

Attachment styles, mental health, and trauma during the first wave of COVID-19 pandemic in an Italian adult population

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ABSTRACT

The COVID-19 pandemic has negatively impacted adults' mental health around the world. Various studies highlighted the role of socio-demographic risk factors, including age, gender, and level of education, in increasing this impact. Although insecure attachment styles are considered a vulnerability factor for psychopathology and difficulties in coping with stressful situations, few studies have examined the role of attachment styles in relation to psychological responses to the COVID-19 pandemic.

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This study aims to investigate the role of attachment styles in affecting psychopathological problems and post-traumatic symptoms during the COVID-19 pandemic in a sample of Italian adults (N=1548). During the first lockdown in Italy, the Attachment Style Questionnaire, the Impact of Event Scale-Revised, and Symptom Checklist 90-Revised were administered to the participants to assess attachment styles, trauma-related symptoms, and psychopathological problems. The results showed that 41% of the participants had symptoms of clinical and subclinical relevance during the pandemic. Anxious and avoidant insecure attachment styles predicted psychopathological problems and post-traumatic symptoms, whereas secure attachment style was a protective factor. Our results highlighted the significant role played by the quality of attachment styles on adult mental health during the pandemic, providing valuable elements for targeted psychological support interventions.

Key words: attachment styles, psychological distress, COVID-19, trauma-related symptoms, mental health.

Introduction

On March 11, 2020, the World Health Organization proclaimed a state of emergency due to the spread of SARS-CoV-2 (Sameer *et al.*, 2020). The Italian government was the first to impose, from March 9 until May 4, 2020, a ban on its citizens from leaving their homes, except for proven reasons (Rossi *et al.*, 2020), accompanied by social distancing and quarantine measures.

The COVID-19 outbreak is leading to severe mental health (World Health Organization, 2020). Research highlighted increasing levels of anxiety, depression, alcohol abuse, drug use, self-harm, domestic violence, and post-traumatic stress symptoms (Cao *et al.*, 2020; Karatzias *et al.*, 2020; Liu *et al.*, 2020; Preti *et al.*, 2020a; Preti *et al.*, 2020b). Moccia *et al.* (2020) showed that a relevant rate of Italian people experienced psychological distress following the COVID-19 outbreak, and similar results were found in other countries (Li *et al.*, 2020; Wang *et al.*, 2020).

Numerous risk factors for adverse psychological consequences of the COVID-19 pandemic have been identified across studies, including age, gender, level of education, family problems, or living in urban or afflicted areas (Preti *et al.*, 2021; Qiu *et al.*, 2020; Tang *et al.*, 2020). However, individual differences are also im-

portant when inspecting psychological responses to the COVID-19 pandemic, as is the case of individuals' attachment styles.

Attachment styles and vulnerability

Empirical literature shows that insecure attachment styles can be regarded as a general factor of vulnerability to psychopathology (Dozier *et al.*, 2008; Mikulincer & Shaver, 2015; Riva Crugnola *et al.*, 2021). In this regard, anxious and avoidant attachment styles were associated with depressive, anxious, and externalizing problems, as well as with obsessive-compulsive disorders and personality disorders (Doron *et al.*, 2009; Mikulincer & Shaver, 2012; McWilliams & Bailey, 2010).

The quality of attachment also represents a factor that can intensify or mitigate the psychological consequences of adverse and stressful experiences (Mikulincer & Shaver, 2015). This confirms the idea that attachment's function is to regulate discomfort and emotions during exposure to stressful situations (Bartholomew & Horowitz, 1991). Secure attachment, based on representations of attachment figures as emotionally available in situations of danger and stress, promotes the use of adaptive emotional regulation strategies to cope with stressful situations in adults (Mikulincer & Shaver, 2020). On the contrary, insecure attachment styles are based on mental representations of attachment figures as unavailable or refusing and involves in inadequate emotional regulation and coping strategies, with significant negative consequences on mental health (Cassidy *et al.*, 2013; Shaver *et al.*, 2005). In particular, individuals with anxious attachment overestimate stressors and use an attachment hyperactivation strategy through the exaggerated expression of emotion to seek support and help from relationships (Mikulincer & Shaver, 2015). This leads to a limited ability to regulate the intensity of emotions (Segal *et al.*, 2021). On the other hand, individuals with avoidant attachment use an attachment deactivation strategy that leads them to be self-reliant and distancing from intimate relationships. These strategies are usually linked to the minimization of problematic conditions and related negative emotions and to difficulties in managing such emotions when experiencing highly stressful situations (Pascuzzo *et al.*, 2013).

Attachment styles and stress factor

COVID-19 pandemic can be considered a stress factor that activates emotional regulation and coping strategies associated with attachment styles (Tambelli *et al.*, 2021). A study showed that positive coping strategies, which allow individuals to reinterpret negative situations, were positively correlated with psychological well-being during the COVID-19 pandemic. In contrast, avoidance strategies, characterized by refusing to deal with problems, negatively influenced well-being during the pandemic (Rossi *et al.*, 2022).

In this regard, Segal and colleagues (2021) found that avoidant and anxious insecure attachment styles were associated with lower COVID-19 guideline adherence. Instead, secure attachment style was positively associated with COVID-19 guideline adherence. Another study (Tagini *et al.*, 2021) highlighted how people with anxious insecure attachment, which is linked to adopting coping strategies focused on emotional hyperactivation, showed a greater perception of the risk of the COVID-19 pandemic and greater concerns about it. To our knowledge, only two studies evaluated the effects of insecure attachment styles on mental health outcomes during the COVID-19 pandemic. Vowels and colleagues (Vowels *et al.*, 2021, 2022) showed that anxious insecure attachment is a risk factor for adverse mental health outcomes

during the COVID-19 pandemic, leading to higher levels of depression and anxiety during the COVID-19 pandemic. Moccia (Moccia *et al.*, 2020) showed that the insecure anxious attachment, along with depressive, anxious, and cyclothymic temperaments, were risk factors for the perception of moderate-to-severe distress during the pandemic; on the contrary, secure and avoidant attachment patterns seemed to protect individuals from emotional overflow during the COVID-19 pandemic.

Another important aspect is the presence of traumatic symptoms linked to COVID-19. A study has shown that the pandemic has led to a traumatic impact on mental health that can persist long after the traumatic event (Cavalera *et al.*, 2023).

The current study

The principal aim of the study was to analyze the associations between the quality of attachment styles, psychopathological problems, and trauma-related symptoms, such as intrusive thoughts, avoidance, and hyperarousal, during the COVID-19. Since past findings suggest that insecure anxious and avoidant attachment are linked to psychopathological problems and non-adaptive coping strategies (Mikulincer & Shaver, 2015), we expected these insecure attachment styles would be associated with both psychopathological and trauma-related symptoms in the pandemic period.

Methods

Participants and procedure

The study was conducted between April 16 and May 3, 2020, during the first COVID-19 lockdown imposed by the Italian government. We spread information about the study (www.termometroemotivo.com) through campaigns on social networks and national media. After reading the informed consent, participants voluntarily completed an online survey administered through Qualtrics. The study is part of a larger research project on the short-term and long-term psychological consequences of the COVID-19 pandemic in the Italian general population (Prete *et al.*, 2021).

We assessed participants' socio-demographic situation through an *ad hoc* form.

The sample comprises 1548 Italian adults (75.4% females: N=1136) with an overall mean age of 33.36 years (SD=14.42, range age: 18-81). 37% (N=573) were students, 48.3% (N=748) were employed, and 14.7% (N=227) were unemployed. Most of the participants (52%; N=811) had a university level of education or above, whereas 44% of participants (N=687) had a high-school diploma, and 3% had a secondary school level of education (N=50). This large sample was sufficiently representative of the general population by age, occupation, and level of education.

The study has been carried out in accordance with the Declaration of Helsinki, and the Ethical Committee in charge (protocol n. 0024530/20) approved it.

Measures

Symptom Checklist 90 – Revised

The Symptom Checklist 90 – Revised (SCL-90 R; Derogatis, 1994; Italian version: Prunas *et al.*, 2012) is a 90-item self-report questionnaire (rated on a 5-point Likert scale ranging from 0 “not at all”, to 4 “extremely”) that measures psy-

chopathological symptoms over the last week. SCL-90-R measured symptoms of Somatization (SOM), Obsessiveness-Compulsivity (O-C), Interpersonal Sensitivity (I-S), Depression (DEP), Anxiety (ANX), Hostility (HOS), Phobic Anxiety (PHOB), Paranoid Ideation (PAR), and Psychoticism (PSY). The instrument also provides a global index of psychopathological distress – the Global Severity Index (GSI). For the present study, we considered only the GSI SCL-90 R scale that showed high reliability ($\alpha=.97$).

The Impact of Event Scale – Revised

The Impact of Event Scale – Revised (IES-R; Weiss & Marmar, 1997; Pietrantonio *et al.*, 2003) is a 22-item self-report instrument that measures the frequency of intrusive and avoidant thoughts and behaviors associated with a traumatic event. Items are rated on a 5-point Likert scale (0=not at all; 4=extremely). The IES-R consists of three subscales: intrusion (8 items) measures intrusive thoughts, nightmares, intrusive feelings, and imagery associated with the traumatic event; avoidance (8 items) measures avoidance of feelings, situations, and ideas; hyperarousal (6 items) measures difficulty in concentrating, anger and irritability, psychophysiological arousal upon exposure to reminders, and hypervigilance; and a total scale. For the present study, we considered only the IES-Total scale that showed high reliability ($\alpha=.93$).

Attachment Style Questionnaire

The Attachment Style Questionnaire (ASQ; Feeney *et al.*, 1994; Italian version: Fossati *et al.*, 2003) is a 40-item self-report measure of adult attachment styles. Items are rated on a 6-point Likert scale (from 1 “Totally disagree” to 6 “Totally agree”). The ASQ includes five scales: Confidence in self and others is related to secure attachment, whereas the other scales (*i.e.*, Discomfort with Closeness, Relationships as Secondary, Need for Approval, and Preoccupation with Relationships) identify specific aspects of insecure attachment.

The ASQ scales have been grouped to highlight differences concerning the two types of insecure attachment. As indicated by Fossati *et al.*, (2003), through the four scales which measure insecure attachment, it is possible to identify the dimensions of insecurity: Avoidance and Anxiety. Following Monteleone *et al.*, (2008), two new scales relating to insecure attachment have been created. Avoidant Attachment is the average of the scores of Discomforts with Closeness and Relationships as Secondary scales. The scale of Anxious Attachment is calculated by averaging scores from the Preoccupation with Relationships and Need for Approval scales. The three ASQ scales in this study showed good reliability ($.77 < \alpha < .81$).

Data analysis

All analyses were conducted using SPSS Statistic 27.0. Multivariate analysis of variance (MANOVA) has been used to examine the differences between subjects with absence or presence of psychopathological problems at a subclinical and clinical level with respect to attachment styles. Pearson's *r* correlation has been used to identify associations between psychopathological distress, frequency of trauma-related symptoms, and attachment styles. Based on the results of correlations, we conducted multiple regressions to examine the predictive effect of attachment styles with respect to psychopathological problems and trauma-related symptoms.

Results

Preliminary analysis

The percentages of subjects falling within the clinical, subclinical, and non-clinical cut-offs of SCL-90 R were calculated according to the normative sample reported in the Italian manual (Sarno *et al.*, 2011). 59% of subjects (N=913) were in the non-clinical range, not showing particular psychopathological problems; 22.4% (N=347) were in the sub-clinical range, showing subclinical psychopathological problems, and 18.6% (N=288) were in the clinical range showing psychopathological problems of clinical relevance.

Psychopathological problems and attachment styles

Then, through MANOVA, we compared the three groups with respect to attachment styles in the ASQ Confidence, Anxious attachment, and Avoidant attachment scales to identify possible differences. Multivariate tests indicated a significant overall effect (Pillai trace $F(6, 1545)=83.06, p=.000, \eta^2=.01$) on all ASQ scales. Univariate tests indicated a significant effect for ASQ Confidence ($F(2, 1545)=122.02, p=.000, \eta^2=.13$), for Avoidant attachment ($F(2, 1545)=80.36, p=.000, \eta^2=.09$), and for Anxious attachment ($F(2, 1545)=248.86, p=.000, \eta^2=.24$). Post-hoc Bonferroni test indicated that subjects with clinical psychopathological problems had lower score on ASQ Confidence scale than subjects who were in subclinical range with regard to psychopathological problems ($p=.000$) and subjects who were in non-clinical range ($p=.000$); participants with subclinical psychopathological problems had lower scores than subjects who were in non-clinical range ($p=.000$). Subjects with clinical psychopathological problems had higher scores on ASQ Anxious and Avoidant Attachment scales than subjects who were in subclinical range ($p=.000$) and subjects who were in non-clinical range ($p=.000$) and subjects who were in subclinical range had higher scores than subjects who were in non-clinical range ($p=.000$).

Correlations

Pearson's *r* correlation showed that GSI-Total scale significantly positively correlated to IES-Total. GSI-Total and IES-Total significantly positively correlated to ASQ Avoidant scale and ASQ Anxious scale and negatively correlated to ASQ Confidence scale (Table 1).

Multiple regression

We conducted a series of multiple regression analyses to test the effect of attachment styles on psychopathological problems and trauma-related symptoms. Table 2 provides the results of these analyses. For GSI-Total, the model explained 34% of the variance, which was statistically significant, $F(3, 1544)=274.80; p=.000$. Confidence, Avoidant, and Anxious attachment scales were significant predictors; lower scores on Confidence and higher score on Avoidant and Anxious scales predicted higher psychopathological problems.

For IES-Total, the model explained 22% of the variance, which was statistically significant, $F(3, 1544)=147.47; p=.000$. Confidence, Avoidant, and Anxious attachment scales were significant predictors; lower scores on Confidence and higher score on Avoidant and Anxious scales predicted higher impact of traumatic event.

Discussion

Our data showed that 41% of a large sample of Italian adults reported psychopathological problems at a clinical and subclinical level during the lockdown arranged in the first wave of the COVID-19 pandemic. Subjects with clinical and subclinical problems also showed a higher frequency of anxious and avoidant insecure attachment styles and a lower frequency of secure attachment styles than subjects without psychopathological problems.

The role of attachment style on mental health during the COVID-19 pandemic is confirmed. The regression analyses indicated that attachment styles predicted psychopathological problems and the psychological impact of traumatic events; in particular, insecure attachment, both anxious and avoidant, had a negative predictive effect on psychopathological problems and the psychological impact of traumatic events.

In line with literature that indicated the negative effect of anxious attachment on psychopathology during the pandemic (Moccia *et al.*, 2020; Vowels *et al.*, 2022), our study also showed that anxious attachment is associated with and predictive of negative mental health. In particular, individuals higher in attachment anxiety experienced higher levels of psychopathological problems, both on an internalizing and externalizing level, and a greater psychological impact of traumatic events, such as intrusive thoughts, feelings and thoughts of avoidance, and hyperarousal compared to individuals lower in attachment anxiety. In this regard, it should be noted that subjects with an anxious attachment style use regulatory strategies based on the maximization of negative emotions, focusing on their discomfort rather than on seeking a solution to problems and worrying excessively about the consequences of threatening and dangerous events (Garrison *et al.*, 2014). These non-adaptive strategies impact mental health, increasing psychopathological problems under stressful conditions such as those related to the pandemic.

Avoidant attachment was also associated with and predictive of greater psychopathological problems and a greater psycholog-

ical impact of trauma. This result differs from the study by Moccia (2020), which found that the Discomfort with closeness scale of ASQ, relating to avoidant attachment, was, together with the Confidence scale, protective of psychopathological distress during the COVID-19 outbreak, compared to anxious style. It can be hypothesized that our study, considering the dimension of avoidant attachment, including both the Discomfort with closeness scale and the Relationships as secondary scale, had more fully grasped the aspects of fragility present in the avoidant attachment style with respect to stress and mental health. Regulatory strategies aimed at minimizing negative emotions activated by avoidant subjects in moderately stressful situations tend to no longer work when stress increases (Pascuzzo *et al.*, 2013). Moreover, avoidant attachment, like anxious attachment, is considered in the literature as a vulnerability factor with respect to psychopathological problems (Mikulincer & Shaver, 2015).

Otherwise, in our study, secure attachment predicted fewer psychopathological problems and lower psychological impact of traumatic events. Therefore, secure attachment in the context of COVID-19 emerged as a protective factor for dealing with stressful events related to the pandemic (*e.g.*, isolation, fear, and anxiety), reducing the appearance of psychopathological problems and post-traumatic symptoms. This result confirms the studies in the literature (Moccia *et al.*, 2020; Segal *et al.*, 2021; Vowel *et al.*, 2022), which indicate that during COVID-19, secure attachment was predictive of less impact on psychological distress and associated with a greater capacity for recovery with respect to changes linked to pandemic events, with greater adherence to COVID guideline.

The study provides valuable elements to project psychological support interventions aimed at adults during the pandemic and after its conclusion (Ierardi *et al.*, 2022). Interventions promoting mental health for the adult general population should be rapidly implemented, paying particular attention to attachment styles. Individuals with insecure attachment, both anxious and avoidant, have shown in this regard a specific difficulty in dealing with the stress caused by the pandemic, defining themselves as privileged

Table 1. Correlations.

	1	2	3	4	5
GSI-Total (1)	-				
IES-Total (2)	.78***	-			
ASQ Confidence (3)	-.43***	-.29***	-		
ASQ Avoidant (4)	.37***	.28***	-.53***	-	
ASQ Anxious (5)	.54***	.45***	-.45***	.38***	-

GSI, Global Severity Index; IES, Impact of Event Scale; ASQ, Attachment Style Questionnaire. *** $p < .000$.

Table 2. Multiple regression models.

	B	t	p
GSI-Total			
ASQ Confidence scale	-.18	-7.03	.000***
ASQ Avoidant scale	.11	4.62	.000***
ASQ Anxious scale	.41	17.50	.000***
IES-Total			
ASQ Confidence scale	-.06	-2.39	.017*
ASQ Avoidant scale	.09	3.53	.000***
ASQ Anxious scale	.38	15.06	.000***

GSI, Global Severity Index; IES, Impact of Event Scale; ASQ, Attachment Style Questionnaire. * $p < .05$, *** $p < .001$.

recipients of targeted psychological counseling and support interventions. As with risk mental states (e.g. De Salve *et al.*, 2023, about the influence of personality traits), here too we have important indicators of risk connected to attachment. They can guide investments in post Covid public mental health.

Limitations

The study has limitations. First, the research was done online, thus leaving the non-networked population unexplored; this could decrease the generalizability of the results. Second, all questionnaires used are self-reports, and this could affect reliability. Third, no anamnestic psychopathological and psychiatric information was collected. This limits our possibilities to control for previous psychopathological conditions. Lastly, in future research, it will be important to consider other aspects of the personality, such as, e.g., temperamental characteristics.

References

- Bartholomew, K., & Horowitz, L.M. (1991). Attachment styles among young adults: a test of a four-category model. *Journal of Personality and Social Psychology*, *61*, 226. doi: 10.1037//0022-3514.61.2.226.
- Cao, W., Fang, Z., Hou, G., Han, M., Xu, X., Dong, J., & Zheng, J. (2020). The psychological impact of the COVID-19 epidemic on college students in China. *Psychiatry Research*, *287*, 112934. doi: 10.1016/j.psychres.2020.112934.
- Cassidy, J., Jones, J.D., & Shaver, P.R. (2013). Contributions of attachment theory and research: a framework for future research, translation, and policy. *Development and Psychopathology*, *25*, 1415-1434. doi: 10.1017/S0954579413000692
- Cavalera, C., Quiroga, A., & Oasi, O. (2023). Ashamed or afraid? Traumatic symptom severity and emotional activations of Covid-19-related events. *Asian Journal of Psychiatry*, *82*, 103500. doi: 10.1016/j.ajp.2023.103500
- De Salve, F., Rossi, C., Cavalera, C., Malvini, L., Barbera, S., Tagliabue, S., ... & Oasi, O. (2023). Personality traits and transition to psychosis one year after the first assessment. *Frontiers in Psychology*, *14*, 1096626. doi: 10.3389/fpsyg.2023.1096626
- Doron, G., Moulding, R., Kyrios, M., Nedeljkovic, M., & Mikulincer, M. (2009). Adult attachment insecurities are related to obsessive compulsive phenomena. *Journal of Social and Clinical Psychology*, *28*, 1022-1049. doi: 10.1521/jscp.2009.28.8.1022
- Dozier, M., Stovall-McClough, K.C., & Albus, K.E. (2008). Attachment and psychopathology in adulthood. In J. Cassidy, & P.R. Shaver (Eds.), *Handbook of attachment: Theory, research, and clinical applications* (pp. 718-744). Guilford Press, New York.
- Feeney, J.A., Noller, P., & Hanrahan, M. (1994). Assessing adult attachment. In M.B. Sperling, & W.H. Berman (Eds.), *Attachment in adults: Clinical and developmental perspectives* (pp. 128-152). Guilford Press, New York.
- Fossati, A., Feeney, J.A., Donati, D., Donini, M., Novella, L., Bagnato, M., Acquarini, E., & Maffei, C. (2003). On the dimensionality of the Attachment Style Questionnaire in Italian clinical and non-clinical participants. *Journal of Social and Personal Relationships*, *20*, 55-79. doi: 10.1177/02654075030201003
- Garrison, A.M., Kahn, J.H., Miller, S.A., & Sauer, E.M. (2014). Emotional avoidance and rumination as mediators of the relation between adult attachment and emotional disclosure. *Personality and Individual Differences*, *70*, 239-245. doi: 10.1016/j.paid.2014.07.006
- Karatzias, T., Shevlin, M., Murphy, J., McBride, O., Ben-Ezra, M., Bentall, R.P., Vallières, F., & Hyland, P. (2020). Post-traumatic stress symptoms and associated comorbidity during the COVID-19 pandemic in Ireland: a population-based study. *Journal of Traumatic Stress*, *33*, 365-370. doi: 10.1002/jts.22565
- Ierardi, E., Bottini, M., & Riva Crugnola, C. (2022). Psychodynamic counselling intervention aimed at students before and during the COVID-19 period: Online vs face-to-face intervention. *BMC Psychology*, *10*, 35. doi: 10.1186/s40359-022-00742-7
- Liu, N., Zhang, F., Wei, C., Jia, Y., Shang, Z., Sun, L., ... Liu, W. (2020). Prevalence and predictors of PTSS during COVID-19 outbreak in China hardest-hit areas: gender differences matter. *Psychiatry Research*, *287*, 112921. doi: 10.1016/j.psychres.2020.112921
- McWilliams, L. A., & Bailey, S. J. (2010). Associations between adult attachment ratings and health conditions: Evidence from the National Comorbidity Survey Replication. *Health Psychology*, *29*, 446-453. doi: 10.1037/a0020061
- Monteleone, A.M., Cardi, V., Volpe, U., Fico, G., Ruzzi, V., Pellegrino, F., Castellini, G., Monteleone, P., & Maj, M. (2008). Attachment and motivational systems: Relevance of sensitivity to punishment for eating disorder psychopathology. *Psychiatry Research*, *260*, 353-359. doi: 10.1016/j.psychres.2017.12.002
- Mikulincer, M., & Shaver, P.R. (2012). An attachment perspective on psychopathology. *World Psychiatry*, *11*, 11-15. doi: 10.1016/j.wpsyc.2012.01.003
- Mikulincer, M., & Shaver, P.R. (2015). The psychological effects of the contextual activation of security-enhancing mental representations in adulthood. *Current Opinion in Psychology*, *1*, 18-21. doi: 10.1016/j.copsyc.2015.01.008
- Mikulincer, M., & Shaver, P.R. (2020). Broaden-and-build effects of contextually boosting the sense of attachment security in adulthood. *Current Directions in Psychological Science*, *29*, 22-26. doi: 10.1177/0963721419885997
- Moccia, L., Janiri, D., Pepe, M., Dattoli, L., Molinaro, M., De Martin, V., ... Di Nicola, M. (2020). Affective temperament, attachment style, and the psychological impact of the COVID-19 outbreak: an early report on the Italian general population. *Brain, Behavior, and Immunity*, *87*, 75-79. doi: 10.1016/j.bbi.2020.04.048
- Pascuzzo, K., Cyr, C., & Moss, E. (2013). Longitudinal association between adolescent attachment, adult romantic attachment, and emotion regulation strategies. *Attachment and Human Development*, *15*, 83-103. doi: 10.1080/14616734.2013.745713
- Pietrantonio, F., De Gennaro, L., Di Paolo, M.C., & Solano, L. (2003). The Impact of Event Scale: Validation of an Italian version. *Journal of Psychosomatic Research*, *55*, 389-393. doi: 10.1016/S0022-3999(02)00638-4
- Preti, E., Di Mattei, V., Perego, G., Ferrari, F., Mazzetti, M., Taranto, P., Di Pierro, R., Madeddu, F., & Calati, R. (2020a). The psychological impact of epidemic and pandemic outbreaks on healthcare workers: Rapid review of the evidence. *Current Psychiatry Reports*, *22*, 43. doi: 10.1007/s11920-020-01166-z

- Preti, E., Di Pierro, R., Fanti, E., Madeddu, F., & Calati, R. (2020b). Personality disorders in time of pandemic. *Current Psychiatry Reports*, 22, 80. doi: 10.1007/s11920-020-01204-w
- Preti, E., Di Pierro, R., Perego, G., Bottini, M., Casini, E., Ierardi, E., ... Di Mattei, V. (2021). Short-term psychological consequences of the COVID-19 pandemic: Results of the first wave of an ecological daily study in the Italian population. *Psychiatry Research*, 305, 114206. doi: 10.1016/j.psychres.2021.114206
- Prunas, A., Sarno, I., Preti, E., Madeddu, F., & Perugini, M. (2012). Psychometric properties of the Italian version of the SCL-90-R: A study on a large community sample. *European Psychiatry*, 27, 591-597. doi: 10.1016/j.eurpsy.2010.12.006
- Qiu, J., Shen, B., Zhao, M., Wang, Z., Xie, B., & Xu, Y. (2020). A nationwide survey of psychological distress among Chinese people in the COVID-19 epidemic: implications and policy recommendations. *General Psychiatry*, 33, e100213. doi: 10.1136/gpsych-2020-100213
- Riva Crugnola, C., Bottini, M., Madeddu, F., Preti, E., & Ierardi, E. (2021). Psychological distress and attachment styles in emerging adult students attending and not attending a university counselling service. *Health Psychology Open*, 8, 1-9. doi: 10.1177/205510292111016120
- Rossi, M., De Salve, F., Agliati, M., & Oasi, O. (2022). Coping strategies and mental health: A web-based survey among the Italian population dealing with COVID-19. *Research in Psychotherapy: Psychopathology, Process and Outcome*, 25, 609. doi: 10.4081/ripppo.2022.609
- Rossi, R., Socci, V., Talevi, D., Mensi, S., Niolu, C., Pacitti, F., ... Di Lorenzo, G. (2020). COVID-19 pandemic and lockdown measures impact on mental health among the general population in Italy. *Frontiers in Psychiatry*, 11, 790. doi: 10.3389/fpsy.2020.00790
- Sameer, A.S., Khan, M.A., Nissar, S., & Banday, M.Z. (2020). Assessment of mental health and various coping strategies among general population living under imposed COVID-lockdown across world: a cross-sectional study. *Ethics, Medicine and Public Health*, 15, 100571. doi: 10.1016/j.jemep.2020.100571
- Sarno, I., Preti, E., Prunas, A., & Madedu, F. (2011). *SCL-90-R Symptom Checklist-90-R adattamento italiano*. Giunti, Organizzazioni Speciali: Firenze.
- Segal, S., Sharabany, R., Maaravi, Y., (2021). Policymakers as safe havens: The relationship between adult attachment style, COVID-19 fear, and regulation compliance. *Personality and Individual Differences*, 177, 110832. doi: 10.1016/j.paid.2021.110832
- Shaver, P.R., Schachner, D.A., & Mikulincer, M. (2005). Attachment style, excessive reassurance seeking, relationship processes, and depression. *Personality and Social Psychology Bulletin*, 31, 343-359. doi: 10.1177/0146167204271709
- Tagini, S., Brugnera, A., Ferrucci, R., Mazzocco, K., Pievani, L., Priori, A., ... Poletti, B. (2021). Attachment, personality and locus of control: psychological determinants of risk perception and preventive behaviors for COVID-19. *Frontiers in Psychology*, 12, 634012. doi: 10.3389/fpsyg.2021.634012
- Tang, W., Hu, T., Hu, B., Jin, C., Wang, G., Xie, C., Chen, S., & Xu, J. (2020). Prevalence and correlates of PTSD and depressive symptoms one month after the outbreak of the COVID-19 epidemic in a sample of home-quarantined Chinese university students. *Journal of Affective Disorders*, 274, 1-7. doi: 10.1016/j.jad.2020.05.009
- Tambelli, R., Cimino, S., Marzilli, E., Ballarotto, G., & Cerniglia, L. (2021). Late adolescents' attachment to parents and peers and psychological distress resulting from COVID-19. A study on the mediation role of alexithymia. *International Journal of Environmental Research and Public Health*, 18, 10649. doi: 10.3390/ijerph182010649
- Vowels, L.M., & Carnelley, K.B. (2021). Attachment styles, negotiation of goal conflict, and perceived partner support during COVID-19. *Personality and Individual Differences*, 171, 110505. doi: 10.1016/j.paid.2020.110505
- Vowels, L.M., Carnelley, K.B., & Stanton, S.C. (2022). Attachment anxiety predicts worse mental health outcomes during COVID-19: Evidence from two studies. *Personality and Individual Differences*, 185, 111256. doi: 10.1016/j.paid.2021.111256
- Wang, C., Pan, R., Wan, X., Tan, Y., Xu, L., Ho, C.S., & Ho, R.C. (2020). Immediate psychological responses and associated factors during the initial stage of the 2019 coronavirus disease (COVID-19) epidemic among the general population in China. *International Journal of Environmental Research and Public Health*, 17, 1729. doi: 10.3390/ijerph17051729
- Weiss, D.S., & Marmar, C.R. (1997). The Impact of Event Scale-Revised. In J. P. Wilson, & T. M. Keane (Eds.), *Assessing psychological trauma and PTSD: A practitioner's handbook* (pp. 399-411). Guilford Press: New York.
- World Health Organization (2020). *Mental health and psychosocial considerations during the COVID-19 outbreak, March 18, 2020*. Available from: <https://www.who.int/docs/default-source/coronaviruse/mental-health-considerations.pdf> (accessed January 20 2022).