

# COVID-19 post-traumatic stress disorder: the role of ACEs, alexithymia, and attachment in the Italian population

S. MONACO, M.G. MASSARI, A. RENZI, M. DI TRANI

Department of Dynamic and Clinical Psychology and Health Studies, Sapienza University, Rome, Italy

**Abstract. – OBJECTIVE:** The COVID-19 pandemic is considered a collective traumatic event. Several studies have highlighted high levels of post-traumatic stress disorder (PTSD) symptoms among the general population during the pandemic. The general aim of this research is to explore the role of adverse childhood experiences (ACEs), alexithymia, and anxiety and avoidance attachment dimensions as risk factors that are making individuals more vulnerable to PTSD-COVID-related symptoms.

**SUBJECTS AND METHODS:** The COVID-19-PTSD Questionnaire, 20-Item Toronto Alexithymia Scale (TAS-20), Adverse Childhood Experiences Questionnaire, and the Experiences in Close Relationships-Revised Form (ECR-R) were administered to 224 participants who were between 18 and 65 years of age, and residents of Italy. Socio-demographic variables were also collected. The data was collected between October 2021 and March 2022.

**RESULTS:** The findings of the Spearman correlation analysis showed several significant associations between alexithymia, attachment dimensions, and PTSD symptoms related to COVID-19 diagnosis and age. A multivariable logistic regression model was performed using the COVID-19-PTSD total scores over/under the clinical cut-off as dependent variables and age, gender, anxiety and avoidance attachment scores, ACEs, and total alexithymia as independent variables, with alexithymia total score ( $B = .071$ ;  $p = .001$ ), ECR-R Anxiety ( $B = .034$ ;  $p = .001$ ) and ECR-R Avoidance ( $B = -.033$ ;  $p = .024$ ) showing to respectively increase and reduce the possibility of reporting clinical symptomatology.

**CONCLUSIONS:** Emotional regulation and attachment have been shown to be risk factors for COVID-19 PTSD symptomatology. Focused intervention programs and emotional education can be useful tools for developing protective factors in the general population.

## Key Words:

COVID-19, PTSD symptomatology, ACE, Alexithymia, Attachment.

## Introduction

Since the beginning of December 2019, humanity has been facing the biggest global crisis of this millennium<sup>1</sup>. The World Health Organization (WHO) declared the COVID-19 pandemic an international public health emergency. The fears associated with the infection and the discomfort experienced due to the procedures employed to contrast virus diffusion have made COVID-19 a collective traumatic event<sup>2</sup>. This situation has affected many aspects of social and economic life and generated many fears in the population<sup>3,4</sup>.

A recent narrative review<sup>5</sup> has found data coherent with the hypothesis that we will struggle with the effects of the COVID-19 pandemic in the form of deterioration of mental and physical health for many years to come. Several studies<sup>6-9</sup> have highlighted high levels of stress, anxiety, depression, insomnia, and post-traumatic stress disorder (PTSD) symptoms among the general population during the COVID-19 pandemic.

According to the DSM-5<sup>10</sup>, PTSD is a disorder caused by direct or indirect exposure to a trauma (criterion A), which can generate symptoms of re-experiencing (B), avoidance (C), negative alteration of thoughts and emotions (D) or hyperactivation of arousal (E). Trauma is an emotional response to a distressing event or series of events that can be natural (earthquakes, floods or medical emergencies), technological (car accidents), and/or human (wars, abuses, violence)<sup>11</sup>. Specifically, regarding PTSD symptoms, studies<sup>12-14</sup> carried out in Italy and China during the COVID-19 pandemic found that a few weeks after the outbreak of the pandemic and after the application of containment measures, the incidence of symptoms corresponded to 7.6% and 4.6% of respondents, respectively.

Specific studies<sup>13,15</sup> that have focused on risk factors for PTSD related to COVID-19 have determined that increased exposure to the disease

and several specific events (e.g., becoming infected, hospitalization, the loss of a loved one, economic concerns related to the consequences of quarantine), may increase the risk of PTSD symptoms. Additionally, pre-trauma factors may interact with the aforementioned risk factors, making individuals more vulnerable.

Indeed, individuals who are particularly vulnerable to PTSD symptoms during this pandemic have been those who have gone through so-called adverse childhood experiences (ACEs)<sup>16-19</sup>. On the other hand, according to the stress sensitization hypothesis<sup>20</sup>, adversity in early childhood sensitizes individuals' stress response, increasing the risk of psychopathology in the case of later stressful life events. Adverse childhood experiences can potentially subvert typical development and threaten psychological and physical well-being into adulthood processes<sup>21</sup>. ACEs can negatively impact the growth of emotional regulation skills. This ability develops through interactions between the child and a caregiver who provides competence to recognize, identify, process, and mirror emotions and modulate agitation and distress<sup>22</sup>. Abusive or negligent behavior of the caregiver can damage the quality of the attachment bond and put the child in an unpredictable and frightening environment<sup>23</sup>.

PTSD symptoms are believed<sup>24</sup> to be underpinned by maladaptive emotion regulation strategies, such as suppression and avoidance, which are reflected in the avoidance of trauma-related stimuli. Similarly, alexithymia, literally meaning "no words for feelings", is a personality construct characterized by a deficit in cognitive processing and emotion regulation<sup>25,26</sup>. It is characterized by difficulty in identifying and describing feelings, reduced imaginative processes, and externally oriented thinking<sup>27</sup>. This construct is considered an emotion-dysregulation disorder and has gained much attention as a "transdiagnostic risk factor"<sup>28,29</sup>. The positive correlation between alexithymia and PTSD is widely documented<sup>30</sup>, also in relation to the current circumstances of the pandemic<sup>31</sup>. Indeed, there is the possibility that alexithymia significantly predicts the severity of PTSD symptoms<sup>32</sup>. Recent works<sup>33</sup> underline the importance of investigating the construct of alexithymia, in addition to coping, when analyzing the severity of PTSD symptoms.

The attachment theory proposed by Bowlby<sup>34</sup> provides a theoretical framework for understanding emotional regulation<sup>35,36</sup>. Emotional regulation skills develop within the relationship between the child and the primary caregiver, with

whom the child establishes the attachment bond. Studies<sup>37,38</sup> have reported a relationship between alexithymia and insecure attachment styles. In romantic relationships, it is possible to observe that an adult's way of relating to their partner reflects the attachment system activated in stressful situations<sup>35</sup>. Recent measures of adult attachment place the individual's attachment orientation on two distinct dimensions: anxiety and avoidance. The former is determined by concern about rejection and abandonment, while the latter is characterized by fear of dependence and intimacy<sup>35</sup>. Insecure attachment styles have been found<sup>39,40</sup> to be associated with more PTSD symptoms. Conversely, even during the current pandemic emergency, it has been found<sup>41</sup> that secure attachment can be a protective factor for psychological well-being in adolescents, in addition to facilitating prosocial and health-protective responses.

Therefore, according to the international literature, ACEs, alexithymia, and attachment styles appear to have interconnected relationships with each other and with the symptoms of PTSD from COVID-19. To the best of our knowledge, these dimensions have not been studied all at the same time. The aim of this research is to explore 1) the associations between PTSD COVID-19 symptoms and age, gender, ACEs, alexithymia, and attachment dimensions; 2) explore the possible predictive effect of age, gender, ACEs, alexithymia, and attachment dimensions on PTSD COVID-19 total scores. All of this with the broader aim to contribute to an integration of the literature in this area. We expect to find a positive association between PTSD symptoms from COVID-19, ACE scores, attachment dimensions and alexithymia scores.

## Subjects and Methods

### *Participants*

The sample consisted of 224 participants (190 females and 34 males), with a mean age of 30 (SD = 14.1). The inclusion criteria were Italian citizenship and being between the ages of 18 and 65.

### *Procedures*

This research was approved by the Ethics Committee of the Department of Dynamic and Clinical Psychology and Health Studies at Sapienza University of Rome. A snowball sampling was adopted to recruit potential participants. Each participant signed an electronic informed consent form, which explained the voluntary and

anonymous nature of their participation in the research and the possibility of interrupting the questionnaire at any time. The participants were informed that their data would be treated in an aggregated way and with respect for their privacy, for research purposes, and not for clinical purposes. The data was collected using self-report questionnaires filled out via the online platform “Google Forms”. The data was collected between October 2021 and March 2022.

### **Measures**

A socio-demographic questionnaire investigated participants’ gender, age, educational qualifications, profession, attitude towards COVID-19 since the beginning of the pandemic, and any relevant family history or chronic disease diagnoses.

The COVID-19-PTSD Questionnaire (COVID-19-PTSD) is a self-report measure specifically designed and validated to assess specific PTSD symptoms related to COVID-19<sup>42</sup>. It consists of 19 items rated on a 5-point Likert scale (from 0 = not at all to 4 = extremely). The questionnaire evaluates 7 factors: intrusion, avoidance, negative affect, anhedonia, dysphoric arousal, anxious arousal, and externalizing behavior. The cut-off  $\geq 26$  was used to define participants as having/not having significant PTSD symptoms in accordance with the validation study<sup>42</sup>. In the present study, Cronbach’s  $\alpha$  was 0.96 for the total score, and the dimensions for  $\alpha$  ranged from 0.70 (dysphoric arousal) to 0.86 (intrusion and externalizing behavior).

The Toronto Alexithymia Scale (TAS-20) is the most widely used 20-item self-report scale<sup>27</sup> to measure the construct of alexithymia. The Italian version of the scale was used in this study<sup>43</sup>. The scale measures three factors: difficulties in identifying feelings (DIF), difficulties in describing feelings (DDF), and externally oriented thinking (EOT). The items are rated on a 5-point scale from 1 (strongly disagree) to 5 (strongly agree). In the present study, Cronbach’s  $\alpha$  was 0.89 for the total score and 0.85, 0.88 and 0.70 for DIF, DDF, and EOT, respectively.

The Adverse Childhood Experiences Questionnaire (ACE-Q) is a self-assessment measure developed by doctors from a large American healthcare consortium, Kaiser Permanente. It is based on the first ACE study<sup>44</sup> and verifies that the participant remembers any exposure to psychological, physical, and sexual abuse, as well as family dysfunction, including domestic violence, substance abuse, and incarceration before the age of 19. The questionnaire is composed of 10 dichotomous

items and detects the variety of adverse experiences to which the participant has been exposed but not the frequency, degree, duration, severity, or quality of each adverse childhood experience. In the present study, Cronbach’s  $\alpha$  was 0.70.

The Experiences in Close Relationships-Revised Form (ECR-RF)<sup>45</sup> is a questionnaire composed of 36 items rated on a 7-point Likert scale. The ECR-RF is one of the most popular self-report tools for assessing attachment in adults and is based on indicators of avoidance and anxiety. The Italian version has been translated by Busonera et al<sup>46</sup>. Fraley et al<sup>45</sup> suggested that the mean values of the two scales can be used to classify subjects into four subgroups. ‘Secure attachment’ defines subjects whose score in both anxiety and avoidance is lower than the sample’s mean values. ‘Preoccupied attachment’ defines subjects whose anxiety score is higher than the sample’s anxiety mean values and whose avoidance score is lower than the sample’s avoidance mean values. ‘Dismissing attachment’ defines subjects whose avoidance score is higher than the sample’s avoidance mean values and whose anxiety score is lower than the sample’s anxiety mean values. ‘Fearful attachment’ defines subjects whose anxiety and avoidance scores are both higher than the sample’s anxiety and avoidance mean values. In the present study, Cronbach’s  $\alpha$  was 0.89 for the anxiety dimension and 0.84 for the avoidance dimension.

### **Statistical Analysis**

The statistical analyses were conducted using the Statistical Package for Social Science SPSS 24 (IBM Corp., Armonk, NY, USA). Data was reported as frequencies and percentages for discrete variables, as well as means and standard deviations for continuous variables. A normality test was performed, showing a non-normal distribution of the variables (both Saphiro-Wilk and Kolmogorov-Smirnov  $< .01$ ); thus, Spearman’s correlation was used to measure the association between the variables investigated. A multivariable logistic regression model was performed in order to investigate the role of age, gender, alexithymia, attachment dimensions, and ACEs (independent variables) on the COVID-19 PTSD symptomatology (dependent variable). For the present purpose, the dependent variable was coded as 1 if the COVID-19 PTSD total score was  $\geq$  the clinical cut-off of 26 and 0 if it was  $< 26$ . The independent variables were considered as continuous as regards age, TAS-20 total score, attachment and avoidance dimensions scores and

number of ACEs reported, whereas the gender was considered as a dichotomous variable with value 0 representing the female gender and value 1 representing the male gender. All the independent variables were entered simultaneously.

A  $p < 0.05$  was considered significant.

### Results

The sociodemographic and psychological characteristics of the participants are reported in Table I and Table II, respectively.

Specifically, regarding the COVID-19-PTSD Questionnaire, 42.4% of participants reported the above clinical cut-off, highlighting significant PTSD symptomatology.

In regard to the correlation analysis, several significant associations between alexithymia, ACEs, attachment dimensions, and PTSD symptoms related to COVID-19 and age emerged (see Table III). No significant associations with the gender variable emerged.

A multivariable logistic regression model was performed using the COVID-19-PTSD total scores (categorized as 0 and 1 respectively for values under and over the clinical cut-off  $\geq 26$ ) as dependent variables and age, gender, anxiety and avoidance attachment scores, ACEs, and total alexithymia as independent variables. The model accounted for 35% ( $R^2 = .352$ ;  $\chi^2 = 68.108$ ;  $df = 6$ ;  $p = .001$ ) of the criterion variable (COVID-19-PTSD total scores). In particular, the model showed a significant predictive effect of alexithymia total score [ $B = .071$ ;  $\text{Exp}(B) = 1.074$ ;  $df = 1$ ; confidence interval (CI) = 1.043-1.105;  $p = .001$ ], ECR-R Avoidance [ $B = -.033$ ;  $\text{Exp}(B) = .968$ ;  $df = 1$ ; confidence interval (CI) = .941-.996;  $p = .024$ ] and ECR-R Anxiety ( $B = .034$ ;  $\text{Exp}(B) = 1.035$ ;  $df = 1$ ; confidence interval (CI) = 1.015-.1.056;  $p = .001$ ) on the dependent variable whereas age, gender, ACEs were not statistically significant (see Table IV).

### Discussion

The COVID-19 pandemic created a devastating scenario for the worldwide population and also for the mental well-being of individuals<sup>47-49</sup>. The context of fear and the restrictions related to the pandemic have had a significant impact on the daily lives of individuals, leaving scars on people's mental health, especially for those who

**Table I.** Participants' sociodemographic characteristics.

	n	%
<b>Gender</b>		
Female	190	84.8
Male	34	15.2
<b>Highest educational level</b>		
Middle school	9	4
High school	83	37.1
Degree	128	57.1
Postgraduate	4	1.8
<b>Employment</b>		
Unemployed	19	8.5
Employed	65	29
Student	140	62.5
<b>COVID-19 positive</b>		
Yes	47	21
No	177	79
<b>Knowledge of COVID-19 positive people</b>		
Yes	190	84.8
No	34	15.2
<b>Cohabitation during the lockdown</b>		
Family	185	82.6
Partner	25	11.3
Alone	11	4.9
Room mates	3	1.3
<b>Stable romantic relationship</b>		
Yes	131	58.5
No	93	41.5

**Table II.** Participants' psychological characteristics.

	Mean	S.D.
<b>Intrusion</b>	4.71	3.882
<b>Avoidance</b>	2.63	2.285
<b>Negative affect</b>	3.75	3.331
<b>Anhedonia</b>	4.70	3.381
<b>Externalizing behavior</b>	1.89	1.899
<b>Anxious arousal</b>	3.01	2.359
<b>Dysphoric arousal</b>	4.57	3.733
<b>COVID-19-PTSD total</b>	25.26	17.866
<b>TAS-20 TOTAL</b>	45.07	14.097
<b>TAS-20 DIF</b>	15.25	6.768
<b>TAS-20 DDF</b>	12.77	5.359
<b>TAS-20 EOT</b>	17.06	5.080
<b>ACEs SCORE</b>	1.58	1.525
<b>ECR-RF avoidance</b>	46.32	13.683
<b>ECR-RF anxiety</b>	57.97	19.987

TAS-20 = 20-item Toronto Alexithymia Scale; DIF = difficulty in identifying feelings; DDF = difficulty in describing feelings; EOT = externally orientated thinking; ECR-RF = experience in close relationship revised; ACEs = adverse childhood experiences.

have faced traumatic and complex situations in the past. Considering the COVID-19 pandemic as a collective traumatic event, it is crucial to understand the risk factors that may lead to the

**Table III.** Association between COVID-19-PTSD and alexithymia, ACEs, attachment dimensions, age and gender.

	Age	Gender	ACEs	ECR-RF Avoidance	ECR-RF Anxiety	TAS-20 Total	TAS-20 DIF	TAS-20 DDF	TAS-20 EOT
<b>COVID-19-PTSD total</b>	-.219**	.085	.204**	.229**	.417**	.531**	.599**	.450**	.195**
<b>Intrusion</b>	-.175**	.120	.200**	.191**	.352**	.412**	.503**	.335**	.120
<b>Avoidance</b>	-.182**	.080	.150*	.206**	.273**	.478**	.520**	.418**	.186**
<b>Negative affect</b>	-.224**	.033	.196**	.095	.366**	.426**	.510**	.322**	.156*
<b>Anhedonia</b>	-.249**	.037	.161*	.248**	.404**	.536**	.564**	.510**	.182**
<b>Dysphoric arousal</b>	-.160*	.075	.211**	.219**	.374**	.445**	.504**	.386**	.156*
<b>Anxious arousal</b>	-.107	.124	.064	.191**	.370**	.390**	.465**	.298**	.161*
<b>Externalizing behavior</b>	-.135*	.048	.239**	.167*	.340**	.468**	.487**	.395**	.203**

\* $p < .05$ ; \*\* $p < .01$ . TAS-20 = 20-item Toronto Alexithymia Scale; DIF = difficulty in identifying feelings; DDF = difficulty in describing feelings; EOT = externally orientated thinking; ECR-RF = experience in close relationship revised; ACEs = adverse childhood experiences.

**Table IV.** Multi-variable logistic regression model to explore the variables predictive of clinical score of PTSD by COVID-19.

	B	S.E.	Wald	df	Sig.	Exp (B)	95% C.I. for EXP(B)	
							Lower	Upper
<b>Gender</b>	0.670	0.470	2.038	1	0.153	1.955	0.779	4.907
<b>Age</b>	-0.023	0.013	3.018	1	0.082	0.977	0.952	1.003
<b>TAS-20</b>	0.071	0.015	22.866	1	0.000	1.074	1.043	1.105
<b>ACEs</b>	0.050	0.110	0.205	1	0.651	1.051	0.847	1.304
<b>ECR-RF avoidance</b>	-0.033	0.015	5.063	1	0.024	0.968	0.941	0.996
<b>ECR-RF anxiety</b>	0.034	0.010	11.486	1	0.001	1.035	1.015	1.056
<b>Constant</b>	-4.000	0.941	18.083	1	0.000	0.018		

TAS-20 = 20-item Toronto Alexithymia Scale; ECR-RF = experience in close relationship revised; ACEs = adverse childhood experiences.

development of psychopathological symptoms in the general population during this experience.

The prevalence of participants showing a significant PTSD symptomatology was 42.4% and this percentage is higher than those found in Forte et al<sup>42</sup>, who reported a rate of around 30% of participants with a total score  $\geq$  the clinical cut-off. Moreover, from a qualitative point of view, it should be noted that the total mean score emerging from the present study is 25.26 (SD = 17.86), which is higher than those found to be emerging by Forte et al<sup>42</sup>, which is 19.87 (SD = 15.88). Several considerations can be taken into account to explain this finding, and the principal one is the period of data collection. In Forte et al<sup>42</sup>'s study, the period was March 2020, whereas in our study, the period was October 2021 to March 2022. In fact, it is possible to hypothesize<sup>50</sup> that almost two years after the outbreak of the pandemic, the prolonged exposure to social restrictions and health-related

issues have more strongly affected people's psychological well-being, especially in the youth population, such as the participants in our study.

The first aim of the present study was to investigate the associations between PTSD COVID-19 symptoms and age, gender, ACEs, alexithymia, and attachment dimensions. The results of the correlation analysis underlined the relationship between COVID-19 PTSD total score and ACEs, ECR-RF Avoidance and Anxiety, TAS-20 (total score, DIF, DDF, and EOT), and age. Since some of these facets will deepen the discussion related to the regressions' results, in this section, we will underline the role of ACEs and age as pre-trauma risk factors.

ACEs are considered to be one of the most dangerous risk factors for developing poor health. Research<sup>7</sup> led to the creation of the ACE pyramid model, which aims to explain the mechanism by which ACEs influence health and well-being throughout the lifespan. One of the more crucial

life events for a person with past ACEs is the experience of another traumatic experience, where internal emotive schemes could be reactivated just as the attachment schemes<sup>34</sup>. Considering this, we also have to consider that the experience of the COVID-19 pandemic has been considered to be a new typology of ACE<sup>52</sup>, thereby creating a problematic context with a potentially dangerous impact for people with past ACEs. Different research<sup>53</sup> focused on the impact of ACEs during the COVID-19 experience, and it has been determined that ACEs significantly increased psychological distress over time. Moreover, they contributed to low trust in the National Health Service (NHS) COVID-19 information, feeling unfairly restricted by the government, ending mandatory face coverings, removing the social distancing mandate, breaking COVID-19 restrictions, and vaccine hesitancy<sup>54</sup>. Furthermore, ACEs are highly connected to COVID-19 psychological symptomatology and to difficulty adapting to the emergency context, as our results showed.

Age is a significant variable in this scenario since the correlation analysis showed negative associations between age and COVID-19 PTSD total score. This data reflects the worst condition for younger individuals, with a visible difficulty in facing the impact of COVID-19. This data is in line with other research<sup>55</sup> on the mental well-being of young people during the pandemic, thereby showing greater difficulties in the use of adaptive coping strategies compared to older people. These findings are also in line with the findings<sup>56</sup> regarding other traumatic events, such as the Wenchuan earthquake of 2008 and the L'Aquila earthquake of 2009 in Italy<sup>57</sup>, where young people were observed to show higher levels of symptomatology following the traumatic experiences.

A further aim of this study was to explore the possible predictive effect of age, gender, attachment dimensions, ACEs, and alexithymia on the presence of COVID-19 PTSD symptoms in the clinical range. The multivariable logistic regression model confirmed the role of alexithymia and both anxiety and avoidance attachment dimensions on COVID-19 PTSD. In particular, total alexithymia and anxiety scores were reported to increase the possibility of suffering from a COVID-19 PTSD symptomatology in the clinical range, so acting as a risk element, whereas the avoidance dimension resulted in reducing the chance of symptomatology in the clinical score, acting as a protective element.

Literature<sup>58</sup> explored the impact of alexithymia in developing psychopathology during the COVID-19 pandemic, finding significant associations and with some studies<sup>31</sup> showing a mediating role for mental health problems. The literature<sup>59</sup> also highlighted the specific role of DIF on PTSD symptom development in different contexts, such as that of sexual traumas. A specific evaluation of the role of DIF on COVID-19 PTSD was not directly explored in the present investigation. However, considering the correlational analysis performed, it clearly appears that the strongest association between PTSD symptoms and alexithymia is with the DIF factor. Some considerations can be made. The ability to identify feelings could be defined as the first step in the emotional regulation process. If feelings are not identified, the ability to work on them and to share them is totally compromised. Considering that a low capacity to identify feelings is connected to the persistence of traumatic symptoms<sup>60</sup>, thus making the recovery work even more complex. Moreover, difficulties in identifying and labeling one's own psychological distress and internal experiences could also lead to a low possibility of asking for help or psychological support<sup>61</sup>. Difficulties in identifying feelings represent another crucial factor in the development of COVID-19 PTSD symptoms, which requires attention, as it establishes a cycle of vulnerability from the outset (e.g., developing symptoms), with persistence and obstacles in reaching a resolution (e.g., not seeking support).

Regarding attachment, the analysis showed that greater anxiety attachment and lower avoidance attachment predicted greater PTSD symptoms (clinical symptomatology according to the cut-off). Anxiety sensitivity has been found<sup>62</sup> to predict PTSD symptoms, considering it as a factor that can amplify the negative consequences of trauma. This phenomenon could be explained by the huge cognitive resources required by anxiety attachment<sup>63</sup>, where there is a lack of the possibility to use energy to assimilate and elaborate on what is happening, thereby creating bias in reality's interpretation. An important facet of this context is the new style of communication of mass media, where anxiety was fuelled from media day-to-day<sup>14,64</sup>. On the other side, avoidance seems to be a protective factor in developing COVID-19 PTSD symptoms. A study by Vowels et al<sup>65</sup> similarly found that only the anxiety dimension predicted a poor mental health outcome during COVID-19.

The impact of the anxiety dimension and avoidance dimension on mental health during COVID-19 differs. This can be attributed to avoidant attachment, which is associated with lower dependency on relational support<sup>35</sup>. An avoidant reaction could help individuals protect themselves from overwhelming emotions. However, literature<sup>66</sup> suggests that it is also associated with poorer mental health later on.

### Limitations

This research presents several limitations. The first is the small sample of participants and an imbalanced distribution of males and females, with the majority of participants being female. Also, the absence of *a priori* power analysis represents a limitation. Further studies in this field with a more balanced and larger sample are desirable. Moreover, future studies with other instruments (such as the Toronto Structured Interview for Alexithymia and the Adult Attachment Interview) could be important. The administration of online questionnaires may also represent a limitation as it is connected to the difficulty of generalizing the collected data. A further limit was the non-normal distribution of the variables that limited the possibility of performing more specific analyses (mediation analysis) that should be performed in future studies. Moreover, the use of ACEs tests that, although widely used on the Italian population, lack a validated version.

### Conclusions

The results of this research sustain the association between ACEs, attachment, and alexithymia in developing COVID-19 PTSD symptomatology. A specific role of attachment dimension and emotional capabilities emerges as risk factors. It is important to remember the implications of the traumatic experience of the COVID-19 pandemic to increase our responsive ability in case of other similar events. This data must be focused on by the governments for our recent future, giving more attention to the young population during a traumatic event, such as a pandemic.

It appears fundamental to continue the research, especially on the young population, to find protective factors to help the youth to contrast possible future traumatic events, thereby creating focused interventions on this population. One of the protective factors found in this research is the ability to identify feelings, and it could be used to

help young people to increase this skill. There are many kinds of intervention that could be promoted, including ones directed to parents<sup>67</sup> and online sessions involving expressive art education<sup>68</sup>.

### Informed Consent

Informed consent was obtained from all subjects involved in the study.

### Ethics Approval

The study was approved by the Ethics Committee of the Department of Dynamic and Clinical Psychology of the "Sapienza" University of Rome (PROT. 0001571).

### ORCID ID

Silvia Monaco: 0000-0001-6838-7537  
 Maria Giovanna Massari: 0009-0008-2821-1260  
 Alessia Renzi: 0000-0002-8553-4444  
 Michela Di Trani: 0000-0002-5085-3453

### Conflict of Interest

The authors declare no conflict of interest.

### Authors' Contributions

Silvia Monaco collected the data and helped write the manuscript; Maria Giovanna Massari edited the manuscript; Alessia Renzi conceived and analyzed data and drafted the manuscript; and Michela Di Trani designed the experiments and coordinated all the activities.

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### Data Availability

The datasets generated during and/or analyzed during the current study may be made available by the corresponding author on request.

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