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Map of Life: effects of this ACT-based brief intervention tool on healthcare professionals during COVID-19

Mapa da vida: efeitos dessa intervenção baseada na ACT em profissionais de saúde durante COVID-19

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[1] Instituto Contexto [2] Universidade Federal da Bahia (UFBA) | **Título abreviado**: Map of Life for healthcare professionals | **Endereço para correspondência: Email**: tiagothr@gmail.com | **doi**:doi.org/10.18761/PAC.ACT.022

Resumo: A Terapia de Aceitação e Compromisso (ACT) tem consistentemente demonstrado benefícios para a saúde mental e o bem-estar em diversas populações. Todavia, as investigações realizadas com base nesta abordagem sobre como a história de vida afeta a subjetividade dos indivíduos permanecem escassas. Este estudo apresenta o Mapa da Vida, uma ferramenta de intervenção baseada na ACT, desenvolvida no Brasil, que visa promover a flexibilidade psicológica através da análise funcional molar com ênfase na história de vida, e avalia seus efeitos em profissionais de saúde que trataram pacientes com COVID-19. A intervenção em grupo, conduzida remotamente por especialistas em ACT ao longo de seis semanas, envolveu quatro profissionais de saúde de diferentes especialidades com prejuízos na saúde mental e na qualidade de vida relacionados à pandemia. As avaliações pré e pós-intervenção, juntamente com o follow-up, investigaram sintomas de depressão, estresse e qualidade de vida. Os resultados revelaram uma redução expressiva dos sintomas de depressão e estresse, e um aumento na qualidade de vida dos profissionais após a intervenção. As implicações desses benefícios são discutidas em relação às diferentes fases da pandemia no Brasil, destacando a relevância do Mapa da Vida como uma ferramenta promissora para intervenções em saúde mental de profissionais de saúde durante crises sanitárias.

Palavras-chave: Mapa da Vida; Terapia de Aceitação e Compromisso; COVID-19; saúde mental; qualidade de vida.

Abstract: Acceptance and Commitment Therapy (ACT) consistently demonstrates mental health and well-being benefits across various populations. Nonetheless, ACT-based research on how an individual's life history affects subjectivity remains limited. This study introduces the 'Map of Life', an ACT-based intervention tool developed in Brazil, designed to enhance psychological flexibility through functional molar analysis with an emphasis on life history. It assesses its effects on healthcare professionals who treated COVID-19 patients. The group intervention, led remotely by ACT experts over six weeks, involved four healthcare professionals from different specialties, all of whom faced mental health and quality of life challenges related to the pandemic. Pre- and post-intervention assessments, along with a follow-up, measured depression, stress symptoms, and quality of life. The results indicated an expressive reduction in depression and stress symptoms, as well as an improvement in quality of life among the professionals after the intervention. The implications of these benefits are discussed concerning the various phases of the pandemic in Brazil, highlighting the relevance of the 'Map of Life' as a promising tool for mental health interventions for healthcare professionals during public health crises.

Keywords: Map of Life; Acceptance and Commitment Therapy; COVID-19; mental health; quality of life.

COVID-19 is a disease linked to the acute respiratory syndrome generated by the SARS-CoV-2 coronavirus, transmitted via close person-to-person contact. Since March 2020, the World Health Organization has categorized the escalating disease as a pandemic (WHO, 2020). Despite the physical consequences of the disease, widely discussed internationally, the pandemic presents mental health impacts that are still relatively unpredictable and that demand urgent psychological intervention proposals (Pakenham et al., 2020; Zhang et al., 2021).

A systematic review has already been produced to synthesize the literature on the psychological effects of COVID-19 in the general population (Xiong et al., 2020). In this period, high rates of anxiety, depression, post-traumatic stress, and psychological distress were detected in China, Spain, Italy, Iran, the USA, Turkey, Nepal, and Denmark. Furthermore, it is important to note that people who already had anxiety disorders and various mood disorders were impacted more intensely by the pandemic than people who had no previous mental disorders (Asmundson et al., 2020).

Acceptance and Commitment Therapy (ACT) is a process-based therapy that aims to promote a meaningful life that is consistent with individual values. It currently has over 1000 randomized controlled trials in major mental health areas (e.g., anxiety, depression, substance abuse, chronic pain and transdiagnostic groups) and over 500 meta-analyses and systematic or narrative reviews of the ACT evidence base (Hayes & King, 2024). An analysis of the evidence from 20 meta-analyses revealed the effectiveness of ACT across various diagnoses of mental disorders and chronic health conditions, as well as in transdiagnostic groups, showing larger effect sizes for ACT compared to usual treatments or no treatment (such as waitlist or placebo) (Gloster et al., 2020). ACT interventions work by modifying psychological flexibility processes and, once such processes are mobilized, produce long-term consequences in traditional psychopathological areas and in physical health habits, relationships, work performance, etc.

As a process-based therapy, ACT interventions are not limited to specific protocols but involve identifying specific psychological processes and evidence-based procedures for impacting such processes (Hayes & Hoffmann, 2018, 2019, 2020). Because of this comprehensive characteristic, ACT is not reduced to coping with mental disorders described based on syndromes (e.g., DSM-V) but is apt for coping with diverse situations in which it proposes to help people develop health and achieve their goals (Hayes, 2019a; Hayes, et al., 2023).

Psychological flexibility, the process by which ACT interventions set out to develop their goals, can be conceptualized as the ability to feel and think openly, with keen attention to the experience of the present moment; moving one's life in valued directions; and building habits that allow one to live life following such values and aspirations (Hayes, 2019b). Reduced psychological flexibility is predictive of trauma and mental health problems in crisis contexts such as firearm attacks in schools, storms with high environmental impact, or violent crime; because of this, the World Health Organization has found that ACT-based programs are relevant to, for example, care for war refugees (Presti et al., 2020).

At the beginning of the pandemic, some theoretical research was developed to provide guidelines for ACT interventions in the current context. For example, Stapleton (2020) presented interpretations of rule-following and its impact on implementing public health policies to reduce the spread of COVID-19. More broadly, Hayes et al. (2020) used the psychological flexibility model applied to the pandemic context as an example to help health professionals deal with new health challenges. Some authors (e.g., Presti et al., 2020; Szabo et al., 2020) have proposed theoretical analyses of fear mechanisms, learning processes, and change of daily habits in the pandemic context from a contextual sciences perspective, which are the scientific research base of ACT.

Empirical research on the role of psychological flexibility in the population's reaction to the present moment has also been developed. For example, psychological flexibility was positively associated with well-being and inversely related to anxiety, depression, and COVID-19-related distress (Dawson & Golijani-Moghaddam, 2020). In this same vein, it was also negatively associated with insomnia and found to be an important factor of psychological resilience against mental distress during the pandemic (McCracken et al., 2021).

Beyond an individual perspective, pandemic coping strategies became an important context for interpersonal conflict (especially for families with children) and the negative effects of social isolation. In this direction, psychological flexibility was associated with greater family cohesion, reduced discord among family members, and improved parenting strategy construction (Daks et al., 2020). Moreover, greater psychological flexibility also softened the effects of social isolation and amplified the benefits of social connectedness (Smith et al., 2020). These data make the need for procedures for mobilizing flexibility as a health promotion strategy in the pandemic context increasingly pressing.

In this sense, some ACT-based procedures have already been proposed in the international literature for coping with the psychological consequences of the COVID-19 pandemic (e.g., Arnold et al., 2020; Presti et al., 2020). Such interventions have been conducted in European and North American contexts but have not been found in developing country contexts (e.g., South American countries).

While the psychological impact of the pandemic is pervasive to the entire population, there is a special emphasis on healthcare professionals who work directly caring for patients with COVID-19. Past experiences with pandemics have indicated that, for example, during the SARS quarantine, healthcare professionals showed more severe posttraumatic stress disorder symptoms, more avoidance, and more negative emotions such as guilt, worry, and helplessness compared to the general population (Borloti et al., 2020). Throughout the current experience, the literature already presents data on the impact of COVID-19 on healthcare professionals concerning psychological distress, depression, and anxiety, among others (e.g., Lai et al., 2020; Zhang et al., 2021).

The current study employed a single-case design to explore the effects of the Map of Life, an ACT-based brief intervention tool, on healthcare professionals working on the frontline of patient care for individuals diagnosed with COVID-19 in the Brazilian context. The Map of Life, developed specifically for the Brazilian population, uses the individual's life story to mobilize the six clinical change processes of ACT. This study is the first to evaluate the preliminary findings of this intervention tool, which has been used for various clinical needs, and will be described in more detail in the section below. The study's hypothesis predicts that healthcare professionals will demonstrate decreased levels of depression and stress symptoms, as well as enhanced quality of life, following their participation in the ACT-based brief intervention group.

Method

Participants

Participants in this study were recruited on demand through websites and social networks. Eligible participants were healthcare professionals who were actively working with patients diagnosed with COVID-19. While 24 individuals initially consented to participate, data from 16 participants were excluded due to incomplete completion of all assessment phases. Figure 1 provides a detailed breakdown of dropout rates and reasons for exclusion during each study phase.

The final sample consisted of four healthcare professionals providing care to patients with suspected or confirmed COVID-19 in Brazil, comprising two psychologists, one nurse, and one social worker. All participants (100% female) had an average age of 35 years (SD = 14.36) and self-identified as white (25%), brown (50%), or black (25%). The majority were single (75%) or in a romantic relationship (25%), and most had one child (75%). Two participants reported living with their child only, one lived with her birth family, and one resided with her romantic partner's family. Reported family income ranged from one to six minimum wages, as applicable in Brazil in 2020.

Procedures

After obtaining approval from the National Research Ethics Committee (CEP-CONEP/Brazil - process no. 4.166.847), the study was extensively promoted on various websites and social networks using posters containing the enrollment link for voluntary participation. Participants accessed the link and provided informed consent along with their socio-demographic information. To comply with the physical distancing requirements during the COVID-19 pandemic, all stages of the study were conducted online.

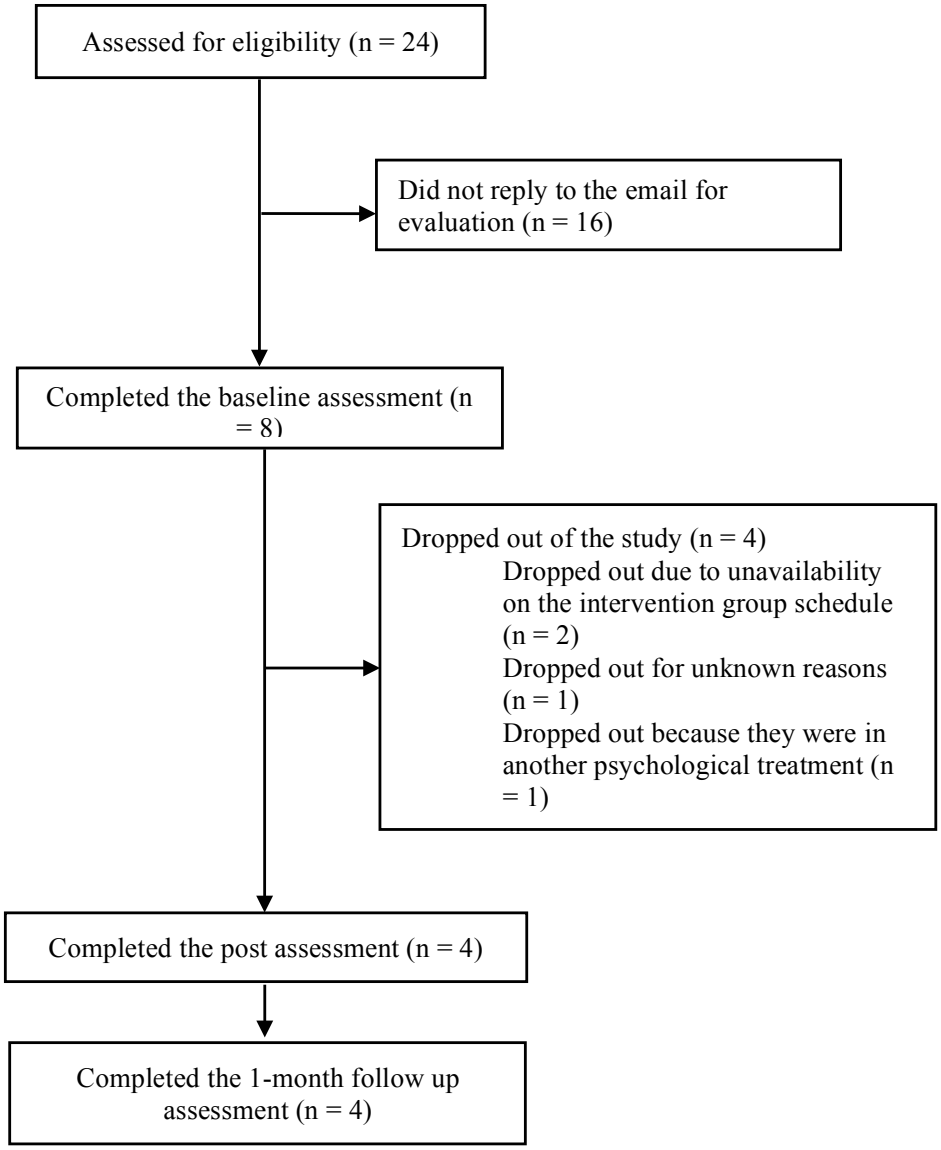

Figure 1. Participant flow diagram.

The pre-treatment assessment took place one week before the intervention's commencement. Each participant completed measures of depression symptoms, stress level, and quality of life through an individual interview conducted on an online platform. The group intervention lasted six consecutive weeks, delivered in an online format, immediately following the initial evaluation. All intervention sessions were recorded for subsequent analysis. The post-treatment evaluation occurred approximately one week after the final intervention session, and the follow-up took place approximately one month later. Both post-treatment and follow-up assessments were conducted individually, using an Internet platform, with participants responding to the same measures as the pre-treatment assessment. Additionally, at the follow-up, participants completed the Client Satisfaction Questionnaire.

Map of Life

It is possible to find in the literature many intervention protocols based on ACT for delivery in groups or individually (Gloster et al., 2020). Such interventions aim to promote psychological flexibility through the mobilization of six clinical change pro-

cesses: acceptance, defusion, self as context, contact with the present moment, values clarity, and committed action.

The procedures presented for mobilizing such processes are quite diverse (e.g., Hayes et al., 1999), involving a plurality of mindfulness exercises, worksheets, metaphors, as well as elements of the therapeutic relationship. However, a time-limited ACT intervention program has at least two main challenges to become feasible in research situations and everyday clinical practice: (1) to organize around practices that coherently mobilize all six flexibility processes and (2) that are meaningful to patients.

Map of Life is an ACT-based intervention program that aims to mobilize psychological flexibility processes using the patient's life-history narrative as the main procedure. In this sense, instead of proposing a series of diverse practices to mobilize each flexibility process individually, the Map of Life uses the narrative of the life story as a verbal context for a new relationship of the patients with their private and public experiences. This strategy aims to promote each of the processes in an integrated way, starting with something meaningful to all participants, that is, their own story.

The use of life story, through the functional analysis of this history, has proven relevant in the authors' clinical practice, in both individual therapy and group intervention. This personal and professional experience of the authors led to the systematization of these practices into a clinical proposal that can be used for groups and individuals. In the present research, the group version was used as the main tool of the intervention, containing six online meetings of approximately one and a half hours, with a weekly frequency. Each of the meetings is described in Figure 2.

Measures

Becks Depression Inventory-II (BDI-II)

The BDI-II is a self-report scale comprising 21 symptomatic items, each with four response alternatives, designed to assess an individual's feeling over the past two weeks. This measure evaluates the intensity of various levels of depression symptoms in individuals aged 13 to senior citizens. The items include statements such as "My appetite is much less than usual" and "I get irritable all the time". The sum of individual item scores provides a total score, ranging from zero to 63 points, which represents a dimensional score indicating the intensity of depression symptoms. Higher score indicate more significant depression symptoms, categorized into four levels: non-clinical (up to 13 points), mild (between 14 and 19 points), moderate (between 20 and 28 points), or severe (29 points and above). For this study, we utilized the Portuguese version (Gomes-Oliveira et al., 2012), which demonstrated a high internal consistency (Cronbach's alpha = 0.93).

Lipp's Stress Symptoms Inventory for Adults (LSSI)

The LSSI (Lipp, 2000) is a standardized scale that assesses physical and psychological symptoms, providing information based on three stress phases. Stage 1 comprises 15 items that measure physical and psychological symptoms experienced in the past 24 hours. Stage 2 includes 15 items that assess physical and psychological symptoms experienced over the past week. Finally, stage 3 consists of 23 items that measure physical and psychological symptoms experienced in the last month. In total, there are 37 somatic items and 19 psychological items. For each phase, participants must indicate the symptoms experienced during the specified time period. Higher scores indicate a higher likelihood of significant stress symptoms, leading to a more advanced classification. Stress presence is verified when any of the raw scores exceed the established limits for each phase (greater than 6 in the first, greater than 3 in the second, and greater than 8 in the third).

Quality of Life Scale (QLS)

The QLS (Soares et al., 2019) assesses the quality of life in adults and consists of 23 items distributed across two domains: behavioral and psychological. The internal consistency indices (Cronbach's alpha) for each factor are 0.85, with explained variance of 30.24% and 10.20%, respectively. All items are statements that indicate potential impairments in quality of life. The behavioral domain comprises nine items, such as "I want to isolate myself from friends and family" or "My life is meaningless."

Session	Purpose	Method
1	Establishment of the therapeutic contract and rapport building	Therapists are introduced, and participants are asked to share their the most prominent complaints in the current context.
	Identification of challenging psychological experiences and current coping strategies	A mindfulness exercise about "*ocean waves*" is conducted, and participants' feelings and thoughts are contextualized during the exercise.
2	Identification and labeling of Survival Mode	Reflective questions are posed to explore the participants' roles within their birth families. Participants are asked to name their Survival Mode. Presentation of a model (fictional case) for identifying the Survival Mode.
	Providing warmth and self-care concerning Survival Mode	An experiential exercise is conducted, where participants are asked, "If you could say something to this child who had to learn this way to survive, what would you say?"
3	Identification of emotional barriers	Reflective questions are asked about the most challenging psychological experiences that the Survival Mode has brought to the present moment.
	Identifying experiential avoidance	Reflective questions, such as "What do I do to get away from what hurts?", are asked.
	Identifying the effects of experiential avoidance	Participants watch a video titled "Passengers on the bus" and apply its concepts to their own reality.
4	Values clarity	Completing the "What and who matters to me" section of the Map of Life. Direct modeling of the distinction between goals and values based on the answers.
	Identification of committed action	Participants complete and share with the group the sections "What I do to get closer to what matters" and "How I want to be remembered" in the Map of Life.
	Commitment to the group	Request for a commitment for the upcoming week. Request for foresight regarding possible emotional barriers that may arise when performing the committed action.
5	Modeling of committed action	Request to share successes and challenges in relation to the commitment made the previous week. Direct modeling of acceptance of the feelings and thoughts arising from the experience.
6	Program feedback	Review and consolidation of the developed processes. Request for a report on the experiences in the program.

Figure 2. Sessions of Map of Life.

The psychological domain includes 14 additional items, such as "I feel intense loneliness" or "I get angry easily". The participants respond using a five-point scale ranging from 1 = strongly disagree to 5 = strongly agree. The total score ranges from 23 to 115, with higher scores indicating greater impairment in quality of life.

Client Satisfaction Questionnaire (CSQ)

The CSQ is a 13-question measure assessing treatment satisfaction and treatment outcomes. Additionally, participants were asked whether they had experienced changes in their way of coping with everyday adversities and in the way they think, feel, or behave in their work environment and other social settings (yes/no). For positive responses, participants were asked to describe these changes.

Data analysis

In pilot preliminary effects studies, data are frequently subjected to visual analysis procedures. For this purpose, the data should be graphically presented to enable the assessment of the magnitude of changes that occurred after the intervention (Anderson & Kim, 2003). Pre-treatment, post-treatment, and follow-up measures are compared on separate graphs, and the magnitude of change is examined through visual analysis of the data, indicating an increase or decrease in the properties of the variables under investigation.

Results

All participants who initiated the intervention successfully completed the Map of Life treatment and attended both the post-treatment and 1-month follow-up assessments. Participants who had completed the baseline assessment but did not participate in the intervention dropped out either due to being engaged in another psychological treatment (12.5%) or due to unavailability during the intervention group schedule (25%). Attendance at the intervention sessions ranged from 91.67% to 100%. Throughout the 6-week treatment, two participants were absent from a single intervention session (on separate days) due to other commitments. The healthcare professionals actively engaged in the proposed exercises during the group treatment, accomplished approximately 95.84% of the agreed homework between sessions.

On a 5-point scale (1=very dissatisfied to 5=very satisfied), participants reported being very satisfied (100%) with the treatment and either satisfied (33.3%) or very satisfied (66.7%) with the clarity of the content. Regarding the perceived benefits in the work environment and daily life, health workers highlighted experiencing less distress when dealing with challenging situations, a reduction of workload, and a greater openness to self-compassion and self-care. No participants reported any treatment-related harms or adverse effects. Furthermore, participants reported that identifying the Survival Mode was crucial in establishing a new relationship with threatening internal events, recognizing their values, and planning committed actions.

Figure 3 displays the results of depression symptoms assessed during the pre-treatment, post-treatment, and follow-up phases. In the pre-treatment evaluation, only one participant had a depression symptom score classified as non-clinical (A=12), while the others had scores classified as moderate (B=21; C=22; D=28). In the post-treatment phase, three participants showed a reduction in depression symptoms, with classifications varying between non-clinical (A=7; D=10) and mild (C=16), and one participant showed a slight increase in the score (B=25), but the classification remained moderate. At follow-up, three participants exhibited non-clinical depression symptoms (A=4; B=12; C=8), and one participant showed increased symptoms of depression, with the score (D=15) is classified as mild. When considering the changes observed from pre-treatment evaluation to follow-up, a significant reduction in depression symptoms was evident in all participants.

The results of stress symptoms from the three assessment phases are presented in Figure 4. In the pre-treatment phase, participants exhibited high clinically relevant percentage scores for stress diagnosis (A=50%; B=58%; C=33%; D=50%). Stress symptoms were predominantly manifested in the psychological dimension for all participants (A=100%; B=100%; C=80%; D=60%). Following the post-treatment, an important reduction in

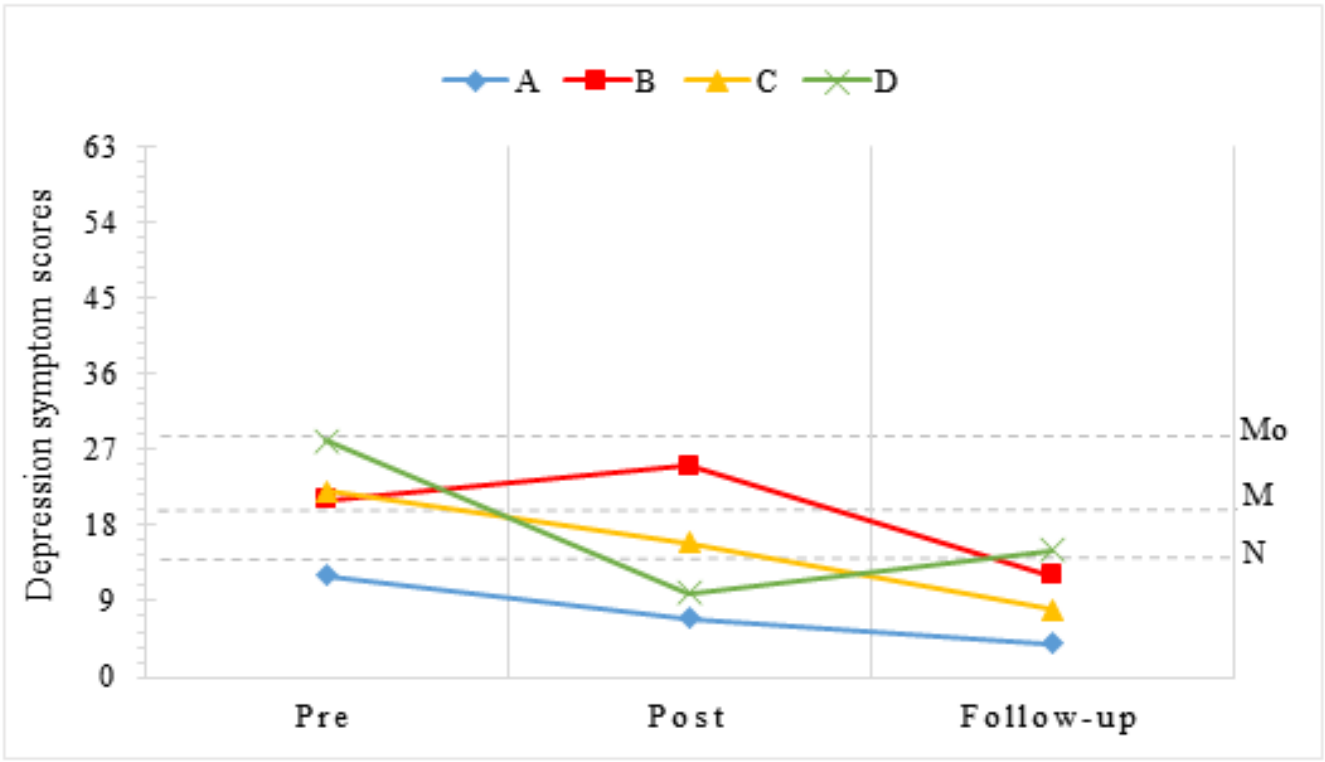

Figure 3. Depression symptom scores at pre-treatment, post-treatment, and follow-up. A, B, C, and D represent each of the participants.
N= non-clinical; M= mild; Mo= moderate

stress symptoms, both physical and psychological, was observed. One participant achieved a score of zero (A), while the others achieved scores of 33%, 17%, and 25% (B, C, and D, respectively). During the follow-up, two participants still exhibited clinically relevant total stress scores (B=50% and D=17%), while the other two achieved scores of zero (A and C). A comparison between the post-treatment and follow-up phases reveals that participant D displayed a decrease in total stress symptoms and no clinically relevant score for psychological stress symptoms. Conversely, participant B showed an increase in these symptoms in both physical (B=50%) and psychological (B=80%) stress dimensions. Nevertheless, when considering the pre-treatment and follow-up phases, there was a significant reduction in stress symptoms for all participants.

Figure 5 depicts the results of quality of life assessment during the pre-treatment, post-treatment, and follow-up phases. Throughout all evaluation phases, impairments in quality of life were primarily observed in the psychological dimension, with common items in the behavioral dimension relating to the use of controlled medication, the desire to isolate from social life, and the perception of a meaningless life. Reduction in quality of life impairments were observed in all participants, with more pronounced improvements generally noted from pre-treatment (A=62; B=70; C=70; D=55) to post-treatment (A=50; B=61; C=50; D=37). At follow-up, the quality of life impairments remained reduced for three participants (A=31; B=55; C=46) and increased for one participant (D=45). Nonetheless, when comparing the pre-treatment and follow-up evaluations, a noticeable reduction in quality of life impairments was evident all participants, with a minimum decrease of 10 points in the total score.

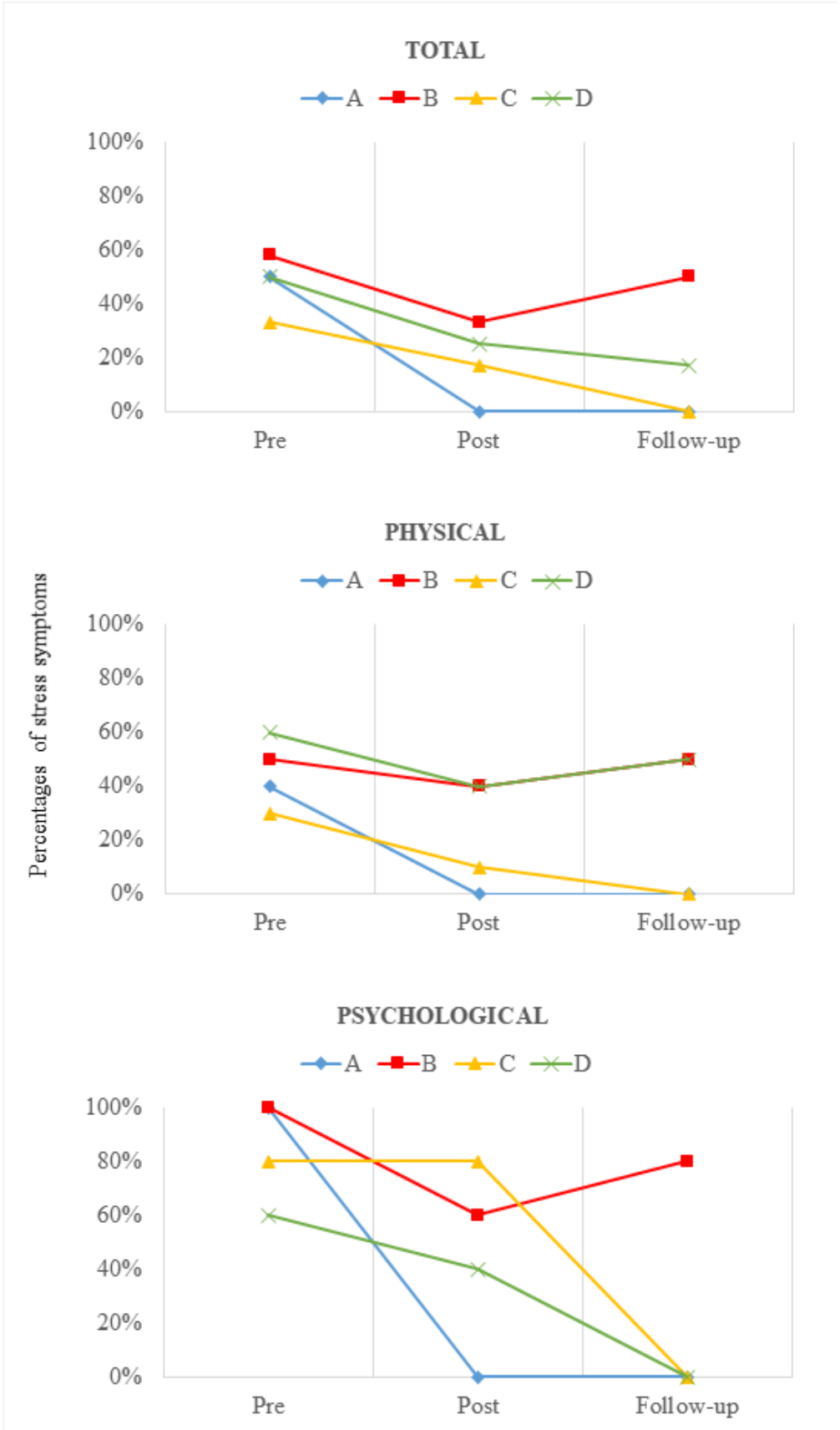

Figure 4. Percentages of stress symptoms in the pre-treatment, post-treatment, and follow-up. A, B, C, and D represent each of the participants.

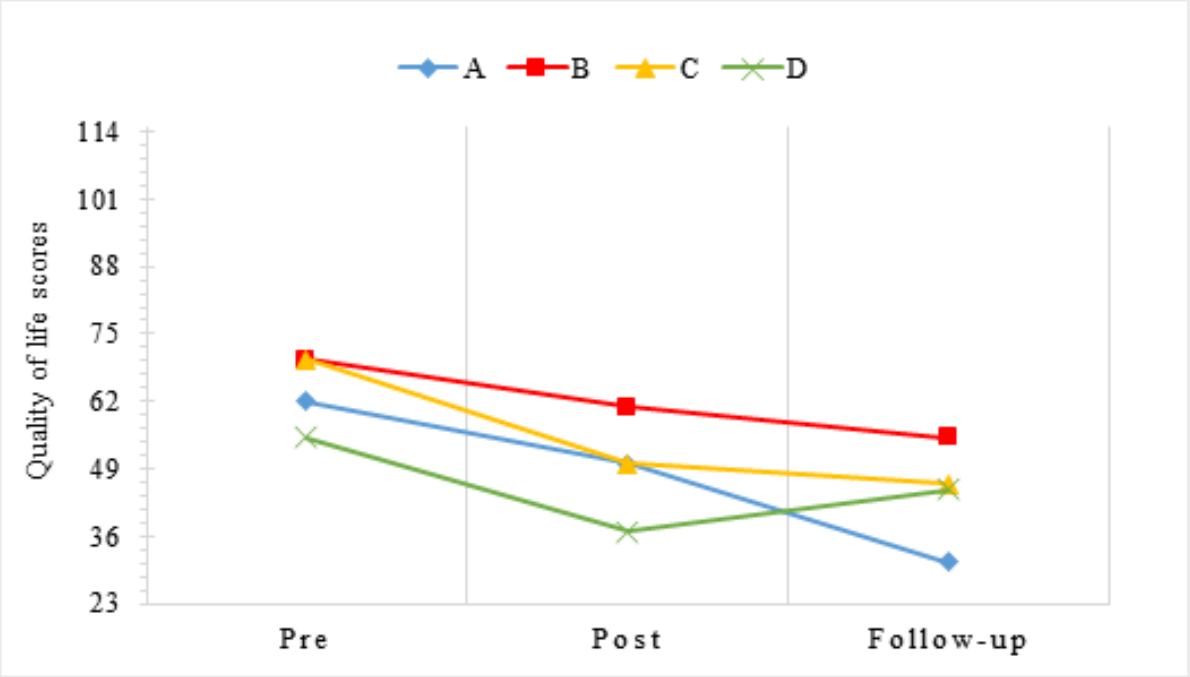

Figure 5. Quality-of-life scores in the pre-treatment, post-treatment, and follow-up. A, B, C, and D represent each of the participants.

Discussion

The current study investigated the effects of an ACT intervention on depression symptoms, stress, and quality of life of healthcare professionals working in the care of patients with COVID-19 in the Brazilian context. The hypothesis tested was confirmed. These findings align with the literature that highlights the benefits of ACT interventions on mental health and quality of life (Gloster et al., 2020; Hayes & King, 2024).

For a better understanding of the data obtained during the follow-up, some qualitative considerations regarding the evaluation period are necessary. The follow-up period coincided with what was considered the beginning of a "second wave" of COVID-19 cases in Brazil, particularly in the participants' residential areas. Throughout the intervention period, the incidence of cases in the region significantly decreased, leading to the closure of health units that had been established as emergency facilities due to the pandemic. However, by the time of the follow-up, health institutions were experiencing a notable increase in cases, resulting in the reopening of previously closed units.

The contingency of relapse, combined with the approach of the end of the year and the participants' work breaks, was evident in reports of fatigue and heightened stress during the follow-up. These qualitative insights are significant as they might have substantially impacted the increased distress experienced by participants B and D during the follow-up compared to the post-intervention period. Despite the overall reduction in stress scores for all participants, this information provides context that makes the variations between post-intervention and follow-up more comprehensible.

The success of the results of this study also needs to be discussed from another perspective, namely, the cultural sensitivity of intervention procedures. ACT protocols are, in general, developed in North America and Europe, which implies a specific cultural perspective when designing procedures. In this sense, Griner and Smith (2006) advocate the need for improving the study of outcomes associated with mental health interventions adapted to the cultural context of the client. It is possible to consider that while clinical

change processes (e.g., psychological flexibility) have universal characteristics (e.g., verbal regulation based on literalness), clinical procedures need to be adapted to the target population (Hayes et al., 2023). In this regard, the Map of Life employed strategies based on the participants' life narrative so that the mobilization of clinical processes occurred contextualized to the participants' cultural, social, and economic reality. It is noteworthy that this strategy was successful in the cases analyzed, which suggests that future adaptations for diverse cultural contexts can be made based on the utilization of participants' life story narratives.

On the other hand, it is also important to consider the limitations inherent to the design of this study. Although the acceptability of the proposed treatment was assessed and confirmed, this study did not include a measure of treatment integrity. The Map of Life is not a highly structured intervention tool, allowing for the use of various procedures that can be adapted to the needs of each case. However, it would be important for future studies to assess whether the therapist implemented the intervention as planned. Given the small sample size, these findings are preliminary and require further replication. In future research, different intervention groups may allow comparisons between groups, including the control group, making the findings more robust and generalizable. Moreover, the participants in this study were all female, and this seems to reinforce the relevance of the observed findings, as in this pandemic context, women tend to be at higher risk for impairments in mental functioning (Lai et al., 2020). However, delivering this intervention program to a wider variety of health professionals, including males, will enable greater consistency in evaluating the strategies used throughout the Map of Life, especially if regression analyses with demographic data are considered.

Finally, we conclude that, in addition to presenting an innovative proposal for the promotion of psychological flexibility, based on the individual's life story, the findings of the current study show promise for the feasibility of providing care for the main actors in the fight against COVID-19. Given the current conjuncture of an unprecedented pandemic, which arouses deep feelings of fear and uncertainty (Presti et al., 2020; Smith et al. 2020), promoting the mental health and quality of life of the healthcare team becomes as essential as caring for patients affected by SARS-CoV-2. The Map of Life was delivered in a virtual format, ensuring the physical distance necessary in the current pandemic context, and has demonstrated ample effectiveness in favoring increased quality of life and the reduction of clinical indicators of depression and stress in healthcare professionals who work directly in the treatment of patients with COVID-19.

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