binary logistic regression models are presented in Table 3. All three models were significant. The first step showed male, older students, those studying for a higher-level degree (except in the category of PhD students, where p was not statistically significant), and with higher perceived subjective social status, were more likely to have good psychological well-being (x2=163.10, df=6, p=0.000). The second step revealed that students with a chronic health condition were less likely to have good psychological well-being (x2=176.95, df=7, p=0.000). Finally, the third step revealed students with higher resilience had four times higher odds of good psychological well-being (OR=4.28, 95% CI 3.69 – 4.96, p=0.000). This model was also significant (x2=568.91, df=8, p=0.000). Overall, resilience was the strongest predictor of

Table 2. Descriptive statistics and associations between psychological well-being, sociodemographic characteristics, presence of a chronic health condition and resilience.

	Good (vs poor) psychological well-being						
	Total	***N*(good)**	**%**	**χ2(df)**	**p**	**Effect size**	
Gender				48.1 (1)	0.000	Phi	0.118
Female	2,430	1,183	48.7				
Male	1,021	629	61.6				
Age				21.7 (2)	0.000	Cramer V	0.079
18-21 years	1,725	846	49.0				
22-26 years	1,487	816	54.9				
27-40 years	239	150	62.8				
Education level				21.6 (2)	0.000	Cramer V	0.079
Bachelor	1,957	964	49.3				
Master	1,439	811	56.4				
PhD	55	37	67.3				
SSS				88,2(2)	0.000	Cramer V	0.160
Low	490	188	38.4				
Medium	2,244	1,155	51.5				
High	717	469	65.4				
Chronic health condition				15.8(1)	0.000	Phi	-0.068
No	2,893	1,562	54.0				
Yes	558	250	44.8				
Resilience				483.1(1)	0.000	Phi	0.374
Low (<Mdn)	1,711	576	33.7				
High (>= Mdn)	1,740	1,236	71.0				

Notes: N(good) – Number of participants with good psychological well-being; χ2 – Chi-square statistic; df – Degrees of freedom

good psychological well-being in our study. The education level of PhD was not a statistically significant predictor in any step. In the last model (when the presence of a chronic health condition and resilience were added) also all the other education level subcategories lost their statistically significant predictive power.

4 DISCUSSION

The present study explored psychological well-being among university students in Slovenia during the beginning of the second lockdown (November 2020). The focus of the study was the associations among the demographic

Table 3. Results of the hierarchical binary logistic regression models predicting good psychological well-being.

	Good (vs poor) psychological well-being			
	B	**OR**	**[95% CI]**	**p**
Step 1				
χ2(df)=163.10 (6) ***				
Nagelkerke R^2=0.062				
Gender (Ref = female)	0.51	1.67	1.44-1.95	**0.000**
Age	0.04	1.04	1.02-1.07	**0.001**
Education level (Ref = Bachelor)				**0.037**
Education level - Master	0.19	1.21	1.04-1.41	**0.012**
Education level - PhD	0.29	1.34	0.73-2.45	**0.346**
Subjective social status (Ref=low)				**0.000**
Subjective social status - Medium	0.53	1.70	1.39-2.08	**0.000**
Subjective social status - High	1.08	2.93	2.30-3.73	**0.000**
Step 2				
χ2(df)=176.95 (7) ***				
Nagelkerke R^2=0.067				
Gender (Ref = female)	0.51	1.66	1.42-1.93	**0.000**
Age	0.05	1.05	1.02-1.07	**0.000**
Education level (Ref = Bachelor)				**0.043**
Education level - Master	0.19	1.21	1.04-1.40	**0.014**
Education level – PhD	0.30	1.35	0.73-2.48	**0.334**
SSS (Ref = Low)				**0.000**
SSS - Medium	0.52	1.69	1.38-2.06	**0.000**
SSS - High	1.06	2.89	2.27-3.68	**0.000**
Chronic health condition (Ref = No)	-0.35	0.70	0.58-0.85	**0.000**
Step 3				
χ2(df)=568.91 (8)***				
Nagelkerke R^2=0.203				
Gender (Ref = female)	0.28	1.32	1.12-1.55	**0.001**
Age	0.03	1.03	1.01-1.06	**0.018**
Education level (Ref = Bachelor)				**0.158**
Education level - Master	0.14	1.15	0.98-1.35	**0.090**
Education level - PhD	0.40	1.49	0.78-2.83	**0.225**
SSS (Ref = Low)				**0.000**
SSS - Medium	0.36	1.44	1.16-1.78	**0.001**
SSS - High	0.77	2.16	1.67-2.80	**0.000**
Chronic health condition (Ref = No)	-0.29	0.74	0.61-0.91	**0.004**
Resilience (Ref = Low)	1.45	4.28	3.69-4.96	**0.000**

Notes: Ref – Reference category; *** – p=0.000; χ2 – Chi square statistic; df – Degrees of freedom; B – Unstandardised beta; CI – Confidence interval, OR – Odds ratio

characteristics, presence of a chronic condition, resilience and psychological well-being.

In our study 52% students reported good psychological well-being (WHO>50), which is a little lower compared to the data from the Slovenian survey, where the prevalence of good well-being among young adults (aged 18-29 years) was 54.2% and 56.6% among the general population (18). However, in our study the students' self-reported prevalence of psychological well-being is better than that observed in some other studies carried out abroad, where the prevalence of good psychological well-being among students was reported to range from 27.8% to 34.7% (15-17). Even before the pandemic, the students exhibited poorer mental health in comparison to the general population (4), and recent reports show that the COVID-19 pandemic seemed to have worsened the situation (10-12). Moreover, a study from Slovenia (39) found that the prevalence of flourishing mental health among students was lower during the COVID-19 pandemic (28.5%) as compared to before the pandemic (54.0%).

According to results from the WHO-5 (when considered as a screening measure for depression), for the 48% students in our study who reported poor psychological well-being (scores <=50), further screening for mental health problems (especially depression) would be beneficial.

Our findings regarding the prevalence of depressive symptoms are in line with another similar study conducted in Slovenia, which found that 55% of students had moderate to severe symptoms of depression (19). However, in another study conducted on young adults (20 to 40 years of age) in Slovenia (22) the reported prevalence was lower, namely 26% at baseline and 23% at three-month follow-up. Our study revealed that male, older students, those with higher perceived subjective social status, and students without a chronic health condition were more likely to have good psychological well-being, which is in line with the findings of other studies (16, 18, 40). However, some authors did not find age, gender or education level to be important predictors of well-being (15). Regarding the latter, in our study education (regardless of the level) was also not a significant predictor of psychological well-being once resilience and presence of a chronic condition were added to the model. Interestingly, the subcategory of being a PhD student was not an important predictor of psychological well-being, no matter whether resilience and presence of a chronic health condition were included in the model or not. This may be due to the specific life and study conditions of PhD students (e.g. PhD studies are not organised in an everyday classroom setting, and hence do not represent such an important opportunity for socialising, and many PhD students work full or part time during their studies), as well as the specific characteristics of our sample, where PhD students represented only a very small subgroup.

Of all the included variables, resilience was found to be the strongest predictor of psychological well-being in our study. Individuals with higher resilience were more likely to have higher levels of psychological well-being. Other studies also reported the important protective role of resilience in response to natural disasters (e.g. Hurricane Katrina) (41, 42), as well as in more recent works on resilience and mental health challenges related to COVID-19 (26-29).

Our study has several practical implications. Given the high proportion of students with poor psychological well-being, it would be worthwhile to implement systematic approaches/interventions to target subgroups of students. In particular, it would be important to develop and deliver programmes for enhancing resilience, which, as mentioned earlier, is a strong protective factor in times of adversity. Furthermore, resilience can be viewed as a modifiable trait (43, 44), and indeed a recent meta-analysis supported the use of resilience interventions as a universal prevention strategy among students (45). Since the literature suggests that two thirds of students with mental health problems usually do not seek help (4-6), it is crucial that in the future much more focus is put on the intention to look for such support. This can be pursued via different destigmatizing programmes as well as enhancing mental health literacy (46-47). It is only when students are able to recognise mental health issues and are taught about effective ways to alleviate and manage them that they can take an active part in solving their own problems or seek help from a mental health expert. With regard to seeking help, it is essential to ensure better access to licensed mental health professionals, and in Slovenia the critical shortage of accredited sources of such help is still unresolved, resulting in very long waiting lists for treatment.

Our study has a few limitations that are worth mentioning, mostly related to the sampling procedure. Despite asking all Slovenian faculties to forward invitations to participate to all their students, we had no control as to whether such invitations were indeed sent to all students, and given the low response rate (4.8%) we have reasons to believe that this was not the case. The sample was also largely female (70%) and unweighted, which limits generalisability. The scores were dichotomised, which can result in losing some nuances. Another limitation is the cross-sectional nature of the study, which prevents establishing a causal link between resilience and psychological well-being. Therefore, future research should be longitudinal in nature and explore possible mediating factors between resilience (viewed as a multidimensional construct) and psychological well-being.

Despite these mentioned limitations, our study nevertheless offers important targets for implementation of intervention strategies, as promoting the ability to cope with varying stressors can be adaptive and translate across different contexts.

5 CONCLUSIONS

In 2020 the world was hit by a pandemic, and while every domain of daily living was impacted, individual factors may have played differential roles in each person's adaptation and coping abilities. Most of the existing research (including the work on Slovenian student populations) has focused on the negative consequences of the pandemic. However, our study managed to explore a broader aspect, the psychological well-being of university students and the protective role of resilience in a novel sample, over a very specific period of time. This is important, as resilience can be protective of one's mental health during acute distress, and may also help reduce the burden of other instances of mental distress across one's lifespan.

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CONFLICTS OF INTEREST

None declared.

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ETHICAL APPROVAL

The research was conducted in accordance with Slovenian legislation and with the ethical permission of the Commission of National Institute of Public Health (Decision number 631-99/2019-11 (241).

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