



Data Article

Data showing that post-traumatic stress symptoms and defense mechanisms change based on perceived stress levels: A multivariate analysis of variance approach during the COVID-19 pandemic

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ARTICLE INFO

Article history:

Received 29 December 2022

Revised 19 May 2023

Accepted 31 May 2023

Available online 7 June 2023

Dataset link: [Data about perceived stress, PTSD symptoms and defense mechanisms during the COVID-19 pandemic \(Original data\)](#)

Keywords:

PTSD

PTSS

Defense style

Distress

Perceived stress

Cut-off

MANOVA

COVID-19

ABSTRACT

The present research article provides data about the differences in post-traumatic stress symptoms, and defense mechanisms based on the levels of perceived stress (low, average, high), using a large national sample of 1100 Italian individuals, collected during the first wave of the COVID-19 pandemic. Participants completed an online survey through the Google Form platform, where the Ten-Item Perceived Stress Scale, Impact of Event Scale – Revised, and Forty Item Defense Style Questionnaire were included. First, the cut-offs of the perceived stress scale were calculated by determining the 25th and 75th percentile scores for the sample of this survey. Then, MANOVA analyses were performed, together with ANOVAs and the Bonferroni Post hoc analyses as a follow-up. The dataset (.xlsx) includes the survey scores, while the tables and figures provide the analysed data, where

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the differences are shown. This data article may provide useful bases for future research on perceived stress and for suggesting associated factors on which focus clinical intervention and preventive programs.

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Specifications Table

Subject	Psychology (Clinical)
Specific subject area	The link between perceived stress and mental health outcomes during the COVID-19 Pandemic
Type of data	Table Chart
How the data were acquired	Data were collected online by implementing snowball sampling and through the Google Form platform. Data were firstly converted into .xlsx format. Formal analyzes were performed using SPSS software, v.21.
Data format	Raw Analyzed
Description of data collection	The target population of the survey consisted of Italian subjects living in Italy at the time of administration, with a minimum age of 18 years. A sample of 1100 individuals completed the survey. Data were collected online by implementing snowball sampling. Each respondent was briefed on the overall purposes of the study and provided informed consent electronically. Participation was voluntary; privacy and anonymity were guaranteed.
Data source location	Country: Italy
Data accessibility	Repository name: FigShare Data identification number: 10.6084/m9.figshare.21695432 Direct URL to data: 10.6084/m9.figshare.21695432

Value of the Data

- These data provide information about the differences between low, average, and high levels of perceived stress concerning post-traumatic stress symptoms and defense mechanisms.
- These data may provide helpful information for mental health professionals to develop interventions in populations with high levels of perceived stress, suggesting the associated factors to focus on.
- These data may be useful for researchers who want to conduct comparative studies about the individual responses to stress, as well as its antecedents, in populations living different stressful events.

1. Objective

Excessive distress can have negative effects on both physical and psychological health, e.g., favouring chronic pain [1], cardiovascular diseases [2], depression [3], and emotional exhaustion [4]. The COVID-19 pandemic was an unforeseen and unexpected event, which generated anxiety [5,6], worry [5,7] post-traumatic symptoms [8–10], to name a few. In light of this, the pandemic framework can serve as a suitable circumstance for studying individual responses based on different levels of perceived stress [7,11]. Indeed, previous evidence has shown that levels of perceived stress can be influenced by subjective characteristics [11], and different degrees of perceived stress can influence how to manage challenging situations and have different effects on

mental health [10]. Given these bases, this data article aimed to explore the differences in post-traumatic stress symptoms, and defense mechanisms based on the levels of perceived stress in a large national sample during the first wave of the COVID-19 pandemic.

2. Data Description

The dataset (.xlsx file) [12] includes the total scores of 1100 individuals concerning the *Ten-Item Perceived Stress Scale (PSS-10)* [13,14], *Impact of event scale – revised (IES-R)* [15,16], and *Forty Item Defense Style Questionnaire (DSQ-40)* [17,18].

Table 1 presents some basic information on the sample and the distribution of participants based on the cut-offs of the perceived stress scale, calculated by determining the 25th and 75th percentile scores for the respondents of this survey.

Table 1
Descriptive statistics of the sample (N = 1100).

Characteristics	M ± SD	n	%
Age	34.54 ± 12.25		
Sex			
Males		313	28.5
Females		787	71.5
Perceived stress levels			
Low perceived stress (total score < 15)		272	24.7
Average perceived stress (15 ≤ total score ≤ 23)		483	43.9
High perceived stress (total score > 23)		345	31.4

Table 2 and Fig. 1 show the differences in post-traumatic stress symptoms based on the levels of perceived stress: individuals with high perceived stress reported higher post-traumatic symptoms (both for the total and the subscales scores) than those with average perceived stress, which in turn report significantly higher values than those with low perceived stress. In Fig. 1 the *p* values of the based Bonferroni Post hoc multiple comparisons were also shown.

Table 2
Means, standard deviation and comparisons of post-traumatic stress symptoms (both the total and the subscales scores) based on the levels of perceived stress.

	Low perceived stress (N = 272)		Average perceived stress (N = 483)		High perceived stress (N = 345)		F	p
	M	SD	M	SD	M	SD		
Total score	20.571	11.256	28.122	13.879	40.332	15.019	167.962	< .001
Intrusion	8.343	5.011	10.145	5.703	12.963	5.688	55.675	< .001
Avoidance	7.247	4.869	10.407	5.722	15.21	6.452	151.605	< .001
Hyperarousal	4.98	3.352	7.57	4.387	12.16	4.97	221.027	< .001

Note: Multivariate test = $F(6, 2190) = 69.804, p < 0.001$; Wilk's $\Lambda = 0.705$.

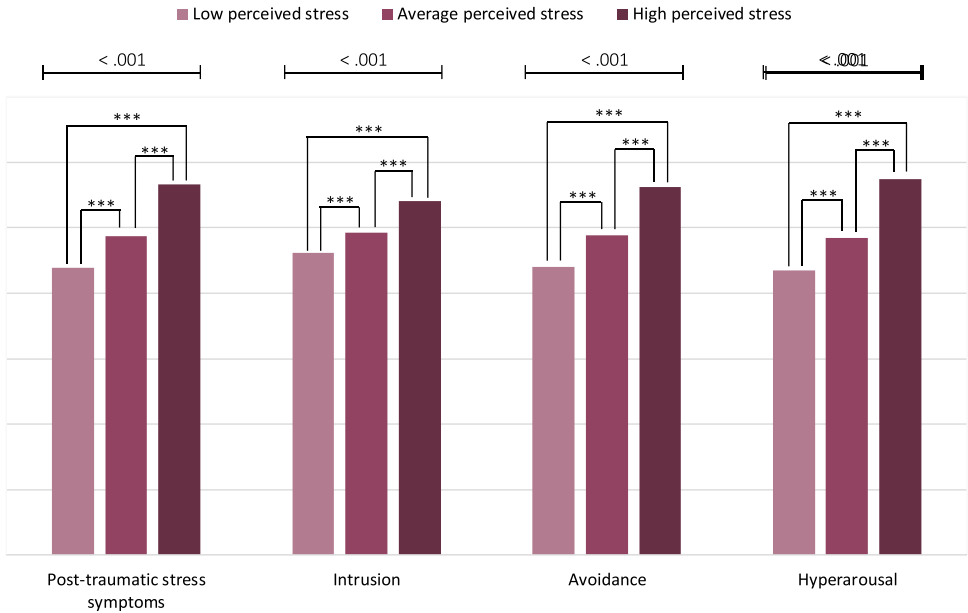


Fig. 1. The differences in post-traumatic stress symptoms (both the total and the subscales scores) based on the levels of perceived stress. Note: ***. The difference is significant at the 0.01 level (2-tailed).

Table 3 and Fig. 2 show the differences in defense mechanisms based on the levels of perceived stress: individuals with high perceived stress reported lower mature defenses than those with average and low perceived stress; individuals with high perceived stress reported higher neurotic and immature defenses than those with average perceived stress, which in turn report significantly higher values than those with low perceived stress. In Fig. 2 the p values of the based Bonferroni Post hoc multiple comparisons were also shown.

Table 3

Means, standard deviation and comparisons of defense mechanisms (mature, neurotic, and immature) based on the levels of perceived stress.

	Low perceived stress (N = 272)		Average perceived stress (N = 483)		High perceived stress (N = 345)		F	p
	M	SD	M	SD	M	SD		
Mature	44.948	8.563	44.068	8.479	40.954	9.289	19.04	< .001
Neurotic	31.714	8.925	35.081	8.794	37.654	9.027	33.869	< .001
Immature	87.481	22.288	98.661	22.998	107.927	22.534	61.826	< .001

Note: Multivariate test = $F(6, 2190) = 42.123, p < 0.001$; Wilk's $\Lambda = 0.804$.

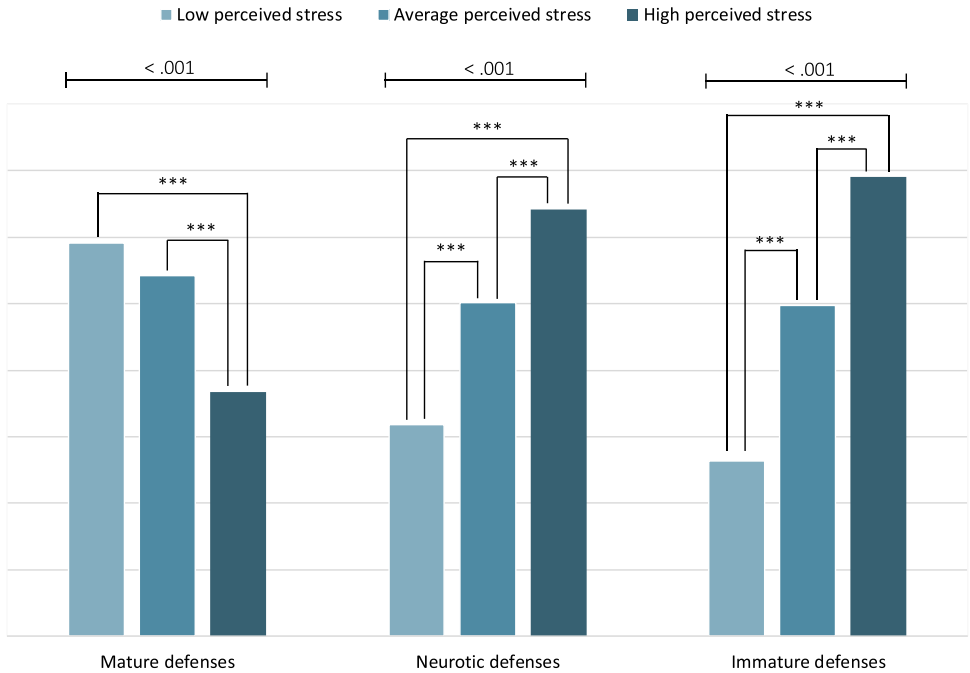


Fig. 2. The differences in defense mechanisms based on the levels of perceived stress. Note: ***. The difference is significant at the 0.01 level (2-tailed).

3. Experimental Design, Materials and Methods

3.1. Participants and Procedure

A cross-sectional research design was used to implement the research. A sample of 1100 individuals was collected by implementing an online snowball sampling during the first wave of the COVID-19 pandemic in Italy (from February to May 2020). Each respondent completed a web-based survey on the Google Form platform, after being briefed on the overall purposes of the study and having provided informed consent electronically. The inclusion criteria were being Italian living in Italy at the time of administration and were at least 18 years old. Participation was voluntary; privacy and anonymity were guaranteed. The research was conducted in accordance with the updated ethical standards and the protocol was approved by the Ethical Committee of the Integrated Psychodynamic Psychotherapy Institute (IPPI) (ethical approval number 001D/2020).

3.2. Measures

The *Ten-Item Perceived Stress Scale* (PSS-10) [13] was used to assess the levels of perceived stress, in its Italian version [14]. It consists of 10 items, rated on a 5-point Likert scale, (from 0 = “never” to 4 = “very often”).

The *Impact of event scale – revised* (IES-R) [15] was used to assess the levels of post-traumatic stress symptoms, in its Italian version [16]. It consists of 22 items, rated on a 5-point Likert scale (from 0 = “not at all” to 4 = “extremely”), and both a total score and three subdimensions (intrusion, avoidance, and hyperarousal) may be calculated.

The *Forty Item Defense Style Questionnaire* (DSQ-40) [17] was used to assess defence mechanisms, in its Italian version [18]. It consists of 40 items, rated on a 9- point Likert scale (from 1 = “Strongly disagree” to 9 = “Strongly agree”) and were grouped into three styles: Mature defenses, Neurotic defenses, Immature defenses.

3.3. Data Analysis

The collected data were analysed by using Statistical Package for the Social Sciences (SPSS) software (IBM-SPSS 21.0 version, IBM, Armonk, NY, USA) for Windows. First, the cut-offs of the perceived stress scale were calculated by determining the 25th and 75th percentile scores for the sample of this survey: the participants with a total PSS score less than 15 (25th percentile) were included in the “Low perceived stress” group; those with a total PSS score greater than or equal to 15 (25th percentile) and less than or equal to 23 (75th percentile) were included in the “Average perceived stress” group; those with a total PSS score greater than 23 (75th percentile) were included in the “High perceived stress” group. Descriptive statistics for the sample were calculated. Differences in the levels of post-traumatic stress symptoms, and defense mechanisms (Mature, Neurotic, and Immature) based on the levels of perceived stress (low, average, and high) were assessed by implementing a multivariate analysis of variance (MANOVA). Follow-up tests with separate analyses of variance (ANOVAs) and Post hoc analyses using a Bonferroni test were implemented.

Ethics Statements

The research was carried out in accordance with the Declaration of Helsinki, and the research protocol was approved by the Ethical Committee of the Integrated Psychodynamic Psychotherapy Institute (IPPI) (ethical approval number 001D/2020). Informed consent was obtained from all individual participants included in the study. During the snowball sampling, all the used platforms' data redistribution policies were complied with.

Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Data Availability

[Data about perceived stress, PTSD symptoms and defense mechanisms during the COVID-19 pandemic \(Original data\)](#) (Figshare).

CRedit Author Statement

Eleonora Topino: Conceptualization, Investigation, Data curation, Methodology, Writing – original draft, Writing – review & editing; **Alessio Gori:** Conceptualization, Investigation, Data curation, Methodology, Writing – original draft, Writing – review & editing.

Acknowledgments

This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

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