

# Exploring psychological vulnerability and responses to the COVID-19 lockdown in Greece

Lydia Xourafi<sup>1</sup>, Polyxeni Sardi<sup>2</sup> and Anastasia Kostaki<sup>2,\*</sup> 

## Abstract

This study explores the psychosocial impact of the COVID-19 pandemic on the population in Greece during the general lockdown period. Specifically, depression, anxiety and stress scores, as well as the factors associated with vulnerability to developing mental health conditions during this period, were investigated. A total of 911 adults participated in an online survey by completing a self-reporting questionnaire that included demographic questions, DASS-42 items (anxiety, stress and depression scales) and other questions related to personal experience. Regression modelling uncovered a significant relationship between gender and DASS scores, with women having significantly higher scores than men for all mental health problems. Participants aged 20–39 years were especially vulnerable to experiencing poor mental health. Unemployed participants reported having worse mental health than others. Having more perceived psychosocial support during the pandemic was associated with lower overall scores. Thus, women, young adults and the unemployed exhibited particularly high levels of vulnerability, while individuals who received social support from relatives and friends during the lockdown were more resilient to the effects of social isolation.

**Keywords:** COVID-19; lockdown; pandemic consequences; mental health; DASS-42 score; anxiety; depression; stress; digitalisation; teleworking

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<sup>1</sup>Semion  $\psi$  – Social Creative Actions NGO and National Kapodistrian University of Athens, Athens, Greece

<sup>2</sup>Department of Statistics, Athens University of Economics and Business, Athens, Greece

\*Correspondence to: Anastasia Kostaki, kostaki@aueb.gr

## 1 Introduction

The coronavirus (COVID-19) outbreak had a major impact not only on people's physical health, infection risk and fatality rates, but also on people's social interactions due to the implementation of drastic protective measures, including social distancing requirements and forced lockdowns.

The recent literature on the negative psychological effects of these measures found that the impact varied based on the quarantine duration, infection fears, boredom levels, lack of adequate supplies and/or information, financial losses and concerns about stigma. While some researchers have found that these effects were brief, others have suggested that they may be long-lasting (Brooks et al., 2020). A research study conducted during the lockdown period in Greece showed that the overall well-being of the population was poor, and that people experienced mild to moderate levels of anxiety, with women being especially burdened (Argyropoulos et al., 2021). The term "coronaphobia" has been used in recent studies to refer to the mass fear of COVID-19. This fear has been shown to be associated with a wide range of psychiatric symptoms and manifestations in multiple social and cultural contexts (Dubey et al., 2020). Moreover, there is evidence that levels of resilience in the Greek population during the first lockdown varied depending on social factors, such as on people's working conditions, gender, age and educational background (Kalaitzaki, 2021). Additionally, many scientists have questioned the effectiveness of forced lockdowns in preventing disease transmission. It has also been argued that individual rights and public health interventions related to compliance had an impact on people's mental health (Kochhar et al., 2020).

In March 2020, several weeks after the first case of COVID-19 was registered, the Greek government imposed the first general lockdown. The lockdown period lasted for 42 days. During the lockdown, non-food stores, educational institutions, bars and restaurants were closed. Moreover, travel restrictions were imposed, and individuals were ordered to stay indoors. People were allowed to leave their homes only if they had official permission to do so based on one of six specific reasons. Residents were obliged to send an SMS to the government informing them of their reason for going out. The six permitted reasons for leaving home were: going to a medical appointment; going to a store to purchase essential goods (supermarket, mini market) or to a bank; going out to assist people in need or to accompany minor students to or from school; attending a funeral; visiting one's children as a divorced parent; and engaging in physical exercise outdoors or walking a pet, individually or in pairs. Furthermore, multiple proactive controls were put in place by police authorities to monitor the use of public space by residents (Ntikouli, 2021).

As the Greek state was dealing with major challenges before the start of the pandemic, including a refugee crisis, an economic crisis and high levels of unemployment, the capacity of the Greek medical system to cope with pandemic was very limited (Moris and Schizas, 2020). Thus, the Greek government's policy decision to impose lockdown measures early in the pandemic was seen as the most appropriate way to prevent the spread of COVID-19 (Moris and Schizas, 2020).

While the implementation of these measures has been characterised as a success story by most mass media outlets and some scholars (Moris and Schizas, 2020), other authors have found that the lockdown measures led to increases in mental health problems and socio-economic difficulties (Saurabh and Ranjan, 2020).

The aim of this paper is to explore the psychosocial effects of the first COVID-19 lockdown period on the Greek population, with a particular focus on the experiences of vulnerable population groups more prone to developing mental health symptoms. Mental health scores are assessed and reported; and potential vulnerability factors, such as demographic characteristics, social factors, social relationships and emotional experiences, are investigated. This study contributes to the emerging literature on the impact of the pandemic on well-being by identifying several vulnerability factors. The findings can be used by policy-makers to design more sensitive policies for dealing with the consequences of the pandemic.

## **2 Background**

Extensive academic research has shown that the lockdown restrictions imposed around the world in response to the COVID-19 pandemic had significant negative effects on people's social and personal lives, and on their economic and financial well-being. In Asia, lockdown measures mandated extreme forms of social distancing, which kept even healthy individuals isolated from each other (Poudel and Subedi, 2020). This isolation led people to experience a variety of mental health problems, including feelings of fear, anger, anxiety, panic and boredom; and, in some cases, feelings of loneliness and guilt for not being able to provide and receive social support (Chatterjee et al., 2020). Moreover, during lockdown periods, many people experienced financial losses, unemployment and various forms of economic precarity (Kochhar et al., 2020) that led them to report symptoms of severe anxiety. Isolation was found to be the key factor that connected all aspects of people's lockdown experiences, as all social activities were cancelled, and people were threatened with monetary losses (Kochhar et al., 2020). The citizens of European countries seemed to experience similar difficulties. In Germany, the financial insecurity and changes in employment status or working conditions people experienced during lockdowns were found to have major psychosocial effects. These effects have been related to the experience of precarity, a term that is widely associated with mental health difficulties (Ahrens et al., 2021).

The long-term isolation and the shift towards increased domestic work demands and home-schooling during the pandemic were associated with a higher incidence of common mental health disorders (CMD) (Chandola et al., 2020). Spatial distancing in combination with financial uncertainty contributed to people feeling a sense of helplessness and negative emotions (Khan et al., 2020). Loneliness has been shown to be the major determinant of CMD among adults in the UK (Chandola et al., 2020). There is evidence that loneliness is as damaging to long-term health as smoking and obesity and is an important risk factor for suicidal behaviour (Townsend, 2020).

High stress levels, depression, irritability and insomnia have been identified as significant consequences of isolation (Rossi et al., 2020).

Thus, a large number of studies have found that the COVID-19 lockdown and quarantine measures negatively affected the mental health of the general population. Nonetheless, certain population groups in European countries were particularly sensitive to the challenges that arose during these periods. Individuals who had previously experienced traumatic events were especially negatively affected by the isolation and the lack of social activities during the lockdowns (Ahrens et al., 2021). Moreover, mental health patients were among the most vulnerable population groups during these periods (Rodriguez-Jimenez et al., 2020).

There is also evidence that changes in people's working conditions, such as having more precarious working conditions and being required to telework (including remote working, home office), led to new challenges. Previous research has shown that teleworking has a negative emotional impact on employees, as it can lead to feelings of loneliness, irritability, worry and guilt (Mann and Holdsworth, 2003). The findings of a study conducted during a lockdown period found that teleworkers reported having lower levels of well-being than other employees after the lockdown, and that unemployed and furloughed individuals reported having even lower well-being levels than their counterparts in every kind of employment (Escudero-Castillo et al., 2021). In another study conducted in Italy during a lockdown period, employees reported high levels of depression and anxiety due to a lack of free time and concerns about exposure to the virus (Rossi et al., 2020).

Furthermore, research conducted in Western countries has shown that there were large gender-based differences in the mental health symptoms reported during lockdown periods. In Italy, women experienced higher levels of psychological distress than men during lockdowns (Rossi et al., 2020). In line with the above findings, research conducted in the US found that the mental health effects of stay-at-home orders were highly negative for women in particular, and that these effects could not be explained by increases in financial uncertainty, childcare responsibilities or fear of dying from COVID-19 (Adams-Prassl et al., 2020).

Findings for Greece indicated that during the pandemic, symptoms of depression, stress and anxiety increased among the general population (Dragotis et al., 2021). Moreover, studies have reported that younger people aged 18–24 had relatively high scores on measures of anxiety and stress (Dragotis et al., 2021), while less educated younger individuals had relatively high rates of post-traumatic stress during the pandemic. The prevalence of suicidal ideation was found to be elevated during the lockdown period in Greece, especially among individuals with a history of poor mental health, poor perceived physical health or impaired family functioning (Papadopoulou et al., 2021). Research has also shown that health care workers were among the most vulnerable groups in the pandemic, as being on the frontlines of a pandemic crisis has been characterised as an extremely traumatic experience that may lead workers to experience secondary traumatic stress (Kalaitzaki et al., 2021).

Other studies have argued that the severe mental health consequences observed during the pandemic may be linked to gender differences

(Argyropoulos et al., 2021), and are more common among individuals who are experiencing financial uncertainty (Zavras, 2021). Individuals with precarious working conditions, such as seasonal workers, the unemployed, the underemployed and lower income workers, had especially poor mental health during the pandemic (Argyropoulos et al., 2021; Zavras, 2021). Moreover, women had significantly worse mental health than men (Argyropoulos et al., 2021). In the Greek context, gender roles may help to explain these differences, as women tend to have more housekeeping and parenting responsibilities than men. Finally, pregnant women reported having significantly increased levels of anxiety during the early stages of the lockdown (Dagklis et al., 2020).

School and university students in Greece were also very negatively affected by the pandemic (Giannopoulou et al., 2021; Sazakli et al., 2021). Restrictions on social life and the digitalisation of the educational process were found to have negatively affected the mental health scores of students (Giannopoulou et al., 2021). An online survey of 1000 university students in Greece showed that there was a horizontal increase in levels of anxiety, depression and suicidal thoughts (Kaparounaki et al., 2020). Another study conducted in Greece found that 12.43% of the university students ( $N = 1104$ ) surveyed had major depression symptoms, and that women were more affected than men (Patsali et al., 2020). Finally, the school lives of younger children and adolescents were affected in various ways by social distancing and lockdown measures, online schooling and decreased engagement in physical activities. Socio-economic inequalities were also found to be associated with these effects (Magklara et al., 2020).

Based on the previous literature, the research questions of the current study are focused on the relationship between potential vulnerability factors and mental health outcomes during the 2020 lockdown period in Greece. Among the potential vulnerability factors we investigate are demographic and socio-economic variables related to age, sex, employment status, educational background, health status, family status, cohabitating status, levels of socialising (defined as meeting and communicating in person with other people), perceived psychosocial support, preference for digitalised ways of working and dominant emotional states (defined as the dominant emotional condition each individual experienced while completing the questionnaire). Mental health outcomes are based on the participants' scores on the Depression Anxiety Stress Scale-42 items questionnaire (DASS-42), which measures depression, anxiety and stress levels.

### 3 Data and methods

The present investigation is based on the results of a survey that focused on the psychological impact of the 2020 COVID-19 general quarantine on the mental health of the Greek population. A total of 911 adult participants living in Greece completed an online survey entitled "Social and Psychological Impacts of Quarantine during the COVID-19 Pandemic Period". The survey, which was distributed via free online

software from Google Forms (<https://bit.ly/3hsAgKN>), collected self-reported data on the participants' depressive and anxiety symptoms, health status, the quality of their social support networks, and other demographic and social information. The questionnaire was prepared by a research team led by the Department of Statistics of the Athens University of Economics and Business. The team included Prof. Anastasia Kostaki, who is one of the authors of the current paper. The survey remained online as a Google Form for four consecutive weeks during April and May 2020.

The sample was collected through a convenient sampling procedure. The sampling frame was comprised of anyone who had access to the questionnaire via social networking and who wanted to respond. As the collection method lacked the features of a probabilistic sampling approach, the composition of the sample did not reflect the demographic and social characteristics of the total population of the country. In the sample, females, people of early adult ages and employed people were overrepresented in comparison to the composition of the total population of Greece according to the latest available census data from 2011. Compared to the general population, such people tend to have easier access to the internet, to be more familiar with social networking, and to be more willing to respond to surveys. Given this limitation, caution should be used in extending the results to the total population. However, comparisons between groups of people with different characteristics, like comparisons based on gender, statistical testing and modelling, are not affected by this limitation.

A 100-item questionnaire was used to collect demographic data; information on the participants' social, financial, psychosocial and mental health status; and information on the participants' attitudes towards digitalised ways of communicating and working (examples of questions: "If you work from home during the quarantine, how do you experience the digital way of working?" and "How do you experience the digital way of communicating in general?"), and on their emotional states (examples of questions: "What emotions have been dominant during the lockdown period?"; "Which emotion has been most prevalent during the last month?"; and "What is your main concern at the moment?"). The questionnaire was distributed in seven sections: 1. Demographic data; 2. Psychosocial status during lockdown; 3. Health; 4. Mental health; 5. Social contacts/relationships during lockdown; 6. General social perceptions; and 7. Attitudes towards pandemic and lockdown measures. The questionnaire included explorative questions related to each section category. Answers were given via multiple choice or written responses. Data from the sixth and seventh sections were not included in the current analysis.

The participants' mental health was measured using the Greek translation of the psychometric material DASS-42 scale (DASS; Lovibond and Lovibond, 1995), a self-administered, 42-item questionnaire that principally measures anxiety, stress and depression in the general population (Lyrakos et al., 2011). The 42-item self-reported scale was used to measure each of the negative emotional states of depression, anxiety and stress. According to existing research on the DASS-42 methodology (Lovibond and Lovibond, 1995), the three scales of the questionnaire

have high levels of internal consistency and yield meaningful scores in a variety of settings. The sum of all 42 items represents an index of the participants' overall negative emotional states, defined here as the overall mental health condition.

The principal role of the DASS-42 scale in a clinical setting is to clarify the locus of emotional disturbance as part of a broader clinical assessment. The essential function of the DASS-42 is to assess the severity of the core symptoms of depression, anxiety and stress. Answers were given via a four-item Likert scale with a range that varied from "Does not apply to me" (0) to "Does apply to me very much, most of the time" (3) (Dragotis et al., 2021). A detailed description of the DASS-42 has been provided by Parkitny and Mcauley (2010). The survey participants' DASS-42 scores were then analysed according to the standard guidelines. A scoring guide of the DASS-42 values for each of the negative emotional states of depression, anxiety and stress is given in Table A.1 in the appendix. There is no corresponding information for the overall score.

Information on the study and a consent form were presented to the participants on the first webpage of the survey. This page included all of the relevant information on the participation procedures. It also described the purpose of the study and provided assurances of anonymity and confidentiality. The researchers' contact information was given in case the participants wanted more information about or explanations of the study's aims and design. Long-lasting effects or high levels of distress due to participation in the DASS-42 have not been previously reported. After the participants completed the questionnaire, they were presented with a debriefing text with further information.

As was mentioned above, our analysis was based on the responses of 911 participants. The mean age of the participants was 42.99, with a standard deviation (hereafter SD) equal to 13.9 and a median age of 42. Broken down by gender, 69.6% of the participants were women and 30.4% were men. The mean age of the women was 41.32 (SD 13.6, median age 41). The mean age of the men was 46.8 (SD 13.9, median age 47). Of the participants, 24.8% were single, 53.1% were married, 51.3% had children, 46.8% had a tertiary degree and 25.9% had a postgraduate degree. Furthermore, 48.2% of the participants were living with a partner, 32.2% were living with their children and 19.6% were living with their parents. Most of the participants were employed (70.7%), while 17.5% of them had lost their job during the lockdown. Most of the participants were living in an urban area (69.3%). Of the participants, 13.1% reported having a chronic disease, while 46% said they had a family member with health difficulties. Almost half of the participants (57.6%) indicated that they liked digital communication. When asked about their fears, 31.9% of the participants said they were afraid of getting ill, 30.5% reported feeling afraid of financial loss and 29.6% said they were experiencing general uncertainty. Of the participants, 62% reported feeling close to loved ones and 78.5% reported feeling close to members of their family. The mean depression score was 7.77 (SD 7.38), with a median value of six; the mean anxiety score was 4.76 (SD 5.13), with a median value of three; and the mean stress score was 9.26 (SD 7.03), with a median value of eight. The mean

value of the overall DASS-42 scores was 21.79 (SD 17.7), with a median value equal to 18. Supplementary Figure S1 provides the distribution of the depression, anxiety and stress scores, as well as the overall DASS-42 scores differentiated by sex (available at <https://doi.org/10.1553/populationyearbook2022.dat.5>). Table A.2 in the appendix provides information about the composition of the sample according to various characteristics. It also provides for each category the percentages of people suffering from each of the three psychological distortions according to the DASS-42; i.e., the percentages of people whose scores were not normal according to the DASS-42 scoring guide, as presented in Table A.1 in the appendix. However, Table A.2 does not display the corresponding percentages for the overall scores, as there is no limit provided in the literature on DASS-42 psychometric scaling for classifying the scores as normal or distorted, as is provided for the each of the three distinct psychological distortions. Table A.2 also shows bivariate comparisons between the percentages. To assess the association between two categorical variables, the  $\chi^2$  test was used. Respondents with missing values in the variables of interest were excluded from the analysis. However, missing values were very rare for all of the variables of the dataset.

It should again be emphasised that because the sample was collected using a convenience sampling technique, it did not have the same composition as the target population. This would, of course, be a serious limitation if the aim was to extend the results on the psychological effects of the lockdown to the total population. However, this was not the scope of our research.

## 4 Results

Multiple regression modelling using a GLM Univariate procedure was performed to assess the association between the overall DASS-42 scores, as well as the specific scores for each of the three separate mental health problems (depression, anxiety, stress), and a variety of explanatory variables representing all of the main demographic characteristics of the individuals (e.g., age, sex, family status, education, employment status, living conditions, number of children), as well as variables related to social relationships and reported emotional experiences. Applying forward and backward elimination stepwise procedures, we used the optimal models for the description of each of the three psychological distortions, according to statistical goodness-of-fit criteria such as R-square, adjusted R-square and mean square errors and partial  $F$  hypothesis testing. The significance level  $p$  was set at 0.05. All of the statistical analyses were performed with the IBM SPSS Statistics 25 package.

Table 1 below presents the results of the regression modelling of the overall DASS-42 scores, and provides the parameter estimates of the variables included in the model and the standard errors of the estimates. In all models, higher scores indicate a more negative mental health status.



**Table 1:**  
**Statistical modelling of the overall DASS-42 scores; parameter estimates, standard errors and *p*-values of their significance in the model**

	Overall score		
	<b>b</b>	<b><i>p</i>-value</b>	<b>SE</b>
Intercept	31.113	0.000	6.4640
Women	5.149	0.000	1.1985
Age			
0–19	3.01	0.459	4.1427
20–29	7.374	0.001	2.1540
30–39	4.01	0.042	1.9384
40–49	2.697	0.114	1.8025
50–59	0.241	0.849	1.8868
60+	<i>ref.</i>		
Education			
Secondary school	<i>ref.</i>		
High education (Bachelors)	–0.205	0.499	1.6268
Postgraduate (Master)	–1.398	0.951	1.8216
Ph.D.	–2.808	0.266	2.1092
Unemployed	3.456	0.022	1.4914
Living with parents	2.834	0.077	1.6653
Living with a partner	1.657	0.139	1.2044
Living with children	–1.953	0.188	1.2746
Health difficulties	5.075	0.001	1.5927
Family member with health difficulties	1.830	0.125	1.0735
Fear of illnesses	6.985	0.048	2.8658
Fear of financial loss	6.038	0.072	2.8702
Fear of socializing	9.891	0.017	3.7581
Feeling of general uncertainty	7.563	0.028	2.8906
Like digital communication	1.579	0.200	1.1175
Like digitalization of work	2.719	0.034	1.2518
Feeling close to the people you hold dear	–2.823	0.063	1.2387
Feeling close to the people that you are living with	–8.026	0.000	1.4423
Perceived psychosocial support within the pandemic			
Not at all	14.835	0.001	4.4056
Little	10.803	0.000	1.9586
Some	5.344	0.000	1.4455
Much	4.450	0.002	1.5873
Very much	<i>ref.</i>		
<i>N</i>			906
<i>R</i> <sup>2</sup>			0.243

There was a highly significant relationship between gender and the overall score, as women had a significantly higher mean score than men ( $p = 0.000$ ). Of the age groups, the 20–39 age group was the most vulnerable ( $p = 0.001$ ), while the 30–39 age group was also significantly more affected ( $p = 0.042$ ) than the 60+ age group. As expected, unemployed people had higher scores than employed ( $p = 0.022$ ). Living with parents had a marginally negative impact on psychological health ( $p = 0.077$ ). People who reported having health difficulties had significantly higher scores than people who did not ( $p = 0.001$ ). People who expressed a feeling of general uncertainty had significantly higher scores than people who did not ( $p = 0.028$ ); while people who were afraid of getting ill, experiencing a financial loss or socialising had higher scores than people who were not ( $p = 0.048, 0.072$  and  $0.017$ , respectively). People who liked the digitalisation of work had higher scores than people who did not ( $p = 0.034$ ).

Furthermore, people who were feeling close to loved ones and to the people they were living with had lower scores than people who were not ( $p = 0.063$  and  $0.000$ , respectively). Finally, the higher the level of psychosocial support during the pandemic people reported receiving, the lower their overall scores (all  $p$ -values  $< 0.01$ ).

Table 2 presents the results of the regression modelling of the DASS-42 scores of each of the three separate mental health problems: depression, anxiety and stress. It also provides the parameter estimates of the variables included in each model and the standard errors of the estimates. Note that due to the model selection method, the three models did not necessarily include the same number of independent variables.

The overall score indicated that there was a highly significant relationship between gender and depression scores, with women having a significantly higher mean depression score than men ( $p = 0.008$ ). People in the 20–39 age group had significantly higher depression scores than people in the 60+ age group, while people in the 30–39 age group had marginally higher scores than people in the 60+ age group ( $p = 0.061$ ). Regarding marital status, married people had significantly lower mean depression scores than people in all other categories, who had significantly higher mean depression scores ( $p = 0.011$  for singles,  $p = 0.011$  for people in a relationship and  $p = 0.025$  for divorced people). In terms of educational level, highly educated people (post-graduate degree or PhD) had marginally lower scores than people with less education ( $p = 0.159$  and  $p = 0.089$ , respectively). As expected, people who had lost their job during the lockdown period had higher depression scores than people who did not ( $p = 0.105$ ). An interesting finding was that people who were living with their parents also had higher depression scores than others ( $p = 0.051$ ). People who were living with a partner had higher depression scores than people who were not ( $p = 0.039$ ). In addition, people who were living with their children had marginally lower scores than people who were not ( $p = 0.111$ ). People with health difficulties and people who had family members with health difficulties had marginally higher scores than others ( $p = 0.123$  and  $0.114$ , respectively). People who reported being afraid of illness, financial loss or socialising had higher depression scores than those who

**Table 2:**  
**Statistical modelling of depression, anxiety and stress; parameter estimates, standard errors and *p*-values of their significance in the model**

	Depression			Anxiety			Stress		
	b	<i>p</i> -value	SE	b	<i>p</i> -value	SE	b	<i>p</i> -value	SE
Intercept	13.960	0.000	4.0307	7.851	0.000	1.7921	19.580	0.000	3.8131
Women	1.345	0.008	0.5015	1.395	0.000	0.3576	2.416	0.000	0.4746
Age									
0–19	1.806	0.312	1.7912	–0.204	0.923	1.2175	4.034	0.019	1.6780
20–29	2.666	0.005	0.9512	1.939	0.002	0.5952	3.437	0.000	0.8380
30–39	1.588	0.061	0.8426	1.022	0.086	0.5752	2.094	0.013	0.7626
40–49	1.134	0.142	0.7841	0.805	0.160	0.5214	1.207	0.096	0.6983
50–59	0.281	0.653	0.7959	–0.188	0.678	0.5475	0.465	0.534	0.7395
60+	<i>ref.</i>			<i>ref.</i>			<i>ref.</i>		
Marital status									
Single	1.313	0.011	0.9120						
Relationship	2.446	0.011	0.9629						
Married	<i>ref.</i>								
Divorced	2.122	0.025	0.9743						
Education									
Secondary school	<i>ref.</i>			<i>ref.</i>					
High education (Bachelors)	–0.134	0.793	0.6765	–0.490	0.263	0.4882			
Postgraduate (Master)	–0.850	0.159	0.7498	–0.938	0.277	0.5433			
Ph.D.	–1.364	0.089	0.8679	–1.301	0.127	0.6285			
Lost job during lockdown	1.031	0.105	0.5945	0.851	0.052	0.4410			
Living with parents	1.473	0.051	0.7075				1.042	0.010	0.6425
Living with a partner	1.487	0.039	0.7305						
Living with children	–0.962	0.111	0.5812						
Health difficulties	1.590	0.123	0.6667	1.392	0.003	0.4779	1.748	0.004	0.638
Family member with health difficulties	0.722	0.114	0.4489	0.676	0.031	0.3209			
Fear of illnesses	2.052	0.109	1.2152	1.447	0.000	0.3871	4.082	0.010	1.1686
Fear of financial loss	2.737	0.051	1.2165				3.485	0.022	1.1732
Fear of socializing	3.301	0.046	1.6016	1.138	0.097	0.8391	4.994	0.002	1.5519
Feeling of general uncertainty	3.292	0.011	1.2241	0.693	0.094	0.3963	4.293	0.007	1.18
Like digital communication	0.926	0.039	0.4519	0.506	0.154	0.3216	0.770	0.159	0.4516
Like digitalization of work							0.968	0.032	0.5000
Feeling close to the people you hold dear	–1.293	0.014	0.5198				–0.997	0.131	0.5013
Feeling close to the people that you are living with	–3.009	0.000	0.6077	–2.412	0.000	0.3871	–2.320	0.000	0.5622
Perceived psychosocial support within the pandemic									
Not at all	5.106	0.008	1.8353	3.528	0.008	1.3077	5.909	0.001	1.7748
Little	4.136	0.000	0.8165	2.524	0.000	0.5657	4.153	0.000	0.7874
Some	2.379	0.000	0.6063	0.723	0.067	0.4229	2.367	0.000	0.5823
Much	1.768	0.011	0.6649	0.708	0.098	0.4744	1.824	0.004	0.6439
Very much	<i>ref.</i>			<i>ref.</i>			<i>ref.</i>		
<i>N</i>			897			897			897
<i>R</i> <sup>2</sup>			0.203			0.179			0.213

did not ( $p = 0.109$ ,  $p = 0.051$  and  $p = 0.046$ , respectively). People who reported having a feeling of general uncertainty also had significantly higher depression scores than those who did not ( $p = 0.011$ ). People who said that they liked digital communication had higher depression scores than others ( $p = 0.039$ ). Furthermore, people who indicated that they were receiving low levels of social support from their friends or their family members had higher depression scores than people who said they were receiving high levels of support ( $p = 0.008$  and  $0.000$ , respectively). Finally, the higher the levels of social support people reported receiving during the pandemic, the lower their depression scores.

Turning now to anxiety scores, there was a highly significant relationship between gender and anxiety, with women having a much higher mean anxiety score than men ( $p = 0.000$ ). People in the 20–29 age group had significantly higher anxiety scores than people in the 60+ ( $p = 0.002$ ) age group, while people in the 30–39 age group had marginally significantly higher scores than people in the 60+ age group ( $p = 0.086$ ). Individuals who lost their job during the lockdown had higher anxiety scores than others ( $p = 0.052$ ). People who had family members with health difficulties and people who had their own health difficulties had significantly higher anxiety scores than people who did not ( $p = 0.031$  and  $0.003$ , respectively). Furthermore, people who were feeling afraid of getting ill had significantly higher anxiety scores than others ( $p = 0.000$ ). Individuals who were feeling afraid of socialising with other people in person or were feeling general uncertainty about the future had marginally significantly higher anxiety scores than people who were not ( $p = 0.097$  and  $0.094$ , respectively). An interesting finding was that those people who reported liking digital communication had marginally significantly higher scores than others ( $p = 0.154$ ). People who said they were feeling close to the people they were living with had significantly lower anxiety scores than people who reported feeling distant from the people they were living with ( $p = 0.000$ ). Finally, the higher the levels of psychosocial support people reported receiving from friends and family members during the pandemic, the lower their anxiety scores.

Finally, there was also a large gender gap in the stress scores, with women having significantly higher stress scores than men ( $p = 0.000$ ). People under age 40 had significantly higher stress scores than people aged 60+, while people in the 40–49 age group had marginally significantly higher scores than people in the 60+ age group ( $p = 0.096$ ). People who were living with their parents and who had health difficulties had significantly higher stress scores than others ( $p = 0.010$  and  $p = 0.004$ , respectively). People who reported a feeling of general uncertainty also had significantly higher stress scores than those who did not ( $p = 0.007$ ). Likewise, people who were afraid of getting ill, experiencing financial loss or socialising had higher stress scores than others ( $p = 0.010$ ,  $0.022$  and  $0.002$ , respectively). Additionally, people who reported liking the digitalisation of work or digital communication had higher stress scores than others ( $p = 0.032$  and  $0.159$ , respectively). People who said they were feeling close to the people they were living with had highly significantly lower stress scores than others ( $p = 0.000$ ). Likewise, people who said they were feeling close to the people they hold dear had marginally

lower stress scores than others ( $p = 0.131$ ). Finally, the higher the level of social support people reported receiving during the pandemic, the lower their stress scores ( $p < 0.004$ ).

## 5 Discussion

As the present study was conducted at a time when COVID-19 lockdowns were still taking place across the globe, we were unable to track all of the new research that was published internationally on the mental health effects of lockdown restrictions. Thus, the current paper was written during a dynamic situation that was continuously changing based on the reach of the pandemic and the development of coping strategies. Due to our use of a convenience sample, our limited recruitment procedures and our short period of data collection, we could only present a short quantitative analysis of the data we collected during an unprecedented period of time.

The most important factors we found to be associated with vulnerability to negative mental health outcomes during the first lockdown period included being a woman, being young (20–39 years old), experiencing uncertain/precarious financial conditions and having limited social support.

Our results regarding the differences in the lockdown experiences of men and women are in line with recent findings from the European and Greek contexts. In a study conducted in Germany, Bäuerle et al. (2020) reported that women and younger people experienced more stress during the pandemic. In addition, most of the research conducted in Greece has confirmed that men and women had unequal burdens during the pandemic (Argyropoulos et al., 2021; Dagklis et al., 2020; Dragotis et al., 2021; Kalaitzaki, 2021). According to Power (2020), the COVID-19 pandemic added to the care burdens of women and families because the amounts of unpaid care work being performed, such as housekeeping and parenting, increased as schools were closed, the care needs of older family members grew and health care services were overwhelmed.

Our observation that younger age groups were especially vulnerable during the pandemic confirmed the findings of previous studies conducted in Western countries. According to the literature review of Kowal et al. (2020) that covered 26 countries, people in the 20–40 age group had more depression symptoms during the pandemic because they tend to have a greater need for outdoor and social activities than people in other age groups. The pandemic era and the impact of social distancing measures radically changed the daily lives of these younger adults, as they were “violently” forced to change their ways of life and their habits, and to move away from other people and from their social and recreational habits. These disruptions burdened them psychologically, while the intense pressure to achieve pushed them to the brink of depression. In addition, the literature review by Kowal et al. (2020) found that the highest levels of anxiety were experienced by younger people mainly between the ages of 20 and 40, but also by people who were living alone during the quarantine.

Moreover, financial uncertainty, unemployment and a sense of precarity were found to be important vulnerability factors mainly for depression and anxiety. As the pandemic revealed that the Greek health care system had significant deficits, the unequal distribution of the risks and the negative psychological and social outcomes of the pandemic-related threats became more obvious. Thus, the socio-economic aspects of the dangers of exposure and infection must be taken into account (Zissi and Chtouris, 2020).

The perception of having psychosocial support seems to have been a key factor in well-being during the pandemic, as individuals who reported receiving higher levels of social support from family and friends were found to be more resilient.

In line with the findings described above, the results of the present study indicated that reduced social support from friends and family was an important vulnerability factor that was associated with negative mental health symptoms. Recently conducted studies in the US identified loneliness as the greatest threat to mental health during and after the COVID-19 era (Saltzman et al., 2020). It has been argued that the social isolation and loneliness people experienced due to the pandemic measures had a broader impact on behavioural health, since the loss of social contact can elicit a fear of death.

This latter finding could be also associated with people's levels of engagement with digital forms of communication, as the participants in our study who reported having a more favourable view of digital communication also reported having more mental health symptoms. Although age could play a role in this finding, given that adolescents seem to have more addictive behaviours related to forms of digital communication (Dávideková, 2016), it was previously shown that extensive use of digital communication, especially during periods when embodied social life was highly restricted, had significant consequences for the psychosocial lives of younger individuals, including reduced levels of social skills, self-motivation, emotional intelligence and empathy; and increased levels of conflict with others, ADHD symptoms and depression (Scott et al., 2016).

According to Zissi and Chtouris (2020), the pandemic acted as an accelerator of social inequalities. Dealing effectively with the current social and financial crises presupposes that social institutions and social subjects are resilient, and are able to address the negative effects of the pandemic, such as the widespread social atrophy and social implosion, with creative solutions and collective action (Zissi and Chtouris, 2020). Studies conducted before the start of the pandemic found that the depression, anxiety and stress scores in the Greek population had already increased, and that the most vulnerable groups included women, the unemployed and low-income individuals who had seen their income levels decrease due to pressures associated with the Greek economic crisis, chronic patients and refugees (Economou et al., 2019; Fanakidou et al., 2017; Kokaliari, 2016; Latsou and Geitona, 2018; Stathopoulou et al., 2018). Recent findings have confirmed that the population groups who were facing challenges before the pandemic were even more burdened during the lockdowns (Ahrens et al., 2021; Adams-Prassl et al., 2020). Such findings can be used to craft new policies that take these pre-existing

inequalities into account, and thus to construct socially equitable strategies that promote the development of coping skills and psychosocial resilience.

## Supplementary Material

Available online at <https://doi.org/10.1553/populationyearbook2022.dat.5>

**Supplementary file 1.** DASS-42 depression, anxiety, stress, and total scores distribution by sex



## ORCID

Anastasia Kostaki  <https://orcid.org/0000-0002-2267-1193>

## Ethical considerations

Information about the study and a consent form were presented to the participants on the first webpage of the survey. It included all of the relevant information on the participation procedures. It also described the purpose of the study, while assuring anonymity and confidentiality. The researchers' contact information was given in case the participants wanted more information about or explanations of the study's aims and design. After the participants completed the questionnaire, they were presented with a debriefing text.

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## Appendix

**Table A.1:**  
Scoring guide for DASS-42

DASS (42) Scoring	Depression	Anxiety	Stress
Normal	0–9	0–7	0–14
Mild	10–13	8–9	15–18
Moderate	14–20	10–14	19–25
Severe	21–27	15–19	26–33
Extremely severe	28+	20+	34+

Source: Lovibond and Lovibond (1995).

**Table A.2:**  
Sample composition according to various characteristics (absolute numbers) and percentage of respondents suffering from depression, anxiety and stress according to the DASS-42 scale by sample composition, with  $\chi^2$ - statistics ( $n = 911$ )

Variable	N	Depression		Anxiety		Stress	
		%	p-value	%	p-value	%	p-value
Gender							
Women	613	34.7	0.008	26.8	0.000	21.4	0.005
Men	276	25.7		12.7		13.4	
Missing values	22						
Age							
0–19	21	28.6	0.000	23.8	0.009	23.8	0.000
20–29	173	46.2		32.9		30.6	
30–39	175	34.3		23.4		21.7	
40–49	236	28.8		20.8		15.7	
50–59	175	25.1		17.1		13.1	
60+	131	25.2		18.3		13.7	

*Continued*

**Table A.2:**  
**Continued**

Variable	N	Depression		Anxiety		Stress	
		%	<i>p</i> -value	%	<i>p</i> -value	%	<i>p</i> -value
Marital status							
Single	226	43.4	0.000	25.2	0.006	21.7	0.000
Relationship	103	38.8		33.0		34.0	
Married	484	24.8		18.4		14.5	
Divorced	95	32.6		24.2		18.9	
Missing values	3						
Education							
Secondary school	134	33.6	0.000	29.9	0.002	19.4	0.095
High education (Bachelors)	426	38.0		25.1		21.6	
Postgraduate (Master)	236	26.3		19.1		18.2	
Ph.D.	115	19.1		12.2		11.3	
Location							
Athens	560	32.8	0.261	21.9	0.975	19.5	0.457
Rest of Greece	265	28.5		21.8		17.1	
Missing values	86						
Have children							
No	444	39.9	0.000	26.4	0.009	24.1	0.000
Yes	467	24.4		19.1		14.3	
Employment status							
Employed	644	29.5	0.001	20.7	0.008	17.4	0.012
Unemployed	183	43.2		31.1		26.8	
Missing values	84						
Like digital communication							
No	386	37.3	0.003	26.7	0.012	23.3	0.006
Yes	525	28.0		19.6		16.0	
Like digitalization of work							
No	252	34.9	0.233	21.4	0.597	21.4	0.269
Yes	659	30.8		23.1		18.2	
Fear of illnesses							
No	620	34.7	0.010	20.6	0.038	19.5	0.641
Yes	291	26.1		26.8		18.2	
Fear of financial loss							
No	633	31.9	0.976	25.4	0.002	19.9	0.351
Yes	278	32.0		16.2		17.3	

*Continued*

**Table A.2:**  
**Continued**

Variable	N	Depression		Anxiety		Stress	
		%	<i>p</i> -value	%	<i>p</i> -value	%	<i>p</i> -value
Fear of socializing							
No	874	31.5	0.132	22.3	0.291	18.3	0.003
Yes	37	43.2		29.7		37.8	
Feeling of general uncertainty							
No	641	29.0	0.004	21.5	0.228	18.4	0.414
Yes	270	38.9		25.2		20.7	
Lost job during lockdown							
No	745	30.1	0.008	21.1	0.020	18.7	0.541
Yes	159	40.9		29.6		20.8	
Missing values	7						
Living with parents							
No	725	29.1	0.000	20.8	0.011	16.8	0.001
Yes	186	43.0		29.6		28.0	
Living with a partner							
No	454	37.2	0.001	25.6	0.035	21.4	0.083
Yes	457	26.7		19.7		16.8	
Living with children							
No	605	36.7	0.000	24.5	0.060	21.3	0.016
Yes	306	22.5		19.0		14.7	
Health difficulties							
No	792	30.9	0.092	21.1	0.004	18.1	0.039
Yes	119	38.7		32.8		26.1	
Family member with health difficulties							
No	492	28.0	0.006	19.5	0.015	16.7	0.043
Yes	419	36.5		26.3		22.0	
Feeling close to the people you hold dear							
No	346	43.4	0.000	30.1	0.000	26.3	0.000
Yes	565	25.0		18.1		14.7	

*Continued*

**Table A.2:**  
**Continued**

Variable	N	Depression		Anxiety		Stress	
		%	<i>p</i> -value	%	<i>p</i> -value	%	<i>p</i> -value
Feeling close to the people that you are living with							
No	195	53.3	0.000	35.9	0.000	31.3	0.000
Yes	715	26.0		19.0		15.8	
Missing values	1						
Perceived psychosocial support within the pandemic							
Not at all	15	40.0	0.000	46.7	0.001	33.3	0.006
Little	116	49.1		34.5		27.6	
Some	381	35.4		22.3		21.0	
Much	208	27.4		19.2		15.4	
Very much	191	18.8		17.8		13.1	

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