



What is the level of post-traumatic stress disorder experienced by Italian University students during the Covid-19 pandemic? Result of an online survey

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ABSTRACT

OBJECTIVE

To date, level of Post-Traumatic Stress Disorder (PTSD) symptoms experienced from university students during the peak of Covid-19 in Italy is until under investigated. Therefore, this study aims to describe PTDS related to the Covid-19 outbreak among Italian university students.

METHODS

A multicentre cross-sectional study was conducted, involving convenience and consecutive sampling of Italians University students. A self-reported web questionnaire on the on-line platform Qualtrics®, was used to data collect, in March and April 2020.

RESULTS

Overall, 720 Italian University students participated to this study. The sample are major male (80.7%) with an average mean of 23.52 years. The results of data analysis highlighted the important level of PTSD experienced from Italian University students during the Covid-19 outbreak, especially by female students that presented higher levels of PTSD. Additionally, no differences were found between students in healthcare field and not in healthcare field.

CONCLUSIONS

The results showed, for the first time, the level of PTSD experienced by Italian Universities students, triggered by the psychological consequences of the health emergency Covid-19. This situation requires public health interventions aimed at preventing the early development of such mental disorders, which negatively affect the growth of future generations.

DESCRIPTORS

University students, PTSD, Covid-19.

RESUMO

OBJETIVO

As mudanças sem precedentes na vida diária causadas pelas restrições do Covid-19 tiveram muitos efeitos psicológicos e adversos, não apenas aos pacientes, mas também na população em geral, incluindo os estudantes universitários. Até o momento, pouco se sabe sobre os sintomas do transtorno de estresse pós-traumático (PTSD - *Post-Traumatic Stress Disorder*) experimentados pelos estudantes universitários durante o pico de Covid-19 na Itália e, especialmente, sobre seus fatores de risco e proteção. Este estudo tem como objetivo descrever o PTSD relacionado ao surto de Covid-19 entre estudantes universitários italianos.

MÉTODOS

Foi realizado um estudo multicêntrico transversal e observacional. A amostra foi realizada por conveniência com participantes estudantes universitários italianos. A coleta de dados ocorreu por meio da aplicação online dos instrumentos, utilizando o software Qualtrics®, em março e abril de 2020.

RESULTADOS

No geral, 720 estudantes universitários italianos (19,3% mulheres, idade média = 23,52 anos) foram inseridos. A análise de dados destacou o nível importante de PTSD experimentado por estudantes universitários italianos durante o surto de Covid-19. Em particular, se nota que as estudantes do sexo feminino acusaram níveis mais elevados de PTSD, ao passo que não foram encontradas diferenças entre os estudantes formados na área de saúde e aqueles não na área de saúde.

CONCLUSÃO

Os resultados evidenciaram a presença de transtorno de estresse pós-traumático em universitários italianos, desencadeado pelas consequências psicológicas da emergência sanitária Covid-19. Essa situação requer intervenções de saúde pública direcionadas para prevenir o desenvolvimento precoce de tais transtornos mentais, que impactam negativamente o crescimento das gerações futuras.

DESCRITORES

Universitários, PTSD, Covid-19.

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INTRODUCTION

Covid-19 pandemic, started in Wuhan (Hubei, China) in December of 2020, is quickly become a worldwide public health emergency^{1,2}. At the beginning January 2020, Covid-19 started to spread in Italy, constrained the Italian government to adopt restrictive measures to contain the spread of the virus. Accordingly, the closing of schools and all on-site university services, restrictions on transportation, privileging the home office and suspending activities that were not primary needs^{3,4} are unprecedented changed the daily life of all populations. Consequently, many psychological and adverse effects are happened on the general population⁵, including university students⁵⁻⁷.

As a consequences of Covid-19 spread, a rapid and profound modification of the university program was applied. The change in learning from face-to-face to online, the use of e-mails as a regular means of communication, the use of university intranets to communicate⁸ had contributed to increase the global psychological suffering in university students⁶. Specifically, quarantine or isolation imposed during the COVID-19 pandemic resulted in cognitive distress, negative emotions, and aggression due to fear of COVID-19, reducing sleep quality or a feeling of drowsiness^{9,10}. At this regard, almost 24.9% of university students in China reported symptoms of anxiety¹¹, and 23.3% of them referred depressive symptoms¹⁰.

Recent evidences discovered that PTSD is exhibited by a range of 30.8%¹² to 66.9%¹⁰ of Chinese university students, because of Covid-19 outbreak. Some experts have proposed different hypotheses that the development of PTSD depends on personal characteristics and investigated possible measures to mitigate negative emotions¹³. In the United States, the National Institute of Mental Health monitors about 5.2 million Americans between 18 and 54 years old (or 3.5% of people in this age group) with PTSD. In addition to the two common negative emotions, PTSD symptoms were also reported with 16.6% of 1,081 university students^{10, 14}.

Studies indicate that women are much more likely to develop PTSD after exposure to trauma, and other categories of particular risk are children, adolescents and first responders themselves¹⁵. PTSD rates also depend heavily on the event that produced the trauma. For example, PTSD can develop in 2% of

survivors after a natural event such as a tornado, in 28% of people involved in a mass terrorist attack, in 29% of survivors and relatives of victims of air disasters^{16,17}. Studies on the spread of the PTSD were also carried out in the case of wars in the former Yugoslavia, the terrorist attack on the two towers in New York, the conflicts in Iraq, and in the event of natural disasters^{18,19}.

Therefore, we believe that university students experienced symptoms of PTSD during the peak of COVID-19 in Italy (March-April 2020). However, to date, level of PTSD symptoms experienced from university students during the peak of Covid-19 in Italy is until under investigated. In this sense, a transnational research is necessary, and it would be worthwhile to deepen the knowledge about the psychological mechanisms necessary for the populations of university students to reach the welfare status, despite experiencing a stressful context such as that determined by the Covid-19 Pandemic. According to these premises, this study aims to describe the level of PTSD related to the Covid-19 outbreak among Italian university students.

METHOD

Study Design

This study has a cross-sectional observational design.

Data collection and analysis

The study conducted involved a consecutive convenience sampling of Italian university students in different regions of Italy. Specifically, the inclusion criteria where respondents are (a) university students, (b) over 18, (c) willingness to participate in the study, (d) read and understand Italian, and (e) live in Italy.

The data collection was performed to evaluate a self-administered web questionnaire during phase one of the Covid-19 outbreak in Italy. It was administered in March and April 2020, months when the Covid-19 outbreak peaked in Italy. The choice to carry out a web questionnaire was based on ease of use considering the respondent's perspective, such as the adaptive layout to fit the user's device to answer (cell phone, lap-top, etc.), and considering that the connection with the internet is often available to the public. People can respond more freely

than they would with a telephone or paper survey, and there is no need for data entry, as the online form directly collects responses from participants and exports them effortlessly as a data set. The authors suggested that the participants needed about 20 minutes to complete the survey.

Data collection instruments

Data collection was performed using three different questionnaires. Firstly, a sociodemographic questionnaire was applied, in order to detect the sociodemographic characteristics of the recruited university students, such as age, sex (male, female), marital status (single or married), nationality (Italian, other), the specific region of residence during the outbreak Covid-19, such as Islands, north, center or south. In addition, the specific origin for the “red zone” during the Covid-19 outbreak, the academic degree (students in the health field or not) and educational background (basic or post-basic) were collected. Secondly, Event Scale-Revised (IES-R) (Pietrantonio et al., 2003; Weiss, 2007) was used to assess the level of traumatic event disorders (PTSD). It is composed by 22 self-report items aimed to identify a specific stressful life event and then indicate how distressed or troubled they have been during the past seven days for each “difficulty” listed. Items are rated on a 5-point scale ranging from 0 (“not at all”) to 4 (“extremely”). The IES-R produces a total score (ranging from 0 to 88), and the subscale scores can also be calculated for the Intrusion, Evasion and Hyperexcitation subscales.

Statistical analysis

The data analysis was performed using an initial analysis of the data, descriptive statistics and correlation analyzes, they performed an initial analysis of the data, missing information, errors, or abnormal values. Using frequency control; in addition, they conducted descriptive statistics and correlative analyzes. Descriptive statistics were used to summarize the characteristics of the sample, where mean and standard deviation are used for continuous variables normally distributed, while frequency and percentage were used for nominal / ordinal variables. The data were analyzed via “Statistical Package for the Social Sciences” (SPSS) version 22 (IBM Corporation).

Ethical considerations

The research was conducted in full compliance with international ethical principles and the study was approved by the ethics committee and the institutional review committee of the center involved. All participants voluntarily gave their Informed Consent Form to participate in the study after being informed of their objective. All enrolled university students signed the online consent form before completing the questionnaire. The procedures of this study followed the provisions of the Declaration of Helsinki on research in human participants.

RESULTS

Statistics of the target populations of the study (of the samples)

A target population of 720 university students in Italy participated in this study. The sociodemographic characteristics of the participants are shown in table 1. Most students were female (n = 139, 19.3%), with an average age of 23.52 years (SD = 3.72), and Italian (93.5%). From three areas in Italy: north (n = 511, 72.36%), center (n = 84, 11.7%), south and islands (n = 86, 11.94%). Regarding the academic qualification of the sample, 84.86% (n = 611) of the students attended graduation; 76.53%

(n = 551) of them are students in the health field and 23.24% (n = 169) are not students in the health field.

Table 1. Sociodemographic characteristics of the survey (N = 720).

	N	%
Genre		
Male	139	19.30
Female	573	79.58
Not declared	8	1.11
Age		
Years (Average SD)	23.52	3.72
Nationality		
Italian	673	93.47
Another	47	6.52
Italian region		
North	511	70.97
Center	84	11.66
South and islands	86	11.94
Not declared	39	5.41
Marital status		
Single	638	88.61
Married	82	11.38
Academic title		
Health student	551	76.53
Student other areas	169	23.47
School level		
University graduate	611	84.86
Master's	83	11.53
Others	17	2.36
"Red zone" during the Covid-19 pandemic *		
Yes	438	60.83
No	243	33.75
Not declared	39	5.41

* Lombardia, Emilia-Romagna, Veneto and Piemonte.

Description of the PTSD level

The PTSD level was measured using the Impact Event Scale-Revised, a standardized psychometric scale, composed of 22 items, used to investigate the presence of post-traumatic symptoms. Interviewees were asked to rate each item on a scale from 0 (nothing) to 4 (extremely), based on their experience with respect to the traumatic event for the past 7 days. A total IES-R score of 33 or higher from a maximum score of 88 means the likely presence of a PTSD.

Table 2 shows the descriptive analyzes of the IES scale to describe the level of PTSD among undergraduate students. The use of this tool allows to obtain a total score from the HEI referring to the total level of the PTSD and three additional scores referring to the 3 subscales: intrusion, avoidance, and hyperactivity.

Descriptive statistics are reported in the following tables.

Table 2. Descriptive analysis of the instruments applied and their subscales.

	Average	SD
Evasion	2.09	0.72
Hyperactivity	2.02	0.66
Intrusion	2.53	0.63
IES (total score)	6.64	1.74

Table 3 reports the descriptive statistics for the IES-R and describes, through means and standard deviations, the level of the PTSD for each domain of the instrument. Specifically: evasion M = 2.09; SD = 0.72; Hyperactivity H = 2.02; SD = 0.66; intrusion M = 2.53; SD = 0.63 and in the total HEI score: M = 6.64; 1.74.

Table 3. Descriptive analyzes of the instruments applied and their subscales, broken down by gender.

	Male		Female	
	Average	SD	Average	SD
Evasion	1,831	0,661	2,159	0,718
Hyperactivity	1,773	0,587	2,070	0,649
Intrusion	2,248	0,609	2,592	0,604
IES (total score)	5,852	1,593	6,822	1,714

The subdivision of the sample in two subgroups according to sex, allows to highlight how the average in the subscales of avoidance (M = 2,159), hyperactivity (M = 2,070), intrusion (M = 2,592) and the total score of the HEI (M = 6,822) in females are greater than in males (Table 3).

Table 4. Descriptive analysis of the instruments applied and their subscales, divided according to the university environment (health area; non-health area).

	Health course		Non-healthcare course	
	Average	SD	Average	SD
Evasion	2,077	2,058	2,092	0,755
Hyperactivity	1,993	1,989	2,050	0,672
Intrusion	2,437	2,365	2,590	0,611
IES (total score)	6,507	6,412	6,732	1,759

The subdivision of the sample in two subgroups based on the university course taken, allows us to highlight how the average in the avoidance subscales (M = 2,092), hyperactivity (M = 2,050), intrusion (M = 2,590) and the total HEI score (M = 6.732) in the subgroup that attends a university course not related to health is greater than in the subgroup that attends a university course in health.

Table 5. Descriptive analysis of the instruments applied and their subscales, divided according to the area of origin (red zone; outside the red zone).

	Coming from the "red zone"		Not from the "Red Zone"	
	Average	SD	Average	SD
Evasion	2,094	0,707	2,093	0,744
Hyperactivity	2,003	0,660	2,026	0,623
Intrusion	2,501	0,617	2,580	0,626
IES (total score)	6,598	1,737	6,699	1,731

In conclusion, the sample was divided into two subgroups based on the area of origin, defined by the following criteria: The Red Zone which included the regions of Lombardy, Piedmont, Emilia-Romagna and Veneto and the Non-Red Zone which included the other regions of Italy. This allowed us to highlight how the average in the subscales, hyperactivity (M = 2,026), intrusion (M = 2,580) and the total HEI score (M = 6,699) in the subgroup from the non-Red Zone was higher than the subgroup that came from Red Zone. Except for the avoidance subscale (M = 2.093), which had a higher average in the subgroup from the Red Zone.

DISCUSSION

This empirical study aims to describe for the first time the level of post-traumatic stress disorder (PTSD) experienced by Italian university students during the Covid-19 epidemic. Post-traumatic Stress Disorder (PTSD) is an anxiety disorder that develops in causal connection with a traumatic event of extreme objective severity (terrorist attacks, military combat, natural or man-made disasters, rape, kidnapping, serious road accidents, Covid-19) and is characterized by a course that tends to be chronic, an unsatisfactory response to pharmacological treatments and an individual's commitment to social, occupational, and family functioning²⁰⁻²². PTSD can occur in people of all ages, from children and adolescents to adults, and can occur in family members.

In this sense, unlike other stressors of everyday life, since Covid-19 infection can spread quickly with important health consequences, it is perceived as an uncontrollable stress factor that can cause an intense feeling of anxiety and panic. Therefore, given the current global concern over the Covid-19 epidemic, studies on the prevalence and risk factors for post-traumatic stress disorder may be particularly useful for university executives to prevent, target or treat - for test the possible negative psychological consequences of epidemics in the population of university students²³.

The PTSD symptoms investigated with the IES-R, table 3, show that students present greater intrusion (mean 2.53), that is, a tendency to relive the traumatic event through intrusive thoughts, unpleasant memories and recurring nightmares. Hyperactivity is the least manifested subscale (mean 2.02), it is the additional dimension compared to the original HEI and detects the presence of symptoms of tension and hyperactivation (for example, expressing feelings of detachment or estrangement from others, or accusing dullness of reactivity, difficulty falling asleep and concentration, irritability). Avoidance, on the other hand, is halfway between the two subscales (average 2.09), it detects the subject's implementation of persistent avoidance behaviors in relation to the symptoms associated with the traumatic event.

The survey results highlighted a high risk for Italian university students to have PTD due to the Covid-19 epidemic we are experiencing. A similar study was carried out between April 2006 and January 2010, also in a population of young survivors of the Aquila earthquake with the following results: 44.2% (N = 83) and 37.4% (N = 70) exhibited moderate and high levels of psychological distress, respectively. 66.7% (N = 120) reported the presence of relevant post-traumatic symptomatology (post-traumatic syndrome) with IES-R > 28, the symptoms most frequently complained of were intrusion (56%) (intrusive memories [23, 4%] and flashbacks [31.6%]), symptoms of hyperactivity (48%) (sleep disorders [55.7%] and memory problems [29.1%]) and avoidance in 39% of the evaluated subjects²⁴. Comparing the two studies, it can be concluded that, in both cases, intrusion is the subscale that most affects young survivors of the Aquila earthquake and university students during the Covid-19 pandemic, hence the tendency to relive the trau-

matic event through intrusive thoughts, unpleasant memories and recurring nightmares. The hyperactivity subscale, on the other hand, is more developed in young survivors of the L'Aquila earthquake compared to the avoidance scale, unlike university students during the Covid-19 pandemic, who found a higher result on the avoidance versus hyperactivity.

In addition, studies have shown that gender is an important biological determinant of vulnerability to psychosocial stress²⁵. In this sense, our study found that students experienced and experienced higher levels of PDS than male students. In support of this, recent literature has also indicated that, compared to men, women have significantly more symptoms of PTSD^{2,26}. When an emergency occurs, women may be more vulnerable than men, less likely to use effective coping strategies and tend to interpret PTSD negatively²⁷. On the other hand, women are instinctively more sensitive to loss and stress and therefore can develop negative emotions and symptoms of PTSD (Dell'Osso et al., 2011). However, some studies have found that men are more diagnosed with PTSD than women²⁸. This may be since men assume more responsibilities in family care³. These diverse discoveries inspired us to further explore the relationship between gender, psychological distress, and PTSD.

Study limitations

This study has many limitations. The adoption of the observational design of the cross-selection data collection does not provide information before and after the Covid-19 epidemic; this undermined the possibility of determining the trajectory of the associations described over time. Sampling adopted a convenience approach; this suggests caution in the interpretation of inferential analysis, since it is an unlikely sampling technique in which existing study subjects recruit future subjects from their acquaintances. Other psychological results (eg, self-efficacy, exhaustion, professional values, etc.) or health behaviors²⁹⁻³¹, or organizational care model^{21, 32, 33} may have a positive or negative impact, which are not assessed in this study.

These variables could influence the influence of PTSD and its subscales, so the results of this study should be investigated in future research.

CONCLUSION

The objective of the study was to examine for the first time PTSD, a form of mental suffering that develops because of highly traumatic experiences, such as the Covid-19 epidemic, in Italian university students during the pandemic, through applying an online questionnaire. Italy currently has about 1,721,790 university students; therefore, the psychological impact of the new Covid-19 emergency and changes in daily life can be considered a public health problem³⁴, the mental health and safety of university students should be the main priority²³.

The results obtained after applying the questionnaire showed the presence of PTSD in Italian university students after the Covid-19 pandemic, which has a negative impact on everyday life. In conclusion, the presence of significant psychological distress, even more than the elaboration of a formal psychiatric diagnosis, requires a psychiatric survey and investigation to identify the development of mental discomfort in the beginning, monitor the short- and long-term consequences with early intervention measures. Further studies should be conducted using a straighter research design, to investigate PTSD in Italian university students from other perspectives.

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