Evidence of Intervention Effectiveness with Engaging Leaders in Hospital Physiotherapy

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Abstract

Evidence-based positive interventions contribute to the promotion of workers' well-being. Accordingly, an intervention was carried out with 11 physiotherapist engaging leaders from a hospital in Porto Alegre to promote their engagement at work as a protection factor. A mixed transformative-sequential study was carried out, consisting of four phases with three stages of assessment. The effectiveness of the intervention was investigated using the Jacobson-Truax Method, evaluating the effects of the intervention on Engagement at Work, Perceived Social Support, Dispositional Hope, Gratitude, and Anxiety. The intervention integrated epistemological assumptions from the Job Demand-Resources Model and the Basic Psychological Needs Theory. The main result was the increased levels of work engagement, which strengthened positive psychological states, and had an anxiety-reducing effect during the COVID-19 pandemic. This study provides relevant contributions to positive development in mental health protection at work.
Keywords: intervention, leadership, mental health, positive psychology, well-being.

Evidências de Efetividade de Intervenção com Lideranças Engajadoras na Fisioterapia Hospitalar

Resumo

Intervenções positivas baseadas em evidências contribuem para promoção do bem-estar dos trabalhadores. Nesse sentido, foi realizada uma intervenção com 11 lideranças engajadoras de fisioterapeutas de um hospital de Porto Alegre para promover seu engajamento no trabalho como fator de proteção. Realizou-se estudo misto transformativo-sequencial, composto por quatro fases em três tempos de avaliação. A efetividade da intervenção foi investigada por meio do Método Jacobson-Truax, avaliando os efeitos da intervenção sobre os níveis de Engajamento no Trabalho, Suporte Social Percebido, Esperança Disposicional, Gratidão e Ansiedade. A intervenção integrou pressupostos epistemológicos do Modelo Recursos e Demandas no Trabalho e da Teoria das Necessidades Psicológicas Básicas. O principal resultado foi o aumento dos níveis de engajamento no trabalho, que fortaleceu estados psicológicos positivos, e teve efeito na redução dos níveis de ansiedade na pandemia de COVID-19. A pesquisa traz contribuições relevantes para o desenvolvimento positivo na proteção da saúde mental no trabalho.
Palavras-chave: intervenção; liderança; saúde mental; psicologia positiva; bem-estar

Evidencia de la eficacia de la intervención con Líderes de Compromiso en Fisioterapia Hospitalaria

Resumen

Intervenciones positivas basadas en evidencia contribuyen a promoción del bienestar de los trabajadores. En ese sentido, se realizó una intervención con 11 fisioterapeutas líderes de compromiso de un hospital de Porto Alegre para promover su *Engagement* en el Trabajo como factor de protección. Se llevó a cabo un estudio mixto transformativo-secuencial, con cuatro fases y tres etapas de evaluación. Se investigó la efectividad de la intervención mediante el Método de Jacobson-Truax, evaluando los efectos de la intervención sobre los niveles del *Engagement* en el Trabajo, Apoyo Social Percibido, Esperanza Disposicional, Gratitud y Ansiedad. La intervención integró el Modelo teórico de Demandas y Recursos de Trabajo con la Teoría de Necesidades Psicológicas Básicas. Con un resultado de mayores niveles de *Engagement* en el Trabajo, lo que fortaleció los estados psicológicos positivos y tuvo un efecto reductor de la ansiedad durante la pandemia. Este estudio aporta contribuciones relevantes al desarrollo positivo en la protección de salud mental en trabajo.
Palabras clave: intervención, liderazgo, salud mental, psicología positiva, bienestar.

Introduction

Recent studies have highlight the pandemic context at work, with healthcare providers experiencing significant levels of stress and anxiety during the COVID-19 pandemic, especially those on the front line of care (Salari et al., 2020; Santabárbara et al., 2021). In the current scenario, these professionals work under intense need to respond to emergency situations, with a greater volume of technical and physical challenges that

generate incessant demands, including: high emotional and cognitive pressure; insecurity at work due to fear and risk of contamination; and job insecurity due to the underlying economic crisis (Zwielewski et al., 2020).

Recent studies indicate that anxiety has been frequently identified at worrying levels in healthcare providers (Santabárbara et al., 2021). Considering the context of a pandemic, in which health workers live with the real threat of contamination, grief and indirect impacts at work, anxiety becomes a pressing challenge for psychologists, psychiatrists and mental health researchers (Salari et al., 2020). Studies indicate a positive correlation between anxiety and stress, and present anxiety as a risk factor, associated with the intense fatigue regarding psychic and physical capacities, affecting well-being and possibly evolving into unstable neuropsychiatric disorders (Salari et al., 2020; Santabárbara et al., 2021; Silva et al., 2021). Another important fact, considering risk factors, is that it has been observed that female healthcare providers are more likely to develop anxiety than their male counterparts (Silva et al., 2021).

Anxiety is part of our human biological heritage, providing the necessary evolutionary qualities to face and avoid danger and ensure the survival of the species over time (Leahy, 2009/2011; Silva et al., 2021). In this process, fear has a protective and warning function in relation to possible threats, and is adaptive to the actual context and situation (Leahy, 2009/2011). Maladaptive anxiety, as a risk factor, is characterized as one of the common mental disorders (CMD) in the working population. Anxiety disorders are defined by characteristics of excessive anxiety and fear, encompassing disorders and related behavior changes, and interfering with different aspects of life, including the work sphere (American Psychiatric Association [APA], 2015).

In view of these data in the health area, the role of engaging leaders during the COVID-19 emergency stands out even more. Accordingly, the management of hospital physiotherapy teams, the focus of this study, becomes a challenge with high impacts for leaders and front-line physiotherapist care teams. Physiotherapists provide specialized intensive care actions in the treatment of patients with COVID-19 admitted to hospitals, contributing to different types of care that benefit patients, from cardiorespiratory physiotherapy in the acute phase to physical rehabilitation of COVID-19 patients in the process of recovery (Thomas et al., 2020).

Leaders perform essential actions for the proper functioning of work teams, such as: organization of activities, clarifying objectives, providing adequate support and constructive feedback and making decisions in the face of complex situations involving patient care at low, medium and high levels of complexity (Thomas et al., 2020). With this transversality in the role of healthcare provider leaders, it is important that these leaders present positive psychological states that support their work performance (Zwielewski et al., 2020). The positive spiral considers that leaders exert an indirect influence on the engagement and well-being of those led by creating work resources, managing demands and promoting balance (Schaufeli, 2015). They also play a fundamental role in the unfolding of the emotional contagion that occurs when the leader expresses emotions and behaviors that positively or negatively impact the work climate, mood and team spirit (Schaufeli et al., 2013).

Positive Psychology Interventions in Health

Health interventions from the perspective of Positive Psychology have produced scientific advances in the last decade for different audiences and workspaces, with innovation in online approaches (Hutz & Reppold, 2018). In a recent systematic review of health interventions during the COVID-19 pandemic, important recommendations were found for the development of mental health strategies, however, with a low level of evidence regarding their effectiveness or the reduction of anxiety due to them (Damiano et al., 2021). It is, however, extremely important to create robust strategic actions to promote well-being at work in healthcare providers, given their essential contribution to the care and preservation of life.

In general, studies demonstrate the impact of the characteristics of the work context on work well-being, with recent research highlighting the role of personal and work resources available in the organization for healthy work and high performance (Vazquez, Santos et al., 2019). Among the main personal resources evaluated in the scientific literature, hope, gratitude and social support stand out, as these are positive mental states with the potential to constitute important protective factors for the development of burnout and to boost higher levels of engagement in the work, even when activities are associated with high work demands (Freitas & Reis, 2020; Schaufeli, et al., 2013).

Hope is defined as the ability that people have to think of different ways to reach the desired goals, finding alternatives to obstacles in the pursuit of what they want (Snyder, 2002). Hopeful people believe in different

alternatives, are motivated and more creative to redefine actions in their work environment, have high professional performance and lower rates of absenteeism (Freitas & Reis, 2020; Paco, et al., 2020). Gratitude is characterized as a positive mental state of thankfulness for experiencing difficult or risky situations, related to memories of positive affections that increase subjective well-being. Gratitude is often defined from interpersonal interactions and relationships, with a strong social characteristic (Vazquez et al., 2019).

On the other hand, studies in the area have shown that states of well-being experienced at work can be influenced by individuals' perceptions about their interpersonal relationships and their possibilities for developing and managing their daily and work activities. Accordingly, the Self-Determination Theory (SDT) postulated by Deci and Ryan (2000) encompasses factors that contribute to explain the process of autonomous intrinsic motivation and its strong relationship with high-quality productivity, health and well-being in different contexts. Among the epistemological foundations proposed by SDT, there is the Basic Psychological Needs Theory (BPNT), which assumes that psychological needs encompass essential conditions for health or psychological well-being, and their satisfaction is, therefore, related to more fulfilling and efficient human functioning.

Basic psychological needs can be defined as psychological nutrients that are necessary for healthy development, integrity and effective functioning (Deci & Ryan, 2000). This theoretical model is composed of four dimensions: the need for competency, which refers to the perception of self-efficacy; for autonomy, which involves a sense of control and volition; for relatedness, referring to feelings of care, acceptance and love; and the need for meaning, including a connection with intrinsic values and authenticity in contributing to something greater (Ryan & Deci, 2017; Rahmadani et al., 2019; Robijn et al., 2020).

With the understanding that resources at work and the satisfaction of basic psychological needs are predictors of well-being and engagement at work, it is possible to emphasize some positive psychological states that are related to basic needs, contributing to the potentialization of resources. Among these, social support from colleagues and leaders are important resources that enhance engagement at work (Schaufeli et al., 2013). It has also been observed that people who receive and provide social support experience better health and well-being (Bastianello & Hutz, 2016).

Therefore, social support is directly associated with the basic need to belong, an important social resource at work that is likely to increase people's ability to deal with difficult situations, as they feel secure and supported when facing the work demands (Orgambídez-Ramos & Almeida, 2017).

In the Job Demand-Resources (JD-R) theoretical model, engagement at work is defined as a positive mental state in which energy is mobilized in productive work activities with intense pleasure and achievement, identifying in this phenomenon the levels of vigor, dedication and absorption and its performance as an outcome indicative of occupational health (Schaufeli et al., 2013; Vazquez & Schaufeli, 2020).

The main aim of this study was to evaluate the effectiveness of the positive intervention proposed by Silva, Almansa and Vazquez (2020), for the development of health team leadership. The effectiveness analysis aimed to identify scientific evidence of validity through the reliable change index, used to detect changes in positive psychological states, engagement at work and the reduction of anxiety in the pandemic situation due to COVID-19. In addition to the theoretical advances in the area, by testing consistent theoretical models based on Positive Psychology integrated in this proposed intervention, the present study includes the practical relevance of analyzing the effectiveness of the positive development of people in their work and the protection of mental health workers, in the face of adversity and increased risk factors due to the context of the COVID-19 pandemic. Three hypotheses were tested in this study regarding the effectiveness of the intervention in evidencing the effects of: (H1) increase in levels of Work Engagement, Perceived Social Support, Hope and Gratitude; (H2) maintenance of positive psychological states in a pandemic situation throughout the study phases; and (H3) decrease or maintenance of functional levels of anxiety in leaders during the pandemic.

Method

The present study presented a mixed sequential transformative design, in which the research considered a structuring theoretical perspective as a base point followed by the proposition of a transformation in the studied group (Creswell & Clark, 2013). It consisted of four phases, as shown in Figure 1. All phases of the study were carried out remotely, through online virtual tools and platforms.

Participants

For this study, a convenience sample of 11 participants who acted as team leaders of physiotherapists in a hospital in Porto Alegre, Rio Grande do Sul, Brazil, was used. The participants were selected based on the indication of the area manager and consented to their participation in the initial contact by email. The inclusion criterion was to hold a formal team leader position. The sample had 75% women and 25% men, mean age of 40 years (*SD* = 6.6, ranging from 35 to 59 years), 73% with children, and time working in the field of physiotherapy between 4 and 30 years (*M* = 13 years, *SD* = 6.4), 45% with higher education and 55% with completed or ongoing graduate studies. The total number of participants was maintained throughout the intervention.

Instruments

The Utrecht Work Engagement Scale (UWES-9; Schaufeli et al., 2013; adapted by Vazquez & Schaufeli, 2020) assesses the level of work engagement and its dimensions (vigor, dedication, and absorption) using nine items. Items are answered using a seven-point scale. These are examples of each dimension, respectively: "When I get up in the morning, I feel like going to work"; "I am proud of the work that I do"; and "I feel happy when I am working intensely". The scale has satisfactory internal consistency indices for the general engagement score (α = .93) and its dimensions (vigor, α = .86; dedication, α = .79; and absorption, α = .83) in Brazilian samples (Vazquez & Schaufeli, 2020).

The Anxiety subscale of the Neuroticism Factorial Scale (*Escala Fatorial de Neuroticismo*, developed by Hutz & Nunes, 2001) was applied to measure anxiety levels. The subscale consists of 17 items, answered on a five-point Likert-type scale. "I worry about getting a disease" is an example of an item. The subscale has adequate internal consistency (α = .87).

The 2-Way Social Support Scale (Shakespeare-Finch & Obst, 2011, adapted by Bastianello & Hutz, 2016) was used to assess social support. The scale consists of 20 items answered on a six-point Likert-type scale, distributed in four factors, with adequate internal consistency, namely: receiving emotional support (α = .93); receiving instrumental support (α = .80); giving emotional support (α = .88); and giving instrumental support (α = .80). The following items are presented to illustrate the four factors respectively: "When I am feeling down there is someone I can lean on"; "There is someone who can help me fulfill my responsibilities

when I am unable"; "I give others a sense of comfort in times of need"; and "I help others when they are too busy to get everything done".

The Hope Scale (Snyder et al., 1991, adapted by Pacico & Bastianello, 2014) was used to measure hope scores. The scale has 12 items, which are answered using a Likert-type scale of 5 points. An example of an item is "I can think of many ways to get out of a jam". The scale showed satisfactory internal consistency with Brazilian samples (α = .79) (Pacico & Bastianello, 2014).

The Brazilian Gratitude Scale (*Escala Brasileira de Gratidão* - B-GRAT; developed by Vazquez et al., 2019) assesses the level of gratitude for life experiences. The scale consists of seven items, an example being "I am grateful for many things in life, even when I have gone through difficult times". The scale presents satisfactory internal consistency (α = .84).

Procedures

Data Collection and Intervention

The study involved four phases (Figure 1), characterized as the Pre-intervention Phase, Intervention Phase, Post-intervention Phase and Follow-up Phase. Throughout these four phases, quantitative data collection was carried out, using the psychological and qualitative instruments, focus groups and individual interviews.

In the Pre-intervention Phase, a meeting of 1h30min was held in which rapport was established, as well as an emotionally safe and favorable space for the bond among the participants and between them and the two research psychologists who carried out the intervention. Initially, the consent form was read, which was sent via an online form to the participants, which made it possible to clarify doubts and reinforce the ethical aspects of the research, such as the confidentiality of the collected data the identity of the participants. After accepting the terms, agreements were made regarding the collection of quantitative data at different times of the study (T1, T2, T3) and the return of the evaluations at the end of all phases. Finally, the focus group was held (qualitative element), which generated space for analysis and interaction among the participants on the topic of leadership in the COVID-19 situation, and provided listening to the group in relation to relevant aspects of development throughout the intervention meetings, actively including them in the process (Barbour, 2009) (Figure 1).

The Intervention Phase consisted of the development of the health intervention in a hospital context, during the COVID-19 pandemic. The intervention carried out aimed to promote an increase in social support, hope, gratitude, engagement and well-being at work, as well as a decrease in anxiety. It took place over six weeks, within a structure of six group meetings lasting 1h30min each, called Smart Rounds. These were developed with a logical basis in Kolb's (2015) experiential learning spiral, which is carried out through a sequential and evolutionary process over time. It is consolidated through behavior change, recognized in the individual's concrete experience, and brought about through the following spiral steps: reflection, analysis, action and concrete experience, with the aim of promoting positive behavior change in the leaders participating in the study. As part of the program, the participating leaders carried out four individual follow-up sessions with the research psychologists, offered as a safe space for active listening, to include specific and individual leadership aspects in a pandemic context. These were carried out fortnightly and lasted for one hour each (Figure 1).

In the Post-intervention Phase, an online meeting lasting 1h30 was held in which agreements were made regarding the delivery of the assessments (T2), using the same scales and instruments that were applied in the pre-intervention (T1). In addition, a focus group (qualitative element) was held, moderated by the research psychologists, with a semi-structured script. This sought to provide space for interaction among the participants and for listening to them regarding their practical experiences and learning as a leadership team (peers), in the management of their teams (leader-workers) throughout the intervention, and their perceptions of engagement and well-being at work in the evolutionary context of the pandemic experienced in a hospital environment (Barbour, 2009) (Figure 1).

The Follow Up Phase was carried out ninety days after the end of the Intervention Phase. This was the last focus group meeting, held online with participating leaders and lasted 1h30min. At this meeting, a group interview was conducted by the researchers, with the aim of promoting interactions and collaborative debate on the daily life of leadership in the time interval since the end of the intervention (Barbour, 2009). The initial topic of the meeting was the application of the experiences developed in the Smart Rounds regarding leadership behaviors in their real work context in the COVID-19 pandemic (Figure 1).

Concerning the collection of quantitative data, obtained through the application of the instruments, the first moment of collection occurred in the Pre-intervention Phase and was identified as Time 1 (T1), carried out from zero to seven days prior to the intervention. The second moment of collection was developed in the Post-intervention Phase and identified as Time 2 (T2), applied within 15 days of the end of the intervention. Finally, the last moment of collection was Time 3 (T3) – Follow Up, performed 90 days after the end of the intervention. The data collection was carried out remotely, through a survey monkey link sent by email to the participants who agreed to participate through the consent form. After the Follow Up, the results of the evaluations were made available to the participants, in an individual online virtual meeting, after the evaluations at T3 were carried out and analyzed (Figure 1).

Data Analysis

The Jacobson-Truax (JT) Method was used in order to test the hypotheses proposed and to evaluate in depth the effects of the intervention. This method allows the individual changes of the participants throughout the intervention program to be evaluated through the Reliable Change Index (RCI).

The RCI calculation is performed by the mean difference of the post-intervention score (Post-S) minus the pre-intervention score (Pre-S) divided by the standard error of difference (SE-Diff), with a confidence interval of .95. Accordingly, the calculation of the RCI is carried out based on the following formula:

$$RCI = \frac{S\text{-Post} - S\text{-Pre}}{SE\text{-Diff}}$$

Jacobson and Truax (1991) propose that the change is considered relevant if the difference in the assessment between T1 and T2 and between T1 and T3 is at least two standard deviations above the pre-intervention mean (T1). The scores obtained through the RCI can be categorized as Reliable Positive Change (RPC), No Change (NC) and Reliable Negative Change (RNC). Reliable Positive Change evidences that the participants showed a clinical improvement that can be considered statistically significant. No Change demonstrates that the intervention had no effects on the participant, with no statistically significant changes being observed in the participants' scores. Reliable Negative Change indicates that the individual suffered losses when participating in the proposed actions, to the point of observing a reduction in the levels of positive outcomes and an increase in negative outcomes when
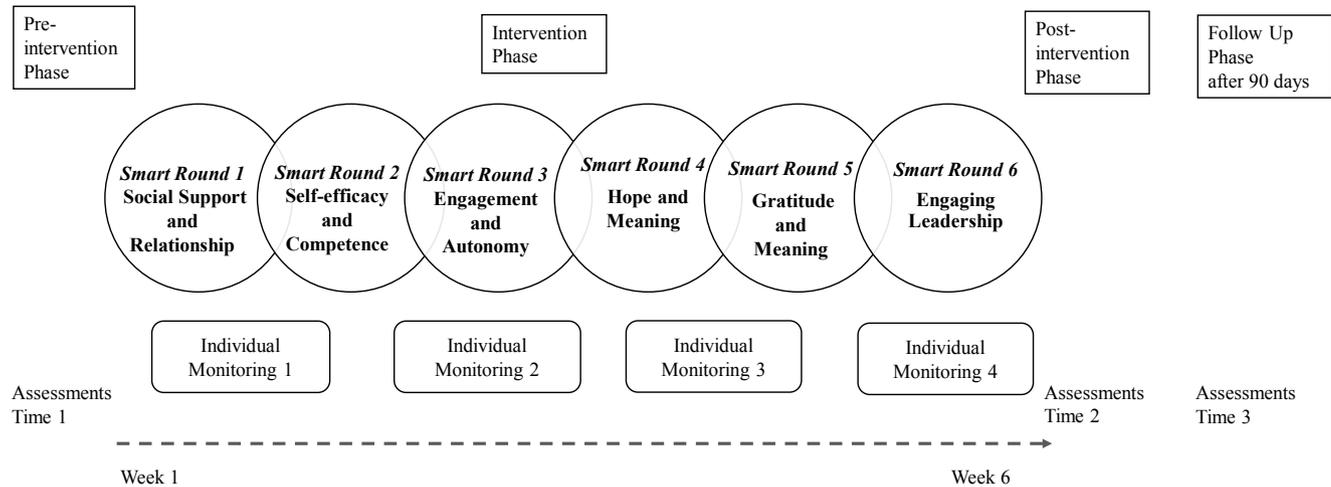
Figure 1. Temporal structure of the four phases of the study and the three assessment times.

compared to the values obtained prior to the intervention. When interpreting the RCI values with RPC, NC or RNC, it becomes possible to determine whether the changes that occurred in T2 and T3 compared to T1 are due to the procedures used in the intervention or if they constitute measurement artifacts (Del Prette & Del Prette, 2008).

Ethical Considerations

The necessary ethical precautions were taken. The research project was sent to the Research Ethics Committee of the University in which the researchers developed the study, being approved according to the authorization issued.

Results

Regarding the analysis of the results, reliable positive changes were observed, which demonstrated the impact of the intervention on the factors evaluated. These changes can be considered relevant and evidence the effectiveness of the intervention when the difference in the Post-intervention Phase (T2) and in the Follow Up Phase (T3) measurements is at least two standard deviations above the mean obtained in the Pre-intervention Phase (T1). The results are presented according to the proposed hypotheses:

H1. Increased levels of Work Engagement, Perceived Social Support, Hope and Gratitude.

From the analysis of the dimensions evaluated, it was observed that, of the 11 participating leaders,

8 presented reliable positive change, after the intervention, at T2. At T3, it was possible to verify that 7 participating leaders showed significant evolution. All variables increased at T2 and T3, except for the Giving Emotional Support factor.

Most of the participating leaders ($n = 8$, T2) showed significant benefits, according to the reliable positive change index, in at least one of the dimensions: Engagement, Vigor, Dedication, Giving Instrumental Support and Hope. The Receiving Emotional Support ($n = 3$) and Gratitude ($n = 3$) variables showed substantial rises at T2 (Table 1 and Table 2).

Furthermore, most maintained a considerable improvement at T3 ($n = 7$), with emphasis on the relevant increase in levels of Engagement at Work ($n = 5$) and Hope ($n = 2$).

Although several participants showed reliable positive changes with a high degree of reliability, some leaders had scores that indicated reliable negative changes. At T2, two leaders had a decrease in the level of Engagement at Work, one of which also had a decrease in Vigor and Dedication. Another participant had a reduction in Receiving Instrumental Support (see Table 2).

For most of the participants, the findings indicate the confirmation of *hypothesis 1*, with an increase in the scores of the positive psychological states Engagement at Work, Perceived Social Support (Giving Emotional Support, Giving Instrumental Support, Receiving Instrumental Support and Receiving Emotional Support), Hope and Gratitude.

H2. Maintenance of positive psychological states in a pandemic situation throughout the study phases.

Maintenance of levels in five positive dimensions, Giving Emotional Support, Giving Instrumental Support, Receiving Emotional Support, Hope and Gratitude, was observed in all participants (*n* = 11). Several leaders (*n* = 5) showed benefits with a positive impact in four variables or more, with Leader 4 standing out, with a relevant reduction in Anxiety, and an increase in Engagement, Vigor, Dedication, Receiving Emotional Support and Hope, and Leader 7 with an increase in Engagement, Absorption, Receiving Emotional Support and Gratitude. These data are represented in Tables 1 and 2. The findings show that *hypothesis 2* was fully supported, considering that all leaders showed stability in relation to the levels of positive states in at least one of the dimensions evaluated, even with small fluctuations, as expected when investigating states of well-being.

H3. Decrease or maintenance of functional levels of anxiety in leaders during the pandemic.

From the results at T2 and T3, it is observed that *hypothesis 3* was confirmed. At T2, the greatest impact observed was the decrease in Anxiety (*n* = 5), and at T3 (*n* = 4), with only one participant presenting RNC in Anxiety at T2 and another leader at T3, both cases with levels considered functional.

Considering the reported data, the study hypotheses were confirmed. However, it is important to mention that, although an increase in positive results was observed at T2 and T3, it was also evidenced that participants demonstrated a reliable negative change index at T2 (RNC, *n* = 4) and T3 (RNC, *n* = 5) in at least one variable.

Finally, Table 3 presents the descriptive statistics of the sample in relation to the variables evaluated in the study.

Discussion

The present study aimed to evaluate the effects of a health intervention for the development of a group of physiotherapist leaders. Reliable positive change was used as an indicator of the effectiveness of the intervention, so that engaging leaders were expected to show an increase in positive psychological states and a decrease in anxiety during the COVID-19 emergency, in addition to the stability of the score changes after the intervention.

It was shown that the results found in this study were not random and highlight the significant positive effects of the intervention performed. The RCI shows that the changes in the participants' scores over time were due to the intervention, demonstrated by the RCI values that show reliable positive changes.

It was found that all participants presented benefits throughout the intervention. The effects of the intervention were observed at both data collection moments (T2 and T3). These findings demonstrate that the intervention had an immediate effect, and the positive changes observed were maintained over time.

The findings showed that the intervention promoted an increase in levels of Work Engagement, Perceived Social Support, Hope and Gratitude, both in the Post-intervention phase T2 and in the Follow Up phase T3. The benefits of the intervention are associated with participants understanding the JD-R model (Schaufeli et al., 2013), in order to expand their work resources and develop strategies to manage high levels of demand. In this way, the intervention allowed the development of collective and individual strategies to increase work resources and manage personal energy with more awareness of protective stress factors (e.g., Leader 4 Resources: family ties, planner, and home and work control; Demands: noise and conflicts, and complaints in the team; Strategies for JD-R balance: checking every day at work and self-observation of their vital energy, tracking whether their energy upon leaving work is better or as good as when they arrived; Self-awareness and self-care at work).

Another expected outcome was the increase in Perceived Social Support, mainly in the Receiving Emotional Support dimension, corroborating previous research carried out. The results of the Perceived Social Support dimensions highlight the importance of strengthening healthy bonds as a protective social resource in the work environment (Orgambídez-Ramos & Almeida, 2017; Schaufeli et al., 2013).

In the context of real danger and high adversity, the balance of the Receiving and Giving Emotional Support factors plays a significant role in preserving work well-being, with an impact on the basic psychological need to belong. For the leaders participating in this intervention study, in focus groups carried out in the post-intervention phase T2 and in the Follow Up phase, the increase in social support in the group was considered a mental health nurturing factor that allowed challenges in the work environment to be overcome, especially those arising from the fight against the pandemic. Although with relevant growth, levels of social support did not increase as much as expected. This was

Table 1.
JT Method Analysis of Outcomes to assess the Reliable Change Index

ID	Anxiety					Engagement				
	T1	T2	RCI	T3	RCI	T1	T2	RCI	T3	RCI
1	2.29	2.12	-1	2.47	1	4.89	4.56	-2	3.33	**-8** -
2	3.41	2.47	**-4** +	3.35	0	4.67	5.00	2	4.00	**-3** -
3	2.18	2.18	0	2.53	2	3.11	3.56	**2** +	3.89	**4** +
4	2.82	2.12	**-3** +	2.12	**-3** +	5.00	5.56	**3** +	5.89	**5** +
5	2.65	2.24	-2	3.18	**2** -	4.00	4.33	2	4.89	**5** +
6	2.12	1.65	**-2** +	1.53	**-3** +	4.44	4.56	1	4.44	0
7	3.00	1.88	**-5** +	2.00	**-4** +	4.89	4.11	**-4** -	5.56	**3** +
8	1.82	1.94	1	1.29	**-2** +	5.22	5.56	2	5.11	-1
9	2.47	2.47	0	2.65	1	5.22	5.11	-1	4.22	**-5** -
10	2.59	3.12	**2** -	2.53	0	4.78	5.11	2	5.44	**3** +
11	2.59	2.12	**-2** +	2.71	1	5.00	4.56	**-2** -	5.11	1

ID	Vigor					Dedication				
	T1	T2	RCI	T3	RCI	T1	T2	RCI	T3	RCI
1	4.67	4.00	-2	3.00	**-5** -	5.00	4.67	-1	3.67	**-3** -
2	4.67	5.00	1	3.33	**-4** -	5.00	5.00	0	4.00	**-2** -
3	3.33	4.00	2	3.67	1	3.00	3.00	0	4.00	**2** +
4	4.67	5.67	**3** +	6.00	**4** +	5.00	5.67	2	6.00	**2** +
5	4.00	4.00	0	4.00	0	4.00	4.33	1	5.33	**3** +
6	4.33	4.67	1	4.33	0	4.33	5.00	2	4.67	1
7	6.00	5.00	**-3** -	6.00	0	6.00	5.00	**-2** -	6.00	0
8	4.67	5.00	1	5.00	1	6.00	6.00	0	5.00	**-2** -
9	5.00	5.00	0	3.67	**-4** -	5.33	5.33	0	4.67	-2
10	4.67	4.67	0	5.00	1	5.00	6.00	**2** +	5.67	2
11	5.33	4.67	-2	5.00	-1	5.00	5.00	0	5.33	1

ID	Absorption				
	T1	T2	RCI	T3	RCI
1	5.00	5.00	0	3.33	**-3** -
2	4.33	5.00	1	4.67	1
3	3.00	3.67	1	4.00	**2** +
4	5.33	5.33	0	5.67	1
5	4.00	4.67	1	5.33	**3** +
6	4.67	4.00	-1	4.33	-1
7	2.67	2.33	-1	4.67	**4** +
8	5.00	5.67	1	5.33	1
9	5.33	5.00	-1	4.33	**-2** -
10	4.67	4.67	0	5.67	**2** +
11	4.67	4.00	-1	5.00	1

Note. + = Reliable Positive Change; - = Reliable Negative Change

Table 2.
JT Method Analysis of Antecedents to assess the Reliable Change Index

ID		GivEmotionalS					GivInstrumentalS			
	T1	T2	RCI	T3	RCI	T1	T2	RCI	T3	RCI
1	20	21	1	22	1	17	19	1	18	1
2	25	23	-1	22	-2	16	18	1	17	1
3	15	17	1	18	2	12	15	2	16	**3⁺**
4	22	21	-1	25	2	18	18	0	20	1
5	25	25	0	24	-1	17	20	2	17	0
6	25	23	-1	23	-1	20	17	-2	18	-1
7	20	21	1	22	1	16	20	**3⁺**	16	0
8	25	25	0	25	0	19	18	-1	18	-1
9	25	25	0	25	0	20	20	0	18	-1
10	18	18	0	19	1	14	15	1	16	1
11	19	18	-1	17	-1	17	18	1	18	1

ID		RecEmotS					RecInstrumS			
	T1	T2	RCI	T3	RCI	T1	T2	RCI	T3	RCI
1	35	35	0	35	0	18	20	1	20	1
2	35	35	0	35	0	20	20	0	20	0
3	34	35	1	34	0	18	20	1	20	1
4	31	35	**3⁺**	35	**3⁺**	19	18	-1	20	1
5	35	35	0	35	0	14	16	1	17	**2⁺**
6	35	35	0	34	-1	20	20	0	20	0
7	25	35	**7⁺**	33	**6⁺**	20	20	0	20	0
8	35	35	0	35	0	20	17	**-2⁻**	20	0
9	35	34	-1	35	0	18	20	1	20	1
10	28	35	**5⁺**	32	**3⁺**	15	19	**3⁺**	19	**3⁺**
11	28	30	1	29	1	16	17	1	9	-5⁻

ID		Hope					Gratitude			
	T1	T2	RCI	T3	RCI	T1	T2	RCI	T3	RCI
1	36	36	0	34	-1	5.00	5.00	0	5.00	0
2	34	35	0	32	-1	5.00	5.00	0	5.00	0
3	26	30	2	31	**2⁺**	3.71	4.57	**3⁺**	4.86	**4⁺**
4	31	33	1	38	**3⁺**	5.00	5.00	0	5.00	0
5	27	33	**3⁺**	29	1	4.00	4.71	**2⁺**	5.00	**3⁺**
6	35	35	0	36	0	4.86	4.86	0	4.86	0
7	35	38	1	36	0	4.14	5.00	**3⁺**	5.00	**3⁺**
8	36	37	0	34	-1	4.57	4.14	-1	4.71	0
9	30	32	1	30	0	5.00	5.00	0	5.00	0
10	29	33	2	32	1	4.00	3.71	-1	4.29	1
11	33	34	0	31	-1	3.57	3.71	0	3.43	0

Note. + = Reliable Positive Change; - = Reliable Negative Change; GivEmotionalS = Giving Emotional Support Dimension; GivInstrumentalS = Giving Instrumental Support Dimension; RecEmotS = Receiving Emotional Support Dimension; RecInstrumS = Receiving Instrumental Support Dimension.

Table 3.
Descriptive Statistics of the Variables over Time

	T1			T2			T3		
Variables	M	SD	SE	M	SD	SE	M	SD	SE
Anxiety	2.54	0.44	0.13	2.54	0.44	0.13	2.54	0.44	0.13
Engagement	4.65	0.62	0.18	4.65	0.62	0.18	4.65	0.62	0.18
Vigor	4.66	0.68	0.20	4.66	0.68	0.20	4.66	0.68	0.20
Dedication	4.87	0.85	0.25	4.87	0.85	0.25	4.87	0.85	0.25
Absorption	4.42	0.88	0.26	4.42	0.88	0.26	4.42	0.88	0.26
GivEmotionalS	21.70	3.55	1.07	21.7	3.55	1.07	21.70	3.55	1.07
GivInstrumentalS	16.90	2.42	0.73	16.9	2.42	0.73	16.90	2.42	0.73
RecEmotS	32.30	3.72	1.12	32.3	3.72	1.12	32.30	3.72	1.12
RecInstrumS	18.00	2.14	0.64	18.00	2.14	0.64	18.00	2.14	0.64
Hope	32.00	3.60	1.08	32.00	3.60	1.08	32.00	3.60	1.08
Gratitude	4.44	0.56	0.17	4.44	0.56	0.17	4.44	0.56	0.17

Note. M = Mean; SD = Standard deviation; SE = Standard error; GivEmotionalS = Giving Emotional Support Dimension; GivInstrumentalS = Giving Instrumental Support Dimension; RecEmotS = Receiving Emotional Support Dimension; RecInstrumS = Receiving Instrumental Support Dimension.

possibly due to the impact of new forms of interaction with the team to mitigate risks of contamination, such as: use of an online virtual platform, decrease or absence of physical contact with the team, use of instant messaging applications instead of real-time conversations, and the restriction on interactions within the family.

Although various professionals benefited from the intervention, some participants presented reliable negative changes. It is important to emphasize that three participants concentrated 10 of the 13 RNC results at T3. From the qualitative data arising from their individual monitoring, in a contextualized analysis of the path taken by these participating leaders, it is possible to highlight common points related to how they were experiencing highly demanding situations in the family context, unlike the other study participants, (e.g., Leader 1 - grief due to the unexpected loss of a close family member; Leader 2 - greater social distancing from their family and living alone; Leader 9 - isolation from their family, including their child). This information shows the importance of the social and family support network, in addition to the work environment, and how life roles dynamically interact with effects on integrative health and work well-being (Vazquez & Schaufeli, 2020).

Furthermore, the participants reported levels indicative of the strengthening of positive psychological states in the pandemic situation, with effective maintenance of their scores throughout the study phases. The results demonstrated that the work engagement and the positive psychological states at work studied, remained healthy for the majority of the participants throughout the post-intervention and Follow Up phases. One of the main findings of the study originated from the evidence of preservation and/or increase of the Hope measures in all participating leaders at T2 and T3, composing a protective strategy for well-being at work in complex and adverse situations. Another positive result was the conservation of the Gratitude levels in all participants at T2 and T3. Qualitatively, the participants found learning about the technical strategy used in Smart Round 5 Gratitude and Meaning (Annex 1) to be valuable, highlighting the importance of shared positive feedback in the generation of collective spaces of gratitude in a positive-affective relational approach among the participants (Silva et al., 2020).

In addition to the benefits detected in the strengthening of the positive states, the maintenance of anxiety levels was also observed. The previously presented effects, together with the levels of anxiety within appropriate limits, indicate that the development of positive psychological states at work, through intervention approaches, had a protective impact on the participating leaders, contributing to bearable and adequate levels of anxiety, as well as preserving mental health and increasing well-being at work. These findings corroborate that personal resources, in addition to

contributing to the promotion of well-being at work (Schaufeli et al., 2012), can act as protective factors against anxiety (Almansa et al., 2022).

The innovative structure of the intervention program integrated actions to increase social and personal resources from the Job Demand-Resources Model (Schaufeli et al., 2013; Vazquez & Schaufeli, 2020) and the Basic Psychological Needs Theory, supporting the understanding of underlying motivational and well-being factors (Deci & Ryan, 2000; Ryan & Deci, 2017). Furthermore, it integrated the BPNT with the positive psychological states developed and studied in the intervention, namely: social support (relatedness); self-efficacy (competency); hope (competency and meaning); gratitude (relatedness and meaning); and engagement enhancers (autonomy). In this way, the intervention was constituted through the strengthening of positive psychological states and attention to the fulfillment of basic psychological needs. This epistemological construction adds scientific references regarding how leaders can positively affect Work Engagement, even in highly adverse contexts.

Concerning the main benefits and findings of the study, it can be highlighted that the positive intervention in work well-being, while strengthening and/or developing positive psychological states, helped the participants to manage anxiety during the initial months of coping with the COVID-19 pandemic, avoiding dysfunctional levels. This data also indicates that personal and work resources are protective factors for mental health, as expected (Vazquez et al., 2019). It is evident that the intervention played an important role in increasing and maintaining levels of hope, in a highly adverse and demanding context for leaders of care teams in the midst of the pandemic emergency.

The practical importance of interventions that address the dynamic complexity of the work environment in a real hospital context is also highlighted. The data from this study support the application of an evidence-based strategy to strengthen the mental health of healthcare providers. This action can contribute directly to the professionals who participate in the intervention and help them interact positively with their peers, subordinates and patients. In this study, it was possible to identify specific high-impact situations experienced in the family context by some participants, based on the individual follow-ups carried out, which provided information on the importance of developing positive actions that include spaces for collective and individual development. For future studies, a next step is suggested, covering ways to extend the program to develop members of the leaders' teams through the intervention, with the creation of nurturing spaces for healthy work in a broader organizational context.

Although the results were positive, especially considering the emergency situation of the COVID-19 pandemic, the generalization of the intervention is quite limited, considering its implementation with only a small group of leaders in a specific area. There is a need to deepen the investigation, with more intervention studies in different health contexts to generate new learning and qualification of the proposed model. The present study demonstrates the effectiveness of the intervention proposed by Silva et al. (2020), regarding its reliable change indices, and contributes to the practical knowledge of Organizational and Work Psychology, integrating concepts of engagement, human motivation and mental health nutrition applied in programs for the development of positive states at work in healthcare providers.

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Annex 1

Details of the intervention for the development of engaging leadership

| Theme | Objective | Learning Spiral (Kolb, 2015) | | | | Authors |
		Reflection	Analysis	Action	Experience	
Smart Round 1 Social Support and Relationship	Stimulate integration and bonding, social support with a balance of the *giving* and *receiving* elements.	Remember and note characteristics of positive relationships throughout your professional life.	Group word cloud. Construction of cases (giving support / receiving support).	Identification of needs for practice, what needs to increase for well-being.	Action plan: apply learning in practice as a leader throughout the week.	Bastianello & Hutz, 2016
Smart Round 2 Self-efficacy and Competency	Appreciate positive group events that contribute to a state of self-efficacy.	Application of what was planned in the previous meeting. What made sense in your practice as a leader? What worked well?	Theoretical explanation of Constructive Active Response and celebration of positive events in the role of leader.	Practice Active Constructive Response in pairs.	Action plan: what do you want to do in your practice with the work teams?	Seligman, 2011; Bandura, 1977/1995
Smart Round 3 Engagement and Autonomy	Provide comprehension of engagement at work and new ideas applicable to the leader in balancing job resources and demands.	Search memory for professional activities that brought: satisfaction, energy, contribution and meaning. Adaptations in the pandemic, what new demands?	Explanation of the engagement construct in the JD-R model and of autonomy as a resource in the work element. Exploring roles, their resources and demands (home office, physiotherapy).	Practice mapping resources and demands in your work reality and that of your team.	Action plan: what possible changes in your way of leading create resources? What organizational demands need to be managed to protect your team?	Schaufeli, Dijkstra & Vazquez, 2013; Harju, Schaufeli & Hakanen, 2017; Vazquez & Schaufeli, 2020
Smart Round 4 Hope and Meaning	Recognize hope as a resource for new routes and creativity in when faced with adverse situations.	Directed activity: Remember your professional choice, what made you choose physiotherapy? Activity of naming worries and feelings.	Recognize as a group what has been done in relation to concerns. Ask for help if you need it. Concept of Hope.	What is the level of hope now? What alternatives, routes?	Action Plan: How will you put what you've learned into practice? How will it be useful to you and the team?	Snyder, 2002; Vazquez et al., 2019

(Continued)

Annex 1

Details of the intervention for the development of engaging leadership (Continuation)

Theme	Objective	Learning Spiral (Kolb, 2015)				Authors
		Reflection	**Analysis**	**Action**	**Experience**	
Smart Round 5 Gratitude and Meaning	Encourage the group to practice gratitude when faced with work challenges.	Three good things that represent this group (word cloud)	Gratitude theme opening.	Experience the state of gratitude by connecting memories.	Gratitude practice: Each group member receives thanks from all members (11 rounds).	Seligman, 2011; Vazquez et al., 2019
Smart Round 6 Engaging Leadership	Integrate concepts developed during the meetings.	Search memory for the memories, emotions and thoughts about the Smart Rounds and work up to here.	Construction of the timeline of the meetings. Concepts, basic needs and positive emotions/states worked on.	Practice – where you need to put energy and dedication, in which necessity do you need to invest.	Action Plan: How can you practice creating space to satisfy these needs at work?	Schaufeli, 2015; Rahmadani et al., 2019; Nikolova, Schaufeli, & Notelaers, 2019

Note. Source: Silva, Almansa & Vazquez, 2020, p.120.

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