Online Education during Lockdowns: Comparing its Impact on Physical and Psychological Wellbeing, in University Faculty and Students

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Abstract

This paper examines the academic community in Cyprus and Greece, during the Covid-19 lockdowns, when Universities shifted to online education. Daily routine, mental health (anxiety and depression), physical health (pain) and quality of life were measured. Cross-comparisons were performed (before vs. during lockdown or based on socio-demographic characteristics). Interesting results were obtained. There was an overall increase in hours spent sitting and sleeping. Students slept significantly more than faculty and faculty worked for longer hours with fewer breaks. Students were more negatively affected psychologically compared to faculty, whereas females were more negatively affected, both physically and mentally. Since the pandemic continues, working from home remains a solution in many cases, while distance learning has been shown to be efficient, with Universities adopting it as an alternative method in their programmes. Proper training should aim to protect the mental and physical health of the University community during remote work or work under stressful conditions.

Keywords: online learning, Covid-19 pandemic, mental health, quality of life, pain

Background of the Study

Two years have passed since the World Health Organization (WHO) declared the Covid-19 outbreak as a public health emergency of international concern and the first cases of Covid-19 were recorded in Europe, including Cyprus and Greece, in March 2020. The Covid-19 pandemic has resulted in repeated and alternate periods of lockdowns and restrictions worldwide. Two years later, the pandemic is still within the community. As a consequence, working from home is also still a necessary solution

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that enables a continuation of output in various sectors. However, when the pandemic started, people from different occupations, including the education sector, did not have great experience with working remotely[5].

Sudden changes in daily life and work routine of people can inevitably impact physical and mental wellbeing. Studies during the pandemic have reported sleep disturbances, pain due to prolonged sitting during working from home, reduced physical activity, as well as psychological distress (e.g., anxiety, depression), among various populations[6] [7] [8].

With the first lockdown and closures of establishments, Universities were required to rapidly change their teaching modes of delivery, from face-to-face to online. Online learning has proved to be a necessity during lockdowns and generally in the current era of the Covid-19 pandemic. However, remote working during lockdowns indirectly forced University faculty and students into adopting a sedentary lifestyle, with increased inactivity and reduced exercise. In addition, online education was applied in many cases without enough time for preparation or training, potentially increasing psychological distress.

Many studies before the pandemic had shown that University students constitute a vulnerable group and experience stress and anxiety during their studies[9] [10]. It is thus of great interest to examine how the pandemic has affected University students, both physically and mentally. On the other hand, University faculty have also been experiencing unprecedented changes in work conditions. Empirical evidence showed that

[5] Amit Kramer & Karen Z. Kramer, 'The Potential Impact of the Covid-19 Pandemic on Occupational Status, Work from Home, and Occupational Mobility' (2020), 119 *Journal of Vocational Behavior* 103442.

[6] Piya Majumdar, Ankita Biswas & Subhashis Sahu, 'COVID-19 Pandemic and Lockdown: Cause of Sleep Disruption, Depression, Somatic Pain, and Increased Screen Exposure of Office Workers and Students of India' (2020), 37(8) *Chronobiology International* 1191.

[7] Jacob Meyer & al., 'Joint Prevalence of Physical Activity and Sitting Time during COVID-19 among US Adults in April 2020' (2020), 20 *Preventive Medicine Reports* 101256.

[8] Cristina Mazza & al., 'Nationwide Survey of Psychological Distress among Italian People during the COVID-19 Pandemic: Immediate Psychological Responses and Associated Factors' (2020), 17(9) *International Journal of Environmental Research and Public Health* 3165.

[9] Hellen M. Stallman, 'Psychological Distress in University Students: A Comparison with General Population Data' (2010), 45 *Australian Psychologist* 249.

[10] Nasser M. Al-Daghri & al., 'Perceived Stress Scores among Saudi Students Entering Universities: A Prospective Study during the First year of University Life' (2014), 11 *International Journal of Environmental Research and Public Health* 3972.

their mean levels of anxiety and depression during lockdowns and related e-learning periods were twice the relevant mean scores of the general population[11] [12].

Undoubtedly, teaching and learning have benefitted from digital transformation during the pandemic, worldwide. Has this technological convenience been accompanied by any health burdens? The aim of the present study was to investigate the impact of the first lockdown period on the daily habits, physical and mental health, as well as general quality of life in the University community in Cyprus and Greece, focusing on cross-comparisons between faculty and students.

Methodology

Design

A cross-sectional survey was conducted. The questionnaire was self-completed, distributed in Cyprus and Greece via University email lists, using a snowball sampling method. Participants were adults, University students or faculty. The data collection was between the fourth week of University closures and two weeks after full countries' lockdown. The study obtained approval by the National Bioethics Committee of Cyprus (Approval Number: ΕΕΒΚ ΕΠ 2020.01.92). Completion and submission of the electronic questionnaire was considered informed consent.

Research Instruments

The questionnaire included five parts:

(1) Socio-Demographic characteristics;

(2) Daily routine (before and during lockdown), including sleep and working routine, hours spent resting or sitting, smoking and drinking habits;

(3) McGill Pain Questionnaire (Short-Form) (SF-MPQ), to measure pain prevalence and intensity: SF-MPQ is a valid and reliable scale, translated in more than 15 languages, and has been widely used to assess pain[13] [14]. The present study used

[11] Christina Maria Van Der Feltz-Cornelis & al., 'Workplace Stress, Presenteeism, Absenteeism, and Resilience amongst University Staff and Students in the COVID-19 Lockdown' (2020), 11 *Frontiers in Psychiatry* 588803.

[12] Konrad Kulikowski, Sylwia Przytuła & Lukasz Sulkowski, 'E-learning? Never again! On the Unintended Consequences of COVID-19 Forced E-learning on Academic Teacher Motivational Job Characteristics' (2022). 76 *Higher Education Quarterly* 174.

[13] Ronald Melzack & Joel Katz, 'Pain Measurement in Persons in Pain' in Patrick D Wall & Ronald Melzack (eds), *Textbook of Pain* (3rd edition) (Edinburgh: Churchill Livingstone, 1994) 337.

[14] Lynn R Gauthier & al., 'Validation of the Short-Form McGill Pain Questionnaire-2 in Younger and Older People with Cancer Pain' (2014), 15(7) *Journal of Pain* 756.

the Greek version of the SF-MPQ[15]. The scale consists of 15 descriptive adjectives measuring pain sensation (Pain Rating Index, PRI), where eleven are Sensory and four are Affective items. They are self-rated by the respondents according to their intensity level, on a 4-point rating scale (0=none, 1=mild, 2=moderate, 3=severe). Both the sensory score (S-PRI) and the affective score (A-PRI) are calculated by adding the sensory and affective intensity items respectively. The total score (Total-PRI) is the sum of all 15 intensity items. A visual analogue scale (VAS_week) was included to describe the average pain intensity (0=no pain to 100=worst possible pain), during the previous week (i.e. during lockdown);

(4) Hospital Anxiety and Depression Scale (HADS), to assess mental health: HADS is a 14-item self-completed scale, which measures both anxiety and depression, using seven items for each, on a 4-point Likert scale ranging from 0 (not at all) to 3 (most of the time). It has been widely used, translated into many languages and has been shown to have good psychometric properties[16] [17]. The total HADS score is the sum of the 14 items (ranging from 0 to 42) and for each subscale (HADS-anxiety and HADS-depression) the score is the sum of the respective seven items (ranging from 0–21). High scores on the scales/subscales show high levels of anxiety or depression. The following cutoff points have been used in literature for each subscale: 0-7=Normal, 8-10=Borderline abnormal (borderline case) and 11-21=Abnormal (case)[18];

(5) Quality of Life: The EQ-5D-5L questionnaire was used to assess health status and quality of life. It is a reliable and valid measure used in various health settings and translated in many different languages[19] [20]. EQ-5D-5L assesses health in five different dimensions, namely Mobility, Self-Care, Usual Activities, Pain/Discomfort and Anxiety/Depression, rated on a scale of 1-5, where 1=no problems and

[15] George Georgoudis, Jacqueline A. Oldham & Paul Watson, 'The Development and Validation of a Greek Version of the Short-Form McGill Pain Questionnaire' (2000), 4(3) *European Journal of Pain* 275

[16] Christine Bocéréan & Emilie Dupret, 'A validation study of the Hospital Anxiety and Depression Scale (HADS) in a large sample of French employees' (2014) 16(14) *BMC Psychiatry* 354.

[17] Ingvar Bjelland & al., 'The validity of the Hospital Anxiety and Depression Scale. An updated literature review' (2002) 52(2) *Journal of Psychosomatic Research* 69.

[18] Ibid.

[19] Dominik Golicki & al., 'Interim EQ-5D-5L Value Set for Poland: First Crosswalk Value Set in Central and Eastern Europe' (2014) 4 *Value in Health Regional Issues* 19.

[20] Gimena Hernandez & al., 'EuroQol (EQ-5D-5L) Validity in Assessing the Quality of Life in Adults With Asthma: Cross-Sectional Study' (2019) 21(1) *Journal of Medical Internet Research* e10178.

5=extreme problems/unable to do. A descriptive profile is given from the first part of the questionnaire, using a five-digit code, according to the rating in each item. A health state index score (EQ-score) is calculated from individual health profiles using the EQ-5D-5L value set, based on the appropriate weight values and scoring[21].

Statistical Analysis

Descriptive statistics were first obtained. Normality tests (Kolmogorov-Smirnov) were used to examine the distribution of numerical scales. Non-normality was indicated for all variables ($p<5\%$). Various tests were implemented for the comparisons, including Wilcoxon signed rank tests, Mann-Whitney U tests, Spearman's rho coefficients and Chi-square tests of independence. Reliability analysis for the scales of interest was done. All the analyses were performed using the statistical software SPSS, Version 25.0.

Results

Socio-demographic Characteristics

A total of 308 respondents were included in the final sample. Most participants were University students and the majority of them were from Cyprus.

Table 1 presents the descriptives for the main socio-demographic characteristics of the sample. (see next page)

Daily Routine

Results in Table 2 indicate significant differences before and during lockdown, as well as between students and faculty.

Both students and faculty significantly increased their hours of sleep during the lockdown; students would generally sleep for more hours compared to faculty. In addition, both groups significantly increased their sitting hours during lockdown. For example, 22% of students would sit for more than ten hours before the lockdown, compared to 52% during the lockdown. Similarly, only 29% of faculty would sit for more than ten hours before, compared to 47% during the lockdown.

Students significantly decreased consumption of alcohol during the lockdown ($p<0.001$). They would also drink less compared to faculty during the lockdown, as opposed to no significant differences before the lockdown. Faculty significantly in-

[21] Nancy J Devlin & al., 'Valuing health-related quality of life: An EQ-5D-5L value set for England' (2018) 27(1) *Health Economics* 7.

Table 1. Sample socio-demographic characteristics

Variables	Total sample (N=308)	University Students (N=217 - 70.5%)	University Faculty (N=91 - 29.5%)
Age (in years)	M=28.8 (SD=11.06)	M=23.0 (SD=4.6)	M=42.8 (SD=9.4)
	F (%)	F (%) (N=217)	F (%) (N=91)
Gender			
Male	105 (34.1%)	69 (31.8%)	36 (39.6%)
Female	203 (65.9%)	148 (68.2%)	55 (60.4%)
Country during lockdown			
Cyprus	178 (57.8%)	110 (50.7%)	68 (74.7%)
Greece	130 (42.2%)	107 (49.3%)	23 (25.3%)
Marital status			
Single	206 (66.9%)	180 (82.9%)	26 (28.6%)
Married	63 (20.5%)	8 (3.7%)	55 (60.4%)
Other	39 (12.6%)	29 (13.4%)	10 (11.0%)
Type of University			
Private	140 (45.5%)	82 (37.8%)	58 (63.7%)
Public	168 (54.5%)	135 (62.2%)	33 (36.3%)
Year of study			
1st year		40 (18.5%)	
2nd year		45 (20.8%)	
3rd year		48 (22.2%)	
4th year		48 (22.2%)	
More than 4 years		35 (16.2%)	
Years of work			
<5 years experience			33 (35.9%)
5-10 years			26 (28.3%)
15-20 years			19 (20.7%)
> 20 years			15.2%)

creased consumption of caffeine during the lockdown. Students consumed less caffeine compared to faculty, before and during lockdown.

A significantly higher percentage of faculty experienced working routine changes, compared to students (89% vs. 75% respectively). Among those with a working routine change, faculty reported significantly more than students working more hours or not having regular breaks during lockdown compared to before, while students reported working fewer hours compared to before lockdown or having breaks more often. Most respondents had body energy reduction, while academics had significantly higher levels of energy reduction compared to students (p=0.008).

Additional results (not in table) showed significant gender differences in terms of body energy reduction, where females had higher levels of body energy reduction compared to males during the lockdown (p=0.046). For example, 46% of females reported extreme reduction of energy, compared to 33% of males. When comparing the two countries between them, no significant differences in daily habits were generally found, with the only difference being that respondents in Greece slept for more hours during the lockdown compared to Cyprus (p<0.001): 40% of respondents in Greece slept between eight to ten hours, compared with only 24% in Cyprus; 16% in Greece slept more than ten hours, compared with 8% in Cyprus; 44% in Greece slept for less than eight hours, compared with as high as 67% in Cyprus.

Table 2. Daily habits and working routine of students and faculty: comparisons within groups (before-during lockdown; Wilcoxon signed ranks test) and between groups (students vs. faculty; Chi square test).

	University Students (n=217)			**University Faculty (n=91)**			Students vs. Faculty
Variables	Before lockdown %	During lockdown %	Before vs. During p	Before lockdown %	During lockdown %	Before vs. During p	p
Hours sleeping							
< 6 hours	12.9%	7.4%		18.7%	15.4%		Before:
6-8 hours	63.1%	40.1%	p<0.001**	72.5%	68.1%	p=0.011*	p=0.016*
8-10 hours	22.1%	37.3%		8.8%	14.3%		During:
> 10 hours	1.8%	15.2%		0.0%	2.2%		p<0.001**
Hours sitting							
< 6 hours	30.9%	8.8%		27.5%	11.0%		Before:
6-8 hours	30.9%	22.1%		29.7%	23.1%		p=0.498
8-10 hours	15.7%	17.1%	p<0.001**	14.3%	18.7%	p<0.001**	
10-12 hours	10.1%	20.3%		14.3%	18.7%		During:
> 12 hours	12.4%	31.8%		14.3%	28.6%		p=0.959

Alcoholic drinks (weekly)							
None	36.4%	62.2%		33.0%	49.5%		Before:
1-2 gl./week	39.6%	24.9%		39.6%	24.2%		p=0.406
3-4 gl./week	14.3%	7.4%	p<0.001**	19.8%	17.6%	p=0.085	
5-6 gl./week	6.9%	1.8%		7.7%	7.7%		During:
>6 gl./week	2.8%	3.7%		0.0%	1.1%		p=0.003**
Caffeinated drinks (daily)							
None	17.1%	18.9%		7.7%	8.8%		Before:
1-2	56.2%	48.8%	p=0.140	50.5%	44.0%	p=0.029*	p=0.030*
2-4	25.3%	29.0%		39.6%	39.6%		During:
> 5	1.4%	3.2%		2.2%	7.7%		p=0.024*
Smoking before lockdown							
Yes	23%	_	_	19.8%	_	_	p=0.529
No	77%			80.2%			
If yes, increased smoking during lockdown?							
Yes, extremely	5.9%			15.0%			
Yes, a lot	7.8%			0.0%			
Yes, a little	27.5%			40.0%			
The same	13.7%		_	25.0%		_	p=0.127
No, I reduced:	45.1%			20.0%			
Working routine change							
Yes	75.1%			89.0%			
No	24.9%		-	11.0%			p=0.006**
If yes, how:							
Work more hours	24.3%			62.5%			p<0.001**
No frequent breaks	16.4%			33.8%			p=0.003**
Work fewer hours	42.1%		-	15.0%			p<0.001**
More frequent breaks	35.5%			15.0%			p=0.001**
Body energy reduction							
Yes, extremely	38.2%			50.5%			
Yes, moderately	26.7%			11.0%			p=0.008**
Yes, a little	35.0%			38.5%			
Not at all	0.0%			0.0%			

*Difference is significant at 5% level. ** Difference is significant at 1% level.

Pain Levels

Among the 308 participants, 143 (46.4%) reported experiencing pain during lockdown and thus completed the SF-MPQ. Cronbach's alpha values were 0.815 for the Total-PRI, 0.747 for S-PRI and 0.791 for A-PRI, showing high internal consistency and reliability. In general, pain intensity was reported at rather low to moderate levels for all SF-MPQ scales. Total-PRI had a mean of 9.45, S-PRI a mean of 7.24, A-PRI a mean of 2.20 and VAS a mean of 16.64.

Table 3 shows the results on pain. Significant gender differences were identified in terms of pain, with females having higher pain intensity compared to males in all SF-MPQ scales, as well as differences between countries, with people from Cyprus reporting higher level in A_PRI and VAS, compared to Greece. No significant differences existed between faculty and students, or between ages.

Table 3. Pain measurements: cross-comparisons between demographic groups (Mann-Whitney U tests for gender, country, status; Spearman's rho for age)

	S_PRI			A_PRI			Total_PRI			VAS_week		
	Mean	Mean rank	p	Mean	Mean rank	p	Mean	Mean rank	p	Mean	Mean rank	p
Gender												
Male	3.73	18.77	0.010**	0.45	19.91	0.011**	4.18	16.27	0.003**	13.91	53.72	0.007**
Female	8.00	34.25		2.57	35.11		10.63	33.69		17.44	75.47	
Country												
Cyprus	8.41	34.53	0.137	2.87	36.55	0.045*	11.14	33.09	0.188	19.55	75.02	0.045*
Greece	6.25	27.80		1.44	27.59		7.87	27.21		12.71	61.16	
Status												
Student	7.35	32.63	0.361	2.12	30.98	0.243	9.64	31.09	0.621	14.96	68.88	0.475
Faculty	6.86	27.64		2.44	37.06		8.77	28.38		20.42	74.16	
Age	rho=-0.117		0.365	rho=-0.013		0.919	rho=-0.121		0.357	rho=-0.031		0.717

*Significant differences at the 5% level. **Significant differences at the 1% level.

Anxiety and Depression

HADS was completed by all participants. Reliability was satisfactory with Cronbach's alpha at 0.876 for the total HADS, 0.868 for the Anxiety scale and 0.765 for Depression scale. The mean levels of depression and anxiety were rather low, with HADS mean of mean 12.63, Anxiety mean 6.11 and Depression mean 6.52. Cross-comparisons were

performed. Results showed that University students had higher levels of both anxiety and depression compared to faculty during the lockdown. Similarly, females had higher levels of anxiety and depression. Finally, a significant negative relation existed between age and HADS scales, indicating that higher age relates with lower depression and anxiety. The results on anxiety and depression appear in Table 4.

Table 4: Anxiety, depression and quality of life: cross-comparisons between demographic groups (Mann-Whitney U tests for gender, country, status; Spearman's rho for age)

	HADS			HADS-Anxiety			HADS-Depression			EQ-5D-5L INDEX		
	Mean	Mean rank	p	Mean	Mean rank	p	Mean	Mean rank	p	Mean	Mean rank	p
Gender												
Male	10.59	128.75	<0.001**	4.83	128.60	<0.001**	5.76	134.59	0.005**	0.90	190.11	<0.001**
Female	13.68	167.82		6.77	167.89		6.91	164.80		0.84	136.08	
Country												
Cyprus	12.79	156.02	0.478	6.15	155.24	0.598	6.64	156.06	0.471	0.86	146.42	0.119
Greece	12.28	148.76		5.99	149.85		6.28	148.71		0.87	162.23	
Status												
Student	13.81	168.89	<0.001**	6.68	166.41	<0.001**	7.12	168.62	<0.001**	0.86	147.96	0.044*
Faculty	9.82	120.18		4.75	126.11		5.08	120.84		0.88	170.10	
Age	rho= -0.233		<0.001**	rho= -0.204		<0.001**	rho= -0.227		<0.001**	rho=0.110		0.054

*Significant at 5% level. ** Significant at 1% level.

Quality of Life

The EQ-score was calculated from individual health profiles, using the EQ-5D-5L value set. EQ-score ranged from 0.132 to 1.00, with a mean of 0.863 (SD=0.134) and a median of 0.134. It was examined if there are significant differences in EQ-index in terms of personal characteristics (α=0.05). The results showed significant gender differences, where males had on average significantly higher EQ values (better quality of life) compared to females during the lockdown. In addition, faculty had, on average, significantly higher EQ values compared to students, during lockdown. No significant differences existed in relation to country during lockdown, while marginally significant differences existed in relation to age (at α=0.1), with higher ages having higher levels in quality of life. Table 4 has details of the quality of life comparisons.

Discussion

The change from face-to-face to online education during the pandemic has reconfigured the routine of University faculty and students worldwide. The present study has shed light to the effects of lockdown on the University community in Cyprus and Greece.

To begin with, daily habits changed during the lockdown. Students decreased alcohol consumption and they also consumed less alcohol compared to faculty. Studies before the pandemic report up to two in three University students drinking, with half of them occasionally getting drunk, and with social reasons being the main drinking motive[22] [23]. The decrease in alcohol consumption during the lockdown for students may be due to the fact that the social reasons associated with drinking before lockdown could not apply during the restrictive measures that prohibited gatherings and with bars being closed. University faculty, on the other hand, significantly increased caffeine consumption during lockdown. An association between caffeine intake and weekly work hours had been previously indicated in literature[24]. Since the present study found an increase in working hours for faculty during the lockdown, the increase in caffeine intake agrees with this relation.

Based on our study, both faculty and students had a significant change in work routine, however, faculty with a significantly higher prevalence. In addition, significant differences existed in the type of change, with faculty reporting 'working for more hours during the lockdown' and 'having no frequent breaks' at a significantly higher rate compared to students, as opposed to students who reported 'working for fewer hours during the lockdown' and 'having more frequent breaks'. Longer work hours was a consequence of faculty having to cope with the sudden shift of their face-to-face teaching to the preparation of online material and teleconferencing/online sessions or faculty meetings, with many having to use technology they were not familiar with. Students, on the contrary, were able to have more breaks during online classes compared to being in a classroom, especially if they were not obliged to turn on their cameras.

[22] Carmen Aceijas & al., 'Determinants of Health-Related Lifestyles among University Students' (2017) 137(4) *Perspectives in Public Health* 227.

[23] Marie-Pierre Tavolacci & al., 'Prevalence of Binge Drinking and Associated Behaviours among 3286 College Students in France' (2016) 16 *BMC Public Health* 178.

[24] Harris R. Lieberman, Sanjiv Agarwal & Victor L. Fulgoni, 'Brief Daily Patterns of Caffeine Intake and the Association of Intake with Multiple Sociodemographic and Lifestyle Factors in US Adults Based on the NHANES 2007-2012 Surveys' (2019) 119 *Journal of the Academy of Nutrition and Dietetics* 106.

Similarly, sitting time increased. More than half of students and almost half of faculty sat for more than ten hours daily. The above is a natural effect of the restriction of movement and the lack of outdoor (or indoor) activities, while prolonged sitting in front of the computer was also inevitable for both faculty and students, due to the online classes, and with faculty additionally having to do research or administrative work online. Young adults, aged 18-34, have been reported to sit for more than eight hours a day during lockdown in other studies[25].

Long working hours and prolonged sitting have been generally associated in literature with (1) subjective complaints (e.g., sleep problems and fatigue), (2) health-related problems (e.g., pain), (3) Mental Health problems (e.g., depression, anxiety) and (4) lower Quality of Life[26] [27]. The aforementioned problems have been evaluated in the current study and are discussed below:

(1) Regarding sleep problems and fatigue, a significantly higher energy reduction was found for faculty compared to students, a possible effect of the longer working hours. Both faculty and students increased their sleeping hours during lockdown in comparison to before, with students sleeping significantly more hours than faculty; more than one in three students slept eight to ten hours daily. Feeling sleepy and increasing day time napping have been similarly evidenced as consequences of working from home in other studies[28].

(2) Pain levels were assessed. Overall, the mean pain intensity during lockdown was low to moderate and no significant differences existed in pain levels between faculty and students. However, the results showed that women reported higher pain intensity compared to men. Lower pain threshold and pain tolerance by women have been previously reported and a number of factors could contribute to this, like the 'psychosocial' mechanism which allows women to acknowledge pain, or cognitive factors like depression, anxiety and stress, which are more common in women[29].

(3) The strict isolation measures leading to the closure of Universities negatively affected mental health. In our study, University students reported more anxiety and depression during lockdown than faculty. Similar findings were reported in other

[25] Meyer & al. (no 7)

[26] Claire C Caruso & al., 'Long Working Hours, Safety, and Health: Toward a National Research Agenda' (2006) 49 *American Journal of Industrial Medicine* 930.

[27] Zhaojia Ye & al., 'Influence of Work Duration or Physical Symptoms on Mental Health among Japanese Visual Display Terminal Users' (2007) 45(2) *Industrial Health* 328.

[28] Majumdar, Biswas, Sahu (no 6)

[29] Roger B. Fillingim & al., 'Sex, Gender, and Pain: A Review of Recent Clinical and Experimental Findings' (2009) 10(5) *Journal of Pain* 447.

studies. For example, empirical evidence showed that, during lockdown, one in three students reported depressive symptoms and nearly one in four reported anxiety, with most reporting mild anxiety levels[30] [31]. An increase in anxiety levels for students in Cyprus was also reported in another study[32]. Stress, isolation and loneliness have been common problems among students, with loneliness being reported by three out of four students[33]. Students are often isolated in dorm rooms, unable to see family and friends, with limited outdoor activities and social interaction. In general, the younger age is reporting higher levels of social isolation, which affects their life satisfaction[34]. Apart from University students, younger faculty, under the age of 30, similarly report higher levels of anxiety and depression than those over 30[35]. The negative effect on the mental health on younger ages is verified in the current study.

Gender differences were identified. Women experienced more energy reduction (almost half reported extreme energy reduction) and higher levels of anxiety and depression than men. In particular, depression was borderline abnormal and anxiety slightly below. Literature has shown that women are generally at a higher risk for anxiety disorders or depression[36] [37]. During the pandemic women report more psychological distress, with mothers reporting higher stress levels and young women being more uncertain about the future[38]. The fact that women, especially faculty, were more emotionally and physically distressed during the lockdown could be related to their effort to respond to multiple roles. For example, they had to deal with childcare whilst working from home, as children also stayed at home during lockdowns. In Mediterranean countries, including Cyprus and Greece, women have tradition-

[30] Majumdar, Biswas, Sahu (no 6)

[31] Wenjun Cao & al., 'The Psychological Impact of the COVID-19 Epidemic on College Students in China' (2020) 287 *Psychiatry Research* 112934.

[32] Ioulia Solomou & Fofi Constantinidou, 'Prevalence and Predictors of Anxiety and Depression Symptoms during the COVID-19 Pandemic and Compliance with Precautionary Measures: Age and Sex Matter' (2020) 17 *International Journal of Environmental Research and Public Health* 4924.

[33] Iman Deznabi & al., 'Impact of the COVID-19 Pandemic on the Academic Community - Results from a Survey Conducted at University of Massachusetts Amherst' (2020) 2(2) *Digital Governance: Research and Practice* 22.

[34] Ruta Clair & al., 'The Effects of Social Isolation on Well-being and Life Satisfaction during Pandemic' (2021) 8(1) *Humanities and Social Sciences Communications* 28

[35] Van Der Feltz-Cornelis & al. (no 11)

[36] Carmen P. McLean & Emily R. Anderson, 'Brave Men and Timid Women? A review of the Gender Differences in Fear and Anxiety' (2009) 29 *Clinical Psychology Review* 496.

[37] Evridiki Papastavrou & al., 'Gender Issues in Caring for Demented Relatives' (2009) 3(1) *Health Science Journal* 41.

[38] Van Der Feltz-Cornelis & al. (no 11)

ally been assumed to be responsible for most housework and childcare[39]. Related literature has shown that generally during lockdowns women provided most of the childcare without home support[40]; staying at home, isolated from social activities and being the main caregiver for children could thus contribute to creating such stressors.

Our study did not show any significant differences between the two countries, Cyprus and Greece, in terms of the negative effect of lockdown on mental health or quality of life in the academic community. The two countries have similar characteristics and are in the same geographical area, however similar results were obtained from other studies, with comparative analyses of more than 45 countries with diverse cultures and in various geographic regions[41] [42] [43] [44] [45]. Although some country differences were evidenced, a general conclusion was deducted regarding the detrimental impact of lockdown on the mental health of faculty and students.

(4) Good quality of life is the main objective of current societies and it is a goal that should be pursued even during challenging periods. The current study found significant differences between groups: students had lower quality of life than faculty (younger people also had lower than older people) and females had lower quality of life than males. As activities that could reduce social isolation and improve quality of life are limited during a lockdown period, more attention should be paid to physical activity: lack of physical activity has been found to predict mental health problems, whereas exercise has a positive effect on psychological health and quality of life[46] [47].

[39] Catia Nicodemo & Robert Waldmann, 'Child-Care and Participation in the Labor Market for Married Women in Mediterranean Countries' (2009). IZA Discussion Paper No. 3983.

[40] Josephine Jellen & Heike Ohlbrecht, 'Parenthood in a Crisis: Stress Potentials and Gender Differences of Parents During the Corona Pandemic International' (2020) *Dialogues on Education* 7, Special Issue 44.

[41] Cao & al. (no 31)

[42] Walter Leal Filho & al., 'Impacts of COVID-19 and social isolation on academic staff and students at universities: a cross-sectional study' (2021) 21 *BMC Public Health* 1213.

[43] Laura Giusti & al., 'Predictors of academic performance during the covid-19 outbreak: impact of distance education on mental health, social cognition and memory abilities in an Italian university student sample' (2021) 9(1) BMC Psychology 142.

[44] Deznabi & al. (no. 33)

[45] Mario Jojoa & al., 'The Impact of COVID 19 on university staff and students from Iberoamerica: online learning and teaching Experience' (2021) 18(11) *International Journal of Environmental Research and Public Health* 5820.

[46] Van Der Feltz-Cornelis & al. (no 11)

[47] Grazia Maugeri & al., 'The impact of physical activity on psychological health during Covid-19 pandemic in Italy' (2020) 6(6) *Heliyon* e04315.

In addition, the reduced physical activity, in combination with longer sitting hours and disturbed sleep during lockdowns, could lead to increased pain, especially in the back, neck or in the form of headaches [48] [49] [50]. Pain, on the other hand, is known to negatively affect the quality of life, as well as productivity[51] [52]. Indeed, recent studies have empirically shown the negative impact of lockdown on the work and productivity of both students and faculty[53] [54]. For example, in the aforementioned studies, the vast majority of faculty and students were unable to perform normal work or studies at their institution for a long period of time, while students also presented impairment in concentration and learning and the latter identified as the strongest predictor of poor academic performance.

Our results have identified specific groups at risk; although the whole academic community was negatively impacted due to the restrictions and imposed sedentary lifestyle, the findings show that there were between-group differences in the effect. Students, and the younger population in general, were more affected in terms of mental health, whereas faculty experienced more changes in work routine, longer work hours and reduction in body energy. In addition, gender differences existed, with females being more vulnerable, both in terms of mental and physical health. Attention should be paid on how each group can best manage the emerging needs.

For example, the role of Universities is very important, in terms of the support offered to their academic communities. Evidence showed that, for students, a better educational experience and online learning during lockdown was associated with the perception of the experience as beneficial and with the support offered by the University, while quality of life was maintained for staff who experienced a positive professional experience, with access to services and products[55]. In terms of mental health, positive coping strategies, rational and detaching coping styles could be im-

[48] Majumdar, Biswas, Sahu (no 6)

[49] Meyer & al. (no 7)

[50] Christina Michailidou & al., 'Pain and stiffness as consequences of an imposed sedentary lifestyle, in the university community' (2022) 39(6) *Archives of Hellenic Medicine* 772

[51] Bill H McCarberg & al., 'The Impact of Pain on Quality of Life and the Unmet Needs of Pain Management: Results from Pain Sufferers and Physicians Participating in an Internet Survey' (2008) 15(4) *American Journal of Therapeutics* 312.

[52] Harris Allen, David Hubbard & Sean Sullivan, 'The Burden of Pain on Employee Health and Productivity at a Major Provider of Business Services' (2005) 47(7) *Journal of Occupational and Environmental Medicine* 658.

[53] Filho & al. (no 42)

[54] Giusti & al. (no 43)

[55] Jojoa & al. (no 45)

plemented. These have been documented to be the most powerful and effective for the management of depression and anxiety, as opposed to problem- or emotion-focused strategies, which may partly explain the higher levels of stress and depression[56]. Alleviating the psychological burden of women, for example by offering more household or childcare assistance, is also necessary, especially during periods such as lockdowns that provide additional stress and anxiety to working women that deal with multiple roles. In terms of physical health, it is recommended that planned and feasible physical activity interventions be incorporated into the workplace health promotion policy. Exercising, as well as office ergonomics, should be encouraged, for reducing pain prevalence and inactivity and maintaining good physical function and home-based habits.

Conclusion

The Covid-19 pandemic continues, with restrictions or social distancing measures worldwide. Even if lockdowns are not necessary, students are often forced to isolate and work remotely online, either because they are positive cases or close contacts of cases, or due to other problems that prohibit them from attending their Universities or leaving their countries. It is evident that Universities around the world committed significant resources, investing time and money on enhancing their infrastructure in readiness for the sudden change. It is also expected that this technology and distance learning in general will prevail in the future, irrespective of the pandemic or lockdowns. Working from home and online education have become a necessity, while distance learning programmes have now generally been established as an alternative option in education. Therefore, self-care, whenever feasible, or targeted interventions, may help mitigate the harmful effects of remote working and sedentary lifestyle, for people in academia. Strategies should ensure that the aforementioned emerging problems will not give rise to chronic physical and mental health issues, that would inevitably lead to economic consequences, namely increased healthcare costs, work absences and lower productivity. The aftermath on our academia study provides lessons to be learned and take-home messages.

[56] Evridiki Papastavrou & al., 'Caring and Coping: The Dementia Caregivers' (2011) 15(6) *Aging & Mental Health* 702.

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