Challenges faced by university students during the COVID-19: An international study in five countries during the early phase of the pandemic

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*T*his study focused on the specific challenges of university students in the face of the COVID-19 pandemic and examined similarities and differences in COVID-related concerns and difficulties in functioning in samples of undergraduate students in five countries. A sample of 4306 undergraduate university students (43.8% males, 56.2% females) from Israel, Kosovo, Ukraine, Cyprus and Germany participated in an anonymous online survey during the first wave of the pandemic, between March and June 2020. Study variables included the assessment of the exposure to COVID-19, perceived health status, specific COVID-related concerns and functional difficulties, social support, and the perceived level of coping. Similar concerns about the uncertainty regarding the termination of the health crisis and worry for the health of family members were identified as the most common concerns in the five countries. Challenges in online learning and financial difficulties were rated as the most central difficulties. Both COVID-related concerns and COVID-related difficulties predicted lower levels of perceived coping. Greater social support was associated with better perceived coping. Policymakers should be informed by the accumulating research showing the substantive relationships between academic difficulties and perceived COVID-related distress and coping.

Keywords: COVID-19; University students; Coping; International.

Universities across the globe closed their campuses soon after the breakout of the COVID-19 pandemic and moved to online teaching, with little preparedness, presenting their students with unprecedented challenges and multiple stressors related to the lockdown and distance learning (Passavanti et al., 2021; Son et al., 2020). Although students populations are often regarded as resilient and resourceful (Schiff et al., 2020), there is a growing international concern regarding the mental health and wellbeing of students in higher education, especially among undergraduate students (Aristovnik et al., 2020; Odriozola-González et al., 2020). Furthermore, there are indications that distress levels of university students have been mounting as the pandemic continues to develop (Husky et al., 2020). A recent prospective, longitudinal, study showed the negative impact of the COVID-19

pandemic on the mental health of UK university students (Savage et al., 2020). A large international survey of over 134,000 college students, from 28 countries, who moved to distant learning during the pandemic, demonstrated that worries about becoming infected were positively related to negative mental health symptoms (Tasso et al., 2021).

Most studies have focused on the assessment of the general level of anxiety and depression associated with the pandemic (e.g., Barzilay et al., 2020; Horesh & Brown, 2020; Salari et al., 2020). Other alarming features of the COVID-19 pandemic-related distress have been documented including increased alcohol consumption (Lechner et al., 2020), sleep disturbances (Huang et al., 2020), loneliness and compromised academic motivation (Tasso et al., 2021). Most studies, however, borrowed standardised measures used in other contexts of stress and trauma with no specific adaptation to the context of the current pandemic.

A recent systematic review by Salari et al. (2020) analysed the prevalence of stress, anxiety and depression among the general population during the COVID-19 pandemic and found that the prevalence of anxiety was 31.9% and depression to be 33.7% (Salari et al., 2020). Young adults were shown to be vulnerable, in the context of COVID-19 to depression, anxiety and PTSD symptomatology both in the US (Liu et al., 2020) and in Israel (Achdut & Refaeli, 2020). Aristovnik et al. (2020) focused specifically on students and conducted a large-scale study, based on a sample of 30,383 students from 62 countries, during the first wave of COVID-19 crisis and worldwide lockdown in early 2020. Results indicated that although most students tended to be satisfied with the support provided by their universities for the transition to online learning, deficient computer skills and the perception of a higher workload prevented them from perceiving their own improved performance in the new teaching environment. In addition, students reported on boredom, anxiety, and frustration.

Less is known, however, about the specific COVID-19-related distress beyond the general anxiety activated in the context of the pandemic. Kleiman et al. (2020) demonstrated, using the smartphone-based ecological momentary assessments of COVID-19-related anxiety, with six times assessments per day, that the proportion of responses each day at the highest levels of anxiety about COVID-19 was seven times greater than the proportion of responses at the highest levels of non-COVID-19-specific anxiety. Among the specific concerns associated with COVID-19-related distress in the face of the pandemic were direct exposure to the disease, and fear of being infected (Schiff et al., 2020), having a relative being infected (Cao et al., 2020), prior exposure to trauma (Płomecka et al., 2020), being in quarantine (Husky et al., 2020), female gender (Zhao et al., 2020), loneliness (Horesh

& Brown, 2020), pre-existing physical health problems (Brooks et al., 2020), and pre-existing psychiatric conditions (Płomecka et al., 2020).

Other studies have focused on identifying a variety of protective factors in the context of COVID-19 such as resilience (Barzilay et al., 2020). Płomecka et al. (2020) found, based on a large international sample that optimism, the ability to share concerns with family and friends and daily exercise predicted fewer psychological symptoms. The centrality of social support for coping during times of stress has been consensually acknowledged in the literature. The crucial importance of social support in the context of COVID-19 for adaptive coping with the pandemic is of special relevance in light of the major toll of the social distance linked to the prevention measures of the health crisis (Saltzman et al., 2020). The role of social support in enhancing the perceived coping of university students from whom the social domain is of a central importance needs further investigation.

The COVID-19 pandemic impacted most countries around the globe and there are specific reports on the impact of the pandemic on students (e.g., Aristovnik et al., 2020; Tasso et al., 2021). Interestingly, the focus has been on multiple individual psychosocial variables that are associated with the responses of students to the pandemic including socio-demographic (e.g., gender), the nature and level of exposure to the pandemic and a variety of risks and protective factors. In contrast, there has been relatively little attention to the larger contexts in which students are embedded. That is, there is a lack of studies comparing students' responses from different countries. While one might expect that vaccinations will have similar effectiveness across many countries, it is very likely that the psychological and functional impact of the pandemic would vary across contexts.

There is ample evidence to suggest that individuals with similar characteristics embedded in different contexts may respond differently (Astor & Benbenishty, 2019; Benbenishty et al., 2005; Zayas et al., 2002). In the context of COVID-19, different countries have experienced the pandemic differently and levels of exposure to the virus varied among them. While some have robust health systems that responded relatively effectively, other countries' systems were overwhelmed. In addition, some countries responded with extreme measures (such as a total lockdown) while others had less restrictions. It is therefore most likely that the students embedded in different higher education systems in different countries may respond differently to the global health crisis due to differences in the various university and governmental policies and services. In light of these differences, the individuals' perceived health status as well as pre-existing physical health conditions (Brooks et al., 2020; Rodríguez-Rey et al., 2020) may be additional risk factors for impaired coping with the COVID-19 challenges.

In the present study, we focused on specific COVID-related measures of risk and protective factors for emotional and/or behavioural distress, based on unique measures that were developed and adjusted to the unprecedented COVID-19-related context. The purpose of this study is to examine the responses of university students to the COVID-19-related context of academic and psycho-social challenges during the early phase of the pandemic, from a cross-national perspective, based on a sample of five different countries. It should be noted that there is not enough prior research to present a priori hypotheses and therefore this study will formulate research questions instead of hypotheses. The research questions were: (1) What are the levels of COVID-19-related concerns and functional difficulties among university students? (2) What are the similarities and differences in among students in five different countries in both the general COVID-19-related concerns and COVID-19-related functional difficulties and (3) What specific risk and protective factors can predict the level of perceived coping with the challenges in the context of COVID-19 in the total sample of students while controlling for the potential effects of different countries.

METHOD

Participants

Participants were recruited from one university in each of the five participating countries (five universities). The total sample included 4306 undergraduate students from Israel ($n = 2714$), Kosovo ($n = 887$), Ukraine ($n = 464$), Cyprus ($n = 133$) and Germany ($n = 108$). The undergraduate students were approached by university officials. In Cyprus, the students were sampled from the psychology department and in Germany, the sample included medical students. The other three universities' samples were recruited from the general student population. All five universities moved to distance learning, employing online teaching methods during the early phase of the pandemic in March–April 2020. Table 1 presents the background characteristics of the different samples.

All procedures performed in studies involving human participants were in accordance with the ethical standards of the five universities ethical committees and with the 1964 Helsinki Declaration and its later amendments or comparable ethical standards.

TABLE 1
Backgrounds characteristic in each country

	Total ($n = 4392$)		Israel ($n = 2714$)		Kosovo ($n = 887$)		Ukraine ($n = 464$)		Cyprus ($n = 133$)		Germany ($n = 108$)		Tests
			n	%	n	%	n	%	n	%	n	%	
Gender													
Male	1871	43.0	970	35.9	757	85.3	68	15.7	38	28.8	33	30.8	$\chi^2_{(4)} = 849.29$,
Female	2478	57.0	1734	64.1	130	14.7	365	84.3	94	71.2	74	69.2	Cramer's $V = .45$, $p < .001$
Age													
Mean		23.5		25.10		20.65*		20.25*,**		23.11*,**,***		22.05*,**,***	$F(4,4191) = 495.50$,
(SD)		(3.86)		(3.51)		(2.28)		(1.64)		(3.04)		(2.99)	$\eta^2 = .32, p < .001$
Contagion % of Population[a]				0.00755%		0.00032%		0.00034%		0.00265%		0.00728%	

[a]New cases (% of population), April 1, 2020, based on: https://coronavirus.jhu.edu/data/cumulative-cases. *Significantly ($p < .001$) different compared to Israel using Bonferroni alpha. **Significantly ($p < .001$) different compared to Kosovo using Bonferroni alpha. ***Significantly ($p < .001$) different compared to Ukraine using Bonferroni alpha.

TABLE 2
Exposure to COVID-19 in each country (n/ %)

	Israel ($n = 2714$)		Kosovo ($n = 887$)		Ukraine ($n = 464$)		Cyprus ($n = 133$)		Germany ($n = 108$)		$\chi^2_{(4)}$
	n	%	n	%	n	%	n	%	n	%	
Was in quarantine due to infection or suspected infection (% of yes)	297	11.0	13	1.5	5	1.1	12	9.1	11	10.2	116.37 Cramer's $V = .16$, $p < .001$
Knows personally a person who was tested positive for COVID	595	21.9	137	15.4	32	6.9	32	24.2	42	38.9	94.16 Cramer's $V = .15$, $p < .001$
A family member/close friend was tested positive for COVID (%)	156	5.8	32	3.6	1	0.2	10	7.6	12	11.1	40.11 Cramer's $V = .10$, $p < .001$

Table 2 presents the exposure rates to COVID-19 in each of the participating countries. Level of exposure differed between countries, 1.1% in Ukraine, 10.2% in Germany and 11.0% in Israel were quarantined due to COVID-19 infection or suspected infection. Almost 7% in Ukraine versus 39% in Germany knew a person who tested positive for COVID. Eleven percent of students in Germany versus only 0.2% of students in Ukraine reported that a family member or close friend was tested positive for COVID-19.

Informed consent was obtained from all individual adult participants included in the study prior to their completion of the research questionnaires. It was done in six different languages (Hebrew, Arabic, Albanian, Ukrainian, Greek and German).

Design and data collection

The collaboration with these five universities from five different countries was based on prior collaborations between the researchers and a shared understanding early on that the pandemic would have major impact on students. This enabled a fast response (within the first weeks of the pandemic) to the international initiative to compare the students' responses in different contexts. Online cross-sectional surveys were conducted at around the same time in each of the participating countries. E-mails with introduction prepared by the authors and a link to the questionnaire were sent by the universities' deans of students or other university official authorities. Following ethical approval by authors' faculty ethic committees in all in each of the five-participating university, data collection took place during the first wave of the pandemic: March 23 to April 26, 2020.

Measurements

The assessment tools were tailored specifically for the context of COVID-19. The measurements were translated and back translated into five languages from the source in English.

Exposure to COVID-19

This instrument was designed by the authors to reflect information particularly relevant to this pandemic. The exposure measure included three questions regarding the direct exposure to the pandemic: (a) "Since the beginning of the COVID-19 pandemic, were you in you in quarantine due to infection or suspected infection?"; (b) "Do you personally know anyone who was *tested positive for COVID-19?*"; and (c) *"*Has anyone from your family or close friends been tested positive for COVID-19?" A total score of direct exposure to COVID (at least once endorsed "yes") was computed.

Perceived health status

One item of the Self-Rated Health Question (SRH; DeSalvo et al., 2006) was used asking "At the present time would you say your physical health is:" and was rated on a 5-point Likert scale (from 1 "poor" to 5 "excellent").

Students' COVID-related concerns

Seven questions were asked, beginning with the statement: "To what extent are you concerned about each of the following things regarding COVID … ". All questions were measured on a 5-point Likert scale ranging from 1 "not worry at all" to 5 "worry very much". Items and their distributions are presented in Table 3. Inter-item reliability (α Cronbach) was high among the total sample (α = 0.82) and ranged between 0.67 (in Germany) and 0.84 (in Kosovo) in the different countries. We constructed a composite scale, averaging all seven items.

COVID-related functional difficulties

Four items were asked: Difficulties with learning, difficulties with using online learning, loneliness and boredom. All items were measured on a 4-point Likert type scale ranging from 1 "do not experience difficulty" to 4 "experience a lot of difficulty." Items and their distributions are presented in Table 4. Inter-item reliability (α Cronbach) in the total sample was acceptable (α Cronbach = 0.69) and ranged between 0.64 (in Israel) and 0.76 (in Kosovo). A composite score of COVID-related functional difficulties was constructed by averaging all four items.

Social support

One question was asked: "How much support do you receive from your surroundings (friends, online friends, parents, significant others, family members, etc.)?" Responses were provided on 10-point scale ranging from 1 "almost no support" to 10 "a lot of support".

Coping

The dependent variable of coping, following the suggestion of Eddy et al. (2019) for a single item measure, was adjusted to the specific context and reflected a global assessment of coping with the COVID-19 pandemic: "Please rate yourself on a scale ranging from 1 to 10 regarding how you feel you are coping with COVID-19 pandemic." Rates ranges from 1 "not coping at all, in crisis" to 10 "coping extremely well."

Data analysis

We presented gender distribution and age descriptive statistics in each of the participating countries. We

TABLE 3
Descriptive statistics of COVID-related concerns and their rank-order in each participating country

	Israel (n = 2714)			Kosovo (n = 887)			Ukraine (n = 464)			Cyprus (n = 133)			Germany (n = 108)			F
	M	SD	Rank	M	SD	Rank	M	SD	Rank	M	SD	Rank	M	SD	Rank	
It is not clear when this state of emergency will end	4.61	0.74	1	4.18*	1.02	1	4.00*	0.98	4	4.36	0.93	1	4.25*	1.01	2	$F(4, 4281) = 79.61$, $\eta^2 = .07$, $p < .001$
The quick spreading of the virus around the world	4.35	0.83	2	4.07*	0.95	3	4.12*	0.90	2	4.29	0.94	2	4.35	0.83	1	$F(4, 4286) = 20.19$, $\eta^2 = .02$, $p < .001$
The restrictions on your daily life due to the COVID-19 virus	4.30	0.87	3	3.70*	1.20	5	3.84*	1.01	5	4.10**	1.03	3	3.77*	1.00	3	$F(4, 4273) = 77.35$, $\eta^2 = .07$, $p < .001$
The growing number of infected people in the country	4.20	0.87	4	3.91*	0.98	4	4.06	0.88	3	3.81*	0.97	5	3.71*	0.91	4	$F(4, 4275) = 27.35$, $\eta^2 = .02$, $p < .001$
There is still no vaccination for the virus	4.06	0.95	5	4.14	1.05	2	4.14	1.01	1	3.87	1.17	4	3.60*,**,***	1.08	5	$F(4, 4273) = 9.01$, $\eta^2 = .01$, $p < .001$
The fact that any person may pass the virus to you	3.92	0.93	6	3.63*	1.05	6	3.54*	0.89	6	3.79	0.96	6	3.27*,**	0.78	6	$F(4, 4293) = 36.06$, $\eta^2 = .03$, $p < .001$
The protective measures (e.g., social distancing, personal hygiene) are not efficient enough	3.76	1.00	7	3.25*	1.17	7	3.34*	1.09	7	3.71**	1.10	7	3.14*,***	0.92	7	$F(4, 4271) = 52.65$, $\eta^2 = .05$, $p < .001$
Total level of concerns (average of all items)	4.17	0.60		3.83*	0.77		3.85*	0.68		4.00b	0.70		3.73*,***	0.54	N/A	$F(4, 4301) = 97.18$, $\eta^2 = .08$, $p < .001$

N/A Not applicable as this is an index of all items. *Significantly ($p < .001$) different compared to Israel using Bonferroni alpha. **Significantly ($p < .001$) different compared to Kosovo using Bonferroni alpha. ***Significantly ($p < .001$) different compared to Ukraine using Bonferroni alpha. ****Significantly ($p < .001$) different compared to Cyprus using Bonferroni alpha.

conducted chi-square tests to examine the significance of differences in gender distribution, and one-way analyses of variance with post-facto comparisons (Bonferroni alpha) and η^2 as an effect size measure to examine the significance of differences in age distribution between the participating countries. We then computed for each of the participating countries the frequency of three types of exposure to COVID-19. We conducted chi-square tests (with Cramer's V as a measure of effect size) to test the differences between the countries in each exposure type. We then computed means and SDs for each of the COVID-related concerns in each of the participating countries. We conducted one-way analysis of variance for each item with post-facto comparisons (Bonferroni alpha) and η^2 as an effect size measure to examine the significance of differences between the participating countries. The concerns were ranked ordered for each country, so that it would be possible to compare the rank order of each concern in the participating countries. The same procedure was applied to functional impairments in each of the countries. In the next step, hierarchical regression analysis was conducted for coping with COVID-19 as the dependent variable. In the first model, coping was predicted by country, presented as four dummy variables with Ukraine serving as the reference group. The second model added background variables- gender (female as a reference) and age. The third added level of exposure to COVID-19 and health status. The fourth model added COVID-related concerns, the fifth COVID-19-related functional difficulties and the sixth and final model added perceived social support.

RESULTS

COVID-related concerns

The level of concerns differed between countries as shown in Table 3. The total level of concerns (index of the seven items) was the highest among Israeli students, who significantly differed from students in Cyprus (mean differences = 0.17, $SE = 0.06$, $p < .05$), Ukraine (mean differences = 0.32, $SE = 0.03$, $p < .001$), Kosovo (mean differences = 0.34, $SE = 0.03$ $p < .001$), and Germany (mean differences = 0.44, $SE = 0.06$, $p < .001$) as was found in post hoc contrast using Bonferroni alpha criteria. Students from Cyprus also experienced greater concerns than students in Germany (mean differences = 0.27, $SE = 0.08$ $p < .001$). The rank order of the seven concerns we asked about, based on the means, was quite similar between countries with the highest rank concern in three countries (Israel, Kosovo and Cyprus) stating "it is not clear when the state of emergency will end" and the second-highest ranked concern (in Israel, Ukraine Cyprus and first ranked concern in Germany) was "the quick spreading of the virus around the world." The two

TABLE 4
Descriptive statistics of COVID-related functional difficulties and their rank-order in each participating country

	Israel (n = 2714)			Kosovo (n = 887)			Ukraine (n = 464)			Cyprus (n = 133)			Germany (n = 108)			F
	M	SD	Rank	M	SD	Rank	M	SD	Rank	M	SD	Rank	M	SD	Rank	
Difficulty with learning	3.02	0.98	1	2.30[a]	1.05	1	2.76[ab]	1.11	1	2.65[a]	1.09	1	2.44[a]	1.03	1	$F(4, 4285) = 87.56$, $\eta^2 = .07, p < .001$
Using online learning	2.80	1.04	2	2.12[a]	1.02	3	2.70[b]	1.12	2	2.30[ac]	1.08	2	1.99[ac]	0.96	2	$F(4, 4275) = 83.50$, $\eta^2 = .07, p < .001$
Loneliness	2.39	1.07	3	1.91[a]	0.97	4	1.99[a]	1.07	4	2.15	1.07	4	1.89[a]	1.01	3	$F(4, 4264) = 45.57$, $\eta^2 = .04, p < .001$
Boredom	2.23	1.07	4	2.27	0.96	2	2.50[ab]	1.15	3	2.27	1.05	3	1.46[ac]	0.74	4	$F(4, 4279) = 21.99$, $\eta^2 = .02, p < .001$
Total (M) difficulties	2.61	0.72	N/A	2.15[a]	0.76	N/A	2.49[b]	0.81	N/A	2.34[a]	0.77	N/A	1.95[abc]	0.66	N/A	$F(4, 4290) = 79.38$, $\eta^2 = .07, p < .001$

[a]Significantly ($p < .001$) different compared to Israel using Bonferroni Alpha. [b]Significantly ($p < .001$) different compared to Kosovo using Bonferroni Alpha. [c]Significantly ($p < .001$) different compared to Ukraine using Bonferroni Alpha.

TABLE 5
Descriptive statistics of variables in the regression

different from Israel	Mean	SD	Median	Skewness	Kurtosis	Shapiro−Wilk
Coping	7.39	2.03	8.00	−0.89	0.45	0.91***
Age	23.48	3.753	23.00	2.508	20.528	0.86***
Health	4.40	0.738	5.00	−1.132	1.071	0.75***
Concern	3.19	0.81	3.29	−0.21	0.08	0.99***
CRD	2.43	0.64	2.43	0.06	−0.52	0.99***
Exposure	1.14	0.29	1.00	2.59	7.49	0.54***
Support	7.91	2.29	8.00	−1.17	0.82	0.85***

***$p < .001$ in test of deviation from normal distribution.

lowest-ranked concerns in all the five countries were: "the fact that any person may pass the virus to you," and "the fact that the protective measures are not efficient enough."

COVID-19-related functional difficulties

Level of difficulties differed between countries as shown in Table 4. The total level of functional difficulties (index of the four items) was the highest among Israeli students, who significantly differed from students in all other countries including Germany (mean differences = 0.66, $SE = 0.07$, $p < .001$), Kosovo (mean differences = 0.46, $SE = 0.03$, $p < .001$), Cyprus (mean differences = 0.27, $SE = 0.07$ $p < .001$), and Ukraine (mean differences = 0.12, $SE = 0.04$, $p < .001$) as was found in post hoc contrast using Bonferroni alpha criteria. Students in Ukraine experienced greater difficulties than students in Germany (mean differences = 0.54, $SE = 0.08$ $p < .001$) and Kosovo (mean differences = 0.34, $SE = 0.04$, $p < .001$). Students in Cyprus experienced greater concerns than students in Germany (mean differences = 0.40, $SE = 0.10$ $p < .001$). The rank order of the four difficulties we asked about, based on the means, was fairly similar between countries with the highest ranked difficulty was in dealing with learning assignments.

Predicting coping with COVID-19

We used hierarchical regression analyses to examine six models explaining variance in coping with COVID-19. In Table 5, we present the relevant descriptive information on the variables in the analysis and Table 6 presents the results.

The total model with all study variables explained 33% of the variance ($F(11,4068) = 181.21, p < .001$). The countries added entered in the first model contributed only 1% to the explained variance and only Kosovo was significantly associated with better coping ($\beta = .09, p < .001$). Gender and age entered in the second model added another 1% to the explained variance. Being a female was inversely associated with coping with COVID-19

($\beta = −.08, p < .01$). Perceived health status and level of exposure to COVID-19 that were added in the third model added 11% to the explained variance. Greater exposure was significantly associated with lower level of coping ($\beta = −.04, p < .05$), and better health status was associated with a higher level of coping ($\beta = .36, p < .001$). COVID-19-related concerns in the fourth model added 7% to the explained variance. A higher level of concerns was associated with a lower level of coping ($\beta = −.28, p < .001$). Functional impairment included in the fifth model added 6 % to the explained variance. A higher level of functional impairment was associated with a lower level of coping ($\beta = −.27, p < .001$). The final model added perceived social support to all other variables entered in previous models. It added 7 % to the explained variance. Greater support was significantly associated with higher level of coping ($\beta = .28, p < .001$). Results are presented in Table 5.

DISCUSSION

Over the last year, since the breakout of COVID-19, hundreds of studies were published documenting the pandemic's associated distress among different populations. However, more specific knowledge is needed, regarding the unique needs and responses of at risk populations to tailor effective services for support. The emotional burden of the pandemic on university students has been getting increased attention (Tasso et al., 2021). A recent survey administered online of nearly 33,000 college students across the US during the fall 2020 semester indicated that half of the students reported on depression and/or anxiety (Healthy Minds Network, 2021).

The present study presented an international perspective of the responses and needs of undergraduate university students in the initial phase of the COVID-19 pandemic. We approached this cross-national survey, during the early phase of the pandemic and with no a priori hypotheses regarding potential cross-cultural differences in the specific concerns, functional difficulties and coping among undergraduate university students.

TABLE 6
Hierarchical regression results analysis for coping

Variable	B	95% CI for B		SE B	β	R^2	ΔR^2
		LL	UL				
Step 1						0.8	0.8
Constant	7.33***	7.14	7.52	0.10			
Israel	−0.05	−0.25	0.15	0.10	−0.01		
Cyprus	0.11	−0.29	0.51	0.20	0.01		
Germany	0.13	−0.30	0.56	0.22	0.01		
Kosovo	0.42***	0.19	0.65	0.12	0.08***		
Step 2						1.6	0.8
Constant	7.66***	7.12	8.20	0.28			
Israel	−0.19	−0.42	0.03	0.11	−0.05		
Cyprus	0.02	−0.38	0.42	0.20	0.00		
Germany	0.06	−0.37	0.49		0.00		
Kosovo	0.17	−0.08	0.42		0.03		
Age	0.02	0.00	0.04		0.03		
Gender (female)	−0.36***	−0.50	−0.22		−0.09***		
Step 3						12.6	11.0
Constant	3.70***	3.09	4.32				
Israel	−0.51***	−0.72	−0.30		−0.12***		
Cyprus	0.40	0.02	0.78		0.03		
Germany	0.11	−0.30	0.51		0.01		
Kosovo	−0.33**	−0.57	−0.10		−0.07**		
Age	0.01	0.00	0.03		0.03		
Gender (female)	−0.26***	−0.39	−0.13		−0.06***		
Health Status	0.95***	0.86	1.03	0.04	0.34***		
Exposure to COVID-19	−0.23**	−0.40	−0.06	0.09	−0.04**		
Step 4						19.1	6.5
Constant	5.96***	5.32	6.60	0.33			
Israel	−0.13	−0.34	0.08	0.11	−0.03		
Cyprus	0.52**	0.15	0.88	0.19	0.04**		
Germany	0.01	−0.38	0.41	0.20	0.00		
Kosovo	−0.23	−0.46	0.00	0.12	−0.04		
Age	0.01	−0.01	0.03	0.01	0.01		
Gender (female)	−0.06	−0.19	0.07	0.07	−0.02		
Health status	0.83***	0.75	0.91	0.04	0.30***		
Exposure to Covid	−0.16	−0.33	0.00	0.08	−0.03		
Covid-related concerns	−0.68***	−0.76	−0.61	0.04	−0.27***		
Step 5						26.6	7.5
Constant	8.64***	7.98	9.31	0.34			
Israel	−0.06	−0.26	0.14	0.10	−0.01		
Cyprus	0.17	−0.17	0.52	0.18	0.01		
Germany	−0.66***	−1.04	−0.28	0.19	−0.05		
Kosovo	−0.40***	−0.62	−0.18	0.11	−0.08		
Age	0.00	−0.02	0.01	0.01	−0.01		
Gender (female)	−0.03	−0.15	0.09	0.06	−0.01		
Health status	0.63***	0.55	0.71	0.04	0.23***		
Exposure to Covid	−0.11	−0.27	0.05	0.08	−0.02		
Covid-related concerns	−0.39***	−0.46	−0.31	0.04	−0.16***		
Covid-related difficulties	−1.04***	−1.14	−0.94	0.05	−0.33***		
Step 6						33.0	6.4
Constant	6.55***	5.88	7.21	0.34			
Israel	0.14	−0.05	0.33	0.10	0.03		
Cyprus	0.39*	0.06	0.73	0.17	0.03*		
Germany	−0.44*	−0.80	−0.07	0.19	−0.03*		
Kosovo	−0.31	−0.52	−0.10	0.11	−0.06		
Age	0.01	−0.01	0.02	0.01	0.01		
Gender (female)	−0.12*	−0.24	0.00	0.06	−0.03*		
Health status	0.52***	0.44	0.59	0.04	0.19***		
Exposure to Covid	−0.09	−0.24	0.06	0.08	−0.02		
Covid-related concerns	−0.43***	−0.50	−0.35	0.04	−0.17***		
Covid-related difficulties	−0.82***	−0.91	−0.72	0.05	−0.26***		
Support	0.25***	0.22	0.27	0.01	0.27***		

Note: CI = confidence interval; LL = lower limit; UL = upper limit. *p < .05. **p < .01. ***p < .001.

The results showed similarities in the level of importance of COVID-19-related concerns among university students from different countries. In four countries (except the Ukraine), the two top-rated concerns included the uncertainty regarding the potential termination of the state of emergency or the worry regarding the quick spreading of the virus around the world. In the Ukraine and Kosovo, the concern for the lack of vaccine, at that stage, was rated as the first or the second worry. The least worrisome elements of the pandemic were also similar in all countries and focused on the fact that any person may pass the virus (rated as six in all five countries) and the specific concern that the recommended protective measures may not be effective (rated at the bottom in all countries). These similar combinations of concerns reflect the common perceptions of the unprecedented pandemic and the current universal experience of a sharp sense of uncertainty embedded in this novel international threat that has derailed normal life around the world.

More striking was the similarities of the ratings of the top functional difficulties associated with the COVID-19 pandemic among students from all five countries. The difficulty with learning was rated as the main difficulty in functioning in all sites, followed by the use of online learning. Boredom and loneliness were rated at the bottom (as third or fourth source for difficulties) by students from all countries, except for in Kosovo where boredom stood out as the second most important difficulty. The similarity in ranking of the COVID-19-related difficulties experienced by students from different European countries, beyond differences in culture and policy, point to the urgent need for screening of both academic and psychological distress among university students and for the development of effective measures to address these issues.

Most often, mental health problems such as anxiety and depression were placed at the centre of public health concern (Salari et al., 2020). However, the more specific functional impairment in academic learning and the specific COVID-19-related concerns and difficulties may impair the emotional and cognitive availability for learning. The results of the present study focused on coping with the specific COVID-19-related challenges. It showed that in a large sample, based on five different countries, the main risk factors of impaired coping among university students were not the differences between the countries, nor the level of exposure, age and gender. Rather, the main risk factors for impaired coping among university students were their perceived health vulnerabilities and their specific COVID-19-related concerns and functional difficulties. The results point to the need to incorporate the perceived health status, among these young group of students, in screening measures for identifying those university students in need of support services.

In addition, we examined the protective role of social support and found it to be a central factor predicting perceived coping with the pandemic, over and beyond all risk factors. This is consistent with the trauma and resilience literature which highlights the role of social support as the most effective protective factors (Horesh & Brown, 2020) and with the accumulating evidence in the context of COVID -19 substantiate it further (Saltzman et al., 2020; Sokal et al., 2020). The centrality and essentiality of social support is recognised in the mass trauma literature and recognised as one of the five essential components needed after trauma to enhance the community resilience and recovery. Hobfoll, together with 19 international leading trauma experts has published a guideline paper on "Five Essential Elements of Immediate and Mid-Term Mass Trauma Intervention: Empirical Evidence" among them highlighting the importance of the sense of community efficacy and connectedness (Hobfoll et al., 2007).

It should be noted that our results are consistent with other studies that focused on higher education students who indicated increased stress and anxiety due to the COVID-19 outbreak (e.g., Son et al., 2020) and increased concerns associated with online learning and academic performance (Abdulghani et al., 2020; Baloran, 2020; Son et al., 2020) and all pointed to the need to address the pandemic related mental health problems. Noteworthy, college students were found to possess sufficient knowledge and high-risk perceptions and tended to be satisfied with the governments' policy regarding the health crisis (Baloran, 2020).

The common and unique aspects of the consequences of the pandemic on different countries and cultures is yet to be researched. Cultural, national, economic, governmental policy, social and medical system, media coverage media-related stress are likely to interact in synergy in impacting coping with the health crisis.

Limitations and future directions

The strength of the sampling method, using the formal university authorities (most often the dean of students' affairs) to approach all undergraduate students was compromised by the vast differences in sample sizes and response rate among the different universities.

There are several limitations to this international study that should be noted. First, the main limitation of the study is the use of a single-factor measure, which was adapted to the unprecedented context of COVID-19. The reliability and utility of this variable need to be further tested. Furthermore, this cross-sectional data is based solely on self-report data at one point in time. Future studies need to explore the combination of self-report and other types of data using longitudinal designs. Another limitation pertains to the cultural differences that might exist with regards to the different way if interpreting the concerns and difficulties that were developed for the specific context of COVID-19. Furthermore, the surveys were conducted in the early phase of the pandemic and provided

limited insights to this acute phase of coping with the global crisis. No doubt, there is a need for future studies that will follow the assessments over time to better understand the impact of the pandemic on students' difficulties and academic impairments. The integration of methods including international validated questionnaires for general assessment of emotional distress, along with specific tools designed for the current pandemic can provide a more nuance understanding of the universal and specific needs of university students during this unprecedented time.

It should be noted that the present study was exploratory in nature, and no specific hypotheses were formulated regarding the moderating role of the country of origin on the various associations tested. In addition, our design did not allow the exploration of the effects of the different compositions of the samples in the participating countries due to the fact that they were different in many characteristics and we had no control groups. This should be further explored in future research that will pose specific hypotheses based on solid theoretical and empirical grounds and large enough samples in each of the participating countries.

More research needs to be performed on the patterns of change and stability in keeping safe behaviour and the adherence to the regulation including the current vaccination phase of the pandemic. In addition, the tendency to spread fake news and conspiracy theories may add another layer to the international similarities and differences. Taken together, all these aspects may provide a clearer picture on cross-national coping with COVID-19 that can be for preparedness for future global crises.

Implications

The adoption of trauma-informed perspective was highlighted by Horesh and Brown (2020), soon after the breakout of the pandemic and pointed to the need to provide services for students in need of help. Policy makers in higher education should be informed by the accumulating research findings showing positive relationships between academic frustrations and mental health symptoms (Tasso et al., 2021), in their planning and implementation of services and aids for university students. The universal characteristics of students, from different countries with different cultural background and different policies, can provide additional insights and perspectives for such interventions.

Higher education institutions can play a fundamental role in assisting students to cope with a variety of mental health difficulties and should provide psychological services, either face to face or remotely using innovative modules of telemedicine (Sundarasen et al., 2020). International efforts should target strategic planning and coordination comprehensive crisis prevention and

psychological aid for students during major disasters. These efforts should include epidemiological monitoring, screening, referral and targeted intervention as part of comprehensive prevention and reduction of mental health distress. Public health interventions should be informed by the research on effective coping strategies in the context of the pandemic. As suggested by Skapinakis et al. (2020), the efforts to increase the sense of personal control and to disseminate practical approaches towards the reduction of risk may be more effective in preventing emotional distress and increasing the compliance to the imposed restrictions and regulations. In addition, universities need to re-examine and revise their curricula and assessment methods for the online teaching remotely (Sundarasen et al., 2020) in the context of COVID-19 as well as during other global crisis and trauma. The current task of higher education is to develop a continuity of services aimed at both supporting the online learning together with providing a wide range of mental health services and opportunities for interpersonal contacts with students and teachers to increase support for students struggling with COVID-related concerns. Furthermore, the findings suggest that universities should address students differently. For instance, by identifying students who have difficulties in learning under the new circumstances, and especially students who report having difficulties in online learning. These students face more serious difficulties in coping and therefore need to get special attention from the university authorities.

DATA AVAILABILITY STATEMENT

As the data includes information from multiple academic institutions, some of which have not consented to data sharing, the data is not available. The corresponding author can be contacted for further information regarding the data.

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