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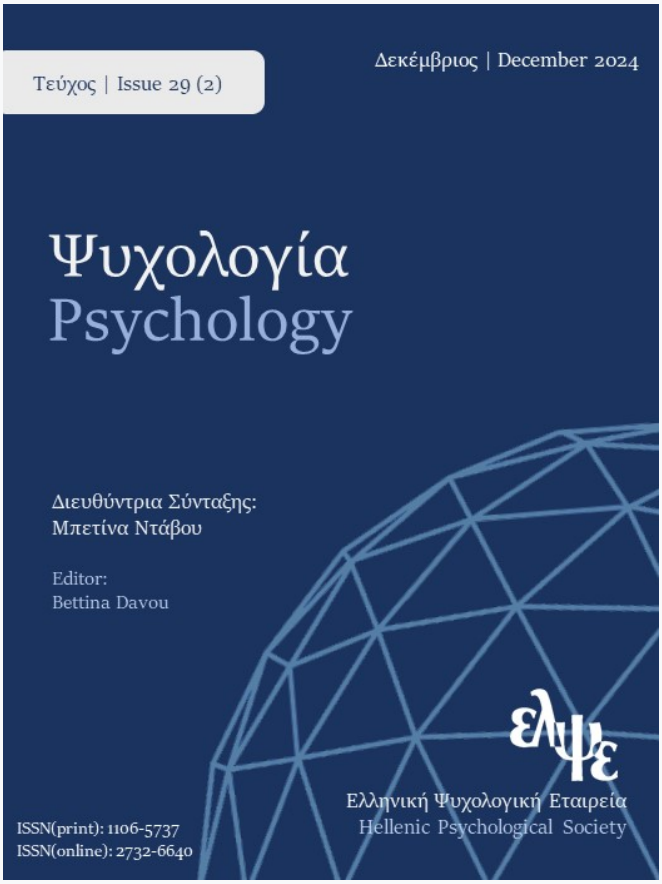

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ΕΜΠΕΙΡΙΚΗ ΕΡΓΑΣΙΑ | RESEARCH PAPER

The long-term effect of childhood trauma and alexithymia on mental distress during the COVID-19 pandemic in Greece

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KEYWORDS

Childhood trauma
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ABSTRACT

The study investigated the effect of childhood trauma, alexithymia, and other psychological risk and resilience factors on peripandemic mental distress in Greece. Alexithymia was hypothesized to mediate the association between early trauma and COVID-19-related anxiety and depression. A sample of 557 adults was recruited through a web-based study and self-reported questionnaires of childhood trauma, emotional regulation, psychological attributes, depression, and anxiety were collected. Statistical analyses included hierarchical multiple regressions and structural equation modeling. Childhood emotional abuse was associated with higher levels of anxiety and depression and this association was partially mediated by the difficulty to identify feelings. In addition, psychological attributes indicating resilience or vulnerability were associated with higher or lower levels of mental distress, respectively. Pandemic factors were not significant. This research highlights the long-term effects of early trauma and alexithymia compromising mental health during a global health threat, such as COVID-19, and points to the significance of emotion regulation in public health prevention and intervention programs.

Introduction

Mounting evidence has suggested that quarantine and other social restriction measures inflicted to confine the COVID-19 pandemic have adverse mental health effects on the general population worldwide (World Health Organization [WHO], 2022). A systematic review and meta-analysis of data from 0.9 million people in 32 countries (Liu et al., 2024) showed that COVID-19-related daily routine disruptions were associated with depressive, anxiety, and general psychological distress symptoms. The term 'coronaphobia' was coined to describe the widespread fear of the COVID-19 virus and its immediate repercussions (Asmundson & Taylor, 2020). However, despite the upheaval, several individuals were able to adjust well during the pandemic (Anagnostopoulou et al., 2022; Kalaitzaki et al., 2023), even in countries hit hard by high morbidity and mortality rates (Seaborn et al., 2021; Valiente et al., 2021). Thus, it is plausible to assume that the high rates of anxiety and depression evinced during the pandemic could also be attributed to non-pandemic factors, such as prior stressors and lack of psychological and social resources.

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Among the previous stressors, childhood trauma has been widely researched and literally, thousands of studies have shown the link between early adversity and adult physical and mental health problems (McKay et al., 2021). Specifically, early longitudinal studies (Cicchetti & Rogosh, 1997; Werner & Smith, 1977) espousing a developmental psychopathology paradigm (Cicchetti, 2006), have documented that childhood experiences lay the foundation for adult psychopathology. Consequent studies have demonstrated unequivocally that childhood maltreatment (physical, sexual, or emotional abuse and physical and emotional neglect) has long-term effects on physical and mental health in adult life (Anda et al., 2006; Spinazzola et al., 2014). In addition, the pernicious effects of childhood adversity on neurobiological markers, such as structural and functional alterations within the hippocampus, prefrontal cortex, and amygdala resulting from chronic or repeated activation of the hypothalamic-pituitary-adrenal (HPA) axis (Cross et al., 2017) and child abuse being positively associated with network transmission efficiency of the visual, auditory, linguistic, and motor cortex (Cai et al., 2023) have been well documented.

Currently, childhood trauma is considered to be a powerful transdiagnostic factor associated with almost every type of psychopathology (McLaughlin et al., 2020) in adolescence and early adulthood (Hughes et al., 2017; McKay et al., 2021). Notably, emotional abuse, among other types of traumas, has been consistently associated with the onset of internalizing disorders, i.e., depression (Infurna et al., 2016; Muniz et al., 2019) and anxiety in adulthood (Fernandes & Osório, 2015). A few studies have found an association between childhood trauma and mental health issues during COVID-19, such as higher levels of distress, anxiety, depression, fear, acute stress disorder, and post-traumatic stress symptoms (Doom et al., 2021; Gewirtz-Meydan & Lassri, 2022; Janiri et al., 2021; Russo et al., 2022; Seitz et al., 2021; Siegel & Lahav, 2022; Xia et al., 2023) indicating that childhood trauma may render adults more vulnerable to COVID-19-related stressors.

Several pathways have been suggested to account for the deleterious effect of early childhood trauma on subsequent psychopathology (McLauglin et al., 2020). Lack of emotion awareness and emotion differentiation (Rieffe & De Rooij, 2012) and difficulties in emotion regulation (Kim & Cicchetti, 2010), both depicting affect deficits, are prominent mechanisms suggested by longitudinal prospective studies. Earlier, Sifneos (1973) coined the term 'alexithymia' (i.e., 'no words for feelings') to describe the lack of emotional awareness in psychosomatic patients. Alexithymia has since been widely researched (Taylor et al., 1999) and high scores in alexithymia have a strong link with psychopathology including depression, suicidality, and aggression in adulthood (Hemming et al., 2019; Honkalampi et al., 2000; Sagar et al., 2021; Taylor & Bagby, 2013). Alexithymia has also been associated with childhood trauma (Schimmenti & Caretti, 2018).

Currently, the alexithymia concept comprises three factors: difficulty identifying feelings (DIF), difficulty describing feelings (DDF), and externally oriented thinking (EOT) (Parker et al., 1993). DIF has shown the strongest association with physical, behavioral, and psychological symptoms (Bagby et al., 2020; Ledermann et al., 2020; O'Brien et al., 2008). Further empirical support on the significance of DIF has come from experimental research on low emotional awareness (Barrett & Gross, 2001), a concept similar to the difficulty identifying feelings in alexithymia (Rieffe & De Rooij, 2012). Emotional awareness is based on interoception, that is, the ability to perceive one's internal bodily state and conceptualize it with an emotional label (Weissman et al., 2020); it has been regarded (Barrett & Gross, 2001; Kalokerinos et al., 2019) as a prerequisite for effective emotion regulation. On the other hand, emotion regulation difficulties include low emotional awareness (Gratz & Roemer, 2004), rendering it difficult to disentangle the effect of emotion dysregulation from alexithymia. A few studies have reported that COVID-19-related mental distress was associated with alexithymia, particularly DIF and DDF (Li et al., 2022; Osimo et al., 2021; Tang et al., 2020).

The stress literature has also shown that the adverse effects of stress (e.g., the pandemic) may be mitigated by psychological attributes (Suls & Martin, 2005) and available social resources, such as finances and education (Quesnel-Vallée & Taylor, 2012). Psychological attributes and social resources may buffer the mental distress experienced during a stressful period leading to a resilient response. Indeed, a negative

association between COVID-19 distress and resilience has been reported (Barzilay et al., 2020). Resilience has been defined as 'the capacity of a system to adapt successfully to disturbances that threaten the viability, function, or development of the system' (Masten, 2014). Developmental factors, such as a protective environment in childhood, intimate adult relationships, and secure attachments are considered essential determinants of resilient individuals (Southwick et al., 2014). Personality predictors of resilient adaptation include spirituality (Sharma et al., 2017) and a sense of coherence (McGee et al., 2018). On the other hand, negative affect and neuroticism (i.e. cynicism and rumination) have been inversely associated with resilience (Nieto et al., 2023).

In sum, a multitude of longitudinal and cross-sectional studies have established the link between childhood trauma and lifetime psychopathology (Kessler et al., 2010); psychological attributes and social resources also seem to play a pivotal role in the reactions to a stressful situation, leading to resilience or psychopathology. Notably, alexithymia (Hamel et al., 2024; Hébert et al., 2018), emotion awareness (Rieffe & De Rooij, 2012), and emotional dysregulation (McLaughlin et al., 2010) have been shown to mediate the relationship between childhood trauma and adult mental distress indicating the pivotal role of affect deficits. Taken together, these studies suggest that childhood traumatic experiences, the presence or absence of psychosocial resources, and affect deficits may be significant contributors to mental distress. However, not much is known about the link between these factors (i.e., childhood trauma, psychosocial resources/deficits, and affect deficits) and adult mental distress (i.e., anxiety and depression) inflicted by COVID-19.

The present study

The present study takes into account a developmental framework positing that the high rates of peripandemic anxiety and depression may be affected by early trauma, emotional regulation deficits, and other predisposing personal and social characteristics.

Drawing on previous research findings and theoretical considerations, this study aims to further validate and extend the results of other COVID-19-related studies by hypothesing that of all types of traumas, emotional trauma would be associated with peripandemic anxiety and depression. Likewise, certain psychological attributes and the presence or absence of social resources would be associated with peripandemic mental distress. In addition, the difficulty identifying feelings (the core feature of alexithymia) could potentially mediate this relationship.

Therefore, this study aimed to explore the following hypotheses:

H1: Childhood trauma experiences, particularly emotional ones, will be associated with higher levels of peripandemic anxiety and depression.

H2: Psychological attributes indicating alexithymia, particularly the difficulty identifying one's feelings (DIF), emotional dysregulation, and psychological vulnerability will have a positive association with peripandemic anxiety and depression whereas attributes indicating resilience will have a negative association.

H3: The difficulty identifying one's feelings (DIF), will mediate the link between early trauma and peripandemic anxiety and depression.

Methods

Participants

An initial sample of 588 respondents was recruited from all geographical regions of Greece. After controlling for outliers with anomaly detection techniques, 31 cases were excluded, leaving a final sample of 557 participants. Most of them were females (81.3%), with a mean age of 38.8 years (SD = 13.6), married (50.4%),

well-educated (University or Master/Doctoral degree: 50.4% or 34.6% respectively), and employed (65.8%). They were employed mostly as educators (15.8%), in the public (15.8%), or private sector (35%), and a proportion of them (22.8%) were university students. Regarding their residence, 54.3% lived in large urban centers, 30.2% in medium-sized towns (10.000-100.000 inhabitants), and 15.5% in villages (less than 10.000 inhabitants). A small percentage identified as belonging to a vulnerable group (10.1%), themselves (5.9%) or a family member (18.3%) had been infected by COVID-19 and 74.1% had the intention to vaccinate against COVID-19 (see Table 1).

Instruments

A self-report questionnaire was developed and administered to collect the data. It included informed consent, socio-demographics (i.e., gender, age, marital status, education, occupation, permanent residence, vulnerability to COVID-19, personal or family member's infection by COVID-19 and intention to vaccinate), and a number of items and psychometric scales to investigate the study variables:

The frequency of anxiety symptoms over the past 2 weeks during the COVID-19 pandemic was assessed with the *Generalized Anxiety Disorder* (GAD-7; Spitzer et al., 2006). Its seven items (e.g., "Feeling nervous, anxious or on edge") are rated on a 4-point Likert scale (0= *not at all* to 3= *nearly every day*). The overall score ranges from 0-21, grouped into four levels of anxiety: minimal (0–4), mild (5–9), moderate (10–14), and severe (15–21). In this study, a cut-off score of 15 or above was indicative of potential generalized anxiety disorder. Cronbach's alpha coefficient for the total scale was 0.90. The Confirmatory Factor Analysis showed acceptable goodness of fit, suggesting the validation of the factor structure of the Greek version of the GAD-7 ($\chi^2(7) = 5.49$, $\chi^2/df = .79$, *CFI* = 1.00, *TLI* = 1.00, *RMSEA* = .00 and *SRMR* = .01).

The severity of depression over the past 2 weeks during the COVID-19 pandemic was assessed with the *Patient Health Questionnaire-9* (PHQ-9; Kroenke et al., 2001). Its nine items (e.g., "Little interest or pleasure in doing things") are rated on a 4-point Likert scale (0= *not at all* to 3= *nearly every day*). The overall score ranges from 0-27, grouped into five levels of depression: non-minimal (0–4), mild (5–9), moderate (10–14), moderately severe (15-19), and severe (20–27). In this study, a cut-off score of 15 or above was indicative of a potentially clinically significant condition. Cronbach's alpha coefficient was 0.86. The Confirmatory Factor Analysis showed acceptable goodness of fit, suggesting the validation of the factor structure of the Greek version of the PHQ-9 ($\chi^2(17) = 21.27$, $\chi^2/df = 1.25$, *CFI* = 1.00, *TLI* = 1.00, *RMSEA* = .02 and *SRMR* = .02).

Childhood trauma was assessed with *the Early Trauma Inventory Self-Report Short-Form* (ETI-SR-SF; Antonopoulou et al., 2017; Bremner et al., 2007). The ETI-SR-SF comprises 27 items (i.e., "Did you ever observe the death or serious injury of others?"and covers four areas of traumatic events that people may have experienced before the age of 18: physical abuse (5 items, e.g., punching or kicking, slap on the face, burning with hot water or cigarette), sexual abuse (6 items; e.g., forced oral sex or intercourse, frotteurism), emotional abuse (5 items; e.g., humiliation, ridicule, treated in a cold and indifferent way or felt not loved), and general trauma (11 items; e.g., witnessing violence or murder, experience of life-threatening disease of death). Response options were Yes or No. Cronbach's α was .60 for General and Physical, .78 for Emotional and .65 for Sexual.

The Confirmatory Factor Analysis (CFA) of the four factor model showed acceptable goodness of fit, suggesting the validation of the factor structure of the Greek version of the ETI-SR-SF ($\chi^2(301) = 524.43$, $\chi^2/df = 1.74$, *CFI* = .91, *TLI* = .90, *RMSEA* = .04 and *SRMR* = .05).

Psychological attributes were assessed with discrete single items not intended to constitute psychological scales. Although long, multiple-item standardized questionnaires represent the state of the art in psychometrics (Nunnally & Bernstein, 1994), counterarguments suggest that by focusing on the association of individual items, interesting relationships may emerge that might otherwise be obscured when items are clustered in a few broad categories (Costa et al., 1996), thus leaving potentially many areas unexplored (Fuchs

& Diamantopoulos, 2009), not to mention that they may also take up a lot of space in a survey, and may result in respondent fatigue (Wanous et al., 1997). Single items that are specific, concrete and unambiguous (Bergkvist & Rossiter 2007, 2009) have been proposed as an alternative because they are easier to interpret and have greater face validity (Metz et al., 2007).

Psychological attributes were categorized into two groups:

Alexithymia and emotion dysregulation. Alexithymia, particularly difficulties with emotional awareness and emotional expression, was measured with two discrete items from the Toronto Alexithymia Scale (Parker et al., 1993): "I often do not know exactly how I feel" (DIF) and "I find it difficult to express my deepest feelings, even to close friends" (DDF). Emotion dysregulation was measured with two discrete items designed for this study: "If I open up, I'm afraid that I will get flooded by my feelings" and "When I do not feel well, I try to comfort myself with food, drink, or smoking". Respondents were asked to rate their agreement on a 5-point Likert scale (1=*strongly disagree* to 5=*strongly agree*). Items were analyzed individually to delineate their differential impact on the dependent variables.

Psychological attributes indicating resilience or vulnerability. Twenty-two self-descriptive items (see Table 5) were designed for this study to investigate whether these psychological attributes had a positive or negative association with depression and anxiety during the COVID-19 pandemic. Because resilience is a dynamic process comprising biological, personality, social, and cultural dimensions, it was considered difficult to be assessed through traditional questionnaire methods (Windle et al., 2011) but it was rather best measured by using multiple markers (Bonanno et al., 2011). Therefore, six diverse items were used to measure resilience, two of which were adapted from the Sense of Coherence Scale (SOC, Antonovsky, 1993): "My life had clear goals till now"; "I was always finding meaning in what was happening to me". The other four resilience items measured secure attachment in adulthood, adult faith in their abilities as children, faith in God and sense of accomplishment. The rest 16 items covered diverse areas of psychological attributes, such as introversion/extraversion, separation anxieties, self-blame, cynicism, fatalism, and practical orientation in life. Respondents were asked to rate their agreement on a 5-point Likert scale (1=*strongly disagree* to 5=*strongly agree*). Items were analyzed individually to delineate their differential impact on the dependent variables.

Procedure

This was a cross-sectional nationwide web-based survey, conducted in Greece from May 22 to July 12, 2021, during the third wave of the COVID-19 pandemic. The survey link was distributed online to social media and professional networks using convenience and snowball sampling. An online informed consent form was presented on the first page of the survey, according to which participation was voluntary and anonymous and could be withdrawn at the respondent's discretion. The Research Ethics Committee of the Hellenic Mediterranean University (No. 13/07-04-2020) approved this study, which conformed with the 1964 Helsinki Declaration and its later amendments.

Statistical analysis

Descriptive statistics (frequencies, percentages, means, standard deviation) were used to describe the data. Confirmatory Factor Analyses were conducted for GAD-7, PHQ-9, and ETI-SR-SF, using Maximum Likelihood estimation. Model fit indices were assessed (Hu & Bentler, 1999): the value χ^2/degrees of freedom ratio below 3 (Kline, 2005), the standardized root mean square residual less than .08, the Tucker–Lewis index, the Comparative Fit Index above .90, and the root mean square error of approximation less than .06 (Hu & Bentler, 1999). Changes were made when the modification indices suggested improvement in the model fit. A series of independent samples t-tests was used to test differences in trauma experiences in terms of levels of depression and anxiety (low vs moderate/high). Correlation coefficients (Pearson r, Spearman rho, Point

biserial) were used to assess correlations among anxiety and depression and a) demographic factors and b) psychological attributes items. Notably, Pearson's correlation coefficients were employed to assess the association between anxiety and depression scores with continuous variables, such as age, whereas the association between anxiety and depression with binomial variables such as gender or categorical variables such as educational level were examined with Point biserial or Spearman's rank correlation coefficients, respectively. Two hierarchical multiple regression analyses using stepwise method were performed to investigate whether sociodemographic variables (age, gender, education, occupation) (step 1), and psychological attributes, emotional regulation deficits, and prior trauma exposure (step 2) predict depression and anxiety. The final models retained all variables at the 0.05 level or less. Following the regression findings, two Structural Equation Models were conducted to test the mediating effects of alexithymia (DIF) in the relationship between a) the latent variable of trauma exposure and the latent variable of depression and b) the latent variable of trauma exposure and the latent variable of anxiety. All analyses were performed using IBM SPSS Statistics version 23.0 and AMOS 21.

Results

Descriptive statistics

Means, standard deviations, and internal consistency indices for the Patient Health Questionnaire-9 (PHQ9), Generalized Anxiety Disorder (GAD7), and Early Trauma Inventory (ETI-SR-SF) can be seen in Table 1.

Table 1. *Descriptive statistics, number of items, and internal consistency indices for the Generalized Anxiety Disorder (GAD7), Patient Health Questionnaire-9 (*PHQ-9*), and Early Trauma Inventory (*ETI-SR-SF)

	Number of items	*M*	*SD*	Cronbach's α
PHQ9	9	6.67	5.58	.86
GAD7	7	6.17	4.98	.90
Traumatic experiences General	11	2.29	1.95	.60
Traumatic experiences Physical	5	1.68	1.25	.60
Traumatic experiences Emotional	5	2.14	1.78	.78
Traumatic experiences Sexual	6	.67	1.08	.65

Childhood trauma and levels of depression and anxiety

One-fourth of the participants (25.1%) presented moderate to high levels of depression (i.e., moderate 13.6%; moderately severe 8.3%; severe 3.2%). Similarly, nearly one-fourth of the participants (23.2%) presented moderate to high levels of anxiety (i.e., moderate 14%; severe 9.2%). Participants with moderate/high levels of depression and anxiety had more traumatic experiences in the past (physical, emotional, sexual abuse, general trauma) in comparison to those with low levels of depression and anxiety (see Table 2).

Correlation of socio-demographics with depression and anxiety

Age, education, and employment either as a teacher/professor or in the public sector significantly correlated (inversely) with anxiety and depression, whereas being a university student correlated positively with anxiety and depression. Being a housewife marginally correlated negatively with anxiety (see Table 3).There was no correlation between gender and depression or anxiety. Age, educational level and being employed in the public sector correlated inversely with depression and anxiety.

Correlation of psychological attributes with depression and anxiety

All items correlated with depression (PHQ9) and anxiety (GAD7) except item #17 ("I believe that in life you should rely primarily on yourself"); item #19 ("If it is your fate to suffer something bad, you cannot escape it, no matter how hard you may try to prevent it") marginally correlated with depression (see Table 4).

Table 2. *Independent samples t-test for the evaluation of differences in past traumatic experiences in participants with moderate/high and low levels of symptoms of depression and anxiety*

	PHQ9 (depressive symptoms)					
Traumatic Experiences	Moderate/High (N=140)		Low (N=417)		*t*	*d*
	M	*SD*	*M*	*SD*		
Physical	2.11	1.34	1.53	1.19	4.89***	.46
Emotional	2.99	1.69	1.86	1.72	6.79***	.67
Sexual	.99	1.31	.57	.97	3.45***	.37
General	2.84	2.05	2.11	1.88	3.85***	.37
	GAD7 (anxiety symptoms)					
Traumatic Experiences	Moderate/High (N=129)		Low (N=428)		*t*	*d*
	M	*SD*	*M*	*SD*		
Physical	2.04	1.34	1.57	1.21	3.80***	.37
Emotional	3.04	1.74	1.87	1.70	6.78***	.68
Sexual	1.01	1.37	.57	.96	3.39***	.38
General	2.82	1.95	2.14	1.92	3.55***	.35

**Note.* *** p < .001, d = Cohen's d for the estimation of effect sizes

Table 3. *Correlation of sociodemographic variables with depression and anxiety*

	Depression (PHQ9)	**Anxiety (GAD7)**
Gender (Point biserial r_{pb})	−.02	.06
Age (Pearson *r*)	−.23***	−.26***
Education (Spearman rho r_s)	−.17***	−.08*
Teacher/Professor (Point biserial r_{pb})	−.10*	−.07
Employed in the public sector (Point biserial r_{pb})	−.18***	−.18***
Housewife/ retired (Point biserial r_{pb})	−.01	−.10*
University student (Point biserial r_{pb})	.22***	.19***

**Note 1.* For gender 1 = male, 0 = female; for education 1 = Technical education, 2 = University, 3 = Master/PhD; for professional groups, vulnerability/contact with COVID-19 items and intention to vaccinate 0 = No 1= Yes; * $p < .05$, ** $p < .01$, *** $p < .001$.
**Note 2.* Only statistically significant correlations are included.

Table 4. *Correlation of psychological attributes, alexithymia, and emotion dysregulation items with depression and anxiety*

Pearson *r*	**Depression (PHQ9)**	**Anxiety (GAD7)**
1. I am mainly an introverted person	.24***	.19***
2. I am mainly an extroverted person	−.19***	−.15***
3. My life had clear goals till now	−.28***	−.23***
4. I was always finding meaning in what was happening to me	−.31***	−.30***
5. I believe in God or some other superior power	−.14***	−.08*
6. I have accomplished a lot in my life despite difficulties	−.30***	−.21***
7. When I was growing up, someone had faith in me and my abilities	−.20***	−.18***
8. I have a special relationship with someone who is precious to me	−.23***	−.19***
9. Separations are hard for me	.11**	.17***
10. I cannot stand to be alone	.12**	.10*
11. I often do not know exactly how I feel	.39***	.35***
12. I find it difficult to express my deepest feelings, even to close friends.	.33***	.28***
13. If I open up, I'm afraid that I will get flooded by my feelings	.34***	.28***
14. When I do not feel well, I try to comfort myself with food, drink, or smoking	.33***	.27***
15. I often tell myself: "Whatever happened, happened… let's see what we can do from now on"	−.19***	−.25***
16. I look for practical solutions to my problems, I do not dwell on them	−.19***	−.26***
17. I believe that in life you should rely primarily on yourself	.06	.04
18. I believe life is unfair	.27***	.27***
19. If it is your fate to suffer something bad, you cannot escape it, no matter how hard you may try to prevent it.	.08*	.05
20. I believe it's best not to trust anyone	.34***	.30***
21. I often blame myself for mistakes I have made in the past.	.35***	.33***
22. I often wonder how things would have turned out if I had acted differently in my life	.31***	.26***

**Note.* * $p < .05$, ** $p < .01$, *** $p < .001$.

Predictors of depression and anxiety

Two regression models were conducted in which only those demographics and psychological attributes that significantly correlated with depression and anxiety were introduced as predictors. Both regression models were statistically significant (Depression: $F(13,515) = 28.07$, $p < .001$; $R = .64$, $R^2 = .42$, adjusted $R^2 = .40$; Anxiety: $F(12,516) = 26.28$, $p < .001$; $R = .62$, $R^2 = .38$, adjusted $R^2 = .37$).

The following variables predicted both anxiety and depression (see Table 5): Age (inversely), employment in the public sector (inversely), emotional trauma, and five psychological attributes: "I have accomplished a lot in my life despite difficulties" (inversely for depression), "I often do not know exactly how I feel", "When I do not feel well, I try to comfort myself with food, drink, or smoking", "I believe life is unfair", "I often blame myself for mistakes I have made in the past". Depression was also predicted by education (inversely), general traumatic experiences, and the items "I believe in God or some other superior power" (inversely), "If I open up, I'm afraid that I will get flooded by my feelings", "I often say to myself: "whatever happened, happened… let's see what we can do from now on" (inversely), and "I believe it's best not to trust anyone". Anxiety was additionally predicted by sexual trauma and the items "I was always finding meaning in what was happening to me" (inversely), "When I was growing up, someone had faith in me and my abilities" (inversely), and "Separations are hard for me".

Table 5. *Hierarchical regression analyses for predicting depression (PHQ9) and anxiety (GAD7) with socio-demographics, psychological attributes, alexithymia and emotion dysregulation items, and past trauma exposure as potential predictors*

	PHQ9 (depression)					GAD7 (anxiety)				
	Step	*B*	*SE*	*b*	*t*	Step	*B*	*SE*	*b*	*t*
Age	1	−0.04	0.02	−0.09	−2.46*	1	−0.05	0.01	−0.13	−3.36***
Education	3	−0.06	0.29	−0.01	−0.19ns					
Employed in public sector	2	−2.08	0.54	−0.14	−3.85***	2	−1.83	0.49	−0.13	−3.73***
University student										
1. Introversion										
2. Extraversion										
3. Life had clear goals										
4. Life is meaningful						5	−0.36	0.17	−0.08	−2.16*
5. Faith in God	13	−0.29	0.13	−0.08	−2.17*					
6. Sense of accomplishment	8	−0.78	0.24	−0.12	−3.29***	6	0.59	0.15	0.15	3.86***
7. Adult faith in me as a child						7	−0.73	0.16	−0.17	−4.58***
8. Strong adult attachment										
9. Difficulty with separations						10	0.41	0.17	0.09	2.45*
10. Fear of being alone										
11. Difficulty identifying feelings	7	0.55	0.16	0.14	3.45***	12	0.31	0.15	0.09	2.14*
12. Difficulty expressing feelings										
13. Fear of emotional flooding	14	0.32	0.16	0.08	2.00*					
14. Use of comfort food, drink, or smoking when feeling bad	5	0.58	0.14	0.16	4.21***	8	0.34	0.13	0.10	2.62**
15. Practical orientation in life	12	−0.44	0.17	−0.09	−2.57**					
16. Practical solutions to problems										
18. Life is unfair	11	0.45	0.17	0.09	2.60**	9	0.46	0.16	0.11	2.82**
20. Best not to trust anyone	4	0.67	0.17	0.15	3.87***					
21. Self-blame for past mistakes	10	0.46	0.17	0.11	2.77***	4	0.43	0.16	0.11	2.73**
22. Life could have been better										
General Traumatic Experiences	9	0.40	0.11	0.14	3.78***					
Physical Traumatic Experiences										
Emotional Traumatic Experiences	6	0.32	0.12	0.10	2.61**	3	0.46	0.11	0.16	4.23***
Sexual Traumatic Experiences						11	0.42	0.17	0.09	2.50*
R^2			0.42					0.38		

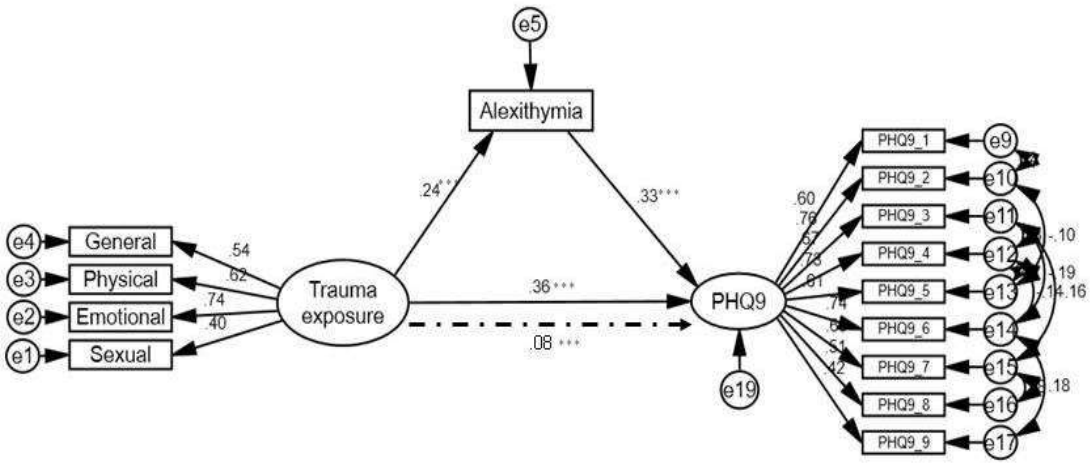
**Note:* For gender 1 = male, 0 = female; for education 1 = Technical education, 2 = University, 3 = Master/PhD; for professional groups 0 = No 1= Yes; Dotted lines represent the steps. The indicators in the table are those of the final regression model. * p < .05, ** p < .01, *** p < .001, ns: not statistically significant.

Mediation of alexithymia (DIF) in the relationship of trauma exposure with anxiety or depression

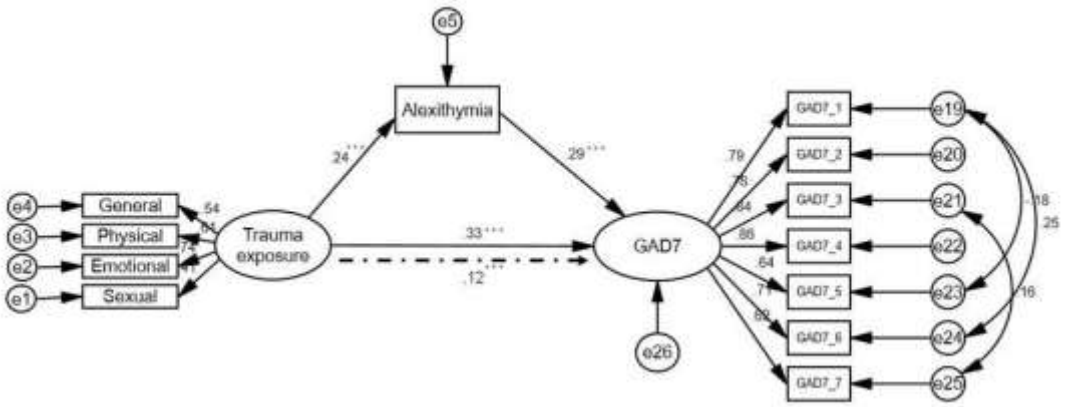
Both mediation models demonstrated acceptable model fit: Depression model: *CMIN* = 173.00, *df* = 66, *p* < .001, *CMIN/df* = 2.62, *CFI* = .95, *TLI* = .94, *RMSEA* = .05 (*LO* = .04, *HI* = .06), *SRMR* =.04; Anxiety model: *CMIN* = 102.61, *df* = 49, *p* < .001, *CFI* = .98, *TLI* = .97, *RMSEA* =.04 (*LO* = .03, *HI* = .06), *SRMR* = .04. Difficulty identifying feelings partially mediated the relationship between trauma exposure and both depression and anxiety. Figures 1a and 1b depict the two models with the standardized path coefficients.

Figure 1. *Mediating effects of alexithymia (DIF) in the relationship between (a) trauma exposure and depression and (b) trauma exposure and anxiety. The standardized path coefficients are presented. Dotted lines refer to indirect effects*

(a)



(b)



Discussion

This study explored the association of anxiety and depression in the general population of Greece elicited by the COVID-19 pandemic with childhood trauma, alexithymia, and other psychological and social factors denoting resilience or vulnerability to stress. Results corroborated the hypotheses of this study.

The association of childhood trauma with peripandemic anxiety and depression

The first hypothesis of this study, that childhood trauma experiences, particularly emotional ones, would be associated with higher levels of peripandemic anxiety and depression, was confirmed. Emotional abuse was the only type of early trauma experience that predicted both anxiety and depression symptoms, consistent with the results of other studies indicating that emotional abuse and neglect may lead to internalizing psychopathology (Janiri et al., 2021; Muniz et al., 2019). Anxiety and depression were additionally predicted differentially by other types of traumas. Specifically, general trauma in early life (i.e., parental divorce, illness, death) predicted depression, in keeping with extensive literature indicating that early loss is a predisposing factor of depression (Simbi et al., 2020); on the other hand, early sexual trauma predicted anxiety, being an additional risk factor for the development of anxiety disorders (Maniglio, 2013). These findings suggest that childhood trauma renders individuals more vulnerable to peripandemic mental distress.

The association of psychological attributes and social resources with peripandemic anxiety and depression

The second hypothesis of this study was that psychological attributes indicating alexithymia, particularly the difficulty identifying one's feelings (DIF), emotional dysregulation, and psychological vulnerability would have a positive association with peripandemic anxiety and depression whereas those indicating resilience would have a negative association; this hypothesis was confirmed.

In accordance with current conceptualizations of resilience (Bonanno et al., 2011) we found an inverse association of four items pertaining to aspects of resilience (i.e., someone having faith in them while growing up, religiosity and faith in God, having a strong sense of accomplishment despite difficulties and sense of coherence, i.e., ability to find meaning in life experiences) with anxiety and/or depression. Extant literature has shown that sense of coherence has a protective role on both anxiety and depression (Dadaczynski et al., 2022; Veronese et al., 2022), while religiosity /faith in God (Magin et al., 2021) have been inversely associated with depression.

In line with other research findings (Huo et al., 2021), risk factors denoting cynicism predicted depression and/or anxiety: 'life is unfair' (both anxiety and depression), and 'best not to trust anyone' (depression). Similarly, self-blame (for past mistakes) predicted both depression and anxiety (Kalaitzaki et al., 2022; Tang et al., 2020), while having difficulty with separations was associated with anxiety (Brückl et al., 2007; Milrod et al., 2014).

An unexpected finding was the inverse association of practical orientation in life (i.e., 'whatever happened, happened… let's see what we can do from now on') with depression. Interestingly, similar results have been reported for the Externally Oriented Thinking (EOT) factor of TAS-20 during the pandemic (Li et al., 2022; Osimo et al., 2021), an unexpected finding since alexithymia is positively related to depression. A possible explanation is that although EOT seemingly plays a protective role against mental distress, it is still indicative of affect deficits, leading individuals to regulate negative emotions by substance use (Kajanoja et al., 2019; Li et al., 2022). Further research is needed to clarify this issue.

Consistent with the second hypothesis, alexithymia's component 'difficulty identifying feelings', significantly predicted anxiety and depression. Similar results (Conrad et al., 2009; Grabe et al., 2004) indicate that DIF is a particularly sensitive marker for the development of subsequent psychopathology. In agreement with available research, fear of getting emotionally flooded, an aspect of emotion dysregulation, was positively related to depression (Bradley et al., 2011; Compare et al., 2014), while the inability to process negative affect and attempting to soothe oneself by employing comfort eating, drinking, and smoking predicted both anxiety and depression (Linn et al., 2020; Linn et al., 2021; Shank et al., 2019).

In this study, being older and having social resources, such as a higher education level and being employed in the public sector, reflected secure life conditions that helped individuals cope with pandemic-related challenges and adversities. In contrast, the young and those less educated reported higher rates of distress symptoms in line with other research findings (Glowacz & Schmits, 2020; Valiente et al., 2021; Wang et al., 2020). Rather surprisingly, gender predicted neither anxiety nor depression, a finding also reported by Siegel & Lahav (2022). Although most studies have identified women as more vulnerable to mental distress during the pandemic (Kalaitzaki, 2021; Mazza et al., 2020; Wang et al., 2020), other studies suggest that the assumed vulnerability of women to stress may be the outcome of pre-pandemic burnout, gender disparities in social roles and resources as well as increased caretaking responsibilities (Lowe et al., 2021; Luo et al, 2021).

These results suggest that including specific predisposing factors to anxiety and depression helps us avoid exaggerated attributions regarding the impact of a single external factor, i.e., the COVID-19 pandemic, as the main trigger of mental distress.

The mediation role of difficulty identifying one's feelings (DIF) between early trauma and peripandemic anxiety and depression

Consistent with the third hypothesis of this study, alexithymia, particularly difficulty identifying one's feelings (DIF) partially mediated the association between early trauma and peripandemic anxiety and depression. Our findings corroborated earlier research highlighting the mediation of alexithymia between childhood trauma and psychological disorders (Hamel et al., 2024; Hébert et al., 2018; Paivio & McCulloch, 2004). Recent developments in theory and experimental research (Barrett, 2017; Barrett & Gross, 2001; Burklund et al., 2014) have emphasized the significant role of emotion differentiation and effective emotion regulation (Kashdan et al., 2010) suggesting that both identification and differentiation of feeling states are essential prerequisites for the development of emotion regulation skills (Weissman et al., 2020). However, further research is required to elucidate the interconnection of these concepts.

Limitations of the study

This study has the shortcomings of any quantitative research investigating a complex social phenomenon in real-time. It is cross-sectional (i.e., no causal inferences can be made), web-based (i.e., accessible only to computer-literate individuals), retrospective (i.e., liable to recall bias), and has used self-report measures (i.e., liable to social desirability bias). Though causality cannot be claimed, the link between childhood trauma and adult psychopathology has been well established in prepandemic longitudinal studies using multiple markers, such as long-term neurophysiological alterations as a result of early abuse (Cai et al., 2023) and follow-ups of maltreated children (Sousa et al., 2011). The study also employed convenience and snowballing sampling methods recruiting people with relatively advantageous social backgrounds (e.g., well-educated, residing in urban areas) and overwhelmingly higher rates of women than men. Notwithstanding that typically these are the characteristics of the samples more likely to respond to surveys (Cotton et al, 2006; Jorm et al., 1997), our results are only generalizable to the specific demographic attributes of the particular sample.

Employing single-item measurements is usually considered a limitation. However, psychological research increasingly uses single-item measurements (Allen et al., 2022; Bowling, 2005) with valid and reliable results compared to multiple-item measures (Verster et al., 2021). In this study, single-item measurements regarding alexithymia, difficulties with emotional regulation, and psychological attributes gave clear results. Although alexithymia was originally regarded as a multi-faceted concept (Taylor et al., 1991), available research supports the view that the difficulty identifying feelings has the strongest associations with physical (Ledermann et al., 2020) and mental health (O'Brien et al., 2008) problems. Therefore, the unambiguous single item "I often do not know exactly how I feel" seems to accurately represent the core

feature of alexithymia, i.e. 'no words for feelings'.

Conclusions and implications of the study

To our knowledge, this is the first study that (a) explored mental distress experienced during the COVID-19 pandemic in Greece from a developmental perspective linking distress with childhood trauma, (b) assessed the difficulty identifying feelings, the core feature of alexithymia, as a potential mediator between early trauma and pandemic anxiety and depression, and (c) included predisposing social and psychological factors related to resilience or vulnerability to stress employing a multiple marker perspective. In line with similar peripandemic studies across different countries (Janiri et al., 2021; Siegel & Lahav, 2022) and prepandemic longitudinal and cross-sectional research (Hébert et al., 2018), our findings indicate that early emotional trauma is associated with anxiety and depression during the pandemic with the difficulty identifying feelings (alexithymia) having a partial mediating effect. Psychological factors denoting resilience (i.e., adults having faith in them when growing up, faith in God, sense of life accomplishment, sense of coherence) were inversely associated with anxiety and depression, whereas factors related to difficulties in emotion regulation, separation anxiety, self-blame, and cynicism positively related with anxiety and depression. Moreover, being older and having access to social resources, such as secure employment and higher education had a protective role.

This study has several strengths: Firstly, our results extend and further refine the accumulating evidence from different countries that childhood trauma, and emotional abuse in particular, plays a significant role in the anxiety and depressive symptoms evinced during the COVID-19 pandemic (Janiri et al., 2021; Siegel & Lahav, 2022) contributing to the ecological validity of research outcomes.

Secondly, a methodology focused on investigating specific aspects of a concept may better elucidate the complex relations among variables and avoid conceptual blurring and unsubstantiated claims regarding the traumatogenic nature of a single experience, such as the Covid-19 pandemic. For example, difficulty identifying feelings, not just the general concept of alexithymia, or cynicism, self-blame, and sense of coherence instead of general personality variables (Big Five) advance our understanding of the mechanisms underlying a particular phenomenon (Costa et al., 1996).

Thirdly, factors indicating resilience should be included in the exploration of mental distress, to better understand the wide diversity of responses during the COVID-19 pandemic as suggested by the developmental psychopathology paradigm (Toth & Cicchetti, 2013). In this study both social (high education and stable income) and individual markers or resilience attributes (sense of coherence, adults having faith in them while growing up, religiosity) were inversely associated with peripandemic anxiety and depression.

Emotion awareness and emotion regulation skills seem to be core issues in the development of subsequent psychopathology (Gross & Jazaieri, 2014). Taking into consideration their significance, future research should address the conceptual and methodological issues regarding low emotion awareness, alexithymia, and emotion dysregulation within an integrated framework embracing neurobiological, developmental, cognitive, and other contextual factors. Prospective studies in maltreated and non-maltreated children using both neurobiological and mental health indices and systematically exploring the development of emotion awareness and emotion regulation along with other possible mediators, could be a real contribution in this field.

Lastly, the pivotal role of emotion awareness and emotion regulation may provide targeted guidelines for prevention and intervention. Policymakers in Greece should include emotion regulation skills classes in the school system starting from Kindergarten since they are easy to teach at schools (Jones et al., 2018), and less costly compared to trauma-informed interventions from mental health professionals (Taggart et al., 2021); in addition, individual treatment is scarcely able to address the global depletion of individual and social resources

evinced during the COVID-19 pandemic or any other future stressor of similar magnitude. Given the frequency of large-scale natural disasters affecting a high proportion of the Greek population (i.e. catastrophic fires in Thrace and floods in Thessaly in the summer of 2023) and the urgent warning regarding the need to prepare for the next pandemic (WHO, 2024), preventive measures to enhance the mental health of Greeks should be urgently undertaken.

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ΕΜΠΕΙΡΙΚΗ ΕΡΓΑΣΙΑ | RESEARCH PAPER

Η χρόνια επίδραση του παιδικού τραύματος και της αλεξιθυμίας στην ψυχική υγεία κατά τη διάρκεια της πανδημίας COVID-19 στην Ελλάδα

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ΛΕΞΕΙΣ-ΚΛΕΙΔΙΑ

Παιδικό τραύμα
Συναισθηματική κακοποίηση
Αλεξιθυμία
Ανθεκτικότητα
Κατάθλιψη
Άγχος
Covid-19

ΣΤΟΙΧΕΙΑ ΕΠΙΚΟΙΝΩΝΙΑΣ

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ΠΕΡΙΛΗΨΗ

Η παρούσα μελέτη διερεύνησε την επίδραση του παιδικού τραύματος, της αλεξιθυμίας και άλλων ψυχολογικών παραγόντων κινδύνου και ανθεκτικότητας στην ψυχική δυσφορία που βίωσαν οι Έλληνες κατά τη διάρκεια της πανδημίας Covid-19. Σύμφωνα με την υπόθεσή μας, η αλεξιθυμία διαμεσολαβεί τη συσχέτιση ανάμεσα στο πρώιμο τραύμα και το πανδημικό άγχος και την κατάθλιψη. Η έρευνα ήταν διαδικτυακή και ένα δείγμα 557 ενηλίκων απάντησε σε ερωτηματολόγια αυτοαναφοράς σχετικά με το τραύμα παιδικής ηλικίας, τη ρύθμιση των συναισθημάτων, ψυχολογικά χαρακτηριστικά, την κατάθλιψη και το άγχος. Οι στατιστικές αναλύσεις περιελάμβαναν την ιεραρχική πολλαπλή παλιδρόμηση και μοντέλα δομικών εξισώσεων. Σύμφωνα με τα αποτελέσματα, η *συναισθηματική* κακοποίηση κατά την παιδική ηλικία συσχετίστηκε με υψηλότερα επίπεδα άγχους και κατάθλιψης κατά τη διάρκεια της πανδημίας, ενώ η δυσκολία της αναγνώρισης συναισθημάτων είχε μερική διαμεσολάβηση σε αυτήν τη συσχέτιση. Επιπλέον, ψυχολογικά χαρακτηριστικά που υποδήλωναν ψυχική ανθεκτικότητα ή ευαλωτότητα είχαν συσχέτιση με χαμηλότερα ή υψηλότερα επίπεδα ψυχικής δυσφορίας αντίστοιχα. Παράγοντες αναφορικά με την πανδημία δεν είχαν επίδραση στην ψυχική δυσφορία. Η παρούσα έρευνα αναδεικνύει τις μακροπρόθεσμες επιπτώσεις του πρώιμου τραύματος και της αλεξιθυμίας οι οποίες παραμένουν ενεργές στην ενήλικη ζωή, έτσι ώστε τα άτομα που έχουν υποστεί πρώιμο τραύμα να είναι περισσότερο ευάλωτα στην εμφάνιση άγχους και κατάθλιψης όταν αντιμετωπίζουν ένα μείζον στρεσογόνο γεγονός, όπως την πανδημία Covid-19. Επιπλέον, η ανάπτυξη της ικανότητας αναγνώρισης και ρύθμισης των συναισθημάτων χρειάζεται να είναι κεντρικός στόχος των προγραμμάτων πρόληψης και παρέμβασης σε καταστάσεις κρίσης που αφορούν στη δημόσια υγεία.

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