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Perspectives on the Psychological Impact
of COVID-19 Across the World (Part 2)

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The COVID-19 International Student Well-Being Study (C-19 ISWS)

The Case of Cyprus

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Abstract: The COVID-19 pandemic has had a great impact on the mental health and well-being of different populations including young adults. This study replicates and extends previous research by evaluating the impact of the COVID-19 pandemic on the well-being of college students in Cyprus, a Mediterranean island with unique sociocultural and genetic characteristics, and to identify risk factors related to the poor mental health of university students. Behavioral changes in the students before and during the quarantine period were also examined. A total of 387 university students completed an online survey coordinated by the Young Universities of Europe (YUFE) network. Results indicated that most of the sample (89.3%) reported depressive symptoms. Academic stress and academic satisfaction were associated with depressive symptoms and loneliness. Specifically, students with greater academic stress and lower academic satisfaction reported more symptoms of depression and felt lonelier. Younger students with poorer economic capital were more likely to feel depressed, and younger college students with higher academic stress were more likely to feel lonely. The results of *t*-test analyses indicated that quarantine affected students' time and type of study turning to online studies and to moderate physical activities. The present study's findings add to the existing literature and support the development of new measures to support students, both financially as well as psychologically.

Keywords: COVID-19, university students, well-being, depression, loneliness

As the COVID-19 pandemic spread around the world, a wave of growing literature has shed light on the psychological impact the pandemic had on different population groups. It is well known that uncertainty (Lee & You, 2020), imposition of multiple precautionary measures to prevent the spread of the disease (Solomou & Constantinidou, 2020), the worry of being infected or infecting a loved one (Brooks et al., 2020; Serafini et al., 2020), the emergence of conspiracy theories and circulation of misinformation (Constantinou, Gloster & Karekla, 2021), disruptions of routine and social isolation (Gloster et al., 2020) became some of the major stressors disrupting the daily life of people around the globe over the past 18 months. Several studies pointed out the psychological burden of the pandemic with increased symptoms of depression and posttraumatic stress in specific populations. Previous research implicated different factors in the psychological burden of the pandemic, including virus-related fear, enforced quarantine and isolation, inadequate knowledge

and misinformation, financial loss as well as stigma (Brooks et al., 2020). In fact, greater impact was reported among young females in the general population as well as in other vulnerable populations such as those with a prior psychiatric history, the unemployed, and with frequent exposure to social media (Gloster et al., 2020; Serafini et al., 2020; Solomou & Constantinidou, 2020; Xiong et al., 2020). In addition, loneliness and limited access to mental health services were identified as key factors associated with depression and even self-harm (Holmes et al., 2020).

Thus, different risk factors influence the risk of developing mental health symptoms because of COVID-19 in different populations. Besides the impact on mental health, behavioral changes were also reported because of the COVID-19. Specifically, there was a negative effect on the intensity of psychical activity, increased seating time, and amount of food consumption (Ammar et al., 2020).

Another population heavily impacted by the pandemic are university/college students, who exhibit many of the

above-mentioned risk factors. University students were faced with major disruptions in their lives and college experiences, including uncertainty possibly resulting in multiple complications and psychological effects, which can have long-term effects. Thus, the mental health of university students during the COVID-19 outbreak has gained interest (Aristovnik et al., 2020; Browning et al., 2021; Cao et al., 2020; Elmer et al., 2020; Son et al., 2020; Wang et al., 2020). Immediately after the outbreak, most universities and colleges switched from traditional face-to-face teaching to online-education platforms. Though this was aimed to decrease disruptions in learning, in fact, it resulted in great challenges for students, including having to deal with technical and technological issues, concerns about grading and privacy, and other difficulties surrounding distance learning (Son et al., 2020). Moreover, according to prior research, e-learning results in negative reactions by university students who prefer face-to-face learning (Mann & Henneberry, 2014).

Shifting from physical learning to distance learning made it more difficult for students to maintain their focus, while worries about their academic performance flourished (Wang et al., 2020). One study conducted in the US indicated gender differences, with women reporting higher levels of both depression and anxiety symptomatology than men (Wang et al., 2020). Furthermore, the severity of anxiety and depression symptoms was greater for undergraduate students compared to Masters and doctoral students (Solomou & Constantinidou, 2020).

Besides learning difficulties, college students faced economic difficulties, and their social lives were greatly impacted because of the social restrictions/lockdowns implemented by state authorities to control the pandemic (Xiong et al., 2020). As the pandemic was unfolding, students had to rapidly adapt to changes in their academic as well as personal lives (e.g., moving from dormitories to their parental housing) and social lives. Students had to adjust to these changes and incorporate them into their academic schedules, which added to their mental health burden (Son et al., 2020; Wang et al., 2020). Most students mentioned high levels of stress and anxiety caused by the pandemic (Son et al., 2020; Wang et al., 2020).

The stress resulting from the COVID-19 pandemic is in line with research investigating student mental health in other epidemics such as the SARS epidemic (Main et al., 2011; Wong et al., 2007). Interestingly, one of the studies found that less than half of the students in their sample were able to cope with this level of stress (Wang et al., 2020). A considerable proportion of students also reported having depressive thoughts because of COVID-19, while a small number presented suicidal ideation (Son et al., 2020; Wang et al., 2020). Reasons proposed to influence depressive symptoms and suicidal ideation include loneliness caused

by social isolation and distancing, powerlessness, financial uncertainty (Son et al., 2020; Wang et al., 2020), and loss of major reinforcers in life (Gloster et al., 2020). Finally, university students experienced worry not only about their own health but also about the health of their loved ones (Son et al., 2020; Wang et al., 2020).

Despite the impact of this pandemic on the mental health of students, this population group was among the ones least likely to adhere to precautionary measures (Solomou & Constantinidou, 2020). Specifically, compliance with precautionary measures was heavily impacted by age, with people over 30 constituting the most engaged age group (Solomou & Constantinidou, 2020). Especially among younger age groups, increases in stress levels were associated with a rise in conspiracy theory beliefs, which in turn predicted science mistrust and unwillingness to adhere to public health measures (Constantinou et al., 2020; Constantinou et al., 2021), a phenomenon observed across various continents (Pizarro et al., 2020).

The Present Study

Although several studies used a broad set of the variables mentioned above to predict their outcomes, most studies were conducted in the general population (Alzueta et al., 2021; Islam et al., 2021; Zhang et al., 2020). Previous research indeed provided information on the relationship between several demographic variables, academic factors, and COVID-19-related stressors, with depression symptoms and loneliness during the COVID-19 pandemic among student populations. Specifically, in the context of Cyprus, studies focused on mental health outcomes in the general population (Solomou & Constantinidou, 2020, Papageorgiou et al., 2021) or special populations such as health professionals (Chatzittofis et al., 2021, Nicolaou et al., 2021), but not specifically on college students, a population faced with particular stressors related to the pandemic as outlined above. The few studies in Cyprus that included college students focused on specific aspects of the impact of the pandemic and on specific groups of university students (i.e., medical students), or they had very small sample sizes not representative of the university population in Cyprus. A study investigating the role of social factors in perceived stress reported that college students perceived high levels of stress during the lockdown, and that preexisting social skills as well as concurrent family support were significant predictors of perceived stress during the lockdown. The ability to manage interpersonal conflicts and effectively resolve disagreements was inversely related to perceived stress (Panteli et al., 2021). In addition, Panayiotou et al. (2021) reported a decrease in the quality of life of college students compared to prepandemic levels and identified the difficulty describing feelings and accessing

emotion regulation strategies as predictors of decreases in quality of life. Positive correlations between distance learning, employment, and stress levels of college students were also reported in a study investigating students' adjustment to distance learning. Still, the above-mentioned study included only 80 participants from a private university in Cyprus (Demetriou et al., 2021). Finally, a study on student burnout (Zis et al., 2021), although reporting that the burnout prevalence did not differ before and during the COVID-19 period, reported a significant decrease in emotional exhaustion in 4th-year medical students and an increase in emotional exhaustion of 6th-year students as well as an increase in students' cynicism from all years. However, this study included only medical students. This might be because students closer to graduation were under the stressful scenario of being called to serve in hospitals because of the COVID-19 crisis.

Thus, to our knowledge, no published study has yet to use different variables (demographic, behavior, academic factors, COVID-19-related stressors, depression symptoms, and loneliness) to build predictive models among students and particularly among college students' in Cyprus, a country that had among the strictest of lockdowns during the first and second waves of the pandemic. We hypothesized that demographics dominantly predict the outcome of interest followed by the academic, and COVID-19-related factors.

The present study took place in Cyprus and is part of an international study coordinated by the Young Universities of Europe (YUFE) network. Thus, this cross-sectional study aimed to contribute by replicating and extending the existing literature on how the pandemic impacted the well-being of university students, with a focus on a European island country with unique social-cultural characteristics. Another important aim was to detect risk factors that predispose students to disrupt their mental health using hierarchical regression analyses, while a further objective of this body of work lay in detecting changes in the way students behaved (e.g., studying, physical activity, smoking, etc.) before and during the quarantine period of the pandemic (Van de Velde et al., 2021).

Methods

Sample and Data Collection Procedure

A total of 387 questionnaires were received from 3 to 26 June 2020. 275 respondents completed the survey, whereas 112 respondents left one or more items incomplete. Incomplete data were treated as missing values using listwise deletion. Participants were 17 years of age or older and university students from any educational institution in Cyprus (Cyprus has three public universities and four private universities).

An email with the survey information and the link for participation was sent to students on 3 June and again on 24 June 2020. The survey took place a few weeks after the end of the lockdown period on 21 May and when the country was still in a good place epidemiologically; as of 23 May 2020 there were 0 new infections since the beginning of the pandemic in early March. The survey was conducted online to maximize reach and ensure anonymity. Participation was voluntary.

Survey Development and Measures

This study is part of the COVID-19 International Student Well-Being Study (C19 ISWS), which is the result of a study design, protocol, and questionnaire developed by a team at the University of Antwerp in collaboration with the University of Ghent, Belgium (Van de Velde et al., 2021). Cyprus participated in this survey, along with educational institutes from 26 different countries including many European countries, Canada, the United States, and South Africa. The core questionnaire was translated into Greek through a committee approach, i.e., a team of a minimum of two translators fluent in Greek and English. However, the participants had the option to complete the survey in Greek or in English since both questionnaires were inserted into the Qualtrics survey tool by the coordinating team (Van de Velde et al., 2021).

The questionnaire consisted of five major sections: (1) sociodemographic variables, (2) study-related information, (3) daily activities/behaviors before and during the COVID-19 outbreak, (4) COVID-19-related perceived worries, and (5) mental well-being questions. Before we distributed the survey among the students, a sample of two students completed the survey to ensure its proper technical functioning, understandability of questions, and completion within the desirable timeframe (10 minutes maximum). The questionnaire is published with the study protocol (Van de Velde et al., 2021).

Participants submitted their informed consent for participation in the study over a web-based platform (Qualtrics). The study protocol was approved by the National Bioethics Committee of Cyprus (Protocol number: 2020.01.20).

Sociodemographic Variables

Sociodemographic variables included information about sex, age, relationship status, migration status, parents' educational level, and resources (e.g., social support and economic capital).

Study-Related Information

Study-related information included information about the academic program students were currently enrolled in, whether they were in their first year in higher education,

the status of the student in Cyprus, the importance of the studies for the student, academic stress experienced, and academic satisfaction.

Daily Activities/Behaviors Before and During the COVID-19 Outbreak

Changes in living conditions because of COVID-19 included questions about the frequency of students' engagement in specific behaviors before and after a lockdown, such as study, courses, physical activities (moderate physical activity was defined as exercises like easy cycling or walking for at least 30 minutes), smoking, alcohol consumption, and employment.

COVID-19-Related Perceived Worries

COVID-19 related perceived worries included questions about the perceived risk of personal infection, perceived risk of personal severely illness, perceived risk of infection of the personal network, perceived risk of COVID-19 illness severity among their personal network, compliance with the government's precautionary measures (rated on a scale ranging from 0 to 10, where 10 indicated very strict adherence), and whether they know someone infected with COVID-19.

Mental Well-Being Measures

Mental health status was measured using the 8-item Center for Epidemiological Studies Depression Scale (CES-D8) for depression (Radloff, 1977). The Cronbach's α for the entire sample was 0.85, indicating excellent internal consistency. Response options were *none* or *almost none of the time*, *some of the time*, *most of the time*, and *all or almost all of the time*, scored as 0, 1, 2, and 3, respectively. Scale scores for the CES-D8 were the sum of the items (score range 0 to 24), with higher scores indicating a higher frequency of depressive complaints (Radloff, 1977).

To assess loneliness, we used a 3-item scale (*how much of the time during the quarantine you felt lonely, lacked companionship, or felt isolated from others*). Two of the three questions were extracted from UCLA's Loneliness Scale (RULS-8). Cronbach's α for the entire sample was 0.81, indicating excellent internal consistency. Loneliness was defined as the feeling that arises when the actual quality of a person's social relationships is lower than their expected quality. Response options were *none or almost none of the time*, *some of the time*, *most of the time* and *all or almost all of the time*, scored as 0, 1, 2, and 3, respectively. The scale's score scale ranged between 0 and 9, where 9 indicates higher negative feelings (Roberts et al., 1993).

Data Analysis

The data were exported to the statistical program SPSS Statistics 25.0. Descriptive statistics were used to describe

the sample sociodemographic characteristics and study-related information. We also used correlation matrix analysis to assess the bivariate relationships between sociodemographic, study-related, and COVID-19-related variables with the two scales, CES-D8 and Loneliness. Two hierarchical stepwise multiple linear regressions were conducted with Depression and Loneliness as the outcome variables, where step 1 included the sociodemographic variables, step 2 the study-related information, and step 3 the COVID-19-related information. Each step served as a statistical control of the variables, to see whether adding variables significantly improved the model's ability to predict the outcome of interest. This enabled the estimation of the incremental variance explained by predictor variables on outcomes of interest. Finally, for the last analysis, we used a paired-sample *t*-test to identify significant differences in behavior before and during the first wave of the COVID-19 outbreak.

Results

Sociodemographic Characteristics

The sociodemographic characteristics and study-related information are presented in Table 1. Most of the respondents were women (73.1%), between the ages of 19 to 20 years old (31.5%) and approximately half of the sample was single or not in a relationship (51.9%). Most of the respondents' parents had completed a middle-educational level (50.6%), while 41.3% reported having at least one parent with a higher educational diploma. Majority of the sample (46.0%) reported being able to easily borrow EUR 500 from five or more people, showing that they had a strong social and economic capital (see Table 1).

Regarding study-related information, most students were enrolled in a bachelor's program (72.9%) and had completed their first year of studies (68.2%). Furthermore, most respondents were Cypriot citizens (65.1%), while 16.0% were permanent residents with a migrant background, and a smaller percentage (7.5%) declared as temporary residents with more than 1-year permit to reside in Cyprus. Finally, about half of the sample (50.1%) rated the importance of their studies as being equally important as other activities (see Table 1).

Depression and Loneliness Levels

Depressive symptoms, measured using CES-D8, presented a sample mean score of 9.04 ($SD = 4.75$), range = 0 to 24. Only 10.3% of the respondents were considered to have a normal score while most of the sample (89.7%) were considered to have depressive symptoms.

Table 1. Summary of participants demographic characteristics and study-related Information

Variables	N (387)	%
Demographics		
Sex		
Female	283	73.1
Male	102	26.4
Other	2	0.5
Age group		
17 to 18	15	3.9
19 to 20	122	31.5
21 to 22	101	26.1
23 to 24	61	15.8
25+	88	22.7
Relationship status		
Single	201	51.9
In a relationship	172	44.4
Complicated	12	3.1
Missing	2	0.5
Migration status		
Native	265	68.5
1st generation	5	1.3
2nd generation	102	26.4
Missing	15	3.9
Parents education level		
High	160	41.3
Middle	196	50.6
Low	5	1.3
Don't know	26	6.7
Missing		
Resources		
No person	27	7
1 to 2 persons	73	18.9
3 to 4 persons	109	28.2
5 or more persons	178	46
Study-related information		
Program currently enrolled		
Bachelor	282	72.9
Master	37	9.6
PhD	25	6.5
Missing	43	11.1
First year in higher education		
Yes	79	20.4
No	264	68.2
Missing	44	11.4
Status in Cyprus		
Citizen	252	65.1
Permanent resident	62	16
Temporary, more than 1 year	29	7.5
Missing	44	11.4
How important are your studies compared to other activities?		
More important	140	36.2
Equally important	194	50.1
Less important	7	1.8
Missing	46	11.9

The mean Loneliness score was 3.07 ($SD = 2.48$), range = 0 to 9. This score corresponds to feeling lonely some of the time.

In the correlation matrix, increased Depression and Loneliness scores were associated with younger age (CESD-8: $-.20$; Loneliness: $-.29$; $p < .01$) and having a poorer social and economic capital (see Table 2). Moreover, both variables were positively associated with academic stress (CESD-8: $.42$; Loneliness: $.38$; $p < .01$) and negatively correlated with academic satisfaction (CESD-8: $-.29$; Loneliness: $-.28$; $p < .01$), (see Table 3). Depression was positively correlated with Perceived risk of personal infection (CESD-8: $.13$; $p < .05$), Perceived risk of personal severe illness (CESD-8: $-.15$; $p < .05$) and Perceived risk of severe illness in the personal network (CESD-8: $.16$; $p < .05$), (see Table 4).

Hierarchical Multiple Regression Analyses

Predictors of Depressive Symptoms

The first research goal was to examine the relationship between CES-D8 and 18 potential predictors. We partitioned the predictors into sociodemographic variables (sex, age group, relationship status, migration status, parents' educational level, and support system), study-related factors (academic satisfaction, academic stress, program currently enrolled, first year in higher education, status in Cyprus, and studies importance compared to other activities) and COVID-19-related perceived worries (knowing someone with infected COVID-19, perceived risk of personal infection, perceived risk of personal illness, perceived risk of infection of the personal network, perceived risk of illness of personal network, and compliance to government's precautionary measures).

Our original intention was to test a hierarchical linear regression model in which sociodemographic predictors were entered in Step 1, study-related predictors in Step 2, and COVID-19-related perceived worries in Step 3. We calculated Pearson and Spearman correlations between CES-D8 and potential predictors; Table 2 presents the results. Predictors that were not significantly correlated with CES-D8 were dropped from the regression model. The sample size was deemed adequate, given the seven independent variables to be included in the analysis and assumption of singularity was also met. Hierarchical linear regression assumptions of linearity, normality, homoscedasticity, and collinearity had been met.

Table 5 shows the full details of each step of the analysis. In the first step, both age and social and economic capital added statistically significant to the prediction model, $R^2 = 0.06$, $F(2, 272) = 8.98$, $p < .001$. Relative to the patterns in the correlation matrix, younger age, and poor social and

Table 2. Correlation matrix among demographic variables and depression and loneliness

	1	2	3	4	5	6	7
1. CESD-8							
2. Loneliness scale	0.678**						
3. Sex	0.095	0.043					
4. Age group	-0.199**	-0.290**	-0.109*				
5. Relationship status	-0.117	-0.040	0.125*	0.182**			
6. Migration status	0.052	-0.043	0.007	-0.001	-0.095		
7. Parents educational level	0.009	-0.022	-0.022	0.011	-0.086	0.043	
8. Resources	-0.187**	-0.132*	-0.047	0.093	-0.005	0.040	-0.198**

Note. * $p < .05$, ** $p < .01$.

Table 3. Correlation matrix among study related variables and Depression and Loneliness

	1	2	3	4	5	6	7
1. CESD-8							
2. Loneliness scale	0.678**						
3. Academic stress	0.417**	0.378**					
4. Academic satisfaction	-0.293**	-0.276**	-0.505**				
5. Program currently enrolled	0.063	-0.014	-0.044	-0.053			
6. First year in higher education	-0.075	-0.043	-0.063	-0.073	0.045		
7. Status in Cyprus	-0.055	-0.015	-0.004	0.063	0.061	-0.077	
8. How important are your studies compared to other activities?	-0.044	-0.003	-0.076	0.070	-0.036	-0.029	-0.018

Note. * $p < .05$, ** $p < .01$.

Table 4. Correlation matrix among COVID-19 related perceived worries and Depression and Loneliness

	1	2	3	4	5	6	7
1. CESD-8							
2. Loneliness scale	0.678**						
3. Perceived risk of personal infection	0.132*	-0.006					
4. Perceived risk of personal severe illness	0.152*	0.048	0.596**				
5. Perceived risk of infection of personal network	0.103	0.024	0.635**	0.451**			
6. Perceived risk of severe illness in personal network due to COVID-19	0.155*	0.079	0.478**	0.433**	0.675**		
7. Compliance to government's precautionary measures	0.053	9.025	0.161**	0.180**	0.156**	0.260**	
8. Knowledge of someone with COVID-19 infection	0.057	-0.021	-0.051	-0.104	-0.104	-0.124*	-0.066

Note. * $p < .05$; ** $p < .01$.

economic capital were associated with more depressive symptoms.

In the second step, after including study-related factors, academic stress ($\beta = 0.341$, $p < .001$) emerged as the only study-related factor that was a significant predictor, with the overall model being still statistically significant, $R^2 = 0.21$, $F(4, 270) = 17.49$, $p < .001$. In the third step, the three COVID-19-related perceived worries factors (perceived risk of personal infection, perceived risk of personal severe illness because of COVID-19, and perceived risk of severe illness in one's personal network because of COVID-19) were entered into the regression equation. None of them were statistically significant as independent

variables. The full model of sociodemographic variables, study-related factors, and COVID-19-related factors was statistically significant, $R^2 = 0.224$, $F(7, 267) = 11.04$, $p < .001$.

Predictors for Loneliness

The second research goal was to examine the relationship between Loneliness and the same 18 potential predictors partitioned into groups as before and entered in separate steps into a hierarchical linear regression model. We calculated the Pearson and Spearman correlations between Loneliness and potential predictors; Table 3 presents the results. Predictors that were significantly

Table 5. Hierarchical multiple regression analysis predicting depression from sociodemographic, study related factors, and COVID-19 related factors ($N = 275$)

Predictors	B [95% CI]	β	Squared part correlations (sr^2)	p
Step 1				
Age	-0.697 [-1.164 to -0.231]	-0.174	0.030	0.004
Resources	-0.786 [-1.364 to -0.209]	-0.158	0.025	0.008
$R^2 = 0.062$				
Adjusted $R^2 = 0.055^{**}$				
Step 2				
Academic stress	0.450 [0.276 to 0.624]	0.341	0.077	0.000
Academic satisfaction	-0.163 [-0.343 to 0.017]	-0.112	0.012	0.075
$R^2 = 0.206^{**}$				
$\Delta R^2 = 0.144^{**}$				
Adjusted $R^2 = 0.194$				
Step 3				
Perceived risk of personal infection	0.015 [-0.203 to 0.234]	0.010	0.000	0.890
Perceived risk of personal severely illness due to COVID-19	0.107 [-0.108 to 0.322]	0.067	0.000	0.329
Perceived risk of severely illness of personal network due to COVID-19	0.136 [-0.052 to 0.325]	0.090	0.000	0.156
$R^2 = 0.224$				
$\Delta R^2 = 0.019$				
Adjusted $R^2 = 0.204$				

Table 6. Hierarchical multiple regression analysis predicting Loneliness from sociodemographic and study related factors ($N = 276$)

Predictors	B [95% CI]	β	Squared part correlations (sr^2)	p
Step 1				
Age	-0.583 [-0.824 to -0.342]	-0.276	0.075	0.000
Resources	-0.259 [-0.558 to -0.040]	-0.099	0.000	0.089
$R^2 = 0.092^{**}$				
Adjusted $R^2 = 0.086$				
Step 2				
Academic stress	0.176 [0.083 to 0.268]	0.252	0.042	0.000
Academic satisfaction	-0.089 [-0.185 to 0.007]	-0.116	0.012	0.070
$R^2 = 0.184^{**}$				
$\Delta R^2 = 0.092^{**}$				
Adjusted $R^2 = 0.172$				

correlated with Loneliness were included in the regression model. The sample size was deemed adequate, given the four independent variables included in the analysis. The scatterplot of standardized predicted values against standardized residuals values showed no evidence of violations of the regression assumptions of linearity, normality, and homoscedasticity. Collinearity assumption was also met.

Table 6 presents the results of this second regression analysis. In step 1, age groups ($\beta = -0.276$, $p < .001$) emerged as the only sociodemographic statistically

significant predictor to the regression model, $R^2 = 0.09$, $F(2, 273) = 13.89$, $p < .001$. In step 2, when study-related factors were included, age group ($\beta = -0.157$, $p < .01$) was still a significant predictor, whereas academic stress ($\beta = 0.252$, $p < .001$) emerged as the only study-related factor that was a significant predictor with the overall model still being statistically significant, $R^2 = 0.21$, $F(4, 270) = 17.49$, $p < .001$. Regarding the full model of sociodemographic variable, study-related factors such as COVID-19-related factors were statistically significant, $R^2 = 0.18$, $F(4, 71) = 15.32$, $p < .001$.

Table 7. Students daily activities frequency pre and during COVID-19 outbreak

	Mean	SD	SE mean	Paired <i>t</i> -test		
				<i>t</i> value	<i>df</i>	Sig (two tailed)
Hours spent in offline courses pre	16.75	25.904	1.597	6.992	262	0.000*
Hours spent in offline courses during	5.14	16.760	1.033			
Hours spent in online courses pre	5.92	13.160	0.844	-2.821	242	0.005*
Hours spent in online courses during	9.73	17.110	1.098			
Hours spent in personal study pre	19.09	26.735	1.701	1.921	246	0.056
Hours spent in personal study during	16.70	21.948	1.397			
Hours spent in paid job pre	8.21	15.929	1.055	1.700	227	0.091
Hours spent in paid job during	6.96	16.203	1.730			
Number of cigarettes smoked per day pre	1.63	1.393	0.083	0.017	54	0.987
Number of cigarettes smoked per day during	1.59	1.357	0.080			
Number of alcohol glasses drunk per week pre	3.84	29.649	1.762	1.283	282	0.201
Number of alcohol glasses drunk per week during	2.20	12.152	0.722			
Engage in vigorous activities pre	2.68	1.472	0.087	-0.948	283	0.344
Engage in vigorous activities during	2.77	1.522	0.090			
Engage in moderate physical activities pre	2.82	1.514	0.090	-2.171	283	0.031*
Engage in moderate physical activities during	3.03	1.477	0.088			

Changes in Daily Activities/Behaviors Before and During the COVID-19 Outbreak

To investigate changes in the frequency of students' daily activities before and during the COVID-19 Outbreak, we conducted a paired-sample *t*-test. The results indicated a statistically significant reduction of hours spent in offline courses during the COVID-19 outbreak ($M = 5.14$, $SD = 16.76$) compared to before ($M = 16.75$, $SD = 25.904$), $t(262) = 6.99$, $p < .001$. At the same time, there was a significant difference in the hours spent in online courses before ($M = 9.73$, $SD = 17.11$) vs. during the lockdown ($M = 19.09$, $SD = 26.73$), $t(242) = -2.82$, $p < .05$. The results further indicated a statistically significant increase in the frequency of engagement in moderate physical activities during the lockdown ($M = 3.03$, $SD = 1.477$) compared to before ($M = 2.82$, $SD = 1.51$), $t(283) = -2.171$, $p < .05$. *t*-test results were not significant for the rest of the daily activities (see Table 7).

Discussion

The COVID-19 pandemic affected the general population's mental health around the globe, with college students being a population heavily impacted by the pandemic aftereffects and considered a vulnerable population regarding mental health concerns (Browning et al., 2021; Cao et al., 2020; Elmer et al., 2020; Son et al., 2020; Wang et al., 2020). In the present study, more than half of the sample (89.7%)

reported either mild, moderate, or severe symptoms of depression, whereas the scores on the Loneliness scale indicated that most students felt lonely during the study period. These prevalence ranges appear to be slightly higher than those reported by previous studies with the general population in Cyprus (Papageorgiou et al., 2021) and thus add to the existing literature on the increased rates of mental health concerns among college students reported in previous studies in Cyprus and internationally (Cao et al., 2020; Drissi et al., 2020; Patsali et al., 2020; Solomou & Constantinidou, 2020; Son et al., 2020; Wang et al., 2020). The depression scores in this study also resemble those of other national studies (Belgium, France, and Greece) included in the international consortium, where the present study is included (De Man et al., 2021; Tavolacci et al., 2021; Stathopoulou et al., 2020). Because the methodology of these studies is the same, it increases the validity and generalization of the results. All previous studies, including the present study, provide cross-sectional data from various phases of the COVID-19 pandemic. The prevalence of depressive symptoms among the present cohort was much higher than the 30.6% prevalence reported under prepandemic conditions (Ibrahim et al., 2013). Moreover, in line with our findings about loneliness, a study with students in Switzerland reported that, because of the decrease of social interaction, students reported higher levels of stress, anxiety, and loneliness (Elmer et al., 2020). It is also possible that younger students did not have the time to fully develop a social supporting network compared to older students with established social life as university students. It is also a transitional period for

younger students and carries the extra burden of adjusting from high school to university. Social support is important and predicts well-being in general and during the pandemic (Gloster et al., 2020; Nicolaou et al., 2021).

Another main finding of the present study was that academic stress and academic satisfaction were associated with depressive symptoms and loneliness. Specifically, students with greater academic stress and lower academic satisfaction reported more symptoms of depression and felt lonelier. Most importantly, the Belgian study, included in the same international consortium as the present study, reported that academic stress was associated with substantially higher depressive symptoms severity scores (De Man et al., 2021). A similar study that examined the experiences of students in 62 countries indicated that students expressed great concerns about their academic and professional careers, leading them to feel frustration and anxiety (Aristovnik et al., 2020). In a very short time, students around the globe had to cope with a new reality in their academic, social and personal environment. They were faced with multiple challenges and needed to develop new skills, learn new electronic platforms, study in isolation and online, at home, etc. Students expressing dissatisfaction with the transition to online learning are more vulnerable to feelings of frustration and stress with regard to their academic obligations (Aristovnik et al., 2020).

Based on the first hierarchical linear regression, younger students with poorer economic capital systems were more likely to feel depressed. This is not surprising as it is well documented in the literature that limitations in financial resources are strongly associated with an increase in stress and depressive symptomatology (Aristovnik et al., 2020; Butterworth et al., 2009; Lorant et al., 2007). It was also found that younger students may be at a greater risk than older ones, because, contrary to older students, younger ones appear to be more concerned about their studies and financial obligations (Aristovnik et al., 2020). Second, during the pandemic, younger students spent more time on social media platforms than older students (Elhai et al., 2020; Hunt & Eisenberg, 2010). Thus, their increased exposure to news relating to COVID-19 amplifies the possibility of being exposed to risk-elevating messages that could contribute to anxiety and pose a threat to their mental health (Browning et al., 2021).

Further, during the quarantine, students needed to adjust their social lives according to the situation, all while living in already highly diverse environments. Their mental health during this period relied greatly on how much of their routines they had changed and on the support they were receiving both socially and financially (Ma & Miller, 2020). This observation leads us to the second hierarchical linear regression that suggests that younger college students with higher academic stress were more likely to feel lonely.

By maintaining a strong economic capital, students had the feeling of being supported in situations like these and were thus better protected from the vulnerability of feeling lonely.

Without a doubt, economic capital emerged as a very important risk factor for disturbance in the students' mental health. Entities such as the government and the university must recognize how students belong to vulnerable populations. Thus, new measures regarding dealing with the pandemic should consider the mental health and needs of college students and aim at lessening the stress of this population to improve their mental health. Special emphasis should be put on socioeconomic aspects, with measures focusing on helping with financial aspects such as rent, public transport, student loan payments, etc., as well as enriching their social support opportunities.

A not-so-surprising finding of the present study is that the COVID-19 pandemic and governmental containment measures contributed to other behavioral life changes too, such as an increase of time spent at online courses and a decrease in time spent in physical presence in courses. Undoubtedly, the pandemic challenged higher-education institutions tremendously. Universities had to adapt promptly by shifting to online learning rather than physical learning, resulting in more hours of lectures, conferences, practical work, and seminars. Students also had to rapidly adapt, which raised many concerns and worries about their academic issues and their future careers in the workplace (Aristovnik et al., 2020). Another behavioral change observed in the present study is that students in Cyprus turned to moderate physical activities, which agrees with the results from the Greek study of this consortium reporting increasing physical activity among female students (Stathopoulou et al., 2020). However, these results differ from the findings on students in other regions such as the United States (Wilson et al., 2021). Also, contrary to our results, the French study, included in the same international consortium as the present study, reported a decrease in physical activity (Tavolacci et al., 2021). Therefore, it is important to investigate how students in different parts of the world respond differently to the same crisis.

The findings should be interpreted with caution because of several limitations. First, the cross-sectional nature of the study limits the ability to make causality claims. Should the research be repeated in the future, it would be better to collect longitudinal data. Second, while the survey asked students about their behaviors and emotions during the lockdown, the data collection took place a few weeks after the lockdown period. Because of the retrospective nature of the study, participants might have had difficulty accurately remembering their past attitudes and feelings or exhibited prior psychopathology that could not be accounted for in this study. Third, regarding the sample,

we cannot overlook the possibility of a selection bias among the participants as well as the fact that the sample mainly consisted of young females, both of which can affect the generalizability of the results. However, the sample of this study was very close to the investigating population regarding pregraduate vs. postgraduate status, though there was an overrepresentation of first-year students. Fourth, recruitment through online surveying can also be a limitation for the data quality. Because participation was anonymous, we assume that participants completed the survey only once and with complete honesty. Moreover, we used self-report measures, which is a common survey study limitation. Fifth and last, while the selection of specific variables included in the models was based on the correlation analysis, variables that may have enabled additional insight into the outcomes of interest may have been excluded. It is also possible that the relationship between variables is bidirectional, the example being academic stress and depression. However, because the aim of the present study was to identify predictors for depression, we chose the present model. Further, longitudinal studies are needed to evaluate the possible long-standing effects of the COVID-19 pandemic on the mental health of university students.

The present study contributes to a growing body of research on the long-lasting psychological impacts of the COVID-19 pandemic on college students in Europe. The negative psychological effects on university students were previously reported during the height of the first wave and lockdown with its severe restrictions in movement (Solomou & Constantinidou, 2020). In the present study, we demonstrated that these effects continue with a different cohort of university students, once restrictions in movement were lifted and the epidemiological picture of Cyprus was optimal.

Conclusion

In a period of just a few months, the COVID-19 pandemic caused by a novel coronavirus radically transformed the lives of masses of people around the globe, including students of higher education. Participants in this study also expressed stress and depression associated with changes in educational mode during the pandemic. During the lockdown, students primarily raised concerns about their studies and were mainly bored, anxious, and frustrated. They also changed some of their behavioral activities. Our findings add to the existing literature and support the development of new measures to support students especially financially and psychologically. Institutions and policy-makers can influence students' well-being and are advised to implement measures focusing on the higher-education context that will aid students to more effectively deal with the pandemic situation and its aftereffects. Finally, these

measures should focus especially on younger students who experience more academic stress.

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Voices of Undergraduate Students With Disabilities During the COVID-19 Pandemic

A Pilot Study

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Abstract: Social distancing, lockdown, and other restrictive measures imposed because of the COVID-19 pandemic led universities to transfer to remote online instruction. Several studies examined the impact of online instruction on students' academic and socioemotional performance, whereas only limited research evidence exists concerning the performance of university students with disabilities (SWD) during online learning. This exploratory qualitative study aims to understand the experiences of nine undergraduate SWD during the COVID-19 pandemic. A thematic analysis revealed that SWD experienced multiple adversities related to academic (e.g., accommodations, communication with university instructors, academic advisor) and socioemotional (stress, routine disruption, lockdown effects) areas. We compared and contrasted our study findings with existing literature on creating equitable academic environments and reducing access barriers for all students.

Keywords: students with disabilities, academic supports, online instruction, accommodations, socioemotional well-being

The World Health Organization (WHO, 2020a) declared the coronavirus outbreak a global pandemic in March 2020. By August 2021, there were more than 209 million confirmed COVID-19 cases around the globe, including more than 4 million deaths (WHO, 2021a). Four genetic variants of the COVID-19 have been classified as posing an increased risk to public health (WHO, 2021b). The pandemic outbreak forced national authorities, in conjunction with the WHO, to develop an immediate response strategy to stop further transmission of COVID-19 and to collaborate with the international scientific community to identify preventative and remediating measures (WHO, 2020b). Current national efforts are concentrated on monitoring and controlling virus transmissions through testing and screening, imposing social measures (e.g., physical distancing, local or regional lockdowns, mask-wearing, travel restrictions, work-from-home programs, online instruction), introducing national deployment and vaccination plans against COVID-19, and building vaccine confidence and overcoming hesitancy (Figueroa, 2021; WHO, 2021c). Rapid research developments with public and private funds (European Commission, 2020; WHO, 2020c) led to the production, clinical testing, and manufacturing of various

vaccines across continents, documenting their efficacy on initial COVID-19 variants (e.g., Baden et al., 2021; Logunov et al., 2021; Polack et al., 2020; Voysey et al., 2021), while more research is currently underway to investigate the long-term impact of vaccines on the latest COVID-19 variants (e.g., Pouwels et al., 2021). Additionally, ongoing randomized clinical trials are examining the effectiveness of pharmacologic and nonpharmacologic treatments as well as other preventative treatments (e.g., vitamin C, zinc oxide, social distancing, etc.) (see COVID-NMA, 2021, for live updates).

In their efforts to control the COVID-19 transmission, during the last 18 months, higher education institutions transferred all conventional courses to remote learning (e.g., Meleo-Erwin et al., 2021; Pokhrel & Chhetri, 2021). The COVID-19 pandemic pushed universities to make a paradigm shift for online course delivery by employing e-learning tools, compatible software, and online platforms. Transitioning from face-to-face to online instruction drove instructors and students into “unfamiliar terrain” (Carolan et al., 2020, p. 1), as new teaching, assessment, and evaluation methods were introduced (e.g., Johnson et al., 2020; Sahu, 2020). Research evidence on student adaptability to

online learning revealed a range of difficulties related to online participation (e.g., work and information overload received from instructors), technical issues (e.g., inadaptability and unfamiliarity of the e-learning platform), and personal health challenges (e.g., stress, anxiety) (Al-Kumaim et al., 2021).

One student body that is particularly vulnerable to academic and psychological risks during the COVID-19 pandemic was students with disabilities (SWD) (Pokhrel & Chhetri, 2021; United Nations, 2020a, 2020b). According to Heward and colleagues (2017), SWD are persons whose physical, sensory, cognitive, and/or emotional characteristics differ from the norm to such an extent that they require an individualized education plan and related services and accommodations to fully participate in instructional processes. Recent policy briefs of the United Nations (UN, 2020a, 2020b) stated that the COVID-19 crisis significantly affected SWD and exacerbated pre-existing social and educational inequalities between students with and without disabilities. According to UN reports, SWD experienced difficulties with accessible software and learning materials, acquiring appropriate accommodations, receiving therapies, and feeling supported by their milieu. Researchers across the globe studied the impact of COVID-19 on various aspects of people with disabilities such as the availability of remote instruction and campus counseling resources for university SWD (e.g., Meleo-Erwin et al., 2021), the living conditions (Navas et al., 2021), or the health, well-being, and accessing services of adults with intellectual and developmental disabilities (e.g., Rosencrans et al., 2021), the mental health of parents and their children with disability (e.g., Asbury et al., 2021; Bentenuto et al., 2021; Trzcíńska-Król, 2020), the delivery of therapy services for children with disabilities (e.g., Murphy et al., 2021), and the mental health of adults with disabilities (e.g., Pettinichio et al., 2021).

Before the COVID-19 pandemic, academic institutions were slowly paving the way to depart from traditional conventional teaching to online courses. The growing student diversity and globalization trends had generally put pressure on universities to explore distance education while maintaining traditional course instruction. Nonetheless, the shift to online course delivery presented universities with several challenges. According to Chen (2009), the main barriers to adopting distance education courses included program expenditure (course development costs, platform maintenance costs) as well as faculty participation (limited interest, need for incentives, increased workload). However, in cases where online courses were designed and offered by academic institutions, SWD tended to be overlooked because of accessibility issues related to e-learning platforms, course materials, and instructional delivery (Edmonds, 2004).

The coronavirus outbreak obliged universities to rapidly offer traditional courses online with no sufficient time available to address the above accessibility issues (Logan et al., 2021; Meleo-Erwin et al., 2021). Interestingly, few research studies have been conducted thus far concerning the academic and socioemotional performance of university SWD during online instruction under pandemic conditions. Such empirical evidence is not encouraging about the effective inclusion and equal participation of university SWD in online learning environments. For instance, the study by Soria et al. (2020) investigated the experiences of 1,788 university SWD across nine academic institutions and produced several findings, including the hardships SWD face with financial costs (e.g., technology expenditure for online courses), limited university academic support, emotional distress and insecurity, and higher rates of mental-health issues compared to students without disabilities. Similarly, Zhang and colleagues (2020) examined the education and mental health of university SWD, utilizing a similar data collection method as in the study by Soria et al. (i.e., a survey) to compare a sample of university students with ($n = 147$) and without disabilities ($n = 119$). Their research documented that SWD reported higher COVID-19-related stressors (e.g., anxiety, stress, insomnia, lack of concentration, isolation) than peers without disabilities. Results for academic performance showed that university SWD were more concerned about classes going online and perceived significant consequences of online courses (e.g., worse grades, being unable to meet academic requirements online) compared to peers without disabilities.

More recently, Logan and colleagues (2021) and Ngubane-Mokiwa and Zongozz (2021) conducted qualitative research with university SWD in the United States and South Africa, respectively. Logan et al. conducted individual interviews with 66 undergraduate SWD in the STEM field and found that the online platforms presented unique challenges to SWD which could have been minimized by implementing accommodations. These researchers concluded that instructors and disability resource centers were not always in direct communication, which prevented SWD from receiving the appropriate accommodations necessary for their online STEM courses. The qualitative research of Ngubane-Mokiwa and Zongozz (2021) pointed out that COVID-19 exacerbated educational inequalities for SWD during online learning as higher education institutions followed exclusionary practices in exam administration and course delivery. Students were not provided with the appropriate support (e.g., assistive technology) nor were they tested on time compared with their peers without disabilities.

University SWD represent a heterogeneous group with varying accessibility and socioemotional needs. According to Article 24 "Education" of the UN's Convention on the

Rights of Persons with Disabilities (United Nations, 2006), governments are responsible for ensuring equal and equitable access to university SWD through reasonable accommodations and related services. The Republic of Cyprus ratified that UN human rights treaty and enacted a series of legislative acts to support the rights and the education of people with disabilities (e.g., “The Convention on the Rights of People with Disabilities and Related Topics Law of 2011,” “The People with Disabilities Law of 2000,” “The Education and Training of Students with Special Needs Law of 1999”). While international policies and national legislations provide the context in which universities ought to become inclusive and equitable, it is essential to understand how university SWD experience such academic contexts and to what extent they participate fully in classes and campus life with the appropriate accommodations and related services (e.g., advising). Furthermore, given the dearth of empirical evidence of the impact of the COVID-19 pandemic on the online learning participation of SWD, it is important to directly explore and record their voices and experiences to improve institutional policy and practices.

The current study was part of a larger funded project, whose goal was to investigate the impact of the COVID-19 outbreak on the academic and socioemotional needs of SWD at the secondary and university level during remote instruction. Specifically, the project consisted of two major studies. The first targeted secondary-level SWD and their families, where the research team sought to examine how online instruction under COVID-19 conditions affected student academic performance, and what type of special education and family supports were provided. The second study was conducted in two chronological stages, specifically exploring the academic and socioemotional needs of university-level SWD during remote learning and identifying ways to support their needs at the institutional level. The first stage took place in April 2021 and focused on a small sample of undergraduate SWD, where the research team pilot-tested its data-collection instruments (interview protocol, survey questionnaire); the second stage ended in July 2021 and included a larger sample of both undergraduate and graduate university SWD.

This paper reports the findings of the first stage of the second study. In our pilot study, we studied the voices of nine ($n = 9$) undergraduate SWD. The specific research questions addressed were:

- (a) How did undergraduate SWD experience academic online teaching (e.g., online course delivery, accommodations, communication with academic advisor) during the COVID-19 pandemic period?
- (b) In what ways did the COVID-19 pandemic affect the socioemotional well-being of undergraduate SWD (e.g., stress, routines, lockdown effects)?

Methods

Sample

After receiving ethical clearance, the research team contacted via email and/or telephone student disability and/or counseling services across six public and private universities in Cyprus in January 2021. Officers were asked to email the study invitation and consent form to their university students who had presented a documented disability. Students with disabilities who were interested in participating in the study first completed the online consent form and then proceeded to complete an anonymous online questionnaire. If the SWD were still interested in participating in the study, then they next provided their contact information (e.g., email, name, phone number) at the end of the online survey, so that the research team could contact them directly for an individual interview. Survey respondents were 62 university SWD across six universities coming from undergraduate and graduate levels; 9 of the undergraduate students chose to proceed with interview participation. Students who completed both research activities were awarded a EUR 20 voucher as a token of appreciation. Data collection for the pilot study ended in April 2021.

The target population of the pilot study derived from the three participating universities and comprised approximately 250 SWD, 24.8% of whom responded to the online survey invitation. Within that accessible population, 14.5% of the SWD participated in an individual interview. Given that the pilot study followed a qualitative approach, the focus lay on an in-depth understanding of the interview sample by targeting participants who would best answer the research questions (Check & Schutt, 2011; Hancock & Algozzine, 2016). Therefore, the study's sample size was defined by the nature of the research (Kumar, 2019; Patton, 2014; Schratz, 2020).

Table 1 presents the demographics of the interview sample based on sex, university, disability category, program, and academic year of study. All participants were undergraduate students from different academic fields such as social sciences, life and health sciences, and natural sciences. As Table 1 shows, most interviewees presented cognitive (e.g., specific learning disabilities, attention deficit hyperactivity disorder), or emotional difficulties (e.g., anxiety disorder).

Setting

Table 1 reveals that participants came from three academic institutions. Universities 1 and 2 were public and University 3 was private. According to the Cyprus legislation of the “Education and Training of Students with Special Needs Law 1999” [i.e., 113(I)/99] and its subsequent regulations (Cyprus Ministry of Education and Culture, 1999), the state

Table 1. Sample demographics of the interview sample

Student name	University ¹	Sex	Undergraduate program of study	Year of study	Disability
1. Marina	1	Female	Psychology	2nd	Anxiety disorder
2. Nicos	2	Male	Environmental studies	4th	Specific learning disabilities
3. Stavros	2	Male	Nursing	3rd	Specific learning disabilities
4. Elena	3	Female	Primary education	1st	Specific learning disabilities
5. Yannis	2	Male	Media communication	1st	Muscular dystrophy
6. Natalia	1	Female	Psychology	4th	Quadriplegia
7. Veronica	3	Female	Primary education	2nd	Specific learning disabilities, monoplegia
8. Anna	3	Female	Primary education	1st	Attention deficit hyperactivity disorder, anxiety disorder
9. Chryso	3	Female	Primary education	1st	Specific learning disabilities

Note. ¹Universities 1 and 2 were public (i.e., government-funded), and University 3 was private.

is responsible for providing the least restrictive environment possible for SWD. Specifically, the law and its regulations mandate the provision of support services to SWD, including individualized educational plans, assistive technology resources, accessible buildings, and other academic accommodations (e.g., exam modifications, part-time enrollment, translators, etc.). According to the 113(I)/99 Law, all public universities are obligated to provide all necessary accommodations and reasonable modifications to SWD, while private universities are only encouraged to do so. Unlike private universities, public universities receive governmental funding for ensuring the delivery of appropriate academic supports to SWD. Although the number of SWD is rising slowly in both public and private tertiary education (Cyprus Statistical Service, 2021), issues still remain with the deliverance to SWD of the appropriate provisions for assessing student needs and providing equitable access to services and academic supports. Researchers found that higher-education institutions in Cyprus should revisit their admissions policy as well as the inclusive practices incorporated into their conventional courses (e.g., Hadjidakou & Hartas, 2008; Hadjidakou et al., 2010).

During the COVID-19 pandemic period, public universities started the academic year 2020–2021 with a combination of face-to-face and hybrid formats, but in the middle of the first semester, they entered into full online instruction and retained the same instructional delivery mode through the end of the academic year because of the high increase of COVID-19 cases. The private university offered all courses online for the entire academic year. As far as the research team was aware, all three universities did not issue any announcements for specific supports to SWD during online instruction. All three universities had extensive experience in conventional and online course delivery.

Research Design

This exploratory qualitative research design used specific principles and guidelines from qualitative research to

describe and explore the perspectives of university SWD on the impact of COVID-19 on their academic and socio-emotional well-being (Creswell, 2018; Thomas, 2015). This design allowed for an in-depth and richer study of the target phenomenon (i.e., COVID-19 and SWD), for which the research team had preliminary knowledge. Additionally, the exploratory nature of the research design emphasized the “voice” of the participants, focusing on exploring and understanding their perceptions attributed to a social “problem” (Merriam & Associates, 2002).

Participant voices were studied thoroughly via semistructured interviews. Interviewing allows the collection of information about people’s beliefs and preferences and the in-depth exploration of participants’ motivations, experiences, and reasoning (Drever, 2003). Even though interviews are a very time-consuming process, particularly the transcription and data-analysis processes, we chose to conduct them because they empower the vantage point of the participants (Taylor, 2005; Low, 2007). Therefore, the use of semistructured interviews enabled participants to discuss not only the topics intended but also ideas that were digressions raised by participants themselves (Elliot, 1991). Given the governmental restrictions of social distancing and lockdown measures, the research team chose to conduct the interviews online. The benefits of online videoconferencing include convenient time scheduling and location for participants, such as talking while being in their home environment where they feel more comfortable (Deakin & Wakefield, 2014; Janghorban et al., 2014). In our study, it was particularly convenient for students with physical disabilities, who depended on their milieu for any transportation. Furthermore, online interviewing allows the use of a video camera, which enhances interactive communication and observation of the interviewees’ nonverbal and social cues (Cater, 2011; Stewart & Williams, 2005). Despite the reported benefits, the necessity of access to high-speed internet, familiarity with online communication, and possession of digital literacy may be factors that hinder the quality of online interviewing (Deakin & Wakefield, 2014; Hamilton

& Bowers, 2006). Some students were not familiar with the selected videoconferencing platform suggested by the research team (i.e., CISCO WebEx), in which case the interviews were conducted with alternative online platforms that were more familiar to students (e.g., Microsoft Teams, Zoom, Skype, etc.). To eliminate accessibility obstacles with the online platform, the research team provided detailed written instructions via email to all participants and then followed up with a phone call to ensure that all participants were able to have smooth online access to the e-platform. The research team facilitated the interviewees' efforts by giving them time to connect and were always ready to ask them to repeat their responses to ensure proper recording (Sigelman et al., 1982).

Data Analysis

We applied a process of inductive thematic analysis, which allowed the identification of themes emerging directly from raw data (Boyatzis, 1998). The research team utilized this type of qualitative analysis for several reasons. First, study data need not fit into some pre-existing coding frame or the research team's analytical preconception (Braun & Clarke, 2006); it gave space to the participant voices, which may have otherwise gone unheard (Boyatzis, 1998). Second, this analytic process describes how data are organized into patterns of semantic content and summarized for interpretation, theorizing their significance, their broader meanings, and their implications (Patton, 2014) concerning previous literature (Frith & Gleeson, 2004). Finally, the inductive thematic analysis allowed us to produce detailed and complex accounts of findings that emerge from data (Roulston, 2001).

Student interviews were audio-recorded and transcribed for thematic analysis, which was carried out in two stages. The first stage is *data preparation* (Harris, 1995): The audio recordings were transcribed using the free-access Live-Transcribe application, which converted the oral speech into written text. Then, the researchers listened again to each interview while correcting the transcribed text. Each interview transcription was turned into a Word document. All data were saved in a password-protected folder and stored both online as well as locally. The interview transcripts were first typed and saved in Greek. After completion of the thematic analysis, we translated the extracts selected into English to report them here.

The second stage was *data manipulation* (Harris, 1995). Data from all respondents were entered into the N-VIVO V.12 software. Conceptual codes were used to code the interview data to identify the themes of the study (Vaismoradi et al., 2016). That is, the interviewees' answers were summarized using specific codes that initially seemed to arise constantly in each interview and were later collated

across interviews. The interpretation of such coding resulted in the data-analysis themes. We explored and discussed the themes regarding the relevant literature. The thematic analysis of the interview transcriptions yielded two major themes – academic domain and socioemotional domain – from 268 coded units and seven categories. Table 2 shows a detailed breakdown of the themes, categories, and qualitative lexicon identified per category.

Research Procedures

We followed a two-step procedure to conduct the exploratory research study.

Step 1: Development of Interview Guide

The four-part interview protocol was scripted to allow consistency in the content covered during administration. It also allowed flexibility in the number of questions asked since the interview was semistructured. The first section included a brief overview of the study objectives and participant demographics. The next part pertained to the socioemotional domain, with probing questions concerning student feelings and thoughts on the continuous increase of COVID-19 cases and its possible impact on their daily routine activities. The third section comprised remote online instruction and how it had impacted their academic responsibilities and types of accommodations. The final section invited participants to share their plans upon exiting the pandemic period, to provide suggestions about academic supports for SWD, and to share any further comments on issues not discussed earlier.

Step 2: Procedures of Interview Administration

Interview administration averaged approximately 40 minutes per participant. Because of the COVID-19 restrictions, interviews took place online via a preferred platform (e.g., Skype, Zoom, WebEx, MS Teams) at a predetermined date and time suitable for each participant. The university students chose to have their cameras on or off. All interviews except one (i.e., Marina) were conducted with cameras running. Each research team member conducted three interviews. All interviewers followed the same interview protocol, and they also had the opportunity to pose additional questions depending on the interviewees' responses. To ensure consistency in the interview administration, the research team met before the start of the interviews as well as between interviews to review the administration steps and the interview protocol. Administration steps included: (1) developing rapport and building a trustful relationship with each participant so that they would feel comfortable, unthreatened, and safe about providing the researcher with the prerequisite data (Costley, 2000); (2) beginning with a greeting and introducing the study objectives and the

Table 2. Themes, categories, and qualitative terms of the thematic analysis

Themes	Categories	Qualitative terms (words/phrases utilized during data coding and analysis)
Academic domain	Online course delivery	Consequences of online teaching, connectivity to the internet, being present in the classroom, technical difficulties, difficulty concentrating, conventional classes, recording of the lesson
	Accommodations	Fewer/more facilities, supporting documents, I needed/I requested/I have access to, exams, academic performance, extra time, Webex, Proctorio, camera, online exams, communication with the professor, oral exams, assignments, reminder, late submission, tutoring, library, online resources/books, group/individual working
	Communication	Changes, training, better organization/communication/support practices/suggestions, equal opportunities, psychological support
	Suggestions for improvement	Communication with professors/fellow students/officers of the university/academic advisor, frequent communication, adaptations
Socioemotional domain	Stress	Increase of covid cases, pandemic, diseases, fear, anxiety, affected by COVID/ get sick, vulnerable groups, security/insomnia, anxiety, symptoms of coronavirus
	Routines	Daily habits/routines, hobbies, socializing, social media, social interactions, frequent communication/loneliness
	Lockdown effects	Psychologist, physiotherapy, treatments/online treatments, I did want to go/I stopped going, measures, protocols, risk of getting sick, were closed, coffee with friends/fun /traveling, stop using masks, feel safe to go out

purpose of the meeting; (3) asking for consent to record the meeting to improve the interviewer's note-taking accuracy; (4) starting the interview questions while actively listening to student responses and waiting to discover information – on occasions where participants digressed, the interviewer continued listening for a few minutes and then rephrased the question; (5) concluding the interview by thanking participants and reminding them about receiving their token of appreciation by email.

Credibility Measures

We administered two measures to establish the credibility of the study. First, we maintained an audit trail to keep track of interviews conducted at specific times and on specific dates. Second, we re-read all transcripts at least twice to ensure transcription accuracy. The transcription process took place immediately at the end of each interview to ensure the precise recording of student voices.

Reflexivity

The research team conducted regular meetings to discuss possible issues deriving from the interview administration and the transcriptions of the interviewees. We read the interview transcripts to become more familiar with the data before conducting the thematic analysis. During this process, each team member repeatedly reflected on and carefully documented every step of the procedures followed for the data analysis. The team members critically evaluated their values and understanding of the data content, made the most rational connections, and engaged in discussions to draw the most sensible conclusions of the topic under

study (Guba & Lincoln, 1992; Schwartz-Shea & Yanow, 2012). Furthermore, we created an online shared Google document, which was visited frequently by the team members. It provided a holistic account of study procedures related to sample size, interview administration process, and transcription. This tool enabled increased reflexivity among team members, thus ensuring the team's constant involvement with the study procedures (Baxter & Jack, 2008; King et al., 2019).

Results

Academic Domain

Online Course Delivery

This category pertained to the feelings and struggles undergraduate SWD had experienced during online courses during the COVID-19 academic period. All participants were strongly in favor of conventional courses, where physical contact and face-to-face communication were feasible. Online instruction brought feelings of stress and exhaustion to SWD and more so to those with cognitive and physical difficulties. For instance, Elena, with specific learning disabilities (SLD), explained that ...

I don't like taking online courses. I fall asleep, and I tend to not pay attention ... I can't concentrate ... because I don't like simply listening to a voice coming through my computer. It makes me feel tired ... I've tried, but I can't change this.

Likewise, Natalia, with quadriplegia, emphasized that being restricted in one location for many hours is exhausting:

It is tiring ... You are asked to stay focused in front of your computer for so many hours ... Even during short breaks between online courses, I barely have time enough to eat or drink something.

Participants with emotional and cognitive challenges tended to express low motivation to learn. Specifically, three interviewees lost their interest in gaining new knowledge or even completing assigned tasks during online courses. Marina with anxiety disorder stated that ...

I lost interest in studying ... I am locked up all the time at home. Unlike in conventional courses, where I could go to the campus, study in the library, and return home to rest or study a bit more. During online courses, I attend courses in the morning and in the afternoon, with very short breaks in between ... I had issues with staying organized and interested in the lesson.

Along the same lines, Yannis, with muscular dystrophy pointed out that ...

Our instructor would encourage us to participate online, but many students did not feel like participating ... The whole instructional approach was impersonal ...

According to participants' responses, online course delivery produced negative feelings about meeting course requirements. On some occasions, students felt that the degree of difficulty of exams and assignments had increased during online courses. Specifically, Nicos, with SLD, shared that ...

My academic performance was lower [than that in conventional courses] because the online exams were more difficult ... They were with open books and had open-ended questions asking critical thinking ...

Similarly, Stavros with SLD noted that ...

The way we were tested [i.e., with open books] and the lack of direct communication with our instructor lowered my academic performance ...

Accommodations

All participants shared examples of accommodations provided during exams and assignments (e.g., extra time, tutoring, reader) as well as any obstacles faced when receiving such support. Interviewees explained that it was easier to request instructors to provide the necessary accommodations in conventional courses. With online courses, direct communication and physical contact were not possible, and the instructors were not always responsive in providing accommodations. Marina, with emotional difficulties, described it more clearly as follows:

It is difficult to remind your instructor [for your accommodations] in front of others during online courses ... Some instructors even forget which students they need to provide such supports. The instructor's responsiveness varied even though the university [disability services] would inform them ... Some [instructors] would forget, and I could not ask for extra time during the exam. Once while taking a test, I asked one of my instructors for extra time, and [he] said, "I cannot change your time because the exam time has already been programmed" ...

Elena pointed out the delay in receiving academic supports, which exacerbated her feelings of stress and anxiety.

The most disappointing for me was when I realized that my instructors had not been informed on time about my SLD and my accommodations. I had a panic attack! ... It was not until the middle of the semester that the university notified them about my needs.

An additional accommodation obstacle participants shared was the lack of readjustment of specific supports during online course requirements. Some participants explained that certain accommodations for exams or assignments needed to be revisited as students felt that they had not been receiving sufficient support. Anna with ADHD explained:

I wish I could have more breaks during an exam and not have to sit still for 3 hours in front of the computer ... Because I was not permitted to get out of my seat [during the exam], I tried to finish my exam as fast as I could ...

Natalia, with quadriplegia, pointed out that the delivery of extra time during an online exam or assignments did not suffice:

I had been given extra time during face-to-face exams. But for online exams, the same time is not sufficient ... Attending classes online makes for an intensive schedule. Given my physical condition, I am slow in typing, I don't have a reader, nor do I receive any tutoring from the university ... I would definitely benefit from receiving extra time to complete my assignments online.

Communication

Participants experienced challenges when communicating with instructors for support during online classes or when discussing academic issues with their academic advisor. Specifically, three students shared that they were not at ease contacting their instructors via email. For instance, Nicos with SLD reasoned as follows:

It is definitely a difficult period [i.e., the pandemic] for everyone, especially when you are a person with a disability. Your daily struggle to keep up with deadlines and academic responsibilities is not easy ... Our instructors have been supportive, but the current situation makes it more difficult to get things done.

Unlike Nicos' case, Marina, with anxiety issues, had a different standing about communicating with her instructors:

It is not always easy to communicate directly with your instructors. If I had a question during an online class, I would not want to stay and ask it in front of others. Besides, there was not sufficient time to ask at the end of an online class ... So, I would email them [instructors] but they were late in responding. They would provide online office hours, but they did not suffice for everyone ... That's why I ended up asking classmates rather than my instructor ...

When asked about their level of satisfaction during interactions with their academic advisors, all participants positioned positively about the support they would receive. Such an example comes from Elena with SLD:

I am very satisfied with my communication with my academic advisor. When I finished my exams, they cared about my academic progress and my overall well-being. My advisor guided me to select courses for the next semester and was always responsive to my emails ... That is something all students need.

Suggestions for Improvement

In this category, four interviewees provided suggestions for improving their academic and overall well-being during online courses. Suggestions included maintaining systematic and individual communication with instructors for supporting their learning, readjusting some of the accommodations during online exams (e.g., extra time, avoiding deducting double points for any incorrect multiple-choice items), providing more psychological support during intensive course requirements, and inviting the academic community to create fun opportunities to bring students with and without disabilities together.

Socioemotional Domain

Stress

According to the findings, struggles to readjust to daily routines brought several negative feelings of stress and collateral effects of boredom, anger, and sadness. More specifically, all participants explained that the rapid increase of COVID-19 cases created feelings of anxiety and nervousness because they were restricted to the home.

Yannis, with muscular dystrophy, stated that ...

Yes, the whole [COVID-19] situation brought me stress and anxiety ... I get stressed about becoming sick. When I feel I might have a symptom like COVID-19, I get frightened. I avoid socializing with others until I can get vaccinated ... I stay with my family so I have some company ... But, I wish I had another friend with me at home ...

Marina, with anxiety disorder, explained that her stress levels had increased dramatically over the pandemic.

I have been experiencing daily headaches, increased panic attacks, chills, restless night sleeps, increased levels of stress ... It all stems from my anxiety toward COVID-19.

Further to Yannis' and Marina's experiences is Elena's account about her becoming stressed with the rapid COVID-19 cases:

Let's take things from the beginning ... It was my last year in high school when the pandemic broke. I started thinking about my high-school graduation, going on vacation, spending my last days with my classmates ... These are life events I wanted to experience ... Everything was canceled ... It was a psychological war for me ... After entering the university, I started classes, and I ended up being locked down at home for at least a month ... It has been extremely difficult for me to adjust to this pandemic. My well-being has been affected for sure ... I get easily stressed. I often find myself having chills, fearing that I have caught COVID-19 ... It still is a psychological war for me.

Interestingly enough, only one participant provided a more rational approach to handling stress and anxiety during the pandemic. Stavros, with SLD, who was studying nursing, explained:

I don't feel scared. When you follow the protective measures, it is not easy to get infected with COVID-19. Besides, as nurses, we are always in danger of getting infected by other diseases. We have been taught how to protect ourselves by wearing a mask, how to dress appropriately before approaching a patient ... I was not feeling afraid because I knew my chances of getting sick were slim as I was protecting myself appropriately.

Routines

This category focused on how interviewees had to readjust their daily routines to cope with stress. They shared that they had to improvise several ideas about spending their time creatively, such as socializing through online media,

doing house chores, reading for pleasure, listening to music, writing, spending time with pets. Veronica, who had SLD and monoplegia, took a positive behavioral stand toward her negative feelings:

Initially, I was very stressed, especially when I would watch on the news that people were dying because of COVID-19. The fact that you are required to stay home to protect your and your family's health did not help my psychological well-being . . . I have to stay home all day. But it is what it is. I have tried to do gymnastics at home or even spend more time with my mom.

Similarly, Elena managed to change her routines over time during this pandemic:

You know, during the initial lockdown, I would stay home all day eating ice cream and watching movies. I did not do any physical exercises. Now [i.e., during the second lockdown], I have readjusted things. I go out with my friends, I clean my apartment, I cook, I go out for a walk.

All but one student responded favorably about making changes in their life because of COVID-19 restrictions. Marina, with anxiety disorder, was still not able to adjust her life routines and struggled severely with her anxiety disorder:

My routine [before COVID-19] was very structured. I went to work, attended classes, and afterward hung out with my friends. Now, we are most of the time locked up in a room. Life now is so monotonous. I even work from home now. On the one hand, I get it: We are protected by this virus when we isolate ourselves. On the other hand, being lonely is very difficult for people who live alone. I have been having a hard time studying and concentrating.

Lockdown Effects

Based on the responses of the interviewees, five SWD spent their time creatively without sharing any concerning thoughts and feelings about being restricted. However, the rest of the students (Elena, Marina, Natalia, Chryso) seemed to struggle to cope with the restrictions of the lockdown effects. According to Marina's account . . .

I was not feeling well psychologically during the lockdown. My symptoms of anxiety increased, and I was unable to study for my courses . . . This negatively affected my grades this semester.

Further, Elena shared several times her psychological issues about dealing with COVID-19. During the lockdown, she mentioned her opposition to adhering to the lockdown order:

I keep up with my daily activities. I hang out. I don't care anymore. My family is in Greece now, so they are not close to me. So, I don't run the risk of infecting them if I catch the virus.

Discussion

Using semistructured interviewing, the present pilot study aimed at understanding the academic and socioemotional needs of nine undergraduate SWD during remote online instruction during the COVID-19 pandemic. The main qualitative findings revealed that SWD experienced several challenges related to academic (e.g., accommodations, communication with university instructors, academic advisor) and socioemotional (stress, routine disruption, lockdown effects) domains. Our study findings support previous research documenting the challenges SWD faced during online instruction and document the barriers to equal and full academic participation during the pandemic (Meleo-Erwin et al., 2021; Soria et al., 2020; Zhang et al., 2020). Specifically, students with cognitive and/or emotional difficulties experienced difficulties paying attention online for long periods, received insufficient communication and guidance from instructors, and some developed low motivation for learning. Similarly, Horgos and her colleagues (2020) found that students with emotional or mental-health conditions were less likely to agree that the university had supported them during online instruction. Instead, they experienced more challenges (e.g., lack of adequate study spaces and lack of technology necessary to complete online learning) than students without disabilities. Zhang and colleagues (2020) concluded that university SWD experienced more adversities with online instruction than their peers without disabilities during the pandemic period. In fact, SWD reported signs of distress, difficulty with concentration, insomnia, isolation as well as expressing worries about receiving low grades and being unable to meet online course requirements.

In our study, students with physical disabilities (e.g., muscular dystrophy, quadriplegia) developed a feeling of physical and emotional exhaustion upon switching from one online class to another and with limited time to rest, while longer timeouts provided as an online exam accommodation were insufficient. Similarly, Soria et al. (2020) showed that undergraduate students with physical, learning, neurodevelopmental, and cognitive disabilities experienced higher rates of major depressive disorder and generalized anxiety disorder than students without disabilities. SWD were also significantly less likely than students without disabilities to feel that universities supported them during the COVID-19 pandemic.

As documented in the international literature, over time SWD face many accessibility obstacles to higher education, including institutional, attitudinal, and disability-specific barriers (e.g., Strnadová et al., 2015). Hadjikakou and colleagues (2010) examined the voices of Cypriot SWD in tertiary institutions and found that university officers lacked disability awareness: There was no clear and welcoming policy admission entry for SWD, and no formal policy existed for supporting SWD during the semester. When such barriers ensue, SWD tend to feel more distressed and worried about their academic survival. SWD need to function under a structured and supportive learning environment, where effective supports (e.g., academic advisor) and academic accommodations are already in place (Heward et al. (2017)). The academic advisor is frequently the student's only connection to the university who could potentially have a significant impact on student's academic career and level of satisfaction with their college choice. Hong (2015) examined the voices of 16 university SWD and found that the student academic advisor was listed as the second most cited barrier. Advisors who demonstrate a lack of knowledge and responsiveness to the inquiries of SWD create a distressing academic relationship with their advisees. Unlike Hong's findings, however, in our study, all but one participant positively mentioned the relationship with their academic advisor.

When designing and delivering online courses, instructors ought to think inclusively and holistically by accommodating the needs of their diverse learners. Instructors should first try to understand and identify barriers to online learning for a specific student and then seek possible options to facilitate the learner's needs (Rice & Dykman, 2018). Previous research indicated that the successful inclusion of university SWD depended significantly on accommodations provided by disability services (Abu-Hamour, 2013). Usually, the primary accommodation given is extended time (Terras et al., 2015), which is considered one of the "easier" accommodations instructors can deliver, irrespective of a student's disability (Phillips et al., 2012). According to our findings, accommodations were not always delivered on time or sufficiently, which elevated the stress level of SWD when requesting them in front of their classmates. It was also evident in some interviewees' responses (e.g., Marina, Elena) that instructors were not even aware of possible student accommodations. Phillips et al. (2012) examined the online accommodation experiences of faculty at one public university and found that the faculty had the perception that SWD chose to self-accommodate or, for whatever reason, chose not to request any accommodations from their online instructors. According to Getzel and Thoma (2008), SWD experienced several difficulties when asked to take the responsibility of managing their accommodations along with their academic courses. One such difficulty is the perception SWD exhibit

that their disabilities may negatively impact their ability to succeed in online courses (Roberts et al., 2011). Thus, SWD may not report their disabilities since they are unaware of their functional limitations and are unsure what accommodations to request in online settings which might meet their needs (e.g., Hong, 2015). It is important to note that some accommodations may be ineffective and inappropriate since they are assigned based on the student's disability rather than the student's actual contextual and functional needs (Kurth & Mellard, 2006). Adhering more closely to the principles of universal design could give an alternative form of assessment compared to more traditional timed tests (Barnard-Brak et al., 2010) and would improve distance education not only for SWD but for all types of learners (Catalano, 2014).

Another important aspect of this study was understanding how the socioemotional well-being of SWD was impacted during the pandemic. All participants extensively described their stress and anxiety levels resulting from negative thoughts related to COVID-19 and its restrictive measures (e.g., getting possible COVID-19 symptoms, having family members being affected). Although the lockdown proved to prevent the spread of COVID-19 (Abdullah et al., 2020; Atalan, 2020), prolonged impositions can be detrimental to SWD (Scheer & Laubenstein, 2021). Our results are consistent with previous studies that demonstrate SWD presenting increased levels of stress, distress, and anxiety during the COVID-19 pandemic (e.g., Soria et al., 2020; Zhang et al., 2020). Previous studies also showed that SWD have persistent difficulties interpreting their complicated emotions (e.g., Margalit, 2004). As a result, they are more likely to have a limited ability to cope with negative emotions and apply avoidance to cope with unpleasant feelings (e.g., Margalit & Al-Yagon, 2002). One such example in our study was Marina, who repeatedly described how her anxiety symptoms had exacerbated and had prevented her from functioning well both emotionally and academically.

Furthermore, we found that almost all participants readjusted their daily routines while staying at home. Almost all participants developed new routines (e.g., writing, cleaning, cooking, exercising, walking pets) to tackle boredom and reduce the feelings of stress and anxiety. According to Ravalli and Musumeci (2020), maintaining a regular workout routine in a natural environment or at home is a revitalized approach for confronting the physical and mental effects of inactivity as well as managing stress and anxiety.

Implications for Practice

The coronavirus is a serious public health issue that tends to remain in our lives longer (Figueroa, 2021). It is time for universities to take advantage of the lessons learned from the COVID-19 pandemic and online instruction and reflect on

their existing policies and practices whether they are welcoming and universally designed for SWD (Collins et al., 2019; Moríña, 2017; UN, 2006). To this end, this pilot study provides several implications for practice. First, academic institutions need to revisit their admission-entry procedures and forms by providing SWD with a welcoming and smooth process to disclose information about their needs. Second, disability officers should inform instructors about student accommodations during the early weeks of the semester and then again in the middle and at the end of each semester. Providing access to academic support and tools to SWD is a fundamental principle of accessibility and inclusion in higher education (Meleo-Erwin et al., 2021). Finally, the university counseling services should provide emotional and social skill support to SWD in the areas of self-determination and assertiveness to empower them to clearly and convincingly identify and articulate their needs and goals to their instructors and advisors.

Study Limitations and Suggestions for Future Research

All research studies present certain limitations that need to be acknowledged to allow improvements in future replication efforts. First, accessing the highest possible number of students was pivotal to this pilot study, which aimed to give prominence to the students' voices. It is obvious that we had no control over the sex of participants nor even over the number of students enrolled at each university. We recruited the maximum number of students who could be accessed, and all were included. However, this study does not aim to make generalizations or suggest how the participants' sex affected their beliefs. Future replications with larger samples could permit comparisons across types of disability and sex. Second, we did not have enough data available to indicate in-depth how the concerns and perceptions of the participants differed based on the type of their disability. This may be further explored and analyzed upon the completion of the data collection of the larger project. Finally, translating data from Greek to English may be considered another limitation. Although every effort was made in the translation process to keep the actual content of the participants' perspectives, it was not always feasible to report students' idiomatic expressions. These were paraphrased to follow the terminology and grammatical and syntactical structure of the English language (Filep, 2009). Nonetheless, the translation was scrupulously done to ensure its accuracy in English.

Conclusion

This exploratory qualitative research study reveals the voices of a vulnerable group toward the struggles they

experienced in academic and socioemotional domains during the COVID-19 pandemic. Supporting university SWD requires a shift in policy and practice toward inclusive education for all (Collins et al., 2019; Dickinson & Gronseth, 2020). As universities welcome student diversity, it is important to establish clear procedures and systems of support to provide equitable learning opportunities and reduce access barriers for all students.

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Impact of Consumer Emotional Intelligence on Satisfaction With Life During the COVID-19 Pandemic

The Mediating Role of Impulsive Buying Behavior

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Abstract: This study investigates the role of emotional intelligence (EI) in consumers' satisfaction with life (SWL), particularly during the COVID-19 crisis. It looks into the relationship between consumer EI, impulsive buying (IB), and SWL, particularly during the dreadful COVID-19 pandemic. It also reflects on the mediating role of IB in the indirect association between consumer EI and SWL. The data were collected from 483 public-sector university graduates in Islamabad, Pakistan. Findings reveal a significant association between consumer EI and IB as well as between consumer EI and SWL. In addition, consumer IB behavior played a significant mediating role in the indirect relationship between consumer EI and SWL: When consumers have a high level of EI, their involvement in IB is low, and they are more satisfied with their lives. This study helps consumers to understand how to effectively manage emotions ensuing during shopping experiences to control their buying behavior. The study also broadens our understanding of how EI can help consumers to remain satisfied during the COVID-19 crisis.

Keywords: consumer emotional intelligence, COVID-19, impulsive buying behavior, satisfaction with life, shopping experience

Pandemics are not a modern phenomenon; they have been documented since ancient times (Huremović, 2019). Each past pandemic resulted in significant changes in the economy, regional and global policies, social behavior, and citizens' attitudes (Cao et al., 2020). The COVID-19 pandemic has compelled people in most countries to keep social distance and stay at home to protect themselves. This situation also led to the closing of schools, marketplaces, and shopping malls, thus affecting consumer psychology, emotions, and behaviors (Morón & Biolik-Morón, 2021). Anxiety, discomfort, and tension caused by the COVID-19 pandemic can affect young consumers' emotions (Morón & Biolik-Morón, 2021). The ability to perceive, use, comprehend, and manage emotions is commonly referred to as *emotional intelligence* (EI) (Colman, 2015). The concept of EI has been used in literature since 1964 (Davitz, 1964). According to Goleman (1995), EI can be categorized into abilities including emotional awareness, emotional management, self-motivation, empathy, and relationship handling. Mayer et al. (2003) stated that EI is measured with ability-based scales and is considered a set of skills that deal with the processing of emotion-relevant information.

Different scholars investigated the impact of EI in reshaping an individual's behavior during the COVID-19 crisis. This topic was particularly important during the pandemic, which has confined many people to their homes and hampered their income-generating activities (Omar et al., 2021). The COVID-19 outbreak induced considerable emotional discomfort, including fear of the disease, anxiety, despair, and anger (Dai et al., 2020; Zheng et al., 2020). Even young people who are not at high risk for the disease are also stressed. EI, particularly in youths, can help reduce and cope with anxiety and stress brought on by the pandemic fear (Huang & Zhao, 2020; Khan, 2021; Khan, Khan, et al., 2020). Individuals with a higher level of EI are likely to be happier and more satisfied with their lives, which can then help them cope with stress brought on by a pandemic or their employment (Cao et al., 2019). Trait EI is related to both mental and physical health in a significant and positive way (Spence et al., 2004). As expected, a higher level of EI is negatively correlated with negative emotions and vice versa during the COVID-19 pandemic (Sun et al., 2021).

In a study conducted by Ekici and Watson (2021), consumers who possess a higher level of EI, positivity, and hope

experience greater *satisfaction with life* (SWL) during COVID-19 than those who are characterized by “escape” behaviors. Bagozzi et al. (1999) investigated the role of emotions in marketing and discussed how positive and negative emotions predict customer satisfaction and postpurchase behavior. Consumer satisfaction leads to SWL through the adoption of different lifestyles (Füller & Matzler, 2008). Lim and Kim (2020) found that consumer EI aids in consumer decision-making, allowing consumers to make effective and wise decisions to distinguish between inferior and superior product dimensions (Khan, Ali, et al., 2020). Customers with a higher level of EI are less inclined to engage in *impulsive buying* (IB), which helps low-income families stick to their household budgets (Nair & Das, 2015).

According to several recent studies, the COVID-19 pandemic had a detrimental psychological impact on consumer buying behavior (Huang & Zhao, 2020). Consumers’ negative psychological states are strongly linked to IB (Silvera et al., 2008), which, in turn, lowers SWL. Psychological crisis management for COVID-19 can focus on achieving emotional stability, facing fear, monitoring discomfort, and enhancing coping (Khan, Khan, & Soomro, 2021; Ran et al., 2020). EI, which is defined as the efficient processing and handling of emotional cues (Mayer et al., 2004), can be a critical protective factor during a pandemic. However, further research is needed to explore how EI affects SWL during pandemic crises, with a focus on the marketing domain. The latter is frequently overlooked in the popular debate on the impact of EI on consumer behavior and satisfaction during the COVID-19 crisis. The new situation created by the COVID-19 pandemic has piqued marketing scholars’ interest, compelling them to investigate the impact of EI on consumer SWL.

This study investigates the relationship between consumer IE and SWL, through consumer IB. Kidwell et al. (2008) defined consumer EI as a person’s ability to skillfully use emotional information to achieve the desired consumer outcome. For example, when consumers possess strong emotional regulation skills along with emotional confidence and emotional ability (Khan, Khan, & Soomro, 2021), they tend to make higher food quality choices (Arora et al., 2017; Khan, Khan, et al., 2020). In contrast, when consumer EI is low, consumer IB behaviors can lead to negative behavioral outcomes, such as dissatisfaction, regret, and disappointment, which in turn can lead to a loss of customer loyalty (Khan, Ali, et al., 2020; Rao & Ko, 2021) and life dissatisfaction. This study adds to our understanding of the impact of consumer EI on consumer SWL during the COVID-19 crisis, with an emphasis on university students. It also enhances our understanding of the mediating role of consumer IB in the relationship between consumer EI and consumer SWL (see Figure 1).

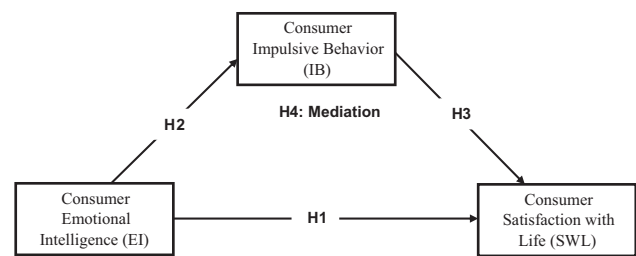


Figure 1. Research framework.

Hypothesis Development

Shin and Johnson (1978) defined SWL as “a global assessment of a person’s quality of life according to his chosen criteria.” Diener et al. (1985) developed the SWL measure, and their findings show that SWL is one of the components of subjective well-being (Bano et al., 2019; Silvera et al., 2008). The present study focuses on understanding the relationship between consumer EI and SWL from a consumer perspective to develop a deeper understanding of the role of emotional management in consumer behavior. Sun et al. (2014) noted that a higher level of EI increases the SWL of individuals by boosting their level of core self-evaluation. Kong et al. (2012) argued that a higher level of EI helps in recognizing, managing, and controlling emotions with one’s own self-awareness.

Hypothesis 1 (H1): A direct significant positive relationship exists between consumer EI and SWL.

Bayley and Nancarrow (1998) defined IB as an “unexpected, compelling, hedonically complex buying behavior in which the rapidity of an impulse decision process precludes thoughtful and deliberate consideration of alternative information and choices.” Omar et al. (2021) characterized IB as a consumer buying tendency that takes place when the purchase is made randomly, spontaneously, and immediately. A higher level of consumer EI lowers the feeling of guilt, and they can enjoy an economic shopping experience by not engaging in IB in a pleasant retail setting (Nair & Das, 2015). EI predicts IB negatively and self-esteem positively. Buying decisions based on immediate positive emotions are for the sake of joy and immediate happiness (Khan, Khan, & Moin, 2021), and most of such decisions lead to an increase in IB (Luce, 1998). With the proper use of emotion management skills, customers do not indulge in unplanned buying (Peter & Krishnakumar, 2010).

Emotional ability and emotional knowledge allow customers to make better buying decisions (Khan & Khan, 2021). Emotionally dysregulated customers, on the other hand, make poor decisions, resulting in IB (Jung, 2017), possibly through a lower ability to process information (Weinberg & Gottwald, 1982). According to Bearden et al. (1993), consumers high in EI are less involved in impulsivity

as they have a better ability to understand and manage their emotions.

Hypothesis 2 (H2): A direct significant positive relationship exists between consumer EI and IB.

According to the literature, rational decision-making assists customers in valuing their buying behavior (Kemp et al., 2018). People cannot set their living standards if they are unable to evaluate their current state of life (Kanwal, Pitafi, Malik, Khan, & Rashid, 2020). Irrational decisions can lead to a more dissatisfied and unbalanced life (Liu et al., 2017). Roberts et al. (2015) considered addictive buying to be caused by materialism and lack of knowledge, which increases IB and decreases SWL. Similarly, Silvera et al. (2008) suggested that consumers' negative psychological constructs regarding SWL are very closely associated with IB. Furthermore, IB can result in negative evaluations, including dissatisfaction, regret, and disappointment. At extreme levels, such evaluations during shopping can lead to a reduction in customer loyalty (Lin et al., 2018). In line with the above evidence, Karimi et al. (2018) suggested that IB can lead customers to dissatisfaction with life, whereas planned and purposeful purchasing decision results in SWL. Thus, we propose the following hypothesis.

Hypothesis 3 (H3): A significant relationship exists between IB behavior and SWL.

Previous scholars supported the mediating role of IB in several consumer behaviors and outcomes. During a shopping experience, IB mediates the relationship between hedonic shopping motivations and willingness to buy counterfeit goods (Fenneman & Frankenhuys, 2020). Saad and Metawie (2015) suggested that IB tendency mediates the relationship between personality as well as store environmental factors and IB behavior. Similarly, Tremblay (2017) proposed that IB mediates the relationship between personality traits (agreeableness, neuroticism, and openness to experience but not extroversion and consciousness) and compulsive buying. Phan et al. (2020) discussed that IB mediates the relationship between materialism and personal financial behavior. Thus, we propose the following hypothesis.

Hypothesis 4 (H4): IB mediates the relationship between consumer EI and SWL.

Method

Data Collection

This study was conducted from July to November 2020, when the COVID-19 pandemic was at its peak and students were taking classes online. Students from public-sector

Table 1. Demographics

Variables	N	%	Variables	N	%
Sex			Qualification		
Male	185	38.30	Undergraduate	273	56.52
Female	298	61.70	Graduate	141	29.19
Age			Masters	65	13.04
< 22	122	25.25	MS/PhD	4	0.828
23–25	245	50.72	Marital status		
26–29	97	20.08	Single	463	95.86
30–33	17	3.52	Married	19	03.93
> 33	2	0.41	Divorce	01	0.21

Note. N = 483.

universities in Pakistan's twin cities (Islamabad and Rawalpindi) provided the data for this study. This study sought the help of students from various colleges who agreed to take part in virtual data-collection activities. The data were collected from public-sector university graduate students using purposive sampling. They were collected via a variety of social media platforms, including Facebook, WhatsApp, Twitter, and LinkedIn. Purposive sampling aids in the identification of survey participants who are interested in shopping. The data were gathered online because most university campuses were closed down because of the disruption caused by the COVID-19 virus.

The responses were collected using a survey questionnaire created in Microsoft Word and Google Docs. The questionnaire was written in English and used a 5-point Likert scale. A total of 510 questionnaires were distributed online to identify respondents who were ready to provide feedback, and 498 of them responded within the specified timeframe. After removing the questionnaires that had missing or inaccurate information, 483 valid questionnaires remained for further analysis. According to the demographics, the response rate was 94%, and most respondents (61%) were female. 50% of the respondents were between the ages of 23 and 25 years, and most students (56%) were undergraduates. Furthermore, most survey participants (95.86%) were single and were studying at various universities. Table 1 contains the demographic statistics.

Measurement Scale

Consumer EI

Kidwell et al. (2008) developed the 18-item EI Scale used in this study. All responses were measured on a 5-point Likert scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). The value of Cronbach's α was 0.683). A sample item of this scale was "Do you feel frustrated when purchasing something expensive and interacting with an incompetent salesperson."

Table 2. Descriptive statistics, correlations, and Cronbach's α values

	Mean	SD	1	2	3
Consumer EI	2.8755	0.37235			
Consumer IB	3.1081	0.52406	.093*		
Consumer SWL	4.2497	1.20663	-.005	.181**	

* $p < .05$, ** $p < .01$.

IB

In this study, we used the impulsive buying behavior scale developed by Rook and Fisher (1995) to measure IB. Responses were measured on a 5-point Likert ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). Cronbach's α was 0.704). A sample item of this scale was "Sometimes I feel like buying things on the spur-of-the-moment."

SWL

This study used the satisfaction with life scale developed by Pavot and Diener (1993) to measure consumer SWL on a 5-point Likert scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). Cronbach's α was 0.712). A sample item of this scale was "If I could live my life over, I would change almost nothing."

Data Analysis and Results

Descriptive Statistics

The SPSS-24 version was used for data analysis. First, we checked the data for normality and applied the missing values test. Cronbach's α reliability (Table 2) was checked for all scales. Mean, minimum, and maximum values of each variable, including demographic items, were derived from descriptive statistical analysis.

Correlation Analysis

Multicollinearity is more likely when the correlation coefficient is greater than 0.70 (Tabachnick & Fidell, 1996). We used Pearson's correlation to evaluate the correlation between variables and one-way ANOVA for identifying the effect of demographics. In our data, however, the correlation between any two variables is lower than the benchmark, indicating that all measurements in this study are suitable for regression analysis.

Mediation Regression Analysis

The Preacher et al. (2007) mediation approach (path analysis) was used to evaluate mediation by conducting a regres-

sion analysis. This is bootstrapping technique demands a large number of samples (5,000), and then for each sample, the indirect effect is computed. Table 2 indicates that consumer EI is significantly correlated to variable SWL ($r = 0.181^{**}$, $p \leq .01$). This supports the first hypothesis that consumer EI has a significant positive relationship with SWL. Also, we showed that consumer EI is significantly correlated to the mediator, IB ($r = 0.184^{**}$, $p \leq .01$), which supports the second hypothesis that consumer EI has a significant relationship with IB behavior. Similarly, the mediator, IB is also significantly correlated to the dependent variable SWL ($r = 0.247^{**}$, $p \leq .01$), which provides initial support to the third hypothesis that IB is significantly correlated to SWL.

We used regression analysis to investigate the hypothesis that IB mediates the effect of consumer EI on satisfaction with life. Table 3 (path a) indicated that consumer EI was a significant predictor of IB, $\beta = 0.2583$, $SE = 0.0631$, $p < .05$, and that IB was a significant predictor of satisfaction with life, $\beta = 0.5098$, $SE = 0.1025$, $p < .05$. These results support the mediational hypothesis. The path c shows that consumer EI has positive significant effect on satisfaction with life ($\beta = 0.5876$, $SE = 0.1453$, $p < .05$). When we introduced the mediator, IB, into the model, consumer EI still significantly and positively affected satisfaction with life, though its strength was reduced, as shown by the reduction of coefficient (β) from 0.5876 to 0.4558 with p -value .0001, which is less than .05 and consistent with partial mediation. Approximately 8.03% of the variance in satisfaction with life was accounted for by the predictors ($R^2 = 0.0803$).

The indirect effect was tested using a bootstrap estimation approach with 5,000 samples. These results indicated the indirect coefficient was significant, $\beta = 0.1328$, $SE = 0.050$, 95% CI = 0.0518, 0.2525. Consumer EI was associated with an approximately 0.13 points higher satisfaction with life scores as mediated by IB. The value zero (0) does not fall between the two limits 0.0518 and 0.2525, which support there being a significant mediation by IB.

Discussion

This study looked into the relationship between consumer IE, IB, and SWL during the COVID-19 pandemic. It examined the roles of EI in customer decision-making as well as its broader implications in a pandemic crisis from a marketing perspective. Overall, its findings supported our proposed theoretical framework by indicating a significant effect of consumer IE on consumer behavior and life satisfaction during the COVID-19 pandemic. These findings are also consistent with previous studies in the normal work setting (Nair & Das, 2015; Urquijo et al., 2016).

First, we hypothesized that consumer EI has a direct and positive relationship with SWL. Emotions, in combination

Table 3. Mediation regression analysis

Model no.	Variable	Coefficient (β)	SE	t-value	p-value
1	IV to mediator (a path)				
	IB	.2583	.0631	4.0953	.0000
2	Direct effects of the mediator on DV (b path)				
	IB	.5098	.1025	4.9726	.0000
3	The total effect of IV on DV (c path)				
	CEIS	.5876	.1453	4.0435	.0001
4	The direct effect of IV on DV				
	CEIS	.4558	.1443	3.1589	.0017
Model summary for DV model					
R^2	Adjusted R^2	F	df1	df2	p
.0803	.0764	20.9416	2.0000	480.0000	.0000
Bootstrap results for indirect effects					
Indirect effects of IV on DV through proposed mediators (ab paths)					
	Data	Boot	Bias	SE	
Total	.1317	.1328	.0011	.0500	
IB	.1317	.1328	.0011	.0500	
Bias corrected confidence intervals					
	Lower	Upper			
Total	.0518	.2525			
IB	.0518	.2525			

Note. $N = 483$. $p \leq .05$ (significant).

with cognitive decision-making models, play an essential role in individual decision-making, and we examined whether this is the case also in the current pandemic crisis caused by COVID-19 (Durante et al., 2021). Emotionally intelligent consumers make proper use of their budget and purchase better quality, efficiently priced products and services, and their emotions predict their consumer choices, as discussed by Bagozzi et al. (1999). Our results supported this hypothesis, consistent as well with a previous study conducted by Sun and Shang (2014), which produced a link between EI and satisfaction, particularly among young consumers (Bhalerao & Sharma, 2017), and this relationship remains significant in the pandemic situation.

Second, we argued that EI has a significant relationship with IB, as found in previous studies by Nair and Das (2015) and Peter and Krishnakumar (2010). Consumer behavior and emotion are influenced by the COVID-19 epidemic (Khan, Hui, Khan, & Soomro, 2021), which may influence IB behavior. Consumers' shopping experiences during the COVID-19 crisis need to rely on high EI to keep impulsive purchases low.

Third, we argued that IB has an impact on life satisfaction, which our findings supported, showing that greater IB leads to a decrease in overall SWL. The findings of this study are thus consistent with previous research, according to which IB is pleasurable in the short term but leads to

anxiety and disappointment in the long run (Fenneman & Frankenhuys, 2020; Hausman, 2000). The present study also indicated that IB negatively impacts consumer satisfaction, as shown in the reported shopping experience of our participants during COVID-19.

Finally, we proposed IB as a mediator between consumer EI and SWL, supported by the study results, which are also consistent with previous empirical evidence (Runca & Iovu, 2013). This leads to the conclusion that if emotions related to buying are properly managed, controlled, and regulated in a pandemic situation, customers have a higher level of overall life satisfaction. In short, the distinctiveness of this study lies in demonstrating the significant impact of EI during the horrific scenario produced by the COVID-19 pandemic on IB behavior of young students in their shopping experience, resulting in increased life satisfaction.

Theoretical and Practical Implications

On the theoretical side, this study extends the work of Peter and Krishnakumar (2010) as well as Nair and Das (2015) to explore the relationship between consumer IE and IB and SWL. It also introduces IB as a distinctive mediator to link consumer EI and consumer SWL. The mediation of IB is supported in a previous study by Saad and Metawie,

(2015) where IB tendency acts as a mediating variable between environmental factors, personality factors, and impulse buying behaviors. Mediation of IB is also supported in a study by Rook and Fisher (1995b). Overall, the findings of this study confirmed all hypotheses, specifically that IB mediates the relationship between consumer EI and SWL in the retail context.

Our work also has implications for managers. Regarding Corona, the proper regulation of emotions assists consumers in choosing better products (particularly food) and service choices (De Hooge, 2014). This observation can aid marketers to identify consumer behavior during COVID-19, segmenting markets, and interacting with a specific market segment by building a customer-focused marketing mix (the 4 Ps). In the current pandemic situation, in retailing EI plays a significant role in developing product displays and assortments so that store managers can promote impulsive and emotional buying, resulting in increased sales. If salespeople, however, are appropriately trained in emotional management (Khan, Khan, & Bodla, 2021), they can assist customers to reach their buying goals while recognizing and controlling their emotions.

Limitations and Directions for Future Research

Like most others, this study has some limitations and constraints. First, it used purposive sampling rather than a random sample, which may have equally restricted the participation of all consumers. Second, this study also used a sample of university students rather than customers from the general community. Therefore, the findings may have a generalizability issue. Future studies can address the issue of generalizability by increasing the sample size and using demographics other than university graduates, especially in the retail industry, to acquire more accurate results. Third, data were collected from respondents via a variety of online and social media platforms, which may have stifled respondents' eagerness to record their responses because of a lack of physical presence of interviewers/data collectors to adequately explain specific construct statements.

Similarly, data collection via social media platforms has various advantages, although in developing countries such as Pakistan, poor internet connections may limit the quality of data collected in that manner. Fourth, this study was conducted during the COVID-19 pandemic, when buyers had a different experience than usual. Its findings cannot be applied to a normal consumer scenario. Finally, this study used a cross-sectional design, and the data were gathered only once. It is exploratory in nature and cannot predict a true causal relationship between variables. On the other hand, future studies could use a longitudinal design to pre-

dict a causal relationship between the proposed study variables in the same or a different setting. Furthermore, more research should be done using marketing-relevant customer satisfaction as the dependent variable rather than the general Life Satisfaction Scale to obtain more realistic consumer-related results in terms of EI considering the COVID-19 pandemic state.

Conclusion

The COVID-19 pandemic has impacted every facet of human life, including cognitive function. This study's goal was to investigate the link between consumer IE, IB, and life satisfaction during the pandemic crisis. The study's hypotheses were supported by the findings, which helps to provide a better understanding of the factors that influence consumer life satisfaction.

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Overall Job Performance, Remote Work Engagement, Living With Children, and Remote Work Productivity During the COVID-19 Pandemic

A Mediated Moderation Model

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Abstract: The COVID-19 pandemic caused a significant and rapid shift from work in presence to remote work (RW). This rapid change represented a challenge for employees, who had to deal with new work procedures in houses often crowded with their children. This study investigated whether the engagement toward this work arrangement mediates the relationship between perceived overall job performance and employees' remote work productivity. Furthermore, it tested whether the relationships between perceived overall job performance and RW productivity as well as between RW engagement and RW productivity are moderated by living with children under 18. This quantitative, cross-sectional, study was conducted in an Italian municipality and involved a sample of employees who started to work remotely after the spread of the pandemic. A total of 171 public servants answered an online questionnaire. Regression analysis showed a significant relationship between perceived overall job performance and RW productivity and the mediation of this relationship by RW engagement. The moderation role of living with minor children was confirmed, although this modulation mechanism had two opposite effects on the tested relationships. On the whole, the results suggest that HR professionals and organizations need to develop support policies that take into account employees' specific characteristics.

Keywords: remote work, remote work engagement, remote work productivity, perceived job performance, COVID-19

To contain the spread of the COVID-19 pandemic, millions of employees and organizations worldwide were forced to quickly adopt remote work (RW) measures (International Labour Organization, 2020; OECD, 2020). At the beginning of the pandemic, employees were forced to work remotely – at home – to reserve offices for employees providing necessary in-presence services. During the health emergency in 2020, many studies explored the job demands (e.g., working longer or outside usual office hour office, work-family conflict) and job resources (e.g., increased job autonomy, support from colleagues and superiors) that were influencing employees' productivity during the COVID-19, especially when working remotely (Galanti et al., 2021; Jamal et al., 2021; Kumar et al., 2021; Pauline Ramos & Tri Prasetyo, 2020; Toscano & Zappalà, 2020b).

Even contextual variables, like those characterizing the home environment and the family composition (Galanti et al., 2021; Kumar et al., 2021) seem related to employees' productivity when working remotely (Galanti et al., 2021; Kumar et al., 2021).

When the confinement measures were slowly lifted in June 2020, many Italian employees continued to work remotely at home, whether full-time or for at least two or three days a week, in order to rotate and limit the number of people working on-site. In this pandemic situation, for the first time, many employees performed their usual job tasks in an unusual context: their home instead of the office. In this transition, it is unknown what the role previous job performance may have had on employees' remote work performance and their motivation to work effectively in

the remote work situation. Thus, although employees' perception of productivity, intended as the general perception that individuals have on their ability to work with good results (Campbell et al., 1993), is usually tested as an outcome in work psychology research, in this study, we investigate the role of perceived previous performance as a predictor of remote work motivation and perceived remote work productivity, experienced when remote work was a forced situation and not a choice because of COVID-19.

The relationship between overall work performance and productivity in employees who work remotely is so far unexplored. This study looks at this relationship based on previous research on the stability and change of performance (Alessandri & Borgogni, 2015; Campbell et al., 1993; Zyphur et al., 2008) and the role of perceived previous performance in influencing employees' subsequent work engagement and perceived productivity (Rodríguez-Sánchez et al., 2020). Additionally, it investigates whether this relationship is mediated by the RW engagement, a type of work engagement experienced when working remotely. Finally, this research contribution reflects that the pandemic has forced the closure not only of many offices but of almost all schools and many of the centers that children attend in their free time (e.g., sports facilities or language courses). Therefore, the experience of remote work during the pandemic was dramatically influenced by the permanent presence of family members at home (Xiao et al., 2021), which in turn affected the job productivity of remote workers (Galanti et al., 2021; Xiao et al., 2021). Thus, this study also investigates the potential moderating effect the presence at the home of children may have on the relationship between perceived overall job performance and perceived RW productivity, and between RW engagement and perceived RW productivity.

In accordance with predictions that presume that remote work will expand more and more in the future and will complement, but not replace, on-site work (Allen, Regina et al., 2021; Sinclair et al., 2020), we consider it of utmost importance to examine the relationship between the perception of overall performance and RW productivity, especially since COVID-19-related uncertainties continue.

The following section presents the theoretical basis and the hypotheses of the study. After the Methodology and the Result sections, the article closes with Discussion and Conclusion sections.

Literature Review and Hypotheses

Job performance has been defined as the role-prescribed behavior that forwards organizational goals, and it is a function of knowledge, ability, skills, and motivation (Campbell et al., 1993). In addition to cognitive abilities and skills, work

characteristics (e.g., skill variety or task significance) and situational constraints (e.g., problems with machines or lack of necessary information) also positively or negatively affect job performance (Sonnentag et al., 2008). Despite this multiplicity of influencing factors, however, most research has assumed that job performance is relatively stable and does not change as long as the situation remains constant and no learning occurs (Sonnett et al., 2008).

Research on intraindividual variability and change of performance is providing contrasting results, with earlier studies showing individual performance stability (Barrett et al., 1985), whereas more recent studies show changes across the career stages (Alessandri & Borgogni, 2015; Austin et al., 1989), thus suggesting that the performance of younger and older employees tends to change over time. It has also been suggested that performance tends to change during the transition stage (when an employee is new to the job or the job's major aspects change), while it is more stable during the maintenance stage (when an employee has well learned major tasks requirements) (Murphy, 1989).

Some psychological and contextual factors seem to suggest that previous performance may influence future performance. Goal-setting theory (Locke & Latham, 2002) and the control theory of self-regulation (Carver & Scheier, 2000), for example, indicate that individuals are aware of their performance and use this performance feedback to better regulate their future behaviors. It can be argued that individuals use their overall performance to establish the level of discrepancy between actual and desired performance and regulate their performance to decrease that discrepancy. Similarly, organizations tend to appreciate, recognize, and, in some cases, reward high-performing employees who, according to behavioral theory, tend to maintain a high level of performance to continue receiving such positive reinforcement.

Considering that the remote work done during the COVID-19 consisted mainly in transferring most of the job activities to the home, it can be expected that the major job tasks, abilities, and knowledge needed to perform them remained unchanged. The main change was the place where the job had to be done and the technological tools to connect to the office, colleagues, supervisors, and/or customers. Therefore, based on previous literature, we hypothesize the following:

Hypothesis 1 (H1): Perceived overall job performance is positively related to perceived remote work productivity.

Job performance is typically considered a dependent variable in research. However, previous studies examined the reciprocal effect between job performance and some of its predictors (e.g., Hakanen et al., 2008; Maynard

et al., 2014). Specifically, job performance is influenced, among other things, by work motivation (Sonnentag et al., 2008); however, as mentioned above, according to goal setting theory (Locke & Latham, 2002) and control theory of self-regulation (Carver & Scheier, 2000), individuals use previous performance to regulate their future performance and, accordingly, also regulate work motivation (Zyphur et al., 2008). Even the social cognitive theory describes a reciprocal relationship between job performance and self-efficacy (Bandura, 1997) and between job performance and empowerment (Maynard et al., 2014). In addition, the job demands-resources (JD-R) theory, which proposes that job performance is influenced by the motivational process whose fulcrum is work engagement (Bakker & Demerouti, 2017), contemplates the reciprocal relationship between contextual performance and work engagement (Simbula & Guglielmi, 2013). Such results may be explained using the conservation of resources theory (COR; Hobfoll et al., 2018), which establishes that individuals who have more resources increase their work engagement and consequently their job performance, resulting in their obtaining even more resources. Following this reasoning, and considering that both self-confined remote work and the re-entry to office work, with alternation between presence and home work, were mandated by law and by employers and thus were established as the regular means of working (at least during that period), we argue that individuals who perceive themselves to have had a high level of job performance assume having had a high level of work engagement; and that, to confirm this personal characteristic, they self-regulate their motivation by engaging also in the different and unusual work situation of the remote work. Accordingly, employees' perception of remote work performance is related both to their previous performance and to their remote work engagement. Thus, we posit the following:

Hypothesis 2 (H2): Perceived overall job performance is positively associated with employees' RW engagement.

Hypothesis 3 (H3): RW engagement is positively associated with the employees' perceived RW productivity.

Hypothesis 4 (H4): RW engagement positively mediates the relationship between perceived overall job performance and perceived RW productivity.

Recent studies described the remote work experience during COVID-19 as characterized by work-home interference (Wang et al., 2021). The COVID-19 pandemic filled the workspace necessary for remote work with the

presence of employees' partners and children, who were involved, respectively, in their work and school activities. The home setting was often unsuitable to hosting the whole family engaged in full-time study and work activities (Xiao et al., 2021), which generated a distracting environment. In addition, the disruption of child-care and education services observed during the pandemic, and the need to more greatly contribute to household chores affected remote workers (Galanti et al., 2021; Xiao et al., 2021). For example, employees had to regularly prepare meals for the whole family at least three times a day (breakfast, lunch, and dinner), and to assist children with their online distance learning in the morning and/or with their homework in the afternoon, along with spending some time with them when their homework was completed. As a result, the COVID-19 pandemic impacted remote work with an increased family-work conflict, thereby negatively affecting job productivity (Galanti et al., 2021).

Theory on boundary management underlines the importance of boundary management for employees (Chen et al., 2009). In the RW performed during the COVID-19 pandemic, it was impossible to choose integrating or keeping work and family domains separated – because they necessarily had to be integrated. This fact resulted in a misalignment between preferences and the actual situation especially for those employees who prefer to segment work and family affairs, and those with inadequate home arrangements (Allen, Merlo et al., 2021), who substantially had to tolerate the presence of children in the house. In other words, employees who were accustomed to separating work and family issues now had to manage both of them simultaneously. Consequently, despite perceptions of good previous performance, employees with children at home all day long, to take care of, talk to or play with, probably perceive a decreased remote work performance compared to employees who do not have children at home to take care of. Similarly, despite the high engagement with remote work, the stable presence of children at home – all day long – with the need to look after them may promote the perception that the actual remote work performance is negatively affected by their presence, compared to employees without children at home. Accordingly, we hypothesize the following:

Hypothesis 5 (H5): Living with children under 18 negatively moderates the relationship between perceived overall job performance and perceived RW productivity.

Hypothesis 6 (H6): Living with children under 18 negatively moderates the relationship between RW engagement and perceived RW productivity.

Method

Participants and Procedure

The data collection for this study took place in July 2020, 4 months after the outburst of the pandemic, after 3 months of self-confinement of a large part of Italian employees, and 1 month after many private and public offices had reopened to employees and to the public. The study was conducted in an Italian municipality. It was proposed to all employees that, after the mandatory experience of working the whole week remotely, they were to continue to work remotely, in this case mandatorily alternating working at home and the office during the week. An email sent from the municipality HR department invited employees to answer an online questionnaire available on the Qualtrics platform of the University where the researchers work. The questionnaire included items about general aspects of employees' work and their experience with remote work. At that time (July 2020), these workers had experienced remote work because of the COVID-19 emergency for about 4 months, and most of them had had no prior experience with it.

The municipal employees participating in the study consisted of 171 employees (72.4% F, 27.6% M). Most of them were in the 46–55 age group (50.3%), while 24.9% were in the 56–65 age group, 18.3% in the 36–45 age group, and 6.5% were under 35 years old. Over half of them had a university degree (52.3%), while the remaining had a high-school diploma. One participant had completed only middle school. About half of the study participants reported having no minor children at home ($n = 88$, 51.4%) (because they had no children, they did not live with them or have children older than 18 years), while 81 reported having children under the age of 18. All participants gave their informed consent for data collection before starting to fill the questionnaire.

Measures

Overall Job Performance

The overall perceived job performance was measured using four items of the measure developed by Staples et al. (1999). Items were answered using a 7-point Likert scale (1 = *completely disagree*, 7 = *completely agree*). The scale was included in a section of the questionnaire addressing general job experience. Respondents answered considering their job performance in general, without any reference to the pandemic. Two examples of items are: "I am a highly productive worker", "I work efficiently." The Cronbach's α for this scale was .87.

RW Engagement

This was measured using the three items of the Ultra-Short Measure for Work Engagement (Schaufeli et al., 2019). The

Italian version of the full work engagement scale was provided by the same authors (Schaufeli & Bakker, 2004), and we used the three items of the ultra-short measure. The instructions were adapted to the remote work condition asking respondents to refer to the experience of remote work ("When I work remotely ..."). Items were answered using a 7-point Likert scale (1 = *completely disagree*, 7 = *completely agree*). An example of an item is: "(When I work remotely ...) I am enthusiastic about my job." The Cronbach's α for this scale was .83.

RW Productivity

This was measured using a 7-item measure developed ad hoc for this study. Items were answered using a 7-point Likert scale (1 = *very poor*, 7 = *excellent*). The instruction required respondents to assess the performance they were having, in that period, when working remotely ("On the whole, how do you assess the performance you have in this period, when you work remotely, concerning the following aspects ..."). The respondents assessed seven facets of work: quality of work, productivity (amount of work completed), adherence to deadlines, speed of response to problems and opportunities, taking initiatives, communication of work progress, and overall performance. The Cronbach's α for this scale was .92.

Living with Children Under 18

The presence of children under 18 at home was assessed through a simple question: "Do children under 18 currently live with you?" The possible answers were 1 = *No children under 18 live with me* and 2 = *Yes, at least a child under 18 lives with me*.

Control Variables

Age, sex, and tenure were controlled because previous studies reported that they have a role in affecting some outcomes of remote work (Allen et al., 2015; Gajendran & Harrison, 2007; Toscano & Zappalà, 2020a).

Data Analysis

To assess the measurement model and the structural validity of the measures used, we ran three confirmatory factor analyses (CFAs). To assess convergent and divergent validity and the reliability of the scales, we computed, respectively, the average variance extracted (AVE), the maximum shared variance (MSV), and composite reliability (CR). We then computed descriptive analyses, correlations, and Cronbach's α s. Finally, we tested the study hypotheses using Model 15 of the PROCESS macro for SPSS. All analyses were performed through Mplus 8 and SPSS 26.

Table 1. Descriptive statistics, correlations, and Cronbach's α s for the study variables

Variables	<i>M</i>	<i>SD</i>	1	2	3	4
1. Overall job performance	5.88	.81	(.87)	.26**	.50**	.04
2. RW engagement	5.29	1.10		(.83)	-.44**	-.07
3. RW productivity	5.93	0.69			(.92)	.01
4. Children under 18 (1 = No, 2 = Yes)	1.44	0.50				

Note. ** $p < .01$; Cronbach's α s are in the main diagonal.

Results

Validity and Reliability of the Scales

To test the structural independence of the four measures of our model, and the absence of a common latent factor, we conducted three CFAs, comparing a 1-factor model with a 3-factor model and a 4-factor model. The fit of the 1-factor model, in which all items were grouped in a single factor, was not particularly satisfying (chi-square = 570.02; df = 90; CFI = .70; TLI = .65; RMSEA = .18; SRMR = .12). The fit improved, but not very much, in a 3-factor model in which overall performance and RW productivity were combined and RW engagement and living with children were considered separately (chi-square = 395.43; df = 88; CFI = .81; TLI = .77; RMSEA = .14; SRMR = .10). Finally, the fit improved to acceptable values in the 4-factor model, when all the study measures were considered separately. The results showed a very good fit (chi-square = 134.99; df = 85; CFI = .97; TLI = .96; RMSEA = .06; SRMR = .05), confirming the structural validity of the measurement model.

The average variance extracted (AVE) scores for the three scales we used were all greater than .64 (cut-off > .50; Hair et al., 2018), which indicates good convergent validity. These values were also all greater than the maximum shared variance scores (maximum shared variance [MSV] = .34), indicating discriminant validity. Thus, we conclude that the study measures have good validity. Furthermore, all scales we used reported even good reliability values, because both Cronbach's α s (reported above when describing the scales we used) and composite reliability (CR) scores were in the range .83–.93, well above the usually accepted cut-off value of .70 (Hair et al., 2018).

Descriptive Analyses and Correlations

Descriptive statistics, correlations, and Cronbach's α s are reported in Table 1. The descriptive statistics revealed scores above the midpoint of the scale (the scales were 1 to 7, so the value indicating mid or average level was 4) for overall job performance (M = 5.88; SD = .81), RW engagement (M = 5.29; SD = 1.10) and RW productivity (M = 5.93; SD = .69). The correlations showed significant relationships

between the study variables, except for living with minor children, which did not show a significant relationship with the other three variables. The relationship that overall job performance had with RW engagement was significant but weak (r = .26; $p < .01$), while that between overall job performance and RW productivity was stronger (r = .50; $p < .01$). Finally, no control variables showed significant correlations with the study variables; for this reason, they were not included in the following analyses.

Model Testing

The test of the hypothesized model using the PROCESS macro confirmed, first, the association of overall job performance with RW productivity (B = .21; $p < .01$; H1 confirmed) and, second, with RW engagement (B = .36; $p < .01$; H2 confirmed). Results also showed that RW engagement was significantly related to RW productivity (B = .29; $p < .01$; H3 confirmed), thus confirming the mediating effect of RW engagement in the relationship between overall performance and RW productivity (H4 confirmed).

We then tested the moderating effect of living with children under 18 on the relationship between overall performance and RW productivity and between RW engagement and RW productivity. In the first case, we observed that living with children under 18 had no relationship with RW productivity (B = -1.10; p = .11). On the other hand, living with children under 18 positively moderated the relationship between overall performance and RW productivity (B = .34; $p < .01$), which describes a significant, but opposite mechanism to that hypothesized in H5. As Figure 1 shows, at lower levels of overall performance, employees not living with children under the age of 18 reported higher RW productivity scores than their colleagues living with children under the age of 18. On the other hand, when the perception of overall performance was higher, RW productivity was higher in employees living with children under 18 than in those without children under 18.

Despite the absence of a relationship between living with children under 18 and RW productivity, testing the other moderating mechanism revealed a significant moderation between RW engagement and RW productivity. In this second case, its effect was less strong (B = -.16; p = .04) than

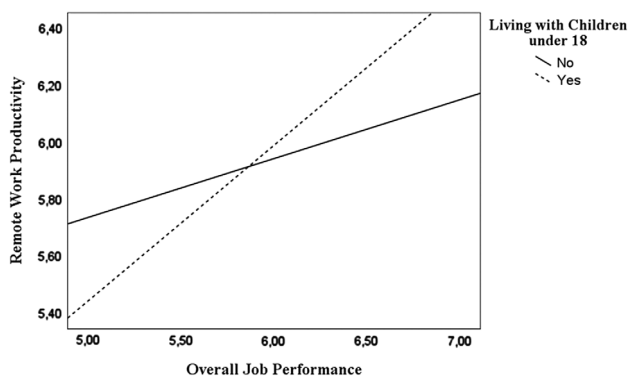


Figure 1. Moderation effect of living with children under 18 on the relationship between perceived overall job performance and RW productivity.

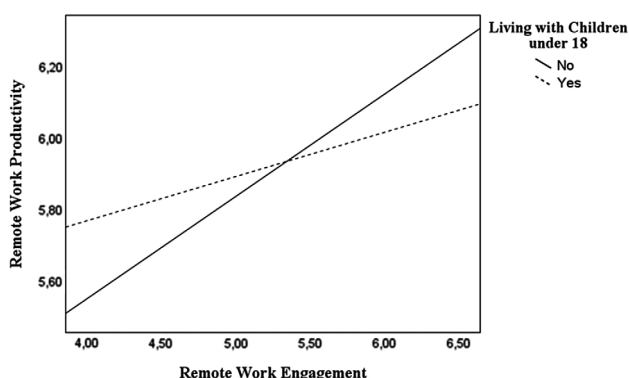


Figure 2. Moderation effect of living with children under 18 on the relationship between RW engagement and RW productivity.

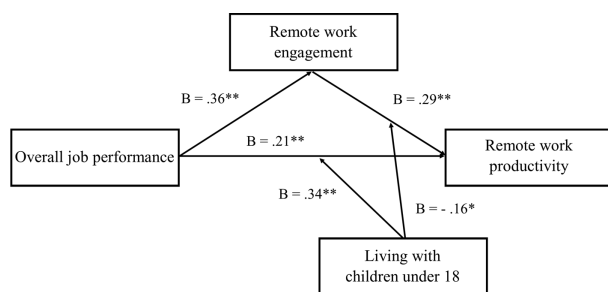


Figure 3. Results of the tested model. Indirect effects of overall job performance on remote work productivity via remote work engagement: $B = .10$ [.02, .23] in the condition of employees not living with children under the age 18; $B = .05$ [.01, .12] in the condition of employees living with children under the age 18. * $p < .05$; ** $p < .01$.

the previous one, and in the hypothesized direction (H6 confirmed). Thus, as Figure 2 shows, at lower levels of RW engagement, RW productivity was higher in employees living with children under 18 while, at higher levels of RW engagement, RW productivity was higher in employees not living with children under 18.

Finally, the study results show a significant moderated mediation effect when considering the indirect relationship between overall job performance and RW productivity through RW engagement. In particular, this indirect effect was $B = .10$ [.02; .23] for employees not living with children under the age of 18, and $B = .05$ [.01; .12] for the other employees. Figure 3 shows the results of the entire tested model.

Discussion

In a sample of Italian public employees, this study assessed whether remote work engagement experienced during the COVID-19 pandemic mediated the relationship between the perception of overall job performance and RW productivity. Furthermore, it also tested whether living with children under 18 in the house moderated the relationships between overall job performance and RW productivity, on the one hand, and RW engagement and RW productivity, on the other hand.

The tested model showed a significant direct relationship between overall job performance and RW productivity, confirming that people's perceptions of their productivity tend to be related to the performance they exhibit even when faced with a major change in how they work, such as the shift to remote work prompted by the pandemic. Furthermore, results show that the perception of being a high-performing employee was associated with their engagement toward the new way of working, which in turn was related to the perception of being a productive employee even in the new work arrangement.

Our results are in line with the theories mentioned in the first part of this manuscript. When performing at home, employees' job productivity was related to their overall perception of performance, which confirms the intraindividual stability of performance (Sonnetag et al., 2008; Zyphur et al., 2008) – although we recognize that we measured two different types of performance (overall and specific). But since employees worked remotely systematically for weeks and months, we assume that, in the remote work during the pandemic, employees performed at home a large part of the work they would have usually performed in the office, thus making overall and remote work performance comparable for many aspects. Except for the technical skills necessary to manage the new way of working (e.g., the information systems needed to operate and exchange files with the central office server), most of the skills and abilities related to task performance were similar regardless of working remotely or in presence in the office; this may explain the positive correlation between the two performance measures.

In accordance with the concept of self-efficacy proposed by Bandura (1997), our results confirm that people tend to

maintain the same level of performance even when facing new situations. This effect results from both previous performance (a sort of self-referenced self-fulfilling prophecy) and the activation of the motivational process here defined as RW engagement.

According to the JD-R model, remote work engagement confirms to be related to remote work productivity. Although this study did not consider the overall work motivation, based on the consistent evidence that work engagement predicts job performance (Bakker & Demerouti, 2017) and the reciprocal effect between motivation and performance (Simbula & Guglielmi, 2013), this study suggests that work motivation might lead to job performance, which in turn leads to remote work engagement and then to remote work performance. In addition, we observed the indirect effect of job performance on remote work productivity. In other words, this process fully confirms the positive spiral theorized by the last update of the COR theory (Hobfoll et al., 2018), which clearly underlines that, substantially, positive past perceptions trigger positive future perceptions; the same is true for negative ones. Furthermore, even the self-expansion approach (Mattingly & Lewandowski, 2013) may explain the relationship between overall performance and RW productivity. According to this theory, new activities (in this case, switching to RW) support the development of people's resources through their engagement with the new activities. The theory can, thus, explain an intraindividual expansion driven by an external condition (such as working at home). This theoretical approach also emphasizes the importance that other individuals can have in stimulating the generative process of self-expansion. Although not initially postulated by us, according to this theory, the positive moderating effect of living with children on the relationship between overall performance and RW productivity can be explained by the energizing effect and mutual exchange of resources that takes place between close people, leading to self-expansion. The theory suggests that individuals compare their current self with their potential self and include in their potential self the perspectives, resources, and needs of the other person they come into close contact with. In the case of already productive employees, the image of their potential self, which includes the perspectives and needs of their children, may motivate the employees to become more active (Aron et al., 2013), for example, by taking care of their children at home (to answer their needs). This activation may lead employees to seek self-expansion and their taking care both of their work and their children, resulting even in better work performance.

Alternatively, the unexpected positive moderation of living with minor children in the relationship between overall job performance and RW productivity can also

be explained by considering that already productive employees may be more accustomed to managing children at home during the pandemic. They may have an integration boundary preference (Chen et al. 2009) and may find themselves prepared to simultaneously manage work and family life.

Furthermore, it should not be underestimated that having the children at home during the pandemic also meant avoiding having to take them to school or to other places they usually go, that is, driving or walking to more distant and less comfortable places than the home environment. In this context, taking care of children at home may be considered an opportunity and a resource that saves much time spent on activities outside the home; as a resource, it is compatible with the positive spiral described by the COR theory (Hobfoll et al., 2018). On the other hand, for employees less accustomed to working at high performance, living with children may represent an additional burden conducive to lower productivity in remote work.

The moderation of the relationship between RW engagement and RW productivity was more coherent with our initial expectations since it showed that RW productivity was higher for low-engaged employees with children, but RW productivity was higher when employees were more engaged with remote work and did not have children at home. This result, in line with our hypothesis, shows that RW engagement is less effective in influencing RW productivity when employees have to take care of their children.

The latest version of the JD-R model theory underlines that job demands, such as family-work conflict, can moderate the relationships between personal and work resources, on the one hand (in our case, the individuals' perception of themselves as efficient job performers), and motivation (RW engagement), on the other hand (Bakker & Demerouti, 2017). However, it does not suggest any moderating role of demands in the relationship between work engagement and its outcomes, which we believe do exist. We suggest that, when people work remotely, living with children at home represents a job demand that moderates the relationship between RW engagement and its outcomes in terms of productivity, and we believe that this influential role between motivation and productivity in remote work is peculiar in a forced telecommuting context such as the one analyzed.

Study Limitations

Like all studies, this research has several limitations that limit the results' generalizability but do not nullify its theoretical and practical implications. In particular, this study examined, albeit with an exploratory character, the influence of overall performance on remote work productivity,

a relationship that, until now, has been addressed only theoretically. However, we think it is important to continue with studies investigating the link between overall performance and subsequent productivity in specific contexts. Furthermore, the cross-sectional design of the study decreases the inferential power of our results and cannot be considered fully coherent with the causal, and unidirectional, assumptions characterizing a moderated mediation model. Nonetheless, we point out that we used several measures to reduce the potential common method variance. In particular, in the questionnaire, (1) the scales measuring the study variables were placed far from each other; (2) two different response sets were used for the two performance measures (*completely disagree-completely agree* vs. *very poor-excellent*), and (3) different introductory texts to the questions were used to create a psychological distance in the answers to the various constructs (the job in general vs. the remote work experience). Furthermore, even the results of the CFAs suggest that there is no evidence of a common method bias (CMB). Another limitation of the study concerns the sample, which consists of public employees only, working in one organization. In addition, we could not distinguish employees who had had previous experience of remote work and those who started working remotely during the pandemic.

Finally, further limitations of our study are the use of a dichotomous variable “Yes-No” to assess whether the employees lived with minor children, without quantifying their number, and the use of self-report measures to assess past and actual job performance, the consistency of which with objective measures is well debated (Pransky et al., 2006; Wall et al., 2004).

Theoretical and Practical Implications

Despite the limitations, however, we believe our study opens up many important research questions. First, future research might include social variables (e.g., leaders' and colleagues' perception about other employees' performance) in studying the processes that influence the perception of personal productivity in remote work. Not only people's perceptions about themselves, but also about other employees, can play a fundamental role in determining one's productivity in remote work (the Pygmalion or Rosenthal effect; e.g., Veestraeten et al., 2021). Therefore, we think that including the consideration of feedback from others may help in understanding the relationship between people's overall job performance and RW productivity. Furthermore, we believe that the moderating influence of family and job demands, such as the one studied in this study, that is, living with children to care for, should be explored not only as a factor affecting the relationship

between predictors of work engagement and work engagement, as theorized by the JD-R model (Bakker & Demerouti, 2017); rather, it should also be tested in the relationships between motivational aspects (e.g., work engagement) and productivity outcomes. Moreover, the role of this moderating variable along the relationships tested in our study should also be investigated by considering the employees' boundary management preferences.

In addition to the theoretical implications, some practical implications can be gathered from this study. The positive relationships that overall job performance and RW engagement have with RW productivity should also be considered by looking at the employees reporting lower job performance. Managers should consider that people who work less well in the office are likely to work poorly even at home, especially if they have children to care for. Where and when conditions (e.g., health emergency) allow it, therefore, it is possible to prioritize the return to the office of these employees who do not benefit from, and might suffer from, remote work. In contrast, employees who are usually productive may find in remote work a solution that improves their effectiveness at work and probably also their skills to cope with parenting commitments. This aspect may be very relevant for professionals and managers, who may be skeptical about granting remote work to their high-performing employees with children to take care of, so as not to alter their already positive results.

In the case of employees without minor children, in particular, it would be good to assess their engagement toward this work arrangement before deciding whether or not to grant it to them and implement some interventions to enhance the engagement for this type of work for those employees less engaged with it. At the same time, granting RW to employees not living with minor children should be particularly facilitated for workers highly engaged with this arrangement, considering that their productivity should remain high when working remotely.

In general, cases such as those described in this study suggest that disruptive events such as the arrival of a pandemic can be transformed into opportunities to expand the good practices of organizations. Organizations must be capable of extending remote work programs when the health emergency is over. When this happens, as when the constraints of the confinement measures are lifted, it is likely that organizations will benefit from the flexibility offered to their employees and will have to implement more hybrid forms of working that combine remote and in-presence work. Remote work, as suggested by research before the COVID-19 pandemic, should no longer be understood as an all-or-nothing proposition but can be based on remotization for only a few days (usually two or three) per week as a way of achieving the best benefits for individuals and organizations (Virick et al., 2010).

Conclusion

In this study, we explored the role of employees' perceptions of overall productivity and their engagement with remote work in a sample of Italian civil servants struggling with forced remote work for about four months during the pandemic by distinguishing workers living with minor children and not living with children or having children over the age of 18.

The results revealed many elements of attention. First, self-perceived overall performance both directly and indirectly influenced RW productivity. A moderating effect of living with minor children underlined that cohabiting with them made the relationship between the perceptions of overall performance and RW productivity stronger than in the condition of no minor children living together. In addition, the relationship between overall performance and RW productivity was mediated by RW engagement, revealing how motivation toward this arrangement is crucial for determining the outcomes of this way of working. Finally, the relationship between RW engagement and RW productivity was negatively moderated by living with children under 18. In this case, the influence of RW engagement on RW productivity showed a more beneficial effect for employees not living with minor children than in those cohabiting with children under 18.

Overall, the results show that both RW engagement and living with minor children play a key role in the relationship between overall job performance and RW productivity. This study provides some initial results for HR practitioners and professionals which, although observed in a pandemic situation, could be helpful even when the pandemic is over.

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Ethical Considerations and Disclosure

This research fully respects the Declaration of Helsinki. All the research ethical guidelines were followed.

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