Adversity and Resilience Science (2024) 5:81–89
https://doi.org/10.1007/s42844-023-00106-z

ORIGINAL ARTICLE

Agreement Between Self- and Proxy-Reports of Nurses' Post-Traumatic Growth in the Aftermath of the COVID-19 Pandemic Outbreak: Is Perceived Growth a Reality or an Illusion?

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Accepted: 7 August 2023 / Published online: 8 September 2023

Abstract

The extent to which a traumatic event becomes central to one's identity and life story may influence both negative and positive outcomes. In the aftermath of COVID-19 pandemic outbreak, nurses have been showing positive transformations. However, research is not consistent about whether self-reported personal growth is real or just an illusion. The present study aimed to ascertain the level of agreement between nurses' self- and proxy-reported post-traumatic growth (PTG). Furthermore, it intended to analyze the association between nurses' perceived centrality and impact of the COVID-19 outbreak, and their self-/proxy-reported PTG. The global sample included 51 dyads. Nurses completed self-reported instruments to evaluate perceived centrality and impact of the COVID-19 pandemic outbreak, as well as PTG. A proxy version of the PTG Inventory was used to assess significant others' appraisals of nurses' PTG. Overall, there were no differences between self- and proxy-reports of PTG, except for spiritual change. Nurses' perceived centrality of the pandemic outbreak and impact of event were associated with self-reported PTG. Centrality and impact of the COVID-19 were not significantly correlated with proxy-reports of PTG, except for personal strength. Despite the considerable variability in the observed findings depending on the statistical analysis conducted (i.e., group versus individual level), the corroboration of nurses' reports of PTG by significant others lends strong support to the notion that positive transformations after traumatic events are real. These findings highlight the relevance of integrating both positive and negative dimensions of adaptation when constructing psychological interventions for nurses, in the aftermath of COVID-19 outbreak.

Keywords COVID-19 · Post-traumatic growth · Post-traumatic stress · Event centrality · Nurse-proxy agreement

During the last couple of decades, trauma research has been acknowledging that life-threatening events can bring about both negative and positive outcomes. Post-traumatic growth (PTG) is defined as the subjective perception of positive psychological change arising from the struggle with major traumatic events. It can be expressed in several ways, such as improved appreciation for life, more intimate and meaningful relationships, recognition of personal strengths, identification of new possibilities for one's life, and a richer existential experience (Tedeschi & Calhoun, 1996, 2004). Nonetheless, current evidence suggests that post-traumatic stress (PTS) and PTG may occur concurrently (Schubert et al., 2016), but this association is rather inconsistent and warrants further investigation (Manning-Jones et al., 2017).

To outline the general psychological processes that lead to growth, Tedeschi and Calhoun (1995) proposed an initial theoretical model, that was refined some years later to incorporate a more comprehensive approach (Tedeschi et al., 2018). In this last version of the model, it is elucidated the key role of emotional distress throughout the process, the effects of self-disclosure and sociocultural elements, and the understanding of PTG as an enriched psychological maturity and increased wisdom (Tedeschi et al., 2018). It is also emphasized that events must be disruptive ("seismic") enough to initiate the process of shaking a person's goals and core beliefs (Gehrt et al., 2018). The subsequent emotional distress may lead to a process of automatic rumination to reduce stress, and then, a deliberate thinking to integrate the experience in the life narrative. Deliberate rumination

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has been defined as an active cognitive process that facilitates PTG and includes the reshaping of existing schemas. Accordingly, there are different elements involved in the emergence of PTG, such as (1) pre-existing intrapersonal resources (e.g., personal qualities and coping mechanisms), (2) self-disclosure and how others respond to it, (3) cognitive processing of event, and (4) proximal and distal sociocultural influences (e.g., social support, existential beliefs) (Tedeschi et al., 2018).

Event centrality is another key factor introduced in the revised model of PTG (Tedeschi et al., 2018), and it characterizes the extent to which memories of highly stressful events become a reference point to other experiences, a turning point in life story, and a core component of the personal identity (Berntsen & Rubin, 2006). Preliminary evidence has demonstrated a positive association between event centrality and PTG (Glad et al., 2020). Experiencing a traumatic event with major consequences and repercussions in one's life narrative may trigger cognitive processes that foster positive meaning making and benefit finding. However, no study has yet examined this question among healthcare professionals, particularly nurses in the context of the COVID-19 pandemic — an unprecedented event that is responsible for a broad spectrum of large-scale impacts (e.g., physical and psychosocial health, global economy). The assessment of the effects of trauma on individual's sense of self, core beliefs, and view of the world might be helpful to inform interventions tailored to address and foster resources that can co-occur with emotional distress, thus facilitating positive outcomes in the aftermath of disasters.

There is an ongoing debate about the extent to which self-reports depict "authentic" personal growth or positive illusions (Westphal & Bonanno, 2007; Wortman, 2004) for individuals to overcome emotional stress and to make others believe they are successfully dealing with the situation. Noteworthy, Wortman (2004) questioned the validity of such appraisals, highlighting some inconsistencies in research with trauma survivors on whether identified changes were in fact veridical (Lehman et al., 1987; McMillen et al., 1995). Some authors suggested that obtaining both self and proxy-reports could enhance the validity of PTG (Park & Lechner, 2006; Wortman, 2004), by examining the level of concordance between multiple informants.

Third person's observation has been used in literature, but the results were not conclusive about the veracity of self-perceived PTG. While some studies found strong correlations between both sources of information (Moore et al., 2011; Shakespeare-Finch & Enders, 2008), confirming the veracity of positive transformations, others reveled low levels of concordance (Koutná et al., 2021), or no evidence of concordance at all (Helgeson, 2010). As such, the authenticity of PTG self-reports remains unclear and needs further investigation.

During the COVID-19 outbreak, healthcare workers, and especially nurses, have been responsible to treat, care for and support the entire community, thus facing additional challenges that make them one of the most vulnerable groups to the adverse reactions to the pandemic. The ongoing risk of a life-threatening illness, along with losses and the overwhelming occupational and personal stress (e.g., direct contact with the virus, excessive workload, new workplaces and schedules, insufficient personal protective equipment, concerns about infecting significant others and oneself), contributed to the traumatic nature of the COVID-19 pandemic, increasing the likelihood for nurses to develop trauma-related stress conditions (al Maqbali et al., 2021). These primary (directly related to exposure to the virus) and secondary (contextual factors, prior and post disease outbreak) stressors may exacerbate the psychosocial impact of the pandemic. Different forms of trauma-related stress conditions can occur when working with trauma survivors in the face of a global health crisis (PTSD, vicarious traumatization, or secondary traumatic stress) (Williams et al., 2021). Nevertheless, evidence has been demonstrating that nurses have possibly experienced positive changes (e.g., modification of life's narrative, self-perception, social relationships) in the aftermath of this traumatic event (Chen et al., 2021; Kalaitzaki et al., 2020). A cross-sectional study on PTG of frontline nurses in the beginning of the COVID-19 outbreak found medium to high levels of growth, influenced by working years, self-efficacy, risk awareness, psychological intervention, and deliberate rumination (Pan Cui et al., 2021). To the best of our knowledge, the agreement between nurses' self- and proxy-reported PTG has not been studied yet, particularly during the COVID-19 pandemic. The simultaneous examination of self- and proxy-reports of growth will enable an improved understanding of the nature, complexity, and characteristics of PTG in the aftermath of worldwide health calamity.

The aims for this study were defined as follows: (1) to ascertain the level of agreement between self- and proxy-reports of PTG, (2) to assess the differences between the dimensions self- and proxy-reported PTG, (3) to describe patterns of directional discrepancy (i.e., 'self-report > proxy-report', 'agreement' and 'self-report < proxy-report') between self- and proxy- reports of PTG, and (4) to analyze the association between nurses' perceived centrality and impact of the COVID-19 pandemic outbreak, and their self-/proxy-reported PTG.

Method

Participants

This study is part of a larger research project exploring the impact of COVID-19 outbreak on the mental health and

wellbeing of Portuguese nurses, in comparison with the general population. Participants were nurses and their significant others, organized in dyads. For the nurses' sample, a single inclusion criterion was considered: to be a nurse working in Portuguese hospitals or any other healthcare institution (e.g., primary and tertiary care). Significant others were friends or relatives who have known the nurse, at least, for 2 years (corroborator). The global sample was composed by 102 participants, 51 nurses, and 51 significant others.

Procedure

All procedures were conducted according to the ethical standards of the institutional research committee and to the Declaration of Helsinki (World Medical Association, 2013). This study was approved by The Ethics Committee of the Faculty of Psychology and Educational Sciences of the University of Coimbra.

The sample was recruited online, between September and December 2021, through a web-based survey (LimeSurvey®) shared on social and traditional media platforms and institutional emailing lists. A partnership protocol was established with the Portuguese Order of Nurses, Portuguese Nurses Unions and the Nursing Schools of Coimbra and Lisbon, which also approved and facilitated the dissemination of this project.

Nurses were asked to voluntarily provide an e-mail address of a significant other, who would be subsequently contacted to participate in the study. Proxies were then invited to complete another questionnaire, comprising measures on sociodemographic and clinical information, and their appraisals of nurses' PTG. The survey's first page contained the study aims, procedures, and the underlying ethical considerations. Individuals only participated after giving their informed consent on the conditions of the study. No compensation was given to participants. To prevent missing values, forced answering (i.e., forcing respondents to answer each question to proceed through the questionnaire) was used, except for the nomination of a significant other. Furthermore, participants' e-mail addresses were screened, as well as the eligibility of the corresponding IP addresses, to guarantee there were no automatic survey-takers and ensure bot detection (Godinho et al., 2020).

Measures

Sociodemographic and Clinical Information

A sociodemographic and clinical form assessed the participants' sociodemographic information (i.e., age, gender, marital status) and clinical data (e.g., psychological/psychiatric treatment history, trauma-related symptomatology), as well as the level of exposure to COVID-19. Nurses were also questioned about their work with COVID-19 patients.

Event Centrality

Centrality of Event Scale (CES; Berntsen & Rubin, 2006; Matos et al., 2010; COVID-19 adaptation: Matos, 2010) is a self-report questionnaire composed of 20 items rated on 5-point Likert scale, ranging from 1 (*totally disagree*) to 5 (*totally agree*). It was used to assess the extent to which a memory of a stressful or traumatic event (in this case, participants were asked to: "Think about the COVID-19 outbreak") is perceived as central to identity and life story. The total score is the sum of all items, where higher scores indicate a greater centrality of the pandemic. In this sample, the CES showed an excellent internal consistency ($\alpha = .94$).

Impact of Event

Impact of Event Scale-6 (IES-6; Lopes & Rocha, 2013; Thoresen et al., 2010) is a brief self-report measure used to assess post-traumatic stress reactions. The IES-6 consists of 6 items rated on a 5-point Likert scale, ranging from 0 (*not at all*) to 4 (*extremely*). The total score was calculated by the sum of all items, with higher scores indicating higher levels of trauma symptoms. In this sample, the IES-6 revealed a very good internal consistency for the total score ($\alpha = .87$).

Post-traumatic Growth

Posttraumatic Growth Inventory – Short Form (PTGI-SF; Cann et al., 2010; Lamela et al., 2014), a short version of the Posttraumatic Growth Inventory (Tedeschi & Calhoun, 1996). The PTGI-SF is a self-report questionnaire aimed to assess positive psychological changes perceived by individuals who experienced extremely stressful events. It has 10 items rated on a 6-point Likert scale, ranging between 0 (*I did not experience this change as a result of my crisis*) and 5 (*I experienced this change to a very great degree as a result of my crisis*), equally distributed among the five dimensions of PTG proposed by Tedeschi and Calhoun (1996). To assess significant others' appraisals of nurses' PTG, PTGI-SF was adapted to a proxy version (*He/she experienced this change to a very great degree as a result of the crisis*). The total score is the sum of all items, where higher scores are indicative of greater PTG. In the present study, the PTGI-SF showed an excellent internal consistency for the total score in both subsamples (nurses: $\alpha = .92$; significant others: $\alpha = .93$). Cronbach's alpha for the subscales were adequate or acceptable and ranged from .75 (Spiritual change) to .88 (Personal strength) for the nurses' subsample and from .62 (Spiritual change) to .85 (Personal

strength and Appreciation of life) for the significant others' subsample.

Data Analysis

Data analyses were conducted using Statistical Package for the Social Sciences (SPSS, version 25.0; IBM SPSS, Chicago, IL, USA). Based on a priori power analysis (G*Power; Faul et al., 2009) to detect medium-to-large effects in planned statistics (e.g., paired samples t-test; correlational analyses), a minimum of 43 dyads was required. Internal consistency of questionnaires integrating the assessment protocol was measured, for both self and proxy-reports, considering that a good measure should have a Cronbach's alpha of at least .60 and preferably closer to .90 (Aron et al., 2013; Nunnally & Bernstein, 1994). Descriptive statistics were obtained for all variables under study. For descriptive purposes, two groups of nurses were created according to the recommended cutoff point of 12.5 on the total score of the "Impact of Event Scale" (Lopes & Rocha, 2013): (1) Group with subclinical trauma symptoms; (2) Group with clinical trauma symptoms.

The level of agreement between self- and proxy-reports of nurses' PTG was examined at the individual level using intraclass correlation coefficients (ICC) (two-way mixed model, absolute agreement, 95% confidence interval (CI)). For the analysis at the group level, a paired samples *t*-test was computed to detect differences between subsamples, for the total score of the "PTG Inventory" and its five dimensions (Sneeuw et al., 2002).

To evaluate the extent and direction of disagreement, absolute and directional discrepancies were computed, respectively, as dyadic indexes (Kenny et al., 2006). Absolute discrepancies were calculated as the nurse-proxy mean difference (nurse's minus proxy's score) for the total score and each dimension of the PTG inventory. Based on these results, directional discrepancies were categorized into three groups ("self-report > proxy-report," "agreement," and "self-report < proxy-report") to explore any systematic tendency for nurses to overestimate or underestimate PTG, compared to the proxy-reports. Accordingly, agreement was defined as an absolute discrepancy that was lower than or equal to half of the standard deviation (SD) of the score with the greatest variability (Silva et al., 2015). A chi-square goodness of fit test was performed to determine whether directional discrepancies were equal between the three groups.

Pearson's bivariate correlation coefficients were computed to assess associations between variables, while adopting the following guidelines to classify their strength: $r \leq .29$ (weak); $.30 \leq r \leq .49$ (moderate); $r \geq .50$ (strong) (Cohen, 1988).

Results

Sociodemographic and Clinical Characteristics of the Sample

Table 1 summarizes sociodemographic and clinical characteristics of the subsamples. For both groups, the majority identified as a woman ($n = 42$, 82.4% for nurses; $n = 27$, 52.9% for significant others), were married ($n = 29$, 56.9% for nurses; $n = 31$, 60.8% for significant others), and lived in an urban area ($n = 29$, 82.4% for nurses and significant others).

Regarding the group of nurses, the mean years of experience was 15.39 ($SD = 9.13$) and the majority worked at a COVID-19 unit during the pandemic ($n = 31$, 60.8%). As for trauma symptoms, nearly one-quarter of the nurses (25.5%) reported clinically significant symptoms.

Table 1 Sociodemographic and clinical characteristics of the subsamples

	Nurses		Significant others	
	n	%	*n*	%
Gender				
Woman	42	82.4	27	52.9
Man	9	17.6	24	47.1
Marital status				
Single	21	41.2	13	25.5
Married	29	56.9	31	60.8
Divorced	0	0	5	9.8
Widowed	1	2	2	3.9
Residential area				
Urban	42	82.4	42	82.4
Rural	9	17.6	9	17.6
Psychological/psychiatric treatment history[a]	25	49	16	31.4
Risk group for COVID-19[a]	10	19.6	6	11.8
Infection with the coronavirus[a]	23	45.1	18	35.3
Worked at a COVID-19 unit[a]	31	60.8	-	-
Clinical trauma symptoms[a]*	13	25.5	-	-

$N = 51$ for each group. Nurses were on average 38.3 years old ($SD = 8.53$), and significant others were 39.02 years old ($SD = 12.93$)

[a]Reflects the number and percentage of participants answering "yes" to this question

*Group with clinical trauma symptoms (nurses were categorized into two groups based on the recommended cutoff point of 12.5 on the total score of the "Impact of Event Scale")

Agreement Between Nurse-Proxy-Reports of PTG

At the individual level, the results suggest poor to moderate levels of agreement. At the group level, no differences were found, except for the Spiritual change dimension ($t = 2.64$, $p = .011$). The examination of nurse-proxy discrepancies demonstrated that nurses tended to score their PTG higher than their significant others. All these results are described on Table 2.

Directional Discrepancy Between Nurses' Self- and Proxy-Reports of PTG

Results on Table 3 show that the chi-square test was not statistically significant for all the dimensions of PTG, except for the Spiritual change ($x^2 = 14.59$; $df = 2$; $p < .001$), suggesting that proportions were significantly different between groups. Further analyses on frequencies indicated that "Agreement" was statistically different from "self > proxy" ($x^2 = 4.45$; $df = 1$; $p = .035$) and "self < proxy' ($x^2 = 13.44$; $df = 1$; $p < .001$). There were no statistically significant differences between "self > proxy" and "self < proxy' ($x^2 = 2.91$; $df = 1$; $p = .088$).

Directional discrepancies indicated rates of agreement ranging from 33.3% (appreciation of life) to 56.9% (spiritual change). Overall, observed frequencies show that most of dyads (nurse-significant other) agreed on their evaluation of nurses' PTG.

Correlations Between Event Centrality, Impact of Event, and Self- and Proxy Reports of PTG

As depicted in Table 4, results showed that all correlations were positive. Particularly, the correlation between event centrality and impact of event was strong ($r = .65$; $p < .01$). The correlations between event centrality and

Table 2 Descriptive statistics of the scales, intraclass correlation coefficients, paired samples *t*-test, and absolute and directional discrepancies

	Self-reports		Proxy-reports			Paired samples *t*-test		Discrepancy			
	M	*SD*	*M*	*SD*	ICC[a]	*t*	*p*	Absolute		Directional	
								M	*SD*	*M*	*SD*
Post-traumatic growth (total)	19.43	12.34	16.69	12.09	.41	1.48	.144	2.75	13.21	1.82	.74
Personal strength	4.49	3.10	4.27	3.07	.32	.43	.672	.22	3.62	2.10	.81
Appreciation of life	5.04	3.07	4.37	3.12	.33	1.33	.190	.67	3.59	1.84	.81
Relating to others	3.20	2.82	2.84	2.72	.38	.82	.418	.35	3.08	1.94	.76
Spiritual change	2.57	2.93	1.59	2.13	.44	2.64	.011	.98	2.65	1.84	.64
New possibilities	4.14	3.14	3.61	3.07	.39	1.10	.277	.53	3.44	1.90	.78

[a]Intraclass correlation coefficients (ICC) reference values: ICC < 0.40 = poor agreement, ICC between 0.41 and 0.60 = moderate agreement, ICC between 0.61 and 0.80 = good agreement, ICC > 0.81 = excellent agreement (Landis & Koch 1977). All ICC were statistically significant at the 0.01 level

Table 3 Distribution of nurses-proxy directional discrepancies on reported post-traumatic growth and difference between subsamples

	Directional discrepancy						Difference between subsamples	
	Self > proxy		Agreement		Self < proxy		x^2	*p*
	n	%	*n*	%	*n*	%		
Post-traumatic growth (total)	19	37.3	22	43.1	10	19.6	4.59	.101
Personal strength	14	27.5	18	35.3	19	37.3	0.82	.662
Appreciation of life	21	41.2	17	33.3	13	25.5	1. 88	.390
Relating to others	16	31.4	22	43.1	13	25.5	2.47	.291
Spiritual change	15	29.4	29	56.9	7	13.7	14.59	< .001
							a < b > c *	
New possibilities	18	35.3	20	39.2	13	25.5	1.53	.47

Agreement was defined as an absolute difference between the self's and proxy's scores that was lower than or equal to half of the SD of the score with the greatest variability

$p < .05$

*a: self > proxy; b: agreement; c: self < proxy

the dimensions of self-reported PTG were from moderate to strong, except for relating to others ($r = .26$, $p = .066$). Moreover, the association between impact of event and self-reported PTG were from weak to strong, except for both personal strength and relating to others ($r = .24$, $p = .085$; $r = .15$, $p = .302$, respectively). Finally, the relationship between proxy-reports of PTG and both event centrality and impact of event was not statistically significant, except for Personal strength (weak correlations: $r = .28$, $p = .048$; $r = .29$, $p = .041$, respectively).

Discussion

This is the first study ascertaining the level of agreement between self- and proxy-reports of nurses' PTG during the COVID-19 outbreak pandemic. Main findings of this study may be summarized as follows: first, positive changes felt by nurses were generally corroborated by significant others with whom they had a close relationship, except for the dimension of spiritual change; second, centrality and impact of the pandemic outbreak were positively associated with self-reported PTG, but not with proxy-reports of PTG.

At the individual level, the extent of agreement between nurses and their proxies was found to be poor to moderate, which is in line with those who claim the illusionary side of self-reported PTG (Koutná, 2021; Helgeson, 2010). Lower rates of agreement on the domain of personal strength may be explained by the private nature of the items describing subjective changes not observable by others (Weiss, 2002). By contrast, at the group level, no significant differences were found between the dimensions of self- and proxy-reports of PTG, except for the dimension of spiritual change. This subscale has been raising some concerns given that its content only captures traditional spiritual/religious beliefs, but it does not include more existential aspects of growth, thus being more vulnerable to cultural and personal interferences (Tedeschi et al., 2017). These results confirm previous studies concluding that significant others corroborate self-reports of PTG and asserting the veracity of PTG (Moore et al., 2011; Shakespeare-Finch & Enders, 2008).

Directional discrepancies suggest that nurses tend to overestimate positive aspects of adaptation. Although this association was not investigated before, a possible explanation might be that despite the extreme stressful circumstances of the pandemic outbreak, nurses' behavioral patterns are distinctly consistent with their own intrinsic vocational motivations, values, and goals (Presti et al., 2020), thus making them able to find more benefits than those perceived by significant others.

Subsequently, the analysis comparing the categories of directional discrepancies indicated that there were no significant differences between the dimensions of self- and proxy-reports of PTG, except for spiritual change. Even though PTG composes a self-reporting and subjective experience, its validity appears to be confirmed by a corroborating significant other.

Nurses' perceived centrality of the COVID-19 pandemic outbreak was strong and positively linked to PTS reactions, as well as with self-reports of PTG. When analyzing the clinical levels of trauma symptoms, it was found that one-fourth of nurses showed scores above the cutoff point, which may indicate clinical concern. Increased levels of PTS reactions were also found to be related to higher levels of self-reported PTG. These results reflect the idea that the enhanced accessibility of memories of "seismic" events may be associated with a personal experience of both emotional distress and positive transformations (Gehrt et al., 2018; Tedeschi et al., 2018). On the other hand, pandemic centrality and trauma-related symptomatology were not significantly correlated with proxy-reports of PTG for all the dimensions, except for Personal strength. In fact, event centrality and its impact on mental health are subjective internal experiences, while proxy-reports involve the external perception of the phenomenon. Although this association was weak, nurses' appraisal of the pandemic as a more salient personal memory, as well as the development of higher levels of PTS symptoms, appears to be associated with significant others' perception of nurses' strength, confidence, and coping strategies.

Table 4 Matrix of intercorrelations among study variables and descriptive statistics of the scales

	M	*SD*	Event centrality	Impact of event
Self-reports				
Event centrality	63.24	16.37	-	-
Impact of event	8.94	5.46	.65**	-
Post-traumatic growth (total)	19.43	12.34	.55**	.41**
Personal strength	4.49	3.10	.49**	.24
Appreciation of life	5.04	3.07	.67**	.60**
Relating to others	3.20	2.82	.26	.15
Spiritual change	2.57	2.93	.34*	.29*
New possibilities	4.14	3.14	.47**	.36**
Proxy-reports				
Post-traumatic growth (total)	16.69	12.09	.15	.19
Personal strength	4.27	3.07	.28*	.29*
Appreciation of life	4.37	3.12	.15	.14
Relating to others	2.84	2.72	.05	.08
Spiritual change	1.59	2.13	.01	.02
New possibilities	3.61	3.07	.10	.24

*$p < .05$; **$p < .01$

Findings from the present study have important implications for the research field of PTG and clinical practice, by acknowledging the importance of psychological interventions for nurses aimed at strengthening PTG to promote positive outcomes in the aftermath of major traumatic events. Changing the focus from a traditional deficit-centered perspective to a complementary strength-based approach considering the unique needs of this specific group can play a major role in buffering against mental illness, by bolstering mental health during the pandemic, and building new skills and resources to promote flourishing through present or future crisis. The influence of perceived centrality on adaptation outcomes reinforces the need to address the development of a meaningful and constructive narrative of the nurses' experience. Exploring the extent to which nurses appraise the pandemic as an integral part of one's identity and life story is crucial to promote a perception of the event that is more congruent with personal motivations, values, and goals. Besides, it would be valuable to guide nurses to consciously turn their attention into positive changes they experienced in the aftermath of the COVID-19 outbreak, such as worldviews and future plans. Additionally, it is recognized the antagonist and complementary aspects of outcomes in the context of adversity, which reinforce the need to conceptualize the process of adaptation considering both distress and personal growth. Accordingly, it is crucial to support nurses who present clinical levels of trauma symptoms, by tailoring resilience-promoting strategies to their specific needs, not only to mitigate psychological distress but also to foster thriving during and in the aftermath of adversity. In the context of the COVID-19 pandemic, access to psychotherapy can be difficult due to limited resources and rising demands (APA, 2020). To fill this treatment gap, evidence-based mobile apps (e.g., Moodivate, a self-help behavioral activation mobile app to manage depression) have been developed to allow patients to access treatment materials when and where it is convenient, at low cost (Dahne, 2019). Furthermore, the assessment of nurses' adaptation outcomes could be more comprehensive by considering simultaneous perspectives of multiple informants to complement self-reports. However, results also highlight the importance of allowing nurses to speak up for themselves, because they are the experts of their own experiences and the ones who know them better.

Despite the substantive contributions of the present research, there are some limitations that should be acknowledged. First, nurses-proxy agreement may be influenced by some variables that should be considered and controlled in the conducted analyses (e.g., sociodemographics, COVID-19-related variables, work characteristics). Specifically, literature has shown gender differences in responses to the pandemic (Kalaitzaki, 2021); given that gender showed statistically significant differences between nurses and significant others, it might have had an effect in the results. Second, the reliance on self-report measures may also decrease the accuracy of answers due to social desirability, as well as lack of awareness of emotional states. Third, data were collected exclusively online, thus excluding participants who do not use digital methods for various reasons. Similarly, the specific period of the pandemic during which data were collected may not be generalizable to other times of this ever-changing health crisis. Finally, our study's sample was embedded in the Western European cultural context, which may impair its external validity by limiting the generalizability of findings.

Apparently divergent findings of the present research call for future studies to further explore the phenomenon of PTG using different approaches and more sophisticated methodologies (e.g., longitudinal analyses). The discussion about the authenticity of self-perceived PTG may be impossible to close, not only because it may encompass both inaccurate and veridical changes, being both part of the meaning-making process, but also because it is impossible to separate the real experience into these two categories. Nonetheless, this will be crucial to capture the process of positive transformations with a comprehensive perspective.

Acknowledgements The authors thank all the participants in this study for their contribution, and are especially grateful to the Portuguese Order of Nurses and to the Nursing Schools of Coimbra and Lisbon, for their assistance in the collection of the sample of nurses.

Funding Open access funding provided by FCT|FCCN (b-on). This study was supported by the Center for Research in Neuropsychology and Cognitive-Behavioral Intervention (CINEICC) – University of Coimbra (UIDB/PSI/00730/2020) and by a doctoral grant (2020.07981.BD) awarded to the first author (Portuguese Foundation for Science and Technology/MCTES).

Data Availability The data that support the findings of this study are available from the corresponding author, upon reasonable request.

Declarations

Conflict of Interest The authors declare no competing interests.

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