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# University students' mental health and affect during COVID-19 lockdown in Greece: the role of social support and inclusion of others in the self

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KEYWORDS	ABSTRACT
COVID-19, Mental health, Affect, Social support, Inclusion of others in the self, University students	The aim of the study was to examine the perceived social support and inclusion of others in the self as predictors of students' mental health and affect during COVID-19 lockdown. One hundred and thirty-seven university students from Greece participated in a cross-sectional study completing a number of self-report online questionnaires such as the General Health Questionnaire, the Job Affect Scale, the Multidimensional Scale of Perceived Social Support and the Inclusion of Others in the Self scale. Results indicated that perceived social support and inclusion of others in the self were negatively correlated with students' mental health status and negative affect and positively correlated with positive affect. Moreover, perceived social support from family and inclusion of others in the self were predictors of students' mental health and positive affect. The present findings highlight the importance of family support and interpersonal closeness in students' mental health during pandemic. The practical applications and limitations of the research study are discussed.
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## Introduction

A growing body of research has provided evidence for the mental health consequences of COVID-19 and its associated restrictions. Recent studies exploring the negative effects of COVID-19 on adults' (Alzueta et al., 2021; Taquet et al., 2022) and children's (Duan et al., 2020; Ravens-Sieberer et al., 2021) well-being have revealed elevated levels of psychological distress, anxiety, and depression. In addition, those with pre-existing mental health problems (such as anxiety and depression) were more severely affected as they reported a deterioration of symptoms along with the appearance of new ones (Andriopoulou & Servina, 2021). Similar findings have been reported in studies exploring the mental health consequences of COVID-19 on students (Kohls et al., 2021; Padrón et al., 2021). Kornilaki (2022) examined the psychological effects of COVID-19 pandemic on university students in Greece and found increased levels of depression, anxiety, stress, and negative affect. The same research also indicated that distance education and learning, household activities, and physical exercise were associated with better student mental health outcomes.

Social support can be defined as "the support accessible to an individual through social ties to other individuals, groups, and the larger community" (Lin et al., 1979, p.109). Social support can be an effective psychosocial coping resource and can be derived from different types of sources such as family, friends, romantic partners, pets, colleagues, and the community (Taylor, 2011). The beneficial effects of social support, and especially of perceived quality of social support, on mental health and well-being have long been well-documented in the literature (Harandi et al., 2017; Li et al., 2021a). On the contrary, low quality of social support has been associated with a variety of mental health difficulties such as depression, anxiety, suicidality, and eating disorders (Hefner & Eisenberg, 2009; Jibeen, 2016). The distinct sources of social support (e.g., family, friends, etc.) have additionally been found to be differentially related to mental health and well-being outcomes. For example, although support from friends and teachers has been found to correlate positively with some indicators of mental health in adolescents and young adults, it seems that the stronger predictor of all mental health indicators is parental support (Stewart & Suldo, 2011; Watson et al., 2019).

It is important to note that social support has been found to be a protective factor on mental health across different age groups during the COVID-19 pandemic (Li et al., 2021b). In a sample of Chinese adolescents (Qi et al., 2020), low social support was associated with a higher prevalence of depression (95%) and anxiety symptoms (95%) during the outbreak of COVID-19. Similarly, in a study of 378 adolescents living in Turkey (Kurudirek et al., 2022), there was a statistically strong correlation between scores of social support and psychological well-being. On the contrary, the risk for depression was 63% lower in adults who reported higher levels of social support compared to those with low perceived social support (Grey et al., 2020). Moreover, medical staff who reported higher levels of perceived social support also reported reduced anxiety and stress (Xiao et al., 2020). Accordingly, social support from family, friends, and important others was correlated positively with measures of adjustment and negatively with measures of adversity across four studies with U.S. college students (Wesley & Booker, 2021), while low perceived social support was found to negatively impact psychological symptoms among college students in a longitudinal survey conducted in China (Li et al., 2021b). In a similar vein, perceived social support from family was a protective factor for students' psychological well-being in a sample of Hungarian university students (Zsido et al., 2022).

An additional interpersonal construct that can play a protective role in psychological well-being and mental health is that of the inclusion of others in the self, which indicates interpersonal closeness (Aron et al., 2004). Self-expansion theory explains the impact of close relationships on individuals' affection, cognition, and behavior (Aron & Aron, 1996). According to Aron et al. (2004), in a close relationship, a person includes, to some extent, the other's resources, perspectives, and identities in his or herself. This extension helps one's efficacy, as the other person informs who we are, provides new tools for our use, shapes our worldview, and affects our perceived costs and benefits (Branand et al., 2019). The inclusion of others in the self has been found to be positively associated with increased levels of relational well-being and mental health (Holt-Lunstad et al., 2010; Reis & Aron, 2008; Reis et al., 2000) and negatively associated with depressive and anxiety symptoms (Halperin Ben Zvi et al., 2021). In addition, inclusion of others in the self was found to be a mediator of the association between family communication patterns and relational maintenance (Ledbetter & Beck, 2014).

COVID-19 pandemic affected interpersonal closeness and inclusion of others in the self. In an online experiment in the U.K. (Kastendieck et al., 2022), interpersonal closeness was reduced as a result of masked faces, while research evidence showed higher stay-at-home adherence intentions in lockdown as a consequence of greater inclusion of others in the self (Tu, et al., 2021). In facing the pandemic, even sports community involvement incorporating self-expansion theory (Aron & Aron, 1996) improved positive psychological resources for maintaining well-being of Generation Z (Park et al., 2022).

Given that the present study focuses on university students-emerging adults (Arnett, 2000, 2012), it is important to note that family contexts and friendship relations play pivotal roles during this developmental period (Alegre & Benson, 2019), while individuals explore various aspects of their identities (Anders & Olmstead, 2019). Although research in Greece has examined the sources of social support in adults during COVID-19 pandemic (Antoniou et al., 2022) or the protective effects of positive emotions against depression on general population during early quarantine (Kyriazos et al., 2022), to the best of our knowledge, no evidence exists about the role of social support and inclusion of others in the self on students' mental health status and affect.

Therefore, the purpose of the current study was to examine the perceived quality of social support and inclusion of others in the self as predictors of students' mental health and affect and to explore the potential distinctive influences of different sources of social support on students' mental health during COVID-19.

We formulated the following hypotheses:

1. Students' poor mental health status and negative affect would be correlated negatively with perceived social support and inclusion of others in the self, while positive affect would be correlated positively.
2. Perceived social support would be correlated positively with inclusion of others in the self.
3. Perceived social support and inclusion of others in the self would be predictive factors of students' mental health and affect.

## **Method**

### ***Participants and procedure***

Participants were 137 students from the University of Western Macedonia, in Greece. It was a convenience sample, which was recruited by the first author during class time. More specifically, they were 21 men (13.3 %)

and 116 (85.2 %) women. Their mean age was 25 years old ( $SD = 8.80$ ). The study was conducted in October 2021 when students returned to university after the lockdown due to the COVID-19 pandemic. For the purpose of the study, students were asked to voluntarily complete an online questionnaire forwarded by the first author to the prospective participants. The home page of the electronic questionnaire provided information on the purpose of the study. Participants gave their consent, stating that they were over 18 years old before they started completing it. The questionnaire was anonymous and participants had the opportunity to withdraw at any time.

## **Measures**

### **Psychological distress**

The General Health Questionnaire (*GHQ*; Goldberg, 1978) was used to assess participants' current mental health. The 20-item version was translated into Greek by Kafetsios and Sideridis (2006) and had satisfactory internal consistency (Cronbach's  $\alpha = .72$ ). The scale assesses depression, state anxiety, somatic symptoms, and social dysfunction. Items concern situations the individuals had to cope with that influenced their psychological health over the last few weeks. Response options ranged from 1 (*more than usual*) to 4 (*less than usual*). Higher scores on the scale signify poorer mental health (example items: "Able to concentrate", "Enjoy normal activities"). In the current study, Cronbach's alpha was .83.

### **Positive and negative affect**

To assess students' affect we used the Job Affect Scale (*JAS*; Brief et al., 1988), which has also been used in other studies examining emotional outcomes in educational settings (Kafetsios & Loumakou, 2007; Kafetsios et al., 2011). We have adopted a broad definition of affect as a "subjective feeling state" that can include mood, dispositional affect, and emotions (Frijda, 1986; Kafetsios & Loumakou, 2007; Russell & Carroll, 1999). The scale consists of 20 emotion adjectives assessing participants' positive and negative affect during the previous week on a 5-point scale (1 = *not at all*, 5 = *very much*). In the present study, 17 of these adjectives were used, as adapted in Greek by Kafetsios and Loumakou (2007; satisfactory internal consistency  $\alpha = .77$ ). It examines nine positive (*JAS-PA*: active, excited, enthusiastic, calm, happy, energetic, relaxed, at rest, strong) and eight negative affective states (*JAS-NA*: distressed, fearful, sad, scornful, hostile, nervous, sleepy, placid). In the current study, alpha coefficients for positive and negative affect were .87 and .83, respectively.

### **Perceived Social Support**

The social support of participants was assessed via the Multidimensional Scale of Perceived Social Support (*MSPSS*; Zimet et al., 1988), which includes 12 items with response options ranging from 1 (*very strongly disagree*) to 7 (*very strongly agree*). Cronbach's  $\alpha$  reliability coefficient was .95 in this study (Zimet et al., 1988). The lowest score that can be taken is 12, and the highest is 84 (e.g., Kurudirek et al., 2022). In addition, mean scores ranging from 1 to 2.99, 3 to 5, and 5.01 to 7 are classified as low, medium, and high perceived support levels, respectively (e.g., Canty-Mitchell & Zimet, 2000). The *MSPSS* estimates social support quality from three sources: family, friends, and significant others (Osman et al., 2014). Each subscale consists of four items. Example items for each subscale are "I get the emotional help & support I need from my family when I have some difficulties", "My friends try to help me" and "There is a special person who is around when I am in need". The scale has been adapted in Greek by Theofilou (2015). In the current study, the scales' reliabilities were: support from others  $\alpha = .86$ , support from family  $\alpha = .88$ , and support from friends  $\alpha = .87$ .

### **Inclusion of Others in the Self**

The Inclusion of Others in the Self scale (*IOS*; Aron et al., 1992) has only one item and it consists of seven pairs of circles – one circle representing the self and the other representing another person – that vary in the extent to which they overlap with each other. The scale was initially designed as a measure of self-other inclusion and interpersonal closeness and has been shown to have good validity (Zickfeld & Schubert, 2016). The *IOS* Scale is very flexible and has been used cross-culturally to study diverse categories of personal relationships (e.g., Dalsky et al., 2008; Uleman et al., 2000). Due to its pictorial presentation, the scale has no language barriers (Branand et al., 2019). Participants were asked to indicate which pair of circles (the range of response was from

1 to 7) best described their relationship with others in general, which means feeling closer to others in a social context (Aron et al., 1992). The scale has been used in a relevant study during COVID-19 pandemic as well (Tu, et al., 2021).

## Results

Using the Kolmogorov-Smirnov criterion, variables were checked for normality and indicated nonparametric analysis ( $p > .05$ ). Mean (M), minimum (Min), maximum (Max), median, interquartile range (IR) and standard deviations (SD) were used to describe the variables (Table 1).

**Table 1**

*Mean, minimum, maximum, median, interquartile range and standard deviation of the variables*

Variables	M	Min	Max	Median	IR	SD
Mental Health <sup>a</sup>	2.45	1.25	3.83	2.50	0.75	.53
Positive Affect <sup>b</sup>	2.90	1.22	5.00	2.77	1.06	.77
Negative Affect <sup>b</sup>	2.57	1.13	4.50	2.50	1.25	.80
Support from others <sup>c</sup>	6.17	2.25	7.00	6.75	1.50	1.09
Support from family <sup>c</sup>	5.82	1.50	7.00	6.25	1.75	1.21
Support from friends <sup>c</sup>	5.59	1.25	7.00	5.75	1.75	1.24
IOS <sup>c</sup>	4.94	1	7	5	2	1.38

\*Note. <sup>a</sup>Scale 1-4, <sup>b</sup>Scale 1-5, <sup>c</sup>Scale 1-7.

To examine nonparametric correlations between variables Spearman's rank correlation ( $\rho$ ) was computed (Table 2). In terms of mental health status, there was a negative correlation with perceived social support from others  $r(135) = -.258, p < .01$ , from family  $r(135) = -.349, p < .01$ , and from friends  $r(135) = -.221, p < .05$ , as well as with inclusion of others in the self  $r(135) = -.308, p < .01$ . Likewise, in terms of negative affect, there was a negative correlation with perceived social support from others  $r(135) = -.270, p < .01$  and from family  $r(135) = -.285, p < .01$  as well as with inclusion of others in the self  $r(135) = -.307, p < .01$ . On the contrary, in terms of positive affect, there was a positive correlation with perceived social support from others  $r(135) = .294, p < .01$ , from family  $r(135) = .348, p < .01$ , and from friends  $r(135) = .304, p < .01$ , as well as with inclusion of others in the self  $r(135) = .320, p < .01$ .

Subsequently, a multiple regression analysis was performed with students' mental health as the dependent variable and perceived social support and inclusion of others in the self as predictors (Table 3). The resulting model was statistically significant ( $F(4) = 7.732, p < .001$ ) and explained 43.4% of the variance ( $R^2 = .434$ ) of students' mental health status. The support from family and inclusion of others in the self were the only variables that significantly predicted students' mental health status.

Subsequently, a multiple regression analysis was performed with students' positive affect as the dependent variable and their perceived social support and inclusion of others in the self as the predictive variables (Table 4). The resulting model was statistically significant ( $F(4) = 7.861, p < .001$ ) and explained 43.7% of the variance ( $R^2 = .437$ ) of students' positive affect. Of the four predictor variables participating in the model, the support from family and inclusion of others in the self emerged as statistically significant.

Finally, a multiple regression analysis was performed with students' negative affect as the dependent variable and their perceived social support and inclusion of others in the self as predictors (Table 5). The resulting model was statistically significant ( $F(4) = 5.910, p < .001$ ) and explained 38.8% of the variance ( $R^2 = .388$ ) of students' negative affect. Of the four predictor variables participating in the model, the support from family and inclusion of others in the self emerged as statistically significant.

It should be mentioned that the VIF was equal to 1, so there were no multicollinearity issues among factors in the current study.

**Table 2**  
*Nonparametric correlations between variables*

Variables	1	2	3	4	5	6	7
N=137							
Mental Health	-						
Positive Affect	-.721**	-					
Negative Affect	.628**	-.490**	-				
Support from others	-.258**	.294**	-.270**	-			
Support from family	-.349**	.348**	-.285**	.604**	-		
Support from friends	-.221*	.304**	-.154	.550**	.550**	-	
IOS	-.308**	.320**	-.307**	.382**	.281**	.439**	-

\*Note. 1. Mental health, 2. Positive Affect, 3. Negative Affect, 4. Support from others, 5. Support from family, 6. Support from friends, 7. Inclusion of others in the self. \*\* $p < .01$ , \* $p < .05$

**Table 3**  
*Multiple regression analysis for predicting mental health by perceived social support and inclusion of others in the self*

Predictors	B	Std. Error	Beta
1 (Constant)	1.395	.257	
Support from others	-.001	.053	-.002
Support from family	-.156	.044	-.356**
Support from friends	.037	.044	.086
IOS	-.090	.035	-.235*

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

**Table 4**  
*Multiple regression analysis for predicting positive affect by perceived social support and inclusion of others in the self*

Predictors	B	Std. Error	Beta
1 (Constant)	1.091	.373	
Support from others	-.013	.076	-.018
Support from family	.169	.063	.266**
Support from friends	.049	.064	.080
IOS	.126	.051	.227*

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

**Table 5**  
*Multiple regression analysis for predicting negative affect by perceived social support and inclusion of others in the self*

	B	Std. Error	Beta
1 (Constant)	4,009	,395	
Support from others	-,028	,081	-,038
Support from family	-,158	,067	-,240*
Support from friends	,091	,068	,141
IOS	-,174	,054	-,302**

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

## Discussion

Covid-19 pandemic affected students' studies and lives all over the world. The present study enriches the existing work on students' mental health during the pandemic by examining the perceived social support and inclusion of others in the self as predictors of students' mental health and affect.

With regards to Hypothesis 1, students' poor mental health and negative affect were negatively related to perceived social support and inclusion of others in the self, while positive affect was negatively related. These findings are in line with previous research indicating that social support and interpersonal closeness are important environmental resources that relate closely to mental health (Holt-Lunstad et al., 2010; Reis & Aron, 2008; Reis et al., 2000; Tambağ et al., 2018) and can also affect people's psychological condition (Ao et al., 2020; Halperin Ben Zvi et al., 2021).

Moreover, regarding Hypothesis 2, perceived social support was positively related to the inclusion of others in the self. This finding indicates that the more social support students perceived the more relationship closeness they experienced during the COVID-19 pandemic. Given that both social support and inclusion of others in the self are interpersonal constructs, these results suggest that the levels of interpersonal closeness are dependent upon others' support, building a sense of social interconnectedness (Tu, et al., 2021).

Finally, as far as the third Hypothesis 3 is concerned, perceived social support from family and inclusion of others in the self were negative predictors of students' mental health and negative affect and positive predictors of positive affect. Individuals with higher levels of family support and interpersonal closeness can better resist the negative effects of threat stimuli, and these social resources are indicated to increase the level of positive affect and reduce the level of negative affect under the influence of COVID-19 pandemic. This was not found for perceived social support from friends or significant others, similarly to another study (Zsido et al., 2022), a finding that was anticipated considering that students in Greece moved back home during the lockdown, at distance from their friends or other close relationships. Therefore, the present findings are in line with previous ones indicating that parents should strengthen communication with their children (Fu et al., 2021), and have implications for counselors working with individuals as there is a need to raise awareness of the importance of social support during future stressful circumstances or catastrophes (Zsido et al., 2022).

Taken together, our research indicates that family support and interpersonal closeness were important factors in predicting students' mental health and affect during the COVID-19 pandemic. Moreover, the study was conducted in a Greek university as soon as students returned to face-to-face teaching after several months of online delivery, while the public health measures (e.g., masks) were still in place in Greece and Greek universities. Given that there is only limited knowledge about other aspects of Greek students' mental health during the pandemic, such as life satisfaction (Kokkinos et al., 2022), symptoms of depression (Konstantopoulou & Raikou, 2020), risk factors (Patsali et al., 2020), and suicidal thoughts (Kaparounaki et al., 2020), our findings provide interesting evidence for this understudied population. Furthermore, the present study enriches the scarce available evidence of emerging adulthood in Greece (e.g., Galanaki & Leontopoulou, 2017; Galanaki & Sideridis, 2019) and highlights new developmental aspects, such as predictors of mental health for this population.

Nevertheless, the present study is not without limitations. First, the cross-sectional design and the small number of participating students do not permit causal inferences between mental health and social support. Future studies with longitudinal designs and more participants are needed to examine the nature of these relationships. However, based on Green's (1991) formula ( $N > 50 + 8m$ , where  $m$  = the number of predictors), the minimum requested sample size for detecting a medium effect with 80% power in multiple regressions should be 74 for the current study. Given that our sample consisted of 137 students, we could assume that the study had satisfactory power. Another limitation of the study concerned the fact that the sample consisted overwhelmingly of female participants. Considering that there are gender differences in the prevalence of common mental health disorders, with young females experiencing depression, anxiety, and somatic complaints more often than their male counterparts (Nogueira et al., 2021) and factoring in evidence showing that females score higher on levels of perceived social support (Grey et al., 2020), future studies should strive for a more gender-balanced sample. Third, in our study, there was no further sociodemographic information collected regarding students' relationship status and living situation. Also, other factors that may affect students' mental health during the pandemic, such as students' personality traits and coping strategies, were not considered (Árbol et al., 2022). The role of the above-mentioned sociodemographic factors and other variables could be explored in the future and provide new insights into the already existing findings. Finally, the self-report



questionnaires completed by the participants may have been answered in a socially desirable manner. Future qualitative research could also include students' interviews to explore their perceptions of factors that influenced their mental health and emotions during the COVID-19 pandemic.

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## ΣΥΝΤΟΜΗ ΑΝΑΦΟΡΑ | BRIEF REPORT

# Ψυχική υγεία και συναίσθημα φοιτητικού πληθυσμού στη διάρκεια της καραντίνας λόγω του COVID-19 στην Ελλάδα: ο ρόλος της κοινωνικής υποστήριξης και της συμπερίληψης των άλλων στον εαυτό

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## ΛΕΞΕΙΣ ΚΛΕΙΔΙΑ

COVID-19,  
Ψυχική υγεία,  
Συναίσθημα,  
Κοινωνική υποστήριξη,  
Συμπερίληψη των άλλων  
στον εαυτό,  
Φοιτητές

## ΠΕΡΙΛΗΨΗ

Σκοπός της έρευνας ήταν να εξετάσει την αντιληπτή κοινωνική υποστήριξη και την συμπερίληψη των άλλων στον εαυτό ως προγνωστικούς παράγοντες της ψυχικής υγείας και των συναισθημάτων του φοιτητικού πληθυσμού κατά τη διάρκεια της καραντίνας λόγω της πανδημίας του COVID-19. Εκατό τριάντα επτά φοιτητές και φοιτήτριες από την Ελλάδα συμπλήρωσαν διαδικτυακά ερωτηματολόγιο αυτοαναφοράς, αποτελούμενο από το ερωτηματολόγιο γενικής υγείας, την κλίμακα συναισθημάτων στην εργασία, την πολυδιάστατη κλίμακα αντιλαμβανόμενης κοινωνικής υποστήριξης και την κλίμακα της συμπερίληψης των άλλων στον εαυτό. Τα αποτελέσματα έδειξαν ότι η ψυχική υγεία και το αρνητικό συναίσθημα του φοιτητικού πληθυσμού συσχετίζονται αρνητικά με την αντιληπτή κοινωνική υποστήριξη και τη συμπερίληψη των άλλων στον εαυτό, ενώ το θετικό συναίσθημα συσχετίζεται θετικά. Επιπλέον, η αντιληπτή κοινωνική υποστήριξη από την οικογένεια και η συμπερίληψη των άλλων στον εαυτό ήταν προγνωστικοί παράγοντες της ψυχικής υγείας του φοιτητικού πληθυσμού και του θετικού συναισθήματος. Τα παρόντα ευρήματα υπογραμμίζουν τη σημασία της οικογενειακής υποστήριξης και της διαπροσωπικής εγγύτητας στην ψυχική υγεία του φοιτητικού πληθυσμού κατά τη διάρκεια της πανδημίας. Συζητούνται οι πρακτικές εφαρμογές και οι περιορισμοί της έρευνας.

## ΣΤΟΙΧΕΙΑ ΕΠΙΚΟΙΝΩΝΙΑΣ

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