RASSEGNE E ARTICOLI

Prevalence of post-traumatic stress disorder (PTSD) symptoms in a sample of Italian citizens during the first COVID-19 pandemic wave: a cross-sectional survey

Prevalenza di sintomi da disturbo da stress post-traumatico (PTSD) in un campione di cittadini italiani durante la prima ondata di pandemia di COVID-19: un'indagine trasversale

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WHAT IS ALREADY KNOWN

■ **COVID-19 pandemic can be regarded as a traumatic stressor, potentially leading to post-traumatic stress disorder (PTSD).**
■ **PTSD has been described during both previous epidemics and COVID-19 pandemic, in different settings and using diagnostic instruments.**

WHAT THIS STUDY ADDS

■ **This study explores the prevalence of PTSD symptoms during the first COVID-19 pandemic wave using a validated screening tool, providing valuable information about the diffusion of psychological distress before reaching clinical relevance.**
■ **This study also explores the association of sociodemographic features, housing conditions and lifestyles modifications with PTSD symptoms, enabling to identify the most vulnerable subgroups of the population in order to implement effective preventive measures.**

CONCLUSIONS: a high prevalence of PTSD symptoms emerged from this survey, especially among women and younger subjects. Preventive strategies should be implemented to protect the mental health of the most vulnerable citizens in a period of emergency.

Keywords: COVID-19, mental health, quarantine, post-traumatic stress disorder

RIASSUNTO

OBIETTIVI: stimare la prevalenza di sintomi di disturbo da stress post-traumatico (PTSD) in un campione di cittadini italiani durante la prima ondata della pandemia di COVID-19 e la sua associazione con caratteristiche sociodemografiche, condizioni abitative e modificazioni dello stile di vita.
DISEGNO: studio trasversale.
SETTING E PARTECIPANTI: tra il 21 aprile e il 7 giugno 2020 è stato diffuso un questionario online volto a indagare il benessere mentale e gli stili di vita durante il periodo di *lockdown*. Gli intervistati sono stati reclutati attraverso un campionamento a valanga.
PRINCIPALI MISURE DI OUTCOME: i sintomi di PTSD sono stati valutati utilizzando uno strumento di screening validato, il questionario SPAN (Startle, Physiological Arousal, Anger, Numbness).
RISULTATI: la popolazione in studio era composta da 6.687 partecipanti, di cui il 71,5% erano femmine. L'età media del campione era di 48,7 anni. In generale, il 43,8% dei partecipanti ha riportato sintomi di PTSD, in particolare le femmine. La prevalenza di PTSD ha mostrato un andamento decrescente all'aumentare delle classi di età. La probabilità di sintomi di PTSD è risultata più alta tra coloro che hanno aumentato il consumo di alcol, ridotto l'attività fisica e sperimentato un sonno agitato.
CONCLUSIONI: da questa indagine è emersa un'alta prevalenza di sintomi di PTSD, soprattutto tra le femmine e i soggetti più giovani. Dovrebbero essere messe in atto strategie preventive per proteggere la salute mentale dei cittadini più vulnerabili in un periodo di emergenza.

Parole chiave: COVID-19, salute mentale, quarantena, disturbo da stress post-traumatico

ABSTRACT

OBJECTIVES: to assess the prevalence of post-traumatic stress disorder (PTSD) symptoms in a sample of Italian citizens during the first COVID-19 pandemic wave and its association with sociodemographic characteristics, housing conditions, and lifestyles modifications.
DESIGN: cross-sectional survey.
SETTING AND PARTICIPANTS: between 21st April and 7th June 2020, a self-administered online questionnaire aiming at investigating mental well-being and lifestyle habits during the lockdown period was disseminated online. Respondents were recruited through a snowball sampling.
MAIN OUTCOME MEASURES: PTSD symptoms were assessed using a validated screening tool, the SPAN (Startle, Physiological arousal, Anger, Numbness) questionnaire.
RESULTS: the study population is composed of 6,687 participants, of whom 71.5% were females. The mean age of the sample was 48.7 years. Globally, 43.8% of the participants reported symptoms of PTSD, especially females. PTSD prevalence showed a decreasing trend across age groups. The likelihood of PTSD symptoms was higher among those who increased alcohol consumption, decreased physical activity, and experienced restless sleep.

INTRODUCTION

On 9th March 2020, Italy was the first among the European countries to declare the national lockdown, following the outbreak of SARS-CoV-2 pandemic.[1] During the lockdown, unprecedented measures were taken in order to control the epidemic. Only essential activities were allowed, and people were permitted to leave their homes only for proven necessities and sanitary reasons. This determined a sudden disruption of everyday life for a significant period of time, as these measures were gradually lifted only from the 3rd May.[2]

COVID-19 pandemic, considered as a global catastrophic event, could have had significant psychological consequences.[3] In the analysis of the correlation between mental health and catastrophic events, the most common diagnosis in order of incidence is post-traumatic stress disorder (PTSD).[4] According to the Diagnostic and Statistical Manual of mental disorder, PTSD is an anxiety disorder which may develop after exposure to exceptionally threatening or horrifying events, characterized by symptoms of intrusion, avoidance, negative alterations in cognitions and mood, alterations in arousal and reactivity, creating distress or functional impairment.[5] The clinical presentation is often heterogeneous and may be acute or chronic.[6]

Little is known about the psychological impact of previous epidemic on the general population. A study carried out in Taiwan showed that the SARS-CoV outbreak in 2002-2003 had a significant impact on the mental health status of the citizens,[7] and PTSD was observed in China among SARS-CoV survivors.[8] Furthermore, a high prevalence of post-traumatic symptoms was found in the general population of Sierra Leone during the Ebola epidemic in 2015,[9] in accordance with the results of a review reporting a high frequency of clinical features related to PTSD during previous epidemic such as SARS-CoV, MERS, Ebola, and H1N1 influenza.[10] However, COVID-19 is the first global epidemic of our time severely affecting Western countries, and the measures imposed by the Governments to limit the spread of the contagion were unprecedented. Recent research suggests that quarantine can have serious and long-lasting adverse psychological effects on individuals, especially during the first wave, eliciting post-traumatic stress symptoms even years later.[10]

Current literature suggests that COVID-19, regarded as a stressful and traumatic experience, can trigger PTSD symptoms around the world,[11] potentially leading to PTSD not only the ones exposed to the virus, but also all the people directly or indirectly exposed to the present and future consequences of the pandemic.[12,13] As during the first pandemic wave the entire Italian population was confined at home, with strict restrictions on movements and gatherings, the psychological impact might have been severe. Hence, an increased incidence of PTSD is expectable in the next future, with serious public health implications. Indeed, a high diffusion of PTSD has already been observed during the SARS-CoV-2 outbreak. A Norwegian study found a prevalence of 19.5% among women and of 12.5% among men, with a higher risk in younger people, women, and those without supporting friends.[14] A systematic review, including 19 studies from 8 different countries, reports a prevalence of PTSD ranging from 7% to 53.8%.[15] An Italian study carried out on a sample of 1,839 adults identified a 23.5% prevalence of post-traumatic stress symptoms, assessed with the Impact of the Event Scale-Revised (IES-R).[16] However, from a public health perspective, it is crucial to identify the categories of subjects at higher risk for PTSD before reaching clinical relevance, enabling policy makers and sanitary institutions to implement effective preventive strategies. When dealing with mental outcomes affecting a large piece of the population during an ongoing emergency, the use of validated screening tools can be useful to rapidly and efficiently identify the most vulnerable subgroups of the population.

To the Author's knowledge, no previous studies have been conducted in order to analyse PTSD symptoms among the Italian population using screening instruments. Hence, the purpose of the present survey was to assess the prevalence of PTSD symptoms among the Italian citizens during the first COVID-19 pandemic wave and its association with sociodemographic features, housing conditions, and lifestyles modifications.

METHODS

Between 21st April and 7th June 2020, a cross-sectional study based on a self-administered online questionnaire aiming at investigating mental well-being and lifestyle habits during the lockdown period was conducted.

A non-probabilistic snowball sampling approach was used to recruit respondents. Primarily, the web link to the questionnaire was disseminated through institutional websites, deemed suitable for the development of this research project: the Epidemiology portal of the Italian National Institute of Health (EpiCentro), the website of the Reference Centre for Epidemiology and Cancer Prevention in Piedmont (CPO Piemonte), and the website of the City of Health and Science of Turin. Secondly, in order to recruit a large number of respondents in a small period of time, messaging apps such as WhatsApp, Telegram, SMS and institutional/private social networks accounts (Facebook, Twitter) were used as a word-of-mouth tool. The questionnaire was divided into 7 sections:

1. sociodemographic features and housing conditions;
2. information on employment;
3. physical activity (PA) in leisure time;
4. eating habits and anthropometric data;
5. tobacco smoking habits;
6. state of health;
7. mental well-being and sleeping disorders. None of the questions were mandatory (see online Supplementary Materials).

Education level was grouped into a dichotomous variable, low (none/elementary school or Junior high school) and high (High school or University).

An overcrowded house was defined by the ratio between the number of available rooms and the number of household members: if the proportion was less than one, it was considered as overcrowded dwelling.

A dichotomous variable for identifying a reduction in leisure time (PA) during the lockdown was constructed: yes ("yes, I reduced it"), no ("no, it remained unchanged" or "yes, I increased it"). Likewise, a variable was constructed to identify the increase in alcohol consumption: yes ("yes, I increased it"), no ("no, it remained unchanged" or "no, I reduced it").

Certain or probable COVID-19 positivity was defined as being tested positive to a molecular swab or being recommended by the General Practitioner (GP) to remain isolated due to a possible COVID-19 infection.

The PTSD symptoms were assessed through the four-item self-report screening instrument SPAN (Startle, Physiological Arousal, Anger, Numbness), derived from the DTS (Davidson Trauma Scales).[17] The four items, referring to the past two weeks, were:

1. have you felt nervous or easily frightened?;
2. have you had any physical disturbances related to thoughts on the ongoing emergency?;
3. have you felt irritable or have you had outbursts of anger?;
4. have you felt unable to experience feelings of sadness or affection? Respondents were asked to rate the four items on a five-point scale (ranging from 0 = "Not at all distressing" to 4 = "Extremely distressing") to indicate how distressing each of the symptoms-items has been. If the sum of the scores for the four items was equal to or greater than 4, the respondent was considered to have PTSD.[18]

Categorical variables were described through absolute numbers and percentages. Chi^2 tests were used to evaluate differences in proportions. Multivariate Poisson regression models with robust variance estimation were used to calculate crude and adjusted Prevalence Ratios (PR),[19] in order to investigate the association between PTSD and sociodemographic characteristics, housing conditions, positivity to COVID-19, and sleep disorders. The independent variables to be included in the model were selected through a forward stepwise process adding potential explanatory variables in succession and testing for statistical significance (alpha=0.05) after each iteration. The covariates fitting the final model were: gender, age, marital status, education level, living alone, certain or probable COVID-19 positivity, restless sleep, increase in alcohol consumption, and decrease in PA. Even trying to build the model through a backward stepwise methodology, the final model did not change. All the analyses were conducted through Stata15.1 statistical software (StataCorp LLC).

RESULTS

A total of 10,758 persons participated in the survey, but only 7,487 (72.9%) reported a minimum set of information, characterizing their sociodemographic profile (i.e., age, gender, and province of residence). Among these, 6,687 participants (62.2%) completed the SPAN questionnaire: this represents the population considered in this study.

Most of the questionnaires (87%) were collected before 3rd May 2020, hence referring to the period with the strictest isolation measures. Among the 6,687 respondents, 71.5% were females. The mean age of the sample was 48.7 years, and the most represented age classes were 30-49 years (39.8%) and 50-69 years (45%). Most of the respondents lived in Northern Italy (91.7%), were Italian (96.9%), married (66.8%), and 93.3% had a high education level. Only 969 respondents (14.8%) lived alone during the lockdown period, and 73.4% lived in a house with an external space.

In the period under investigation, 421 respondents (6.5%) had a certain or probable COVID-19 infection and 78.8% experienced restless sleep. Regarding lifestyle modification, 10.7% of the respondents increased alcohol consumption and 54.6% reduced the time dedicated to leisure time physical activity during the period of restrictions (Table 1).

Overall, 43.8% of the participants reported symptoms of PTSD, especially females (47.6% vs 34.2%; Adj PR 1.27; 95%CI 1.15-1.41) (Table 2).

PTSD prevalence showed a decreasing trend across age groups, with the lowest prevalence in people over 70 years compared to younger ones (14-29 years) (27.6% vs 56%; Adj PR 0.56; 95%CI 0.42-0.74) (Table 2).

Having experienced restless sleep was the condition most associated with PTSD symptoms (51.3% vs 16%; Adj PR 2.94; 95%CI 2.52-3.44). The likelihood of PTSD symptoms was higher among those who declared an increase in alcohol consumption (57% vs 44.4%; Adj PR 1.19; 95%CI 1.05-1.34) and a decreased in leisure time PA (44% vs 40.8%; Adj PR 1.14; 95%CI 1.05-1.24) during the lockdown. No significant differences were found between subjects who lived alone and those living in a household (43.9% vs 43.6%; Adj PR 1.01; 95%CI 0.87-1.16) (Table 2).

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CHARACTERISTICS	OVERALL		MALES		FEMALES		P-CHI^2
	N.	%	N.	%	N.	%	
Total	6,687	100.0	1,903	28.5	4.784	71.5	
Age group							
14-29 years	653	9.8	226	11.9	427	8.9	<0.001
30-49 years	2,664	39.8	726	38.2	1.938	40.5	
50-69 years	3,011	45.0	815	42.8	2.196	45.9	
70+ years	359	5.4	136	7.1	223	4.7	
Marital status							
Married	4,381	66.8	1.215	64.8	3.166	67.5	<0.001
Single	1,388	21.1	498	26.6	890	19.0	
Separated	625	9.5	138	7.4	487	10.4	
Widowed	168	2.6	23	1.2	145	3.1	
Education level							
None/elementary school	3	0.1	2	0.1	1	0.1	<0.001
Junior high school	435	6.6	103	5.5	332	7.0	
High school	2,402	36.6	748	40.1	1,654	35.2	
University	3,717	56.7	1,012	54.3	2,705	57.7	
Nationality							
Italian	6.286	96.9	1,805	97.6	4,481	96.6	0.046
Foreign	202	3.1	45	2.4	157	3.4	
Overcrowded house							
No	6,243	96.8	1,782	97.0	461	96.8	0.622
Yes	204	3.2	55	3.0	149	3.2	
Living alone							
No	5,599	85.2	1,565	83.6	4,034	85.9	0,018
Yes	969	14.8	307	16.4	662	14.1	
External space							
No	1,727	26.6	545	29.4	1,182	25.6	0.002
Yes	4,754	73.4	1,310	70.6	3,444	74.4	
Town of residence size							
Less than 10,000 inhab.	1,863	28.5	459	24.4	1,404	30.2	<0.001
Between 10,000 and 100,000 inhab.	2,417	37.0	689	36.7	1,728	37.1	
Over 100,000 inhab.	2,253	34.5	730	38.9	1,523	32.7	
Geographical area of residence							
Northern Italy	6,129	91.7	1,672	87.9	4,457	93.2	<0.001
Central Italy	261	3.9	107	5.6	154	3.2	
Southern Italy and Islands	297	4.4	124	6.5	173	3.6	
Healthcare worker							
No	5,061	77.3	1,542	81.9	3,519	75.4	<0.001
Yes	1,489	22.7	340	18.1	1,149	24.6	
Certain or probable COVID-19 positivity							
No	6,042	93.5	1,745	93.8	4,297	93.3	0.493
Yes	421	6.5	115	6.2	306	6.7	
Restless sleep							
No	1,410	21.2	543	28.7	867	18.2	<0.001
Yes	5,240	78.8	1,351	71.3	3,889	81.8	
Increase in alcohol consumption							
No	4,739	89.3	1,208	85.4	3,531	90.6	<0.001
Yes	570	10.7	206	14.6	364	9.4	
Decrease in physical activity							
No	2,974	45.4	821	43.7	2,153	46.1	0.082
Yes	3,576	54.6	1,057	56.3	2,519	53.9	

Table 1. Sociodemographic characteristics, housing condition, and lifestyle habits modification of respondents, overall and stratified, by gender.
Tabella 1. Caratteristiche socio-demografiche, condizioni abitative e cambiamenti degli stili di vita dei rispondenti, totali e stratificati, per genere.

CHARACTERISTICS	SPAN		
	%	ADJ PR	IC95%
Total	43.8		
Gender			
Male	34.2	1	
Female	47.6	1.27	(1.15-1.41)
Age group			
14-29 years	56.0	1	
30-49 years	51.3	0.88	(0.76-1.01)
50-69 years	36.5	0.65	(0.55-0.77)
70+ years	27.6	0.56	(0.42-0.74)
Marital status			
Married	42.2	1	
Single	50.1	1.05	(0.92-1.19)
Separated	43.5	1.02	(0.88-1.20)
Widowed	35.7	0.92	(0.66-1.27)
Education level			
High	43.9	1	
Low	42.2	1.06	(0.89-1.27)
Living alone			
No	43.6	1	
Yes	43.9	1.01	(0.87-1.16)
Certain or probable COVID-19 positivity			
No	43.4	1	
Yes	51.5	0.98	(0.83-1.15)
Restless sleep			
No	16.0	1	
Yes	51.3	2.94	(2.52-3.44)
Increase in alcohol consumption			
No	44.4	1	
Yes	57.0	1.19	(1.05-1.34)
Decrease in physical activity			
No	40.8	1	
Yes	44.0	1.14	(1.05-1.24)

Table 2. Association of sociodemographic characteristics, housing condition, and lifestyles modification with PTSD symptoms, assessed with the SPAN questionnaire.
Tabella 2. Associazione di caratteristiche sociodemografiche, condizioni abitative e cambiamenti dello stile di vita con sintomi da stress post-traumatico, valutati con il questionario SPAN.

PTSD prevalence was higher among participants with a certain or probable COVID-19 positivity (51.5% vs 43.4%), but this difference was not statistically significant in the multivariate analysis (Adj PR 0.98; 95%CI 0.83-1.15) (Table 2).

DISCUSSION
The purpose of this study was to evaluate the occurrence of PTSD during the first COVID-19 pandemic wave and to identify the population groups at increased risk for PTSD. In the survey here presented, more than 40% of the sample reported PTSD symptoms. This prevalence is higher compared to the estimates from two meta-analyses, including studies from all over the world, which

reported a 15% and 22% PTSD prevalence in the general population, respectively.[20,21] The estimate reported in the present survey is also higher compared to that of another Italian survey carried out during the pandemic, where the prevalence of PTSD symptoms was 23.5%.[16] These differences could be due to the fact that the above-mentioned studies report the prevalence of PTSD assessed with diagnostic tools, while in the present survey a screening instrument was used, which probably determined an overestimation of PTSD symptoms prevalence. It was also hypothesized that the overestimation observed in this study might be due to having evaluated PTSD symptoms in the middle of the pandemic wave. But this also happened in the other comparative studies, so this hypothesis falls. However, this result demonstrates that the first COVID-19 pandemic wave, together with the consequent strict isolation measures imposed by the government, determined a significant impact on Italian citizens' mental well-being, with almost half of the participants at risk for developing PTSD.

In particular, data shows a higher prevalence of PTSD symptoms in female subjects. This result is coherent with evidence from the literature, according to which the prevalence of PTSD is higher among females,[22,23] probably due to genetic and neuroendocrine factors.[24,25] Also in the context of COVID-19 pandemic, female gender has been described as a risk factor for PTSD by studies conducted in China,[26] Norway,[14] and Italy.[16,27]

In addition, the prevalence of PTSD symptoms showed a decreasing trend across age groups, with the lowest value among respondents with more than 70 years. Younger subjects, with an age between 14 and 29 years, had the highest probability of reporting PTSD symptoms compared to older ones, in accordance with other studies.[28,29] This result suggests that adolescent and young adults represent a particularly susceptible category of the population, in accordance with evidence from the literature, suggesting that younger generations are more vulnerable to different dimensions of psychological distress and are least prepared to trauma.[30] It is reasonable to hypothesize that home confinement and social isolation had a stronger impact on younger subjects, which are probably characterized by a less stable familiar and working condition.

Interesting results were also found regarding lifestyle changes and sleep. As reported in other studies, physical activity seems to protect from PTSD.[31] In the present survey, an association between reduction of PA and PTSD symptoms was observed. Evidence from the literature shows that PA has several positive effects on mental health[33] and it is considered to be effective in reducing PTSD symptoms.[34,35] Physical exercise has many protective health benefits not only on the cardiovascular system, but also on psychological well-being. In fact,

it is linked to the mitigation of stress and PTSD by increasing the volume of prefrontal regions and normalizing the hypothalamic-pituitary axis.[32] Therefore, implementation of physical activity should be considered as a fundamental instrument to diminish the psychological impact of stressful situations, such as the COVID-19 pandemic.

An association between sleeping disturbances and PTSD was found as well. Several reports on sleep disturbances indicate that 70-90% of patients with PTSD have difficulty falling or staying asleep or have nightmares or insomnia.[36-38] Moreover, sleep problems are associated with the onset, maintenance, and exacerbation of PTSD.[36] Multiple theories have been formulated to describe the role of disturbed sleep in the development of PTSD: neurobiological alterations of the amygdala, the hippocampus, and the medial pre-frontal cortex during rapid eye movement (REM) sleep.[39] Females were also more likely to report insomnia, together with depression and anxiety.[40]

Another interesting result found in this study is an association between the increase in alcohol consumption and PTSD symptoms. Although the cross-sectional design of this study does not allow to assess the order of onset, PTSD generally precedes substance use disorders.[41] PTSD and alcohol abuse share multiple aetiological pathways and they are associated with more complex and severe clinical presentation when they co-occur.[41-43] Stressful situations such as quarantine and home confinement could therefore determine, probably through the exacerbation of psychiatric symptoms and the deterioration of sleep quality, a worsening in lifestyle habits, which should be adequately studied and addressed in order to prevent potential negative consequences on the health status of the citizens.

Approximately 7% of the sample in this study had a certain or probable SARS-CoV-2 infection. Among them, more than half were found to have PTSD symptoms. This percentage is higher compared to the one reported by a meta-analysis, which found a prevalence of PTSD of 32% assessed from 4 studies carried out among survivors of the SARS-CoV epidemic in 2002-2003.[44] As mentioned earlier, the SPAN is a screening tool which may tend to overestimate the prevalence of PTSD. In addition, the difference from the literature data could be due to the fact that the preventive measures taken during the SARS-CoV-2 pandemic were much more drastic than during the SARS epidemic, with a stronger impact on mental health.

The prevalence of PTSD symptoms was however not higher among subjects reporting SARS-CoV-2 infection than among those who were not infected. The lack of association between COVID-19 and PTSD symptoms in the population considered in this study would suggest that the effect of the pandemic on mental health is mainly a consequence of social restrictions and quarantine, regardless of having actually experienced the disease. Further studies are needed to better assess the mental health status of people who recovered from COVID-19.

This study has some limitations. Firstly, the sample cannot be considered representative of the Italian general population. In fact, the population under study is mainly composed of women, subjects with a high education level, living in Northern Italy, with an age between 30 and 69 years. Hence, despite being consistent with the reports from several similar studies carried out in similar contexts, the results of the present survey cannot be generalized. In addition, subjects already displaying PTSD symptoms may have been more interested in the topic explored in this study and therefore more prone to answer the questionnaire; thus, the Authors acknowledged that the high prevalence of PTSD symptoms that emerged from this survey could have been influenced by a selection bias.

Secondly, this study has a cross-sectional design, hence it was not possible to establish a cause-effect relation between the change in lifestyle habits and the development of PTSD symptoms, but only the strength of the associations. In addition, information regarding the increase or decrease in lifestyle habits was self-reported.

Lastly, it was not possible to know if the mental health status of the respondents has improved or worsened compared to a baseline, since the questions regarding mental health and sleeping disorders refer to the 14 days before the interview.

The major strengths of this work were: its rapid implementation, the recruitment of a large sample of citizens, and the possibility to gain useful information on mental well-being during a period of critical emergency.

CONCLUSIONS

The present study reported a high prevalence of PTSD symptoms among the respondents during the first COVID-19 pandemic wave. These findings strongly suggest the need to accurately and timely assess the magnitude of mental health outcomes in the general population exposed to COVID-19 pandemic. It is crucial to study effective interventions (implementation of preventive and early interventions strategies) to reduce the burden of psychological and social consequences. Moreover, it is essential to plan preventive strategies for the subgroups of the population with higher risk, such as females and younger subjects. For this reason, it is reasonable to consider schools and universities as ideal contexts for the promotion of mental well-being.

It is important to act swiftly to avoid a psychological crisis in which symptoms of PTSD actually develop into full-blown disorders and it is fundamental that future efforts are carried out to track the mental well-being of the general population throughout the entire duration of the pandemic. Preventive interventions targeting mental health should be implemented for any country-wide emergencies and should also be part of the intervention packages deployed by governments.

Conflicts of interest: none declared.

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