

Clinical symptoms in pre-COVID 19 pandemic versus COVID 19 pandemic samples of Italian university students

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Abstract

BACKGROUND

Recent studies on the effect of the COVID-19 pandemic have revealed that university students are in a more vulnerable position in terms of their mental health. **METHODS:** The aim of this study is to examine differences in clinical symptoms and psychological distress comparing two groups of university students seeking psychological intervention at a University Psychological Counselling Center before the COVID-19 pandemic period and during the pandemic. A sample of 187 students was distributed into two groups: Pre-COVID-19 pandemic (n = 115) and COVID-19 Pandemic (n = 72). The Personality Inventory-Brief Form for DSM-5 was used to measure personality traits; the Symptom Checklist-90-Revised was used to assess clinical symptoms and the Outcome Questionnaire-45 explored important psychological distress.

RESULTS

Findings highlighted higher levels of clinical symptoms in COVID-19 pandemic students than in pre-pandemic ones. Conversely, the two groups did not differ in psychological distress. Data seems to confirm that the pandemic period had a negative impact on the mental health of university students seeking psychological help.

CONCLUSION

Findings indicate the need to monitor the clinical symptomatology of university students to prevent long-term psychopathology influencing academic functioning.

Introduction

In the last two years since the beginning of the COVID 19 pandemic, which has then spread around the world, several studies have been conducted to assess how this new scenario is affecting people's mental health and behavior¹. In an attempt to reduce the transmission of severe acute respiratory syndrome due to coronavirus 2 (SARS-CoV-2), globally, individuals have been placed under some type of restriction. Governments worldwide have implemented various modalities of physical distancing measures with varied stringency levels and timeliness. In Italy, similar to many other countries, nationwide measures such as lockdown, quarantine, restricted mobility and physical distancing were introduced in order to contain the rapid spread of the coronavirus. A range of measures has been urgently taken by the government. These challenges along with the difficulties of daily life activities, has raised concerns regarding the possible repercussions on the physical and mental health of people around the world².

Fear of contagion, deaths from COVID-19, social isolation, limitations in mobility as well as related economic difficulties have been impacting people's lives worldwide and, in many cases, has exceeded

individual's adaptive resources with possible repercussions on their physical and mental health.

Reviews of the current literature^{1,3,4} have shown that common psychological reactions to the COVID-19 pandemic and its consequences include symptoms of stress, depression, anxiety and sleep difficulties. In particular, a worsening of anxiety and depressive symptoms as well as lower psychological well-being were found in studies comparing measurements taken before and after the pandemic outbreak⁵. Furthermore, a worsening of psychiatric symptoms in patients who suffered from pre-existing mental disorders has been described⁶. Consequently, psychological distress affects the general population leading to impairments that vary based on different risk and protective factors⁴. University students may be significantly affected by this huge amount of stressors. Indeed, it is widely known in the scientific literature that emotional and psychological distress, with prevalence of anxiety and depressive symptoms, are common among university students^{7,8}. Dealing with academic duties adds a load of stress on young people who are already facing the developmental tasks characteristic of emerging adulthood^{9,10}. Indeed, this stage of life is characterized by increased vulnerability as shown by the fact that the onset of most psychiatric disorders occurs between adolescence and early adulthood^{11,12,13}. In recent years, there has been a growing interest in research on university students seeking psychological help for their mental health issues. Findings have highlighted how clinical symptoms and psychological distress have important implications for academic functioning^{14,15}. Certainly, the current pandemic scenario may adversely affect psychological well-being, of university students. In fact, university settings have been involved in the abovementioned restrictions with the closure of classrooms, research laboratories and the cancellation of academic events, while teaching and learning activities were carried out online. Furthermore, widespread fears could restrict one's sense of self-agency and have a significant impact on student's perceived academic self-efficacy¹⁶ which, in turn, may lead to higher levels of psychological distress¹⁷. Among young people, female students have shown higher levels of depression, anxiety and/or psychological distress^{18,19,20,21}. Specifically, as regards the impact of the COVID-19 pandemic on young people, a recent study has revealed that young people aged 21–40 years are in a more vulnerable position in terms of their mental health²². Findings from the first investigation on college students carried out in China²³ highlighted that 0.9% of 7,143 respondents were experiencing severe anxiety, 2.7% moderate anxiety, and 21.3% mild anxiety. In comparison, the first study to focus on the impact of lockdown and quarantine on the mental health of university students attending different faculties was performed in Greece²⁴. The findings showed high levels of anxiety (42.5%); depression (74.3%) and an increase in total suicidal thoughts (63.3%) among the students who participated in the study. Moderate to extreme severity scores for anxiety, depression and stress were reported by 21.34%, 34.19% and 28.14% of Spanish university students respectively²⁵. In a recent meta-analysis involving twenty-seven studies conducted in 15 different countries, Batra and colleagues²⁶ analysed the psychological impact of the COVID-19 pandemic among college students. They observed a prevalence of anxiety (39.4%), depression (31.2%), stress (26.0%), post-traumatic stress disorder (29.8%) and impaired sleep quality (50.5%) with females reporting higher levels of anxiety and depression than males. Similar results were found in an Italian study²⁷ that showed how university students reported higher levels of

both anxiety and depressive symptoms than general workers. Gender differences were also observed with females suffering from higher levels of these symptoms compared to males.

Consistently, some researchers have compared measures of psychological distress before and after the pandemic outbreak within samples of university students finding significant increments in symptoms of anxiety and depression¹⁸, mood disorder symptoms, perceived stress, alcohol use²⁸, externalizing and attention problems²⁹ and a significant decrease in mental well-being and physical activity³⁰. Nevertheless, there are few studies that have investigated the psychological impact of COVID-19 among university students seeking help at University Counselling Centers. The results of an Italian study³⁰ highlighted high levels of anxiety and stress, concentration difficulties and somatization in a sample of university students seeking psychological support at a University Counselling Center during the COVID-19 lockdown.

In contrast, a research study carried out in a US University Counselling Center³¹, found that students attending counselling sessions in 2020 were not significantly more distressed than students in the previous 3 years as evaluated by the Outcome Questionnaire 45³². However, the authors of the study reported that students' scores showed a trend in the direction of higher distress during 2020 than during the previous years. These difference may be partially explained by the minor restrictions that have been adopted in the US.

In light of the above, the main objective of this study was to examine differences in clinical symptoms and psychological distress in two groups of university students seeking help at XXX Psychological Counselling Center, University of XXX prior to the COVID-19 pandemic (May 2019 - January, 2020) and during the COVID-19 pandemic (May 2020 - January 2021). Based on recent studies among university students, we hypothesized that university students who were referred to the Psychological Counselling Center during the COVID-19 pandemic would report higher clinical symptoms than those students who were referred prior to the COVID-19 pandemic. Regarding psychological distress, our study was exploratory in nature given the lack of existing empirical findings. However according to the international literature that showed the negative impact of the COVID-19 pandemic on psychological distress of both general and clinical populations we hypothesized that a greater level of psychological distress can emerge in students who were referred to the Psychological Counselling Center during the COVID-19 pandemic compared to the pre-pandemic ones.

Material And Methods

Sample and Procedures

A total sample of 200 university students (68 males and 132 females) with an average age (M_{age}) of 23.17 (standard deviation (SD) = 3.77) took part in the study.

The exclusion criteria for the present investigation were all retrospectively applied and regards: 1) simultaneously being involved in psychotherapy sessions when asking for psychological counselling consultation, in fact in this case only a psychological session was offered and the students do not benefit from the full service for clinical reasons; 2) assumption of psychopharmacological drugs, in this case counselling service were offered but the students were retrospectively excluded from the present study because it can be supposed a different level of severity of the psychopathological symptoms; 3) students with an age between 30 and 45 years ($n = 7$ students) to avoid sample bias related to the underrepresentation of this age group; 4) missing responses or incomplete questionnaires ($n = 6$ students).

The final sample comprised 187 university students aged 18 to 30 years who were referred to the Psychological Counselling Center of XXX, University of XXX, distributed as follows: “pre-COVID-19 pandemic group” composed by 115 students (61.5%) presenting to the university psychological counselling center between May 15, 2019 and January 15, 2020; “COVID-19 pandemic group” composed by 72 students (38.5%) presenting to the center between May 15, 2020 and January 15, 2021.

Students who benefited of the psychological counselling sessions provided a written informed consent before the first psychological counselling session in which they can consent also for the use of the tests they completed to use them for research reasons. It has been specified in the informed consent that the use of the clinical data for research reasons was voluntary and anonymous, and that refusing the use of own data do not preclude the possibility to benefit of the psychological counselling service. All the students completed the tests filling before the first psychological counselling session, after having obtained their informed consent.

The study protocol was approved by the local ethics committee. The pre-COVID-19 pandemic group students completed all assessment measures in paper and pencil format at the Psychological Counselling Center before their first psychological counselling session. The students completed the questionnaires alone in a quiet room adjacent to the waiting room in order to guarantee their privacy. Differently, the COVID-19 pandemic group students completed the same assessment measures through an online private platform given that the COVID-19 pandemic imposed online psychological interventions.

Measures

A brief sociodemographic questionnaire was used to collect information on gender and age.

The **Personality Inventory for DSM-5 Brief Form** (PID-5-BF)^{33,34} is a 25-item scale that measures maladaptive personality traits: Negative Affect (emotional lability, anxiousness and separation insecurity); Detachment (withdrawal, anhedonia and intimacy avoidance); Antagonism (manipulativeness, deceitfulness and grandiosity); Disinhibition (irresponsibility, impulsivity and distractibility); and Psychoticism (unusual beliefs and experiences, eccentricity and perceptual dysregulation). Each domain includes 5 items. Respondents rate each item on a 4-point Likert scale ranging from 0 (very false or often false) to 3 (very true or often true). PID-5-BF scores range from 0 to 75.

The PID-5-BF was created as a very short version of the PID-5 questionnaire in order to capture the maladaptive global domains rapidly and efficiently. In the present study, Cronbach's alpha values of the total scale were .83 and .87 for the pre-COVID-19 and COVID-19 pandemic groups, respectively. Regarding Cronbach's alpha values of the maladaptive personality traits, they ranged from .52 (Detachment) to .63 (Antagonism) for the pre-COVID-19 group, and from .61 (Negative affect, Antagonism) to .71 (Psychoticism) for the COVID-19 pandemic group.

The **Symptom Checklist-90-Revised** (SCL-90-R)^{35,36} is a 90-item self-report inventory that evaluates a broad spectrum of psychological problems and clinical , measuring both internalizing symptoms (e.g. depression, somatization, anxiety) and externalizing difficulties (e.g, aggression, hostility, impulsivity). Each item is a description of a psycho-physical symptom and is rated by respondents on a five-point Likert scale (0–4) from having caused no discomfort to extreme discomfort during the past week. The SCL-90-R has 9 subscales; (1) Somatization, (2) Obsessive-Compulsive, (3) Interpersonal Sensitivity, (4) Depression, (5) Anxiety, (6) Hostility, (7) Phobic Anxiety, (8) Paranoid Ideation and (9) Psychoticism. The sum of all 9 subscales forms the Global Severity Index (GSI), which can be used as a summary of the test, reflecting overall psycho-physical distress. The SCL-90-R showed adequate test–retest reliability, internal consistency and concurrent and discriminant validity³⁶. In the present study, Cronbach's alpha values of the total scale were .97 and .96 for the 2019 and 2020 group, respectively. Regarding Cronbach's alpha values of the clinical subscales, they ranged from .76 (Psychoticism) to .91 (Somatization) for the 2019 group, and from .70 (Phobic anxiety) to .87 (Depression) for the 2020 group.

The **Outcome Questionnaire-45** (OQ-45)^{32,37,38} is a 45-item self-report instrument that requires participants to rate their functioning on a 5-point Likert scale. The OQ-45 is scored using a five-point Likert scale ranging from 0 (never) to 4 (almost always). The possible range of scores goes from 0 to 180. The Italian version of OQ-45.2 seems a promising tool as a measure of psychological distress and could be validly used as a measure of the outcomes of psychotherapeutic treatments in clinical settings³⁹. High scores on the OQ-45 indicate more distress. The OQ-45 total score represents one's overall level of psychological distress. Psychometric properties of the OQ-45 appear to be quite strong, particularly for total scores³⁸. In the present study, Cronbach's alpha values of the total score were .91 and .82 for the pre-COVID-19 pandemic and COVID-19 pandemic groups, respectively.

Statistical analysis

Group characteristics were explored using descriptive statistics (mean, standard deviation, frequencies and prevalence). The Chi-squared test (χ^2) was used to reveal differences between groups on gender and birthplace distribution, while analyses of variance (ANOVA and MANOVA) were carried out to test group differences on age and personality traits in order to evaluate the homogeneity between the two groups. Subsequently, group differences in clinical symptoms and psychological distress were tested using univariate analysis of covariance (ANCOVA) and multivariate analysis of covariance (MANCOVA) including gender as a covariate (since gender distribution was not homogenous within groups). The

significance level for all statistical tests was set a priori to $\alpha = 0.05$. All analyses were performed using SPSS 26.0 statistical software package for Windows.

Results

Groups demographic characteristics

The pre-COVID-19 pandemic group was composed of 115 university students, 43 males and 72 females, with a mean age of 23.02 years ($SD = 2.52$). 51.3% ($n = 59$) of those students was born in Italian cities other than university location, 40% ($n = 46$) in the same city as university location while 8.7% ($n = 10$) was born in countries different from Italy.

Seventy-two university students, 16 males and 56 females, with a mean age of 22.58 years ($SD = 2.59$) sought psychological help at the XXX Psychological Counselling Center during the COVID-19 pandemic period and were members of the pandemic group. 68.1% ($n = 49$) of those students was born in Italian cities other than university location, 25% ($n = 18$) in the same city as university location while 6.9% ($n = 5$) was born in countries different from Italy.

We compared the two groups of participants on age, gender, birthplace and personality traits in order to increase their comparability. The two groups did not differ on age ($F(1, 185) = 1.29, p = 0.26$) and birthplace ($\chi^2 = 5.23, df = 2, p = 0.07$), while there was a significant effect of group on gender ($\chi^2 = 4.72, df = 1, p = 0.03$). Male university students were less likely to seek help at Psychological Counselling Center during the pandemic period (22.2%, Stand. residual = -1.4) than during the pre-pandemic period (37.4%, Stand. residual = 1.1). Furthermore, the two groups did not differ on overall personality traits after controlling for the effect of gender (Table 1). Therefore, gender was included as a covariate in the subsequent analyses comparing the two groups.

Groups similarities and differences in clinical symptoms and psychological distress

Table 1 presents the descriptive statistics for both groups (means and standard deviations).

To account for group difference on gender, this variable was used as a covariate in univariate and multivariate models. Two separate ANCOVAs were used to test group differences on (1) global severity index and (2) general psychological distress, as evaluated by the SCL-90-R and the OQ-45, respectively. Only the univariate model exploring group differences on global severity index was significant: university students who presented to the Psychological Counselling Center during the pandemic period showed a higher global severity index than those in the pre-pandemic period, after controlling for the effect of gender (Table 1). The univariate model testing for groups difference on psychological distress was borderline significant ($p = 0.07$).

Table 1. Characteristics of the university students on the questionnaires administered (PID-5-BF, SCL-90-R, OQ-45) by group

Variable	Pre-pandemic <i>M (SD)</i>	Pandemic <i>M (SD)</i>	<i>F</i>	<i>p</i> -value
Overall personality functioning	0.97 (0.4)	1.03 (0.45)	1.18	0.28
Negative affect*	1.42 (0.56)	1.56 (0.58)	1.71	0.19
Detachment	1.02 (0.54)	1.0 (0.58)	0.02	0.89
Antagonism*	0.66 (0.53)	0.70 (0.53)	0.77	0.38
Disinhibition	0.77 (0.52)	0.86 (0.60)	0.92	0.34
Psychoticism*	1.01 (0.56)	1.05 (0.66)	0.62	0.43
Global severity index	1.13 (0.62)	1.40 (0.58)	8.01	< 0.01
Somatization*	0.92 (0.83)	1.03 (0.74)	0.32	0.57
Obsessive-compulsive	1.59 (0.82)	1.89 (0.80)	5.49	0.02
Interpersonal sensitivity	1.17 (0.80)	1.46 (0.78)	5.42	0.02
Depression	1.60 (0.82)	2.07 (0.81)	12.75	< 0.001
Anxiety	1.22 (0.76)	1.58 (0.78)	8.89	< 0.01
Hostility	0.75 (0.67)	0.97 (0.75)	4.95	0.03
Phobic anxiety	0.60 (0.74)	0.62 (0.63)	0.05	0.82
Paranoid ideation	1.14 (0.83)	1.38 (0.94)	3.07	0.08
Psychoticism	0.79 (0.59)	1.09 (0.67)	11.92	< 0.01
Psychological distress	72.96 (22.76)	79.17 (18.0)	3.30	0.07

M: mean, *SD*: standard deviation.

*Significant effect of the covariate Gender on Negative affect ($p = 0.02$), Antagonism ($p = 0.044$), Psychoticism ($p = 0.02$) and Somatization ($p = 0.04$).

A MANCOVA was used to determine group differences on symptoms of psychopathology. The multivariate model was significant for group (Wilks' Lambda= 0.87, $F = 2.83$, $p = 0.004$). Specifically, university students who sought help from the Psychological Counselling Center during the pandemic period showed higher Obsessive-compulsive, Interpersonal sensitivity, Depression, Anxiety, Hostility and Psychoticism scores in the SCL-90 R than those who presented during the pre-pandemic period (Table 1 and Figure 1).

Discussion

The main goal of this study was to investigate possible differences in clinical symptoms and psychological distress in university students seeking psychological help within University setting before and during the COVID-19 pandemic with the further aim to broaden our knowledge regarding this specific population. Results of descriptive statistics suggested that the Pre-Pandemic and Pandemic groups did not differ on age, birthplace and personality traits, while a significant gender difference was found. The majority of students who reached out to the University Counselling Center before and during the pandemic were female, confirming the notion that males are less likely to ask for psychological help. This is in line with previous studies among Italian young adults in which a greater proportion of female students contacted counselling services^{14,15}. According to this result, a large number of studies, including

those among college student populations showed that females are at a greater risk of psychological distress during the COVID-19 outbreak^{21,40,41}. Additionally, an interesting finding of our study highlighted that the percentage of male university students who sought psychological help during the COVID-19 pandemic decreased compared to the pre-COVID-19-pandemic period. One possible explanation could be that females tend to pay more attention to their inner concerns and are more inclined to seek help, in particular, under stressful conditions. Furthermore, this could be related also to gender differences in fear processing, which could translate to an exacerbation of symptoms in females⁴² as well as to a lower uncertainty tolerance threshold of females indicating that males students may have greater coping strategies during uncertainty and stressful situations⁴¹. However, in the interpretation of the decrease of males students seeking for psychological help during the pandemic we also supposed that stigma could represent a barrier for males students to reaching out for psychological support and it could be increased during the confinement at home.

In order to explore the differences on students' clinical symptoms and general psychological distress, ANCOVA analyses were conducted, including group (Pre-COVID-19 Pandemic and COVID-19 Pandemic) as an independent variable and gender as a covariate. Findings showed a significant effect only for clinical symptoms as evaluated through the global severity index of the SCL 90-R, confirming our hypothesis that the COVID-19 had a negative impact on mental health. These results are in line with a recent study on a sample of healthy Italian adults (age range: 18-50 years) in which high scores of depressive and anxious symptoms as well as a dysregulation of circadian rhythms was found after just a month of isolation at home due to SARS-CoV-2². Notably, research has shown that public health emergencies and the related psychological impact play a role in both the onset and increased severity of psychopathology^{17,26}. A recent meta-analysis assessing the effects of COVID-19 demonstrated that besides a direct impact on physical health, there is evidence of severe implications on students' psychological well-being due to the fear of the virus, its uncertainty and the associated quarantine requirements²⁶. In light of the above, we used MANCOVA analyses to verify if clinical symptoms were exacerbated during the COVID-19 pandemic. In accordance with our hypotheses, findings emphasized the presence of higher levels of interpersonal sensitivity, anxiety, hostility, psychoticism, depression and obsessive-compulsive symptoms in the COVID-19 pandemic group in comparison to the Pre-COVID-19 pandemic group. Data are consistent with Wang and Zhao²¹ who showed post-traumatic stress disorder, anxiety and depression among Chinese university students after few months of the pandemic. Also Odriozola-González and colleagues²⁵ pointed out the presence of psychopathological symptoms among Spanish university students within the first two weeks of the COVID-19 lockdown. Specifically, findings indicated higher levels of depression, anxiety and stress in university students compared to the administrative staff, faculty and academic members belonging to a Spanish University²⁵.

During the pandemic emergency it was widely accepted that university students were not deemed among the most vulnerable populations needing early mental health intervention⁴³. However, in the last decades, an increase in prevalence of clinical symptoms among student populations has been recognized⁸ and COVID-19 has unavoidably brought new stressors to young adults in addition to the challenges they

already face related to their phase-specific tasks^{44,45}. Besides the need for autonomy, search of personal identity and changes in social roles⁴⁶, COVID-19 led to an interruption of youths' daily lives. University students had to deal with the need to change housing arrangements or to go back to their family home, with the request to quickly adapt to distance learning and to the related uncertainties regarding online lessons and examinations, with new concerns regarding family and friends' health as well as with worrying about the future⁴⁷. Our results showed that university students were particularly affected by the COVID-19 outbreak and the related restrictive measures. Furthermore, differences in clinical symptoms among students who asked for psychological help before and during the COVID-19 pandemic put in evidence the importance of an early identification of clinical symptoms in order to implement timely intervention and prevention strategies thus limiting students' psychopathological outcomes. Already pre-pandemic studies pointed out high prevalence rates of anxiety and depression among university students across several countries^{48,49} and our study showed the need to include university students among the most variable-risk populations during emergencies.

Limitations

The present study had some limitations that should be addressed. First, this is a repeated cross-sectional study and the two groups of participants may not be directly comparable despite their similarities (e.g., help-seeking students, the same university, no difference on age, birthplace and personality traits). Second, data was collected using only self-report measures, which may produce response biases due to social desirability, although we underline that this limitation is related to the majority of studies focused on pandemic-related mental health, since objective measures would have been difficult to collect owing to the COVID restrictions imposed. Lastly, the specific nature of the sample may also restrict the generalization of conclusions. Despite limitations, this study expands the current knowledge about university student populations seeking psychological help during such an exceptionally stressful situation, with potential implications for clinical practice and public health

Clinical implications

Our findings provide useful information regarding the impact of the COVID-19 pandemic on students' mental health, highlighting the importance of continuous psychological support for students. This study argues for the need of specific mental health services in the university context to address student's concerns and can offer an indication of the kind of interventions required to limit the negative effects of confinement of young adults. During pandemic periods, it is important to continue providing distance online psychological support in order to mitigate the emotional and mental impact of the pandemic on students and strengthen strategies to effectively cope with psychological distress and clinical symptoms.

Declarations

Funding

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Conflict of interest

All authors declare that they have no conflict of interest.

Ethical Approval

The study was approved by the ethics committee of the Department of Dynamic and Clinical Psychology of the Sapienza, University of Rome (n. 0000320, 16/04/2020).

Authors' contributions

All authors contributed to the conception of the study, data collection, data analysis, and writing of the manuscript.

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Figures

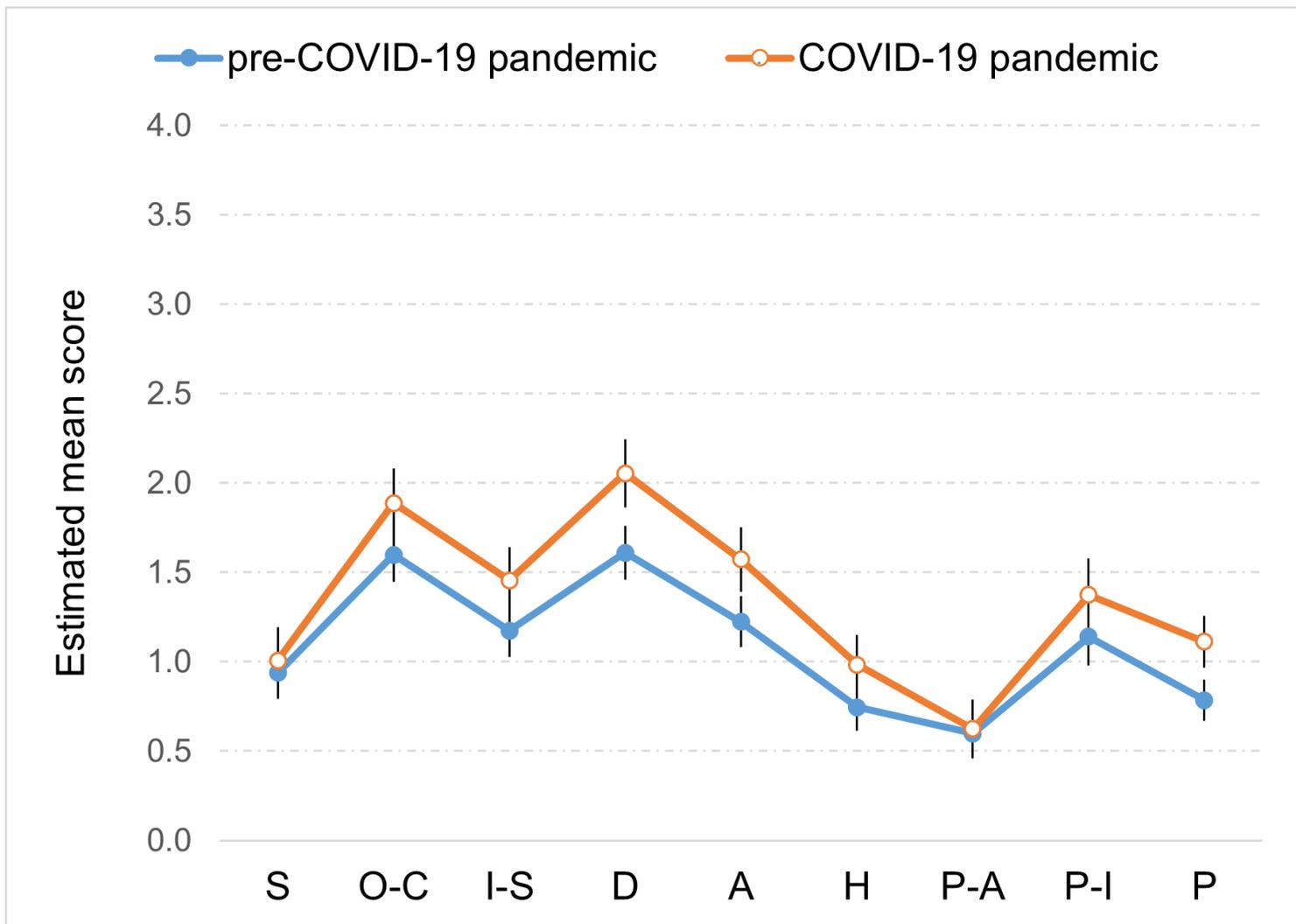


Figure 1

Estimated marginal means of university students' symptoms of psychopathology according to group