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Research Paper

Dispositional optimism, stress, post-traumatic stress disorder and post-traumatic growth in Greek general population facing the COVID-19 crisis

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ARTICLE INFO

Article history:

Received 11 September 2020
Received in revised form 9 February 2021
Accepted 10 February 2021

Keywords:

PTSD
Stress
PTG
COVID-19
Dispositional optimism
Greece

ABSTRACT

The aim of this study is to explore psychological and mental health implications of social distancing and lockdown, in Greece in order to gain a better understanding of the COVID-19 crisis. For the purposes of this article, quantitative measures are used: the Greek versions of "Life Orientation Scale-Revised" (LOT-R) (Lyraokos, Damigos, Mavreas, Georgia, & Dimoliatis, 2010) to investigate the presence of dispositional optimism tendencies, "Impact of Event scale" (Mystakidou, Tsilika, Parpa, Galanos, & Vlahos, 2007) to assess the traumatic evaluation of the current events, "Perceived Stress Scale" (Andreou et al., 2011) to measure the stress levels amongst population, and "Posttraumatic Growth Inventory" (Mystakidou, Tsilika, Parpa, Galanos, & Vlahos, 2008) to examine positive aspects of the situation, are used. Questionnaires were distributed online a month after social distancing measures and three weeks following lockdown. The survey is addressed to general adult population and data collection lasted until the end of curfew (May 4th 2020). Hundred and sixty-seven (N = 167) participants completed the survey. Main results show that women obtain higher scores than men on the Impact Event Scale and they identify social distancing and curfew as traumatic events. However, men exhibit higher levels of Posttraumatic growth comparing to women, as to subscales "life appreciation" and "spirituality". Stress and posttraumatic stress are highly correlated to PTG and enable its development in the context of COVID-19. Implications for research and practice will be recommended.

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Introduction

Novel Coronavirus (COVID-19) causes severe acute respiratory problems and outbreaks of the disease have been observed all over the world. Scientific efforts are made in finding the cure of the virus. Nevertheless, sanitary crisis has imposed different life conditions which affect general population on an international level. Current research is focusing on mental health risks of COVID-19 in vulnerable populations. According to a recent meta-analysis (Rajkumar, 2020), vulnerable groups are considered those of older adults (Yang et al., 2020), homeless (Tsai & Wilson, 2020), migrant workers (Liem, Wang, Wariyanti, Latkin, & Hall, 2020), mentally ill (Yao, Chen, & Xu, 2020a; Zhu et al., 2020), pregnant women

(Rashidi Fakari & Simbar, 2020) and Chinese students studying overseas (Zhai & Du, 2020). To date, only two studies examined the impact of the COVID-19 on general population: in the first study, the economic impact of COVID-19 is highlighted and its impact on population's well-being and fear and panic behavior (Shigemura, Ursano, Morganstein, Kurosawa, & Benedek, 2020). As far as the second research is concerned, the unpredictable and uncertain character of the disease and the social isolation is pointed out which contribute to stress and mental morbidity (Zandifar & Badrfam, 2020). Undoubtedly, the COVID-19 outbreak can be considered as a traumatic experience as it includes all the characteristics of a cultural trauma. As Demertzis and Eyerman (2020) state: "These include a fundamental disruption of the taken for granted in daily life, a potential loss of trust in leaders and social institutions, negative attribution in the media, a contentious meaning struggle to determine what happened and who is responsible, with many competing accounts aired in various forums" (Demertzis &

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Eyerman, 2020, p 431). This total disruption has an impact on every aspect of the every-day life, with numerous restrictions and avoiding any physical contact add up to the traumatic nature of the outbreak. Watson, Bacigalupe, Daneshpour, Han and Parra-Cardona (2020) argue that, since the COVID-19 pandemic is shared nationally and globally should be considered as a collective trauma. To support their statement, they claim that this outbreak connects people emotionally wise at a global level “*through experiences of helplessness, uncertainty, loss, and grief*” (Watson, Bacigalupe, Daneshpour, Han, & Parra-Cardona, 2020, p. 840) (Andreou et al., 2011).

Lazarus and Folkman (1984) stress transactional theory supports that stress consists of a “*transaction between the person and the environment*” and any situation is assessed by the individual as stressful or not. A key factor which may moderate the stress-emotion transaction is the individual’s ability to control a stressful situation depending on their personal and social available resources. Any event or situation’s appraisal as stressful is associated with the level of the person’s commitment and belief system. On one hand, commitment expresses the level of importance which determines the significance of the stressful situation. On the other hand, beliefs shape the understanding of the situation and have an implicit influence on the subject’s perception of his relationship with his environment. Main characteristics of stressful events (Lazarus, Cohen, Folkman, Kanner, & Schaefer, 1980) are the uncertainty and unpredictability of a given situation.

Exposure to a pandemic outbreak is classified as a major stressful and traumatic event (Asim, van Teijlingen, & Sathian, 2020) as individuals experience threat to self and witness life threat or harm to others (Carlier, Lamberts, & Gersons, 1997; McCaslin et al., 2006; Stein et al., 2012). Current research conducted to military personnel (Marrotta-Walters, Choi, & Shaine, 2015; Stein et al., 2012) shows that greater perception of personal threat is related to increased posttraumatic stress symptoms and negative posttraumatic reactions. Reported posttraumatic stress symptoms are intrusion or intrusive thoughts, avoidance and hypervigilance, sleeping, and problems with concentration (DSM-V). Personality traits are also associated with PTSD symptoms manifestation, such as optimism.

In disaster-focused studies, PTSD is estimated to range from 5.0–40.0% following natural disasters and 2.3–17.0% following human-made disasters (Neria, Nandi, & Galea, 2008; Su & Chow, 2020). As for recent literature on COVID-19 and PTSD (Asim & al., 2020), studies report that COVID-19 can cause traumatic experiences to healthcare professionals and COVID-19 patients may lead to PTSD and/or psychological disorders in 20–25 % (Sun, Sun, Wu, Zhu, Zhang, Shang et al., 2020; Liu et al., 2020). However, Bo et al. (2020) found that patients before discharge from quarantine reported posttraumatic stress symptoms in nearly all (96.2 %) which may be associated with the loss of social contact with family and friends. An Italian web-based cross-sectional survey for COVID-19 also identified a higher prevalence of PTSD symptoms (29.5 %) (Forte, Favieri, Tambelli, & Casagrande, 2020).

In this context of traumatic events, it is crucial to assess the role of post-traumatic growth. Post traumatic growth (PTG) refers to the development of positive changes and outcome following a trauma, and focuses on five major aspects: improved relationships with others, increased personal strength, identification of new possibilities, positive spiritual change, and increased appreciation of life (Tedeschi & Calhoun, 2004; Tolin & Foa, 2006). PTG has been observed in various trauma-exposed civilian populations, including survivors of serious medical illnesses (e.g., AIDS/HIV, cancer), disasters and the bereaved (Koutrouli, Anagnostopoulos, & Potamianos, 2012; Rzeszutek & Gruszczyńska, 2018; Sherr et al., 2011; Su & Chow, 2020).

To date, most models intending to explain PTG after adverse life events focus mainly on cognitive processing (Park & Helgeson, 2006), such as rumination (Tedeschi, Park, & Calhoun, 1998), accommodation and assimilation (Joseph & Linley, 2005), meaning reconstruction (Gillies & Neimeyer, 2006) as well as positive appraisal and coping (Schaefer & Moos, 2001). Tedeschi and Calhoun (2004) suggested that both the intrapersonal traits (i.e. personality tendencies) and the interpersonal environment have an important impact on the adaptiveness of cognitive processing.

Dispositional optimism is considered to be a personality trait and it consists of the expectation that one’s own outcomes will generally be positive (Carver & Scheier, 2014). Both optimism and pessimism are on the same continuum. Certainly, optimism is examined in various contexts and different variations of this term may be used. However, according to Carver and Scheier (2014), dispositional ‘*optimism is assessed by face-valid self-reports, holding aside research in which optimism is inferred from patterns of causal explanation*’ (cit., p. 293). Research has shown that optimists seem to work harder at relationships and they report higher perception of social support than do pessimists (Rand, Martin, & Shea, 2011; Segerstrom, 2007; Srivastava, McGonigal, Richards, Butler, & Gross, 2006; Vollmann, Antoniw, Hartung, & Renner, 2011). Optimism, as a construct, incorporates a belief that a stressful present can change to become better in the future (Chang et al., 2013) and has been largely examined in health-related contexts due to the confrontation that individual health crises impose (Carver & Scheier, 2014). Moreover, optimists are more prone to assess positive outcome from a stressful situation, such as a pandemic.

In recent literature, researchers (Jin, Xu, & Liu, 2014) have been trying to investigate the relationship between PTG, PTSD symptoms or distress (Tedeschi & Calhoun, 1996, Yu et al., 2010). Even though, PTG is seen to possibly be an independent outcome and not systematically linked to PTSD or distress, Xu and Liao (2011) support that “personal strength” aspect and PTSD symptoms, such as avoidance behaviors and intrusive thoughts, are highly associated. In most cases, individuals who suffered from PTSD had higher PTG levels. According to Solomon and Dekel (2007), PTG has been positively linked to distress, for example, the higher the distress, the better the growth. Jin et al. (2014) point out the importance of PTSD acknowledgement in order to enable and support psychological growth following a traumatic event.

The need of conducting real-time trauma research during the pandemic is highlighted (Asim & al., 2020; Horesh & Brown, 2020). Few is known about the impact that COVID-19 has on European population. Greece has been one of the first European countries in a total lockdown. Social distancing measures started on March 11th and a lockdown was in effect from March 23th to May 4th throughout Greece. Greek authorities confirmed 11,832 cases of COVID-19 within its borders as of September 9th. The aim of this study is to explore psychological and mental health implications of social distancing and lockdown, in Greece, in order to gain a better understanding and insight of the COVID-19 crisis.

Methods and measures

Participants

A cross-sectional study was performed on N = 167 participants, 51 men and 116 women during the general lockdown in Greece. The inclusion criteria were as follows: being an adult (>18 years old), Greek-speaking and having access to numerical devices. The average age is M = 3326 years old (SD = 106 years), the youngest participant is 18 years old and the oldest 70 years old.

As far as their main residence is concerned, 157 are living in Greece, four live in France, four in the United Kingdom and two in

Belgium. Those who are living in Greece, 62 % lives in Athens (Greece's capital) and the rest in rural or insular parts of Greece.

The majority of the sample are active in the professional field (683%, N = 114), 192% (N = 32) are students, 6% (N = 10) are in situation of unemployment and 4,8% (N = 8) are retired. Finally, one third of our sample are single (335%), 353% are in a relationship and 281% are married.

Instruments

Life orientation test- LOTR

The Greek translation of the Life Orientation Test-Revised (LOT-R) (Scheier et al., 1994; Lyrakos et al., 2010) was used to measure optimism and pessimism. The LOT-R consists of 10 coded items, 3 statements described in a positive manner, 3 statements described in a negative manner, and 4 non-scored items. Subjects responded to the statements by indicating the extent of their agreement along a 5-point Likert scale, ranging from "strongly agree" to "strongly disagree." Factor analyses indicate that the LOT-R can be conceived as unidimensional, with one score representing whether a person is an optimist or pessimist (Scheier and Carver, 1987).

Perceived stress scale (PSS)

The Perceived Stress Scale (PSS; Cohen, Kamarck, & Mermelstein, 1983) is one of the more popular tools for measuring psychological stress. It is a self-reported questionnaire that was designed to measure "the degree to which individuals appraise situations in their lives as stressful" (Cohen et al., 1983, p. 385). The PSS items evaluate the degree to which individuals believe their life has been unpredictable, uncontrollable, and overloaded during the previous month. The assessed items are general in nature rather than focusing on specific events or experience. There are three versions of the PSS. The original instrument is a 14-item scale (PSS-14) that was developed in English (Cohen, Kamarck, & Mermelstein, 1983) with 7 positive items and 7 negative items rated on a 5-point Likert scale. Cronbach's alpha of the PSS-14 was >.70 in 11 of the 12 studies in which this version was evaluated, and was not evaluated in the 12th study (Lee, 2012)

Impact event scale (IES)

We used the original version of IES which is a well- validated measure of posttraumatic stress which was first conceived by Horowitz, Wilner and Alvarez (1979) as no access was granted to the revised one. This scale measures two factors of traumatic events: avoidance behaviors and the intrusiveness of memories of an identified event. It is a 15-item Likert scale measuring from 1 to 5 the impact of events: 8 items corresponding to avoidance and 7 to intrusion. Scores rate between 0-40 and a total score of 26 points and above reveals mild or severe traumatic assessment of the event. The higher the score, the higher the impact on one's life. The Cronbach alpha is 0.86 for intrusion and 0.90 for avoidance. We used the Greek standardized version of IES (Mystakidou et al., 2007) which presents satisfactory psychometric characteristics and its validity has been extensively examined and well supported.

Post traumatic growth inventory- PTGI

This scale contains 21-items (Tedeschi & Calhoun, 1996) which assess five domains: personal strength (4 items), new possibilities (5 items), relating to others (7 items), spiritual -existential change (2 items), and appreciation of life (3 items). Items are rated on a 6-point scale (0-5; 0= not at all; 3= moderate degree; 5=very great degree). As far as the measurement is concerned, scores are added up and the higher the total score, the higher the percentage of post-traumatic growth. Cronbach's alpha is equal to $\alpha = 0.90$. In the

Greek adaptation by Mystakidou et al. (2008), same levels of internal consistency are found. The validity of this scale is considered satisfactory.

Procedure

Online survey, created on Google Forms, was posted on social media in several groups. All participants were informed of the study's objectives and they completed a consent sheet beforehand. All information is confidential and anonymized.

Statistical analysis

T-test analysis were performed to investigate the gender differences in all variables. Bivariate correlation analyses were performed to examine the relationship between PTSD and PTG. All tests were 2-tailed, and the significance was set at 0.05. Hierarchical regression analysis was performed in order to assess the impact of dispositional optimism, stress and PTSD on PTG. All statistical procedures were completed using the SPSS 18.0 Statistical Package for Social Science.

Results

Firstly, descriptive results are presented followed by inferential statistical analysis. As presented in Table 1, our sample exhibits moderate to high levels of optimism (M = 15, 17; SD = 4, 74), since a score higher than 16 demonstrates a very optimistic person. Stress levels are moderate as well (M = 23, 59; SD = 8, 52), with a prevalence of the aspect of sense of helplessness (M = 13, 63; SD = 5.35). PTSD symptoms such as avoidance and intrusive thoughts are moderate and PGI scores are moderate to high (M = 52, 84; SD = 21, 83), as a score over 57 means substantial growth on every level. Amongst PTG dimensions, life appreciation is the highest scored by participants (M = 8, 69; SD = 3, 81) along with personal strength (M = 11, 30; SD = 4, 72) and relations to others (M = 17, 40; SD = 8, 00).

Gender differences

As far as the dispositional optimism is concerned there are no significant differences between men and women. Nevertheless, men show higher scores in the sense of helplessness in terms of stress ($r=-.3225^{**}$). On the contrary, men exhibit lower scores in terms of PTSD symptoms (see Table 2) compared to women. Indeed, women of our sample manifest a mean score M = 2659 which consists of moderate to high impact of event.

Table 1
Descriptive Statistical Analysis and Cronbach alpha for sample.

	# items	M	SD	Min	Max	Alpha
LOT-R	10	1577	474	1	24	080
Perceived Stress Scale	14	2359	852	5	46	087
Sense of helplessness	7	1363	535	1	27	084
Sense of self-efficacy	7	996	445	1	22	080
Impact Event Scale	15	2373	1554	0	65	090
Avoidance	8	1268	885	0	34	081
Intrusive thoughts	7	1105	802	0	33	085
Posttraumatic Growth Inventory	21	5284	2183	4	98	095
Spirituality	2	410	285	0	10	068
New perspectives	4	1143	559	0	23	082
Relations with others	7	1740	800	0	33	088
Life appreciation	5	869	381	0	15	083
Personal Strength	3	1130	472	0	20	081

Table 2
Mean, standard deviations and independent t-test measures for gender.

	Gender				t -test
	Male		Female		
	M	SD	M	SD	
LOT-R	1580	437	1572	491	,111
Perceived Stress Scale	2139	757	2456	876	-2,239*
Sense of helplessness	1167	476	1449	538	-3,225**
Sense of self-efficacy	973	485	1007	428	-,458
Impact of Events Scale	1722	1512	2659	1498	-3,715***
Avoidance	947	874	1409	856	-3,186**
Intrusion	775	742	1251	813	-3,557***
Posttraumatic Growth Inventory	4788	2401	5503	2052	-1,964
New possibilities	1076	564	1172	557	-1,102
Relating to others	1610	848	1798	774	-1,404
Spirituality	322	280	448	279	-2,693**
Life appreciation	749	400	922	361	-2,748**
Personal strenght	1031	533	1173	438	-1,801

* p < 0,05. ** p < 0,01. *** p < 0,001.

Table 3
Bivariate correlation analysis (2-tailed).

	1.	2.	3.	4.
1. Dispositional optimism	100			
2. PTSD	-,222**	100		
3. Perceived Stress	-,520***	,458***	100	
4. PTG	,138	,111	,305***	100

Note: * p < 0,05. ** p < 0,01. *** p < 0,001.

Furthermore, significant differences are highlighted on PTG aspects such as spirituality (r= -2693**) and life appreciation (r= -2748**).

Bivariate correlation analysis between Dispositional optimism, stress, PTSD and PTG

Bivariate analysis was used in order to determine the relationship between dependent variables. Firstly (see Table 3), global scales are presented. Dispositional optimism is negatively associated with PTSD symptoms and perceived stress. On the contrary, perceived stress is positively linked to PTG, that meaning, the higher the stress levels, the better the growth.

We proceeded to bivariate analysis of the subscales in order to better investigate the associations between the dependent variables. Dispositional optimism is statistically associated with intrusive thoughts (r= -,93***), the more optimistic an individual is, the lesser he/she experiences intrusive thoughts following a traumatic event. High negative correlation is observed between

Table 4
Bivariate correlation (Pearson r) between PTSD, PTG and PSS subgroups.

	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.
1. Dispositional Optimism	100									
2. Avoidance	-,119	100								
3. Intrusive thoughts	-2,93***	,671***	100							
4. Self of helplessness	-4,59***	,460***	,543***	100						
5. Sense of self-efficacy	-4,43***	,143	,247***	,504***	100					
6. Spirituality	,091	,317***	,197**	,176**	,011	100				
7. Life appreciation	,053	,361***	,297***	,264***	,090	,656***	100			
8. Personal strenght	,194**	,275***	,124	,119	-,117	,667***	,718***	100		
9. Relations to others	,101	,324***	,222***	,159**	,064	,563***	,694***	,709***	100	
10. New perspectives	,157**	,205**	,118	,082	-,059	,621***	,705***	,765***	,738***	100

Note: * p < 0,05. ** p < 0,01. *** p < 0,001.

levels of dispositional optimism and sense of helplessness (r= -4459***), and sense of self-efficacy (r= -4443). Finally, dispositional optimism enables the individuals to draw personal strength (r=, 194**) and explore new perspectives too (r=, 57**) after the traumatic experience (Table 4 and 5).

Avoidance behaviors are highly correlated with intrusive thoughts (r=, 671***), as two aspects of the PTSD symptoms. They are also associated with the sense of helplessness (r=, 460***). All PTG dimensions are statistically linked to avoidance behaviors.

Intrusive thoughts are correlated with both sense of helplessness (r=, 543***) and sense of self-efficacy (r=, 247***), so the higher the intrusive thoughts the higher the stress levels. Intrusive thoughts are also linked to spirituality (r=, 197**), life appreciation (r=, 297***) and relations to others (r=, 222***).

Perceived stress is expressed by the sense of helplessness which is linked to the sense of self-efficacy (r=, 504***). Sense of helplessness is also associated with spirituality (r=, 176**), life appreciation (r=, 264***) and relations to others (r=, 159**), whereas sense of self-efficacy is not particularly highly correlated with any of the PTG aspects. Lastly, all PTG dimensions are highly correlated to one another.

Given that bivariate correlation was high among dependent variables and since dispositional optimism is considered as a stable personality tendency, we proceeded to a hierarchical regression analysis in order to determine whether PTG could be predicted by the aforementioned variables. In our study, dispositional optimism and PTSD symptoms are able to predict the manifestation of PTG. When perceived stress is inserted, it does not moderate the impact of the two previous variables.

Table 5
Summary of Hierarchical Regression Analysis for variables predicting PTGI (N = 167).

Variable	Model 1			Model 2			Model 3		
	B	SEB	β	B	SE B	β	B	SEB	β
Dispositional Optimism	,480***	,269	,138	,751**	,259	,216	,906***	,296	,261
Impact of events				,493***	,104	,353	,442***	,114	,317
Perceived stress							,259	,238	,101
R ²		,013			,127			,128	
F for change in R ²		,076			,000			,280	

* p < 0,05. ** p < 0,01. *** p < 0,001.

Discussion

The aim of this study was to investigate psychological implications in terms of stress, PTSD symptoms and PTG in Greek general population during the general lockdown to prevent the spread of the novel coronavirus. Findings add to the growing body of literature on psychological consequences of the COVID-19 pandemic across the globe. To our knowledge, it is the first study conducted to examine the associations between perceived stress, PTSD symptoms and PTG during the COVID-19 pandemic in Greece.

Main results show that female participants exhibit a higher sense of helplessness and higher levels of PTSD symptoms than men. Our results coincide with those of previous research that indicate that female participants show higher level of perceived stress (Gao, Ping, & Liu, 2020) and that they are more likely than male participants to manifest PTSD symptoms (Jin et al., 2014; Treynor, Gonzalez, & Nolen-Hoeksema, 2003). Moreover, Jin et al. (2014) and Tolin and Foa (2006) support that women experience increased risk for PTSD because of differences in the cognitive and/or affective processing of traumatic events. Therefore, women have a higher perception of threat and loss of control which is also applied in the context of a pandemic outbreak.

Although there are no gender differences when it comes to dispositional optimism, this variable is the one which impacts the most on perceived stress, PTSD symptoms and PTG aspects. In our study, optimism will decrease the expression of intrusive thoughts and avoidance behaviors and will enhance new perspectives to emerge and will empower personal strength.

An important finding consists that avoidance behaviors are systematically positively associated with PTG dimensions. It appears this specific PTSD symptom will increase the manifestation of PTG in terms of life appreciation, spirituality, relations to others, new perspectives and personal strength as well. In our sample, women are more prone to have experienced changes in spirituality and life appreciation during lockdown. Recent research demonstrates the importance of gender role adherence that the gender itself (Barlow & Hetzel-Riggin, 2018). Furthermore, Greek women experienced changes to spirituality is an interesting finding given that, during lockdown, the access to places of worships was extremely limited and restricted. Life appreciation when facing an exposure to a virus seems to be the PTG aspect the most mentioned. Relations to others consists of the other PTG aspect most correlated with the examined variables. In times of insecurity, individuals will better appreciate the significant relations with others and will try to improve them. In existing literature, there are no studies which examine PTG aspects on general population; research focuses on resilience, on "bouncing back" from a traumatic situation (Chen & Bonanno, 2020). As far PTG is concerned, clinical suggestions for interventions have been made in order to meet the diverse needs of healthcare professionals (Kalaitzaki, Tamiolaki, & Rovithis, 2020).

Sense of helplessness, as a factor of the perceived stress, is also associated with spirituality, life appreciation and relations to others. Indeed, when individuals experience helplessness during

adverse life events, they will be oriented towards ways to better cope with. Spirituality has been largely examined, in particularly among women who have experienced domestic violence and they exhibit high levels of spirituality that buffer stress symptoms (Kaufman, Thurston, Howell, & Crossnine, 2019).

Existing literature has shown the positive influence of optimism on diverse life events (Baumgartner, Schneider, & Capiola, 2018). Additionally, high levels of optimism are more likely to increase the manifestation of PTG aspects. Perceived stress seems to moderate the least the impact of dispositional optimism and of life events on PTG. In other words, optimists will have a positive appraisal of a stressful situation and even if they experience intrusive thoughts or avoidance behaviors, PTG manifestations will be enabled. In existing literature, findings suggest that PTG and PTSD could share a similar psychological "base" that sets them in motion (Dekel, Mandl, & Solomon, 2011; Jin et al., 2014). More specifically, PTG may reflect a cognitive adaptation process among those who experience post-traumatic stress disorder in response to their disaster (a positive reinterpretation) by enabling to reframe the traumatic experience. This reinterpretation reflects a transition and an ability to perceive potential benefits, such as relationships with others, new possibilities, personal strength, spiritual change or appreciation of life, shortly all the PTG aspects (Jin & al., 2014).

Limitations and suggestions for further research

When interpreting the results, it is necessary to keep in mind some important limitations: participants were not tested COVID-19 positive. Perhaps, patients would experience higher levels of stress or PTSD symptoms than individuals who were healthy during the lockdown. A larger sample of participants along with a longitudinal approach are essential in order to gain a deeper understanding on psychological implications of the COVID-19 pandemic.

In terms of further research, COVID-19 psychological implications are yet to be explored on a longitudinal level too. For instance, a survey one year after the lockdown will be helpful so that to assess the consequences of the lockdown on the participants. Moreover, qualitative research should be conducted to explore the lived experiences of the lockdown and the new reality of coping with an easily transmitted virus. A pandemic is considered a collective traumatic event, but we can not only rely on a de-subjectivized reality as posed by PTSD. We have to perceive trauma mainly as a subjective event. Even if such an approach raises the question of the diversity of subjective positions in regard of the *real*, the importance of the subject's perspective in a qualitative research is considered essential to gain more insight on the pandemic situation.

Conclusion

The COVID-19 is an ongoing pandemic that has altered many aspects of everyday life. It is substantial to pursue research on

psychological implications of experience a traumatic event such as the outbreak of a pandemic and the restrictions and lockdowns that have been imposed globally. Our study highlights this traumatic experience and points out the need of implications for practice. Since optimism is beneficial in many life domains, and enables the processing of a stressful life event, ways to enhance optimism should be recommended. Research has already showed that 2 weeks of daily 5-min sessions of imagining one's best possible self can increase optimism, at least temporarily (Meevissen, Peters, & Alberts, 2011). Interventions on large groups and tele psychotherapy sessions should be preconized to better support individuals during the pandemic.

Funding policies

None.

Disclosure statement

No potential conflict of interest was reported by the authors.

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