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Renata Abreu e Lima Rocha

Development and feasibility of a gratitude Intervention program

Dissertação de Mestrado

Dissertação apresentada como requisito parcial para obtenção do grau de Mestre pelo Programa de Pós-Graduação em Psicologia (Psicologia Clínica) do Departamento de Psicologia da PUC-Rio.

Orientador: Prof. Daniel Correa Mograbi

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ABSTRACT

Abreu, Renata; Mograbi, Daniel Correa (Advisor). **Development and Feasibility of a Gratitude Intervention Program**. Rio de Janeiro, 2024. 83p. Master's Dissertation – Department of Psychology, Pontifical Catholic University of Rio de Janeiro

Mental health is major concern on a global scale, and for a significant portion of the worldwide population, it is intricately linked with their work. This presents a notable challenge within the workplace, resulting in considerable costs for employers and society at large. This feasibility study aimed to develop a protocol to investigate the effects of a gratitude intervention on the mental health among leaders within the Brazilian labor market. A four weeks online experimental program with a quantitative empirical design to induce gratitude and observe variation in levels of depression, anxiety and stress, as well as self-compassion, ruminative responses and perfectionist beliefs. In addiction it aspired to identify possible obstacles to fostering gratitude within a corporate environment. The program consists of different tasks, adopting self-report scales with descriptive statistics to illustrate the characteristics of the sample and the differences between the groups in the dependent variables. To test the feasibility, a sample of 134 leaders were divided in two balanced groups: experimental (intervention) and control group (on the waiting list). It was possible to observe significant results in reducing scores for mental health problems, with reduction in anxiety, stress, and depression scores, when compared to controls. Thus, the program could contribute to the field of corporate mental health research and the development of future gratitude interventions in Brazil and worldwide.

Keywords

Gratitude; Mental Health; Generosity; Empathy; Leadership.

RESUMO

Abreu, Renata Mograbi, Daniel Correa; **Desenvolvimento e Viabilidade de um Programa de Intervenção de Gratidão**. Rio de Janeiro, 2024. 83p. Dissertação de mestrado – Departamento de Psicologia, Pontifícia Universidade Católica do Rio de Janeiro.

A saúde mental é atualmente uma preocupação pertinente em escala global e, para uma parte significativa da população mundial, está intrinsecamente ligada ao seu trabalho. Este fato representa um desafio notável para as organizações, resultando em custos consideráveis para os empregadores e para a sociedade em geral. Este estudo de viabilidade teve como objetivo desenvolver um protocolo para investigar os efeitos de uma intervenção de gratidão na saúde mental de líderes no mercado de trabalho brasileiro. Um programa experimental on-line de quatro semanas com um desenho empírico quantitativo para induzir a gratidão e observar a variação nos níveis de depressão, ansiedade e stress, bem como a autocompaixão, respostas ruminativas e crenças perfeccionistas. Adicionalmente, pretendeu-se identificar possíveis obstáculos à promoção da gratidão num ambiente empresarial. O programa consiste de diferentes tarefas, adotando escalas de autorrelato com estatísticas descritivas para ilustrar as características da amostra e as diferenças entre os grupos nas variáveis dependentes. Para testar a viabilidade, uma amostra de 134 líderes foi dividida em dois grupos equilibrados: experimental (intervenção) e de controle (em lista de espera). Foi possível observar resultados significativos na redução de sintomas de problemas de saúde mental, com redução dos escores de ansiedade, estresse e depressão, quando comparados ao grupo controle. O programa pode contribuir para o campo de pesquisa da saúde mental corporativa e para o desenvolvimento de futuras intervenções de gratidão no Brasil e no mundo.

Palavras-chave

Gratidão; Saúde Mental; Empatia; Generosidade; Liderança.

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1 INTRODUCTION

1.1 CONTEXT

Highlighted as a priority by the World Health Organization, mental health has been a theme in international health policy, notably observed in the WHO's Comprehensive Mental Health Action Plan 2013-2020 (WHO, 2013), which includes an action plan aimed not only at preventing and treating mental disorders, but also at promoting general well-being (WHO, 2013). With the advent of the pandemic, the topic has gained prominence, given that a range of psychopathological symptoms have already been associated with it, such as depressed mood, irritability, anxiety, fear, anger, insomnia, among others (Brooks et al, 2020). A recent study in China (2020), for example, found an immediate psychological impact, with increased symptoms of anxiety, depression and perceived stress (Wang et al, 2020). Furthermore, the consequences predicted in research point to a worsening of these circumstances, with an increased risk of alcohol abuse, symptoms of post-traumatic stress disorder and depression (Afonso & Figueira, 2020). Brazil has a major impact on the psychological suffering of its population (Vazquez, 2020), one study for instance, showed that 40% of participants often felt sad or depressed and 52.6% often felt anxious or nervous (Barros et al, 2020).

Within this context, the workplace, which was already being challenged by globalization and the advances of the 4th industrial revolution with disruptive, unpredictable, complex and ambiguous changes (Llop, 2017), is now experiencing new adverse contexts. As a result, mental health problems are emerging more intensely (Vasquez & Hutz, 2021) at organizations. A global study by Gallup (2021) investigated how employees experienced work in 2020 and found that around seven out of ten employees were suffering, rather than thriving, in their lives as a whole. Brazil, in particular, showed an increase in stress levels and feelings such as sadness, anger and worry (Gallup, 2021). Given this scenario, emotional regulation practices could have great value in terms of personal self-development and social relations in the organizational context (Graziano, Reavis, Keane & Calkins, 2007; Gross & John 2003; Gross, 2002). Indicators of healthy work in organizations have shown practices to be effective, even in times of adversity (Vazques & Hutz, 2021) and among these predictors of healthy work, gratitude appears alongside

life satisfaction, social support, quality of relationships and dispositional hope, among others (Vazquez et al., 2019; Schaufeli, 2016 apud Vazques & Hutz, 2021). In Brazil, for instance, a study (2020) observed that gratitude had a positive correlation with anxiety in the pandemic, contributing to the reduction of anxiety in the face of adverse situations (Almansa, Freitas & Vazquez, 2020).

This study, therefore, aims to investigate the effects of gratitude on the mental health among leaders in the Brazilian labor market, through the development and application of an intervention program. In addition, it aims to observe the variation in levels of self-compassion, ruminative responses and perfectionist beliefs, as well as identifying possible obstacles to promoting gratitude at a corporate environment.

1.2 THEORETICAL BACKGROUND

Emotions

Defining emotion is a challenge, given the wide range of theories; however, the notion of emotion as a componential process has been increasingly accepted. Scherer (2005), for example, defines emotion as an episode of interrelated and synchronous changes in the individual's organic subsystems, as a response to the evaluation of a situation of external or internal importance (Scherer, 2005). Reeve (2017) points out emotions as a type of driving force that energizes and directs behavior, arising as reactions to important life events. When activated, they generate feelings, moving the body to action, generating motivational states and also recognizable facial expressions. Therefore, emotions are multidimensional, being: 1) feeling states, because they lead to a particular feeling; 2) biological reactions, because they prepare the body for situational adaptation; 3) agents of purpose, because they generate desires and impulses for action; 4) social expressive phenomena, because we send recognizable facial, postural and vocal signals that communicate the quality and intensity of our emotionality to others. Considering these four dimensions, emotions are short-lived responses that help the individual adapt to important opportunities and challenges in life, through a distinct pattern of neural activity. In other words, when a significant stimulus occurs, it produces a pattern of neural activity

that generates and coordinates a bodily-sentimental-propositional-expressive reaction to that life event (Reeve, 2017).

For Damasio (2009), emotions are innate and initiated by stimuli, whether internal or external, capable of generating successive bodily reactions such as neurophysiological, neuroendocrine and somatic responses. This subjective experience of emotions occurs at conscious and non-conscious levels, generating crucial information for survival and decision-making, as well as contributing to social experiences (Damasio, 2009). Thus, although emotions are individual and subjective experiences, they are part of a social context and are learned and developed to facilitate interpersonal relationships and integration into society. Therefore, the way an individual expresses their emotions reflects on the other person's response and qualifies their interactions. This means that in order to maintain social relationships and preserve well-being, it is necessary to manage emotions well (Gondim & Borges-Andrade, 2009). Based on Damasio's emotion definition and the importance of managing emotions, this study presents the emotional regulation theory proposed by Gross (1998).

Emotional Regulation

Emotional regulation contributes directly to a range of aspects related to our daily lives, such as social skills, relationship satisfaction, academic and professional performance (Graziano, Reavis, Keane & Calkins, 2007), as well health and well-being (Gross & John 2003; Gross, 2002). Emotional regulation, according to Gross (1998), refers to the process by which individuals try to influence their emotions and how they experience and express them. Because it is a multicomponential process, regulating emotions involves changes in the "dynamics of emotion", i.e. its latency, magnitude, duration and displacement of behavioral, experiential and physiological responses. Emotion regulation also involves changes in how the components of the response are interrelated as the emotion develops (Gross, 1998). Some important characteristics about this process are brought up by Gross & Thompson (2006), namely: the tendency for individuals to regulate negative emotions more than positive ones, explained in part, by an evolutionary issue; the assumption that emotional regulation often occurs to relieve tension; and the level of awareness of the emotional regulation process, which can be intentional or automatic. The repetition of the

experience automatically leads to regulation, in other words, automatic regulation is linked to the absence of awareness, intention and control (Gross & Thompson 2006).

When it comes to activating emotional regulation, Gross's (1998) model considers five families of strategies: 1) situation selection: using actions to avoid people, places or objects; 2) situation modification: taking an action to modify the situation in question; 3) attention deployment: selecting which aspects of the situation to focus on; 4) cognitive change: changing the meaning given to the situation; 5) response modulation: influencing the tendency to respond (Gross, 1998). It is worth pointing out that emotional regulation strategies can be adaptive or maladaptive in the management of emotions, depending on the context of their effects. For example, suppression, rumination, avoidance of certain experiences and impulsive behaviors can have negative outcomes for individuals (Melo, Mendes & Baldisserotto, 2019). Therefore, the conclusion about the best emotion regulation strategy to use must consider the broader desired outcome and the details relating to its context (Gross, 2014). Although most of the research attention has been devoted to acting on the dysregulation of negative emotions, rather than the upregulation of positive emotions, more recent research indicates that the upregulation of positive emotions may be fundamental to people's happiness and well-being (Quoidbach, Mikolajczak, & Gross, 2015).

Positive Emotions

Barbara Fredrickson (2001) in her theory " broaden-and-build " highlights that while negative emotions restrict the repertoires of thoughts and actions for ancestrally adaptive purposes, positive emotions broaden this repertoire (Fredrickson, 2003; Fredrikson, 2001). In this way, positive emotions have been shown to contribute to cognition, social relationships and mental and physical health (Isen, Daubman & Nowicki, 1987; Lyubomirsky, King, & Diener, 2005; Fredrickosn, 2003).

To raise the levels of positive emotions, there are a wide range of experiments. A study carried out in 2012 by Livingstone & Srivastava, for example, surveyed 75 strategies that were later correlated with Gross's Processual Model of Emotional Regulation (Quoidbach, Mikolajczak, & Gross, 2015). This correlation points to possible strategies in all families of the model, with the most direct approach to increasing positive emotions

being to put oneself in situations that seem likely to generate positive emotions. According to the results, the evidence for the effectiveness of emotion regulation strategies in increasing short- and long-term positive emotions points to the strategies of positioning attention and cognitive change (Quoidbach, Mikolajczak, & Gross, 2015). Within this context, it has been observed that the most studied form of cognitive reappraisal after a positive event is to adopt a perspective of gratitude, which has been shown to be related to various aspects of well-being, highlighting that dispositional gratitude predicts greater happiness (McCullough, Tsang & Emmons, 2004; Wood, Joseph & Maltby, 2009). From the perspective of Quoidbach, Mikolajczak, & Gross (2015), an area considered important for future research would be to assess the impact of cognitive change following a positive experience event, inducing participants to engage in deeper reflections on how these experiences help them to grow or find meaning in life (Quoidbach, Mikolajczak, & Gross, 2015).

Gratitude Interventions

Gratitude has been described as a positive emotion, an attitude, a moral virtue, psychological state, personality trait, character strength or coping response (Emmons et al., 2003; McCullough et al., 2001; Emmons, 2004). As a state, gratitude is considered a positive emotional response to the experience of receiving a benefit from another person, or life itself, more likely experienced when one perceives themselves as the recipient of a valuable outcome, demanding real effort and based on an altruistic, sincere motivation to do good (McCullough et al., 2002; Wood et al., 2008). For the purpose of this study, gratitude were considered as a state, a positive emotion that can be promote by gratitude interventions' exercises (Wood, Froh, & Geraghty, 2010).

Adam Grant and Francesca Gino (2010) sought to observe, in four experiments, the psychological mechanisms that mediate the effects of expressions of gratitude and concluded that the increase in pro-social behavior occurs because individuals feel socially valued (Smith & Gino, 2010). A study by Damasio (2017) and collaborators showed the benefits of gratitude, seeking to correlate it with respective physiological factors, as highlighted below (Henning, Fox, Kaplan, Damasio & Damasio, 2017):

- Social relationships: improves interpersonal relationships, causing increased feelings of inclusion and social closeness, predicts reciprocal pro-social behavior and can reduce symptoms of mental illness.

- Health: correlates with subjective well-being and improved physiological health. Gratitude is associated with greater satisfaction with life, resilience, health issues and better sleep quality, as well as lower levels of burnout and reduced stress, inflammation and depression.

- Stress relief: improved homeostasis. The mu opioid system is centrally involved in restoration, as evidenced by its roles in analgesia, positive affect, reward, social motivation, long-term affective bonds and stress relaxation. Future studies are needed to test this hypothesis of gratitude's positive effects.

Another study carried out in Canada (2011) performed an experiment on grateful contemplation in the laboratory, obtaining positive physiological responses from the participants, demonstrating a more orderly heart rate and greater physiological coherence (Rash et al., 2011). These authors emphasize that research related to understanding the physiological processes underlying gratitude could contribute to more effective interventions that contribute to a happier, healthier and more fulfilling life (Rash et al., 2011). A more recent systematic review on effects of gratitude intervention on mental health among workers (Komase et al, 2021), showed significant improvement in perceived stress and depression.

Due to the growing number of studies in the area, gratitude starts to be seen as a fundamental resource in organizations, strengthening individual well-being, improving efficiency and productivity, pro-social behavior, a culture of greater citizenship and a better organizational climate (Fabio, Palazzeschi & Bucci, 2017). A study by Lea Walter (2012) points out that gratitude and institutional gratitude predict job satisfaction. In addition, recent research (2017) indicates that leaders' expression of gratitude inspires more trust in their employees, who perceive them as more benevolent and upstanding (Ritzenhöfer et al., 2017). With the advancement of studies in the area, it is possible to observe variations of the original "Gratitude Letter" and "Counting Blessings" experiments, however, these have still been widely used in various institutional contexts (Emmons & McCullough, 2003; Emmons, 2013; Seligman, Steen, Park & Perterson, 2005).

Associations among Gratitude, Generosity and Empathy

Some other constructs are positively related to gratitude, notably empathy and generosity. Research shows that gratitude is associated with empathy, for example, a study by Lazarus and Lazarus (1994) showed children experiencing gratitude towards police officers and firefighters as a result of the empathy they shared with the grateful individuals who directly benefited from these professional providers. Another study by Worthen and Isakson (2007) suggests that empathy is an essential component of the experience of gratitude and shows that individuals with reduced empathy skills have difficulty experiencing the positive effects of gratitude. Cultivating empathy can increase recognition of benevolent actions given by others, just as cultivating gratitude can potentially increase empathy, leading to a positive cycle of feeling gratitude and having empathic responses to others (Worthen & Isakson, 2007). Empathy could be defined "as a cognitive and emotional ability to share and understand thoughts, beliefs, and intentions of others" (Fischer et al, 2019) establishing a cognitive-affective bond between two or more people, and has been claimed, not to be only a reflex response to someone's behavior, but also a skill that can be learned/developed (Rogers, 1985/2001b).

Evolutionary theories propose that gratitude is an adaptation for reciprocal altruism. Experiencing gratitude motivates recipients to repay their benefactors and extend generosity to others, and expressions of gratitude also reinforce the generosity of benefactors (McCullough, Kimeldorf & Cohen, 2008). Furthermore, scientific studies, such as those carried out by Lyubomirsky (2004), shows that practicing acts of generosity is not only good for the recipient, but also for the doer. An experiment in which participants performed five acts of generosity once a week over a six-week period, concluded that practicing acts of generosity relieves guilt and discomfort about other people, takes our attention away from personal problems and ruminations, leading our focus to the other, as well as increasing self-perception and promoting a sense of self-confidence, optimism and assistance (Lyubomirsky et al, 2004; Lyubomirsky, 2007).

2 **OBJECTIVES**

Based on the theoretical framework presented, the general objective of this dissertation was to investigate the effects of inducing gratitude on the mental health of leaders in the Brazilian labor market. To this end, two studies were carried out, with the following specific objectives:

Study 1 - Developing an intervention consisting of a set of activities on gratitude, generosity and empathy.

Study 2 - Exploring the effects of the intervention on the mental health of leaders in the Brazilian labor market, through the implementation of an online program.

3 **ARTICLES SECTION**

Article 1

3.1 Abreu, Renata.; Mograbi, Daniel C. (2023). GRATITUDE INTERVENTION PROGRAM: A PROTOCOL TO INVESTIGATE MENTAL HEALTH AMONG BRAZILIAN LEADERS.

GRATITUDE INTERVENTION PROGRAM: A PROTOCOL TO INVESTIGATE MENTAL HEALTH AMONG BRAZILIAN LEADERS

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Abstract

Mental health is currently a relevant matter worldwide and for most of the global population it's intertwined with work, becoming a challenge in the workplace and bringing significant costs for employers and society at large. This article presents a protocol designed to investigate the effects of a gratitude intervention on the mental health among leaders within the Brazilian labor market. A on-line experimental project with a quantitative empirical design in order to investigate the impact of inducing gratitude and to observe variation in levels of depression, anxiety, stress, self-compassion, ruminative responses and perfectionist beliefs, as well as identifying possible obstacles to fostering gratitude within a corporate environment. This involves the use of self-report scales with descriptive statistics to illustrate the characteristics of the sample and the differences between the groups in the dependent variables. The program spans of four weeks and consists of different tasks that aims to induce gratitude, generosity and empathy. For this intervention, a non-probabilistic convenience sample of 100 leaders will be considered, with the random separation of 50 participants for the control group, which will be on a waiting list, and 50 participants for the intervention. To the best of our knowledge, this study will be the first to investigate the effects of gratitude intervention on Brazilian leaders and it's anticipated benefits could contribute to the field of corporate mental health research and the development of future gratitude interventions in Brazil and worldwide.

Keywords: Gratitude; mental health; leadership; empathy; generosity.

Introduction

Mental health was assumed as a priority by the World Health Organization, and gained prominence with the advent of the pandemic. According to WHO (2022) “Mental health is more than the absence of mental health conditions. Rather, mental health is a state of mental well-being that enables people to cope with the stresses of life, to realize their abilities, to learn well and work well, and to contribute to their communities”. For most of the global population, mental health it’s intertwined with work and has become a challenge in the workforce, bringing significant costs for employers and society at large. Globally, it has been estimated that the common mental health problems, such as depressive disorders, anxiety disorders, and stress-related disorders, is on average 17.6%, with often serious implications for employment, productivity, and wages (Arends; Zon & Bültmann, 2022). Poor mental health can negative affect well-being and functioning, promoting a reduction in productivity and performance (WHO, 2022). From an economic perspective, every year, an estimated 12 billion workdays are lost to depression and anxiety, costing the global economy approximately US$1 trillion a year. (WHO, 2022).Indicators of healthy work in organizations have shown practices to be effective, even in times of adversity (Vazques & Hutz, 2021), and among these predictors of healthy work, gratitude appears alongside with life satisfaction, social support, quality of relationships and dispositional hope, among others (Vazquez et al., 2019; Vazques & Hutz, 2021). Worker's gratitude has favorable correlation with well-being, mental health and work-related outcomes such as job performance, organizational commitment, and citizenship behavior (Cain, 2018; Komase et al, 2021).

Gratitude has been described as a positive emotion, an attitude, a moral virtue, psychological state, personality trait, character strength or coping response (Emmons et al., 2003; McCullough et al., 2001; Emmons, 2004). As a state, gratitude is considered a positive emotional response to the experience of receiving a benefit from another person, or life itself, more likely experienced when one perceives themselves as the recipient of a valuable outcome, demanding real effort and based on an altruistic, sincere motivation to do good (McCullough et al., 2002; Wood et al., 2008). Also recognized as a moral emotion, gratitude can be considered in the same group as other moral affections such as empathy, sympathy, guilt, shame, among others (McCullough, 2001). An individual’s predisposition to experience the state of gratitude constitutes a trait, defined as a general

tendency to recognize and respond to benefits with positive emotions expressed interpersonally (McCullough et al., 2002).

A study by Damasio (2017) and collaborators showed the benefits of gratitude, seeking to correlate it with respective physiological factors (Henning, Fox, Kaplan, Damasio & Damasio, 2017) as followed: (i) Social relationships - improves interpersonal relationships, causing increased feelings of inclusion and social closeness, predicts reciprocal pro-social behavior and can reduce symptoms of mental illness; (ii) Health - correlates with subjective well-being and improved physiological health. Gratitude is associated with greater satisfaction with life, resilience, health issues and better sleep quality, as well as lower levels of burnout and reduced stress, inflammation and depression; (iii) Stress relief - improved homeostasis. The mu opioid system is centrally involved in restoration, as evidenced by its roles in analgesia, positive affect, reward, social motivation, long-term affective bonds and stress relaxation. Future studies are needed to test this hypothesis of gratitude's positive effects.

Gratitude interventions' has been critically reviewed and shown to be promising exercises to promote gratitude states. One review study in 2010 suggested they are relevant to clinical psychology with potential of improving well-being (Wood, Froh, & Geraghty, 2010). Another one, (Beken, 2019), emphasize the interventions are linked to decrease psychological symptoms and increase physical and mental well-being, although future studies are advised to carefully attend to possible confounding variables and sample selection. A more recent systematic review on effects of gratitude intervention on mental health among workers (Komase et al, 2021), showed significant improvement in perceived stress and depression. The studies with longer intervention periods were more likely to report effects of exercises on mental health outcomes than studies spanning shorter periods (Jans-Beken et al, 2019). Gratitude intervention among workers, should be tailored to their limited time to work on tasks and according to the reviews of gratitude intervention studies, the most common intervention durations were 4 and 6 weeks. (Jans-Beken et al, 2019; Komase et al, 2021).

Due to the growing number of studies in the area, gratitude is seen as a fundamental resource in organizations, for strengthening individual well-being and also for efficiency and productivity, as well as for pro-social behavior, a culture of greater citizenship and a

better organizational climate (Fabio, Palazzeschi & Bucci, 2017). Gratitude interventions in workplaces might be effective in improving mental health, with a numerous studies showing improvement in perceived stress and depression (Komase et al, 2021). A variety of interventions are used aiming to increase or improve levels of gratitude, and the most commonly categories are: (i) *Gratitude Lists*, consisting in writing on a regular basis about things, people, and events one feels explicitly grateful for. The paper originally proposing gratitude lists as an effective intervention for well-being enhancement was Emmons and McCullough (2003) and since then, this approach has been studied the most (Wood, Froh, & Geraghty, 2010). Participants often report that the technique is enjoyable and self-reinforcing, choosing to continue the exercise even after the ending of the intervention (Seligman, 2005); (ii) *Grateful contemplation,* aiming to promote a "thinking" gratitude condition in a more global way, including a reflection process. (Wood, Froh, & Geraghty, 2010; Rash et al, 2011). For instance, participants were asked to think "about items, people or events for which you are particularly grateful," and trying "to experience and maintain the sincere heart-felt feelings of gratitude associated with that thought" (Rash et al, 2011). (iii) *Behavioral expressions of gratitude,* encouraging the participants to express their grateful feelings to others, where the most cited one is the gratitude letter (Seligman et al, 2005) in which participants write gratitude letters to their benefactors and read the letters to them (Wood, Froh, & Geraghty, 2010).

Some other constructs are positively related to gratitude, notably empathy and generosity. Research shows that gratitude is associated with empathy, for example, a study by Lazarus and Lazarus (1994) showed children experiencing gratitude towards police officers and firefighters as a result of the empathy they shared with the grateful individuals who directly benefited from these professional providers. Another study by Worthen and Isakson (2007) suggests that empathy is an essential component of the experience of gratitude and shows that individuals with reduced empathy skills have difficulty experiencing the positive effects of gratitude. Cultivating empathy can increase recognition of benevolent actions given by others, just as cultivating gratitude can potentially increase empathy, leading to a positive cycle of feeling gratitude and having empathic responses to others (Worthen & Isakson, 2007). Empathy could be defined "as a cognitive and emotional ability to share and understand thoughts, beliefs, and intentions of others" (Fischer et al, 2019) establishing a cognitive-affective bond between two or

more people, and has been claimed, not to be only a reflex response to someone's behavior, but also a skill that can be learned/developed (Rogers, 1985/2001b). For instance, a systematic review in empathy interventions with employees, showed significant increase in empathy scores, such as perspective-taking (i.e., cognitive empathy) and empathy-based service skills, such as accurate listening. (Lajante et al, 2023).

Evolutionary theories propose that gratitude is an adaptation for reciprocal altruism. Experiencing gratitude motivates recipients to repay their benefactors and extend generosity to others, and expressions of gratitude also reinforce the generosity of benefactors (McCullough, Kimeldorf & Cohen, 2008). Furthermore, scientific studies, such as those carried out by Lyubomirsky (2004), shows that practicing acts of kindness is not only good for the recipient, but also for the doer. An experiment in which participants performed five acts of kindness a week over a six-week period concluded that practicing acts of kindness relieves guilt and discomfort about other people, takes our attention away from personal problems and ruminations, leading our focus to the other, as well as increasing self-perception and promoting a sense of self-confidence, optimism and assistance (Lyubomirsky et al, 2004; Lyubomirsky, 2007). A more recent study (2022) assigned individuals with elevated anxiety or depression symptoms to engage in acts of kindness and revealed greater improvement on symptoms and life satisfaction, when compared to control groups (Cregg & Cheavens 2022).

Therefore, the protocol presented in this article, contemplates gratitude, generosity and empathy tasks and the general aim of this study will be to investigate it's impact on the mental health of leaders in the Brazilian labor market. Specific objectives include: to investigate the effects of carrying out a set of gratitude, generosity and empathy activities using self-report scales related to mental health; to assess the impact of the intervention on the participants' rumination process and perfectionist beliefs; to assess the impact of the intervention on participants' levels of self-compassion; to investigate the relationship between the levels of social desirability and the variation in the results of the other scales used by the participants; and to identify possible obstacles to promoting gratitude in a corporate environment. The hypothesis is that on completing the activities contained in

the intervention, the participants will show some improvement in their mental health, particularly in anxiety, stress and depression levels.

Compromised mental health may impact those in leadership positions, underling their decision making, resulting in far-reaching, social consequences. For instance, depleted resources and increased stress leads to poor, impulsive, or emotion-driven decisions. (Barling & Cloutier, 2016). Besides, there is a broad consensus that associations exist between leadership behavior and employee health (Dietz et al, 2020), so leaders have a critical role in mental health for the entire organizations, becoming a crucial population to invest in. According to WHO (2022) “Protecting and promoting mental health at work is about strengthening capacities to recognize and act on mental health conditions at work, particularly for persons responsible for the supervision of others, such as managers”.

Since social learning is the acquisition of new behaviors through direct experience or by observing the behavior of role models (Bandura, 1971) and expressing gratitude could make some people feel insecure in a workplace, it could be more effective to implement interventions of this nature starting at the top of the organizations, so employees would hear "thank you" from their boss first and could use leader’s gratitude as a behavioral cue and tend to copy this behavior. (Smith, 2013; Dietz et al, 2020). Furthermore, research in the field shows that grateful leaders inspire more trust in their employees, since they perceive them as more benevolent and upstanding (Ritzenhöfer et al, 2017).

Methods

Study design

A four week on-line experimental program with a quantitative empirical design and two measuring points. This involves the use of self-report scales with descriptive statistics to illustrate the characteristics of the sample and the differences between the participants and the control group in the dependent variables. Instruments with solid psychometric properties, validated and adapted to the Brazilian context were selected. This will be a feasibility study, which will allow us to establish effect sizes for a future Randomized Control Trial (RCT).

Sample

Brazilian leaders with organizational experience in national and multinational companies from different market segments, considering accessibility as the criterion for choosing the sample of participants. Inclusion criteria include having worked for at least three years in a public or private company. Exclusion criteria include a history or current presence of psychiatric disorders, chemical dependency. The choice of this sample is linked to the great current concern about mental health in companies, especially in the wake of the pandemic. For this intervention, a non-probabilistic convenience sample of 100 leaders is considered, with 50 participants being randomly selected for the control group, which will remain on the waiting list, and 50 participants for the intervention. The number of participants proposed is based on an *a priori* power analysis using G*Power software, which revealed that the study would require a total sample size of $N = 100$. An additional 20 % have been added for recruitment target, due to the expected dropout rate.

Recruitment

The recruitment will be done by social media and personal invitations using a communication approach to the sample profile. After the invitation and upon acceptance, the participant fills out an on-line survey through a platform. The survey is composed by a Consent Form, a Socio-demographic Questionnaire, as well as a set of self-report scales for exclusion purposes and also to measure the effects and benefits. Once this step has been completed, the respective tasks are sent to each participant by e-mail on a weekly basis.

Intervention tasks

All the tasks are based on previous studies mentioned above and adapted to the selected sample. Each week has a different theme and task, designed to take advantage of the positively correlation among gratitude, generosity and empathy. The intervention starts in week one with gratitude theme by suggesting the use of a gratitude diary (Emmons & McCullough, 2003; Seligman, 2005). Week two is based on generosity, presenting a practice based on acts of kindness (Lyubomirsky et al, 2004). Week three comes back to gratitude theme and presents a task on behavioral expressions of gratitude, encouraging the participants to express their grateful feelings to others and to write a gratitude note (Seligman et al, 2005; Wood, Froh, & Geraghty, 2010). The week four, closes the

intervention with the empathy theme and presents a task composed by an active listening daily practice and a perspective-taking one. (Rogers, 1985/2001b; Lajante, M. et al (2023). Furthermore, all the tasks have contemplation components with the aim of inducing a more global reflection process. Full details can be seen in Table 1.

PLEASE INSERT TABLE 1 HERE

Implementation process

The four week experimental on-line program will start with the recruitment and upon acceptance, all participants will fill in the on-line survey through a platform. This first survey will be used for exclusion purposes and later to measure the effects and benefits. Once this step has been completed, the sample should be randomized into participants and a control group. The participants will star receiving the tasks by e-mail on a weekly basis and the respective feedback questions at the end of each week. The control group will stay on a waiting list, and by the end of the program all of them will fill out the scales used initially, as showed in Fig. 1.

PLEASE INSERT FIGURE 1 HERE

Instruments

Primary outcome

In order to measure the effects and benefits expected from the intervention on mental health, the Depression, Anxiety and Stress Scale (DASS-21; Lovibond & Lovibond, 2004; Vignola & Tucci, 2014), a self-reported instrument measuring depression, anxiety and stress was selected. The scale has 21 Items in a 0-3 score to assess three factors: depression, anxiety and stress. Each of the three DASS-21 scales contains 7 items, divided into subscales. The depression scale assesses dysphoria, hopelessness, devaluation of life, self-deprecation, lack of interest, anhedonia and inertia. The anxiety scale assesses autonomic arousal, skeletal muscle effects, situational anxiety, and subjective experience of anxious affect. The stress scale is sensitive to levels of chronic non-specific arousal.

Secondary outcomes

Aiming to measure other complementary possible effects, a set of three scales were selected as described below:

Self-Compassion Scale Short Form - SCS-SF (Raes et al, 2011; Rocha, Pereira & Peluso, 2022): Self-compassion might be defined as "sensitiveness to one's own suffering, along with a commitment to relieve or prevent it" (Irons & Beaumont, 2017). This scale considers three components: self-kindness, mindfulness and common humanity and has 12 items on a Likert scale of 1-5.

Clinical Perfectionism Questionnaire - CPQ (Fairburn, Cooper, & Shafran, 2003; Rocha et al, 2022): The perfectionism is presented by the tendency of a person to pursue self-demanding standards and the subjective consequences provided by achieving them or not. Two factors of perfectionism are considered: perfectionist efforts and perfectionist concerns. The scale is made up of 12 items to be answered according to the frequency of occurrence between 0-4.

Ruminative Response Scale - RRS (Treynor, Gonzalez & Nolen-Hoeksema, 2003): Rumination involves self-focused attention, characterized by self-reflection and repetitive and passive focus on one's negative emotions. This 22-item self-report scale measures the presence and frequency of ruminative thoughts, with each item scored from 1 (almost never) to 4 (almost always).

Other instruments

Socio-demographic questionnaire: In order to collect the demographic information from the participants, questions will be applied at baseline, relating to gender, age, education, marital status, length of time working, length of time in a leadership position.

Marlowe Crowne Social Desirability Scale - MCSDS (Crowne & Marlowe, 1960; Gouveia et al., 2009): Aiming to measure and reflect bias the participants may have to respond in ways considered socially acceptable for their leadership positions. Social desirability bias is defined as the "need for subjects to respond in culturally sanctioned ways" and also "need for social approval" (Crowne and Marlowe 1960). The scale is an abbreviated version consisting of 20 items of everyday behavior to be answered as true (V) or false (F). This scale will only be used at baseline.

Feedback Questions: At the end of each week, participants will be asked to provide the following feedback, on a scale of 0 to 5: How well did you do last week's activity? How useful was last week's activity?

Measurement points

The instruments will be applied to the participants and the control group at the same measurement points. The Socio-demographic Questionnaire and Social Desirability Scale will only be applied at the baseline measurement point. The other scales are applied at the beginning and end. The feedback questions will be sent at the end of each week, as shown in Table 2.

PLEASE INSERT TABLE 2 HERE

Statistical analysis

Descriptive statistics will be generated to illustrate the characteristics of the sample. Differences between groups in the dependent variables will be explored through mixed-design analyses of variance (ANOVA s), with group (experimental or control) as the between-subjects variable and time (pre and post) as the within-subjects variable. Correlation and regression analyses will be calculated in an exploratory manner, investigating the relationship between the different variables. Statistically significant differences will be assessed using $\alpha < 0.05$. Effect sizes will be calculated for all tests.

Ethical considerations and risks

The research project was submitted and approved by a local research ethics committee; CAAE: 65554522.9.0000.5235. The project offers a controlled risk, using questionnaires and scales widely used in national and international studies. While filling in the instruments or carrying out the activities contained in the intervention, some participants may experience slight embarrassment and some level of discomfort. If they are overloaded with their work routines, they may feel unmotivated or tired to carry out the activities. Participants will be informed of all the risks related to their participation in the study and have the guaranteed right to withdraw at any time from participating in the research without any prejudice. In addition, the study will have two psychologists on its team (the proponents of the study) and their contact details will be disclosed, emphasizing

the possibility of clarification and support offered by telephone and e-mail during the period of the intervention.

Expected Results

Although studies are showing gratitude interventions to be promising for mental health and well- being, there are still a gap for new studies, particularly because methodology issues regarding the type of the comparison groups and the sample mostly coming from North America and Europe. (Wood, Froh, & Geraghty, 2010; Davis et al., 2016). Thus, this study could contribute in different ways, given its distinct characteristics. First, to the best of our knowledge, it will be the first to investigate the effects of gratitude intervention on the Brazilian leaders mental health's. Second, this study proposes two different constructs, Empathy and generosity, to be used alongside with gratitude. Lastly, this will use a randomized trial with the a measurement-only control group on a waiting list. So it could possibly provide important insights on new populations with a more neutral comparison and contribute to national and international research. There will be some limitations, since the data will be collected using self-reported scales, measurement errors and information bias could be introduced. Due to the intervention's structure, it is not possible for the intervention implementer to be blind about the sample. Also, the on-line interaction with participants could be a challenge for engagement purposes.

The anticipated outcome, as inferred from academic literature, is a favorable impact on the mental health of the participants promoted by gratitude states cultivated through tasks suggested in the program. There exists a potential for improvement, particularly concerning the perceived levels of anxiety, stress, and depression. Furthermore, within this feasibility study, there is expectation of having a reasonable number of participants successfully completing all program activities, since they have been meticulously designed according to the specifics of the chosen sample, encompassing considerations of duration and simplicity of execution. On that basis, this groundwork will be poised to establish effect sizes pivotal for a prospective Randomized Controlled Trial.

The contribution to the field of clinical psychology could be relevant, besides the relationship between gratitude and mental health, this program has a potential due to use

simple and easy techniques to increase gratitude alongside with other existing clinical interventions (Wood, Froh, & Geraghty, 2010), as well as it could be embedded in larger multi-intervention programs, for instance, in combination with stress reduction exercises (Flinchbaugh et al., 2012). At a corporate level, the program could be incorporated to institutional trainings, and even integrated into leadership and management training projects. Given the potential benefits of gratitude on employees' mental health, it would be possible that gratitude could became a fundamental resource in organizations aiming to strengthening individual well-being, as well as for pro-social behavior and a culture of greater citizenship (Fabio, Palazzeschi & Bucci, 2017). In a complementary way, it is also hoped that by experiencing these positive experiences, the leaders themselves, will be able to expand these practices within their respective teams, contributing to a more positive management style and more humanitarian culture. This study's findings will be submitted to peer-reviewed journals for publication and the participants will be notified, if they have chosen to receive it.

Author Statement

RA and DM contributed to conception and design of the study. RA wrote the first and successive drafts of the manuscript. DM critically revised the manuscript for intellectual content. All authors read and approved the final manuscript.

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Tables and Figure

Table 1

Intervention Program Tasks

Topic	Frequency	Implementation Method
Week 1 - Gratitude Gratitude lists / Grateful contemplation	Daily	At the end of each day this week, write down at least three positive things that have happened and for which you feel grateful in relation to your work. If possible, write next to the items the reason why each one happened (you can also include reasons related to your personal life).The items can be as simple as: a book recommendation, a pleasant moment over coffee with a colleague, a compliment received, a new opportunity at work, help received, the collaborative attitude of a colleague in a meeting, good work done by the team, an external meeting that started on time (allowing your schedule to be met), among others. At the end of the week, re-read the diary and reflect. Try to perceive the feeling generated by the exercise and record it.
Week 2 - Generosity Acts of Kindness	Daily	Every day of Generosity Week, try to adopt an altruistic attitude, a generous outlook in your daily interactions, observing opportunities for spontaneous acts of kindness. Make gestures that help someone and have some cost to you, whether they are simple or more complex. For example: helping a colleague with a project, taking your favorite chocolate to a coworker, volunteering at an NGO making an improvement to your work environment, letting someone pass in front of you in a queue, saying something nice to a coworker, paying a compliment, and so on. These can be small gestures! The important thing is that you do them genuinely as an act of giving. Reflect on what you felt when you extended your kindness, such as a sense of accomplishment and well-being, and record it.
Week 3 - Gratitude Behavioral expressions of gratitude / Grateful contemplation	Daily	Every day of the week, identify actions in your work environment that are worthy of gratitude express it. You need to be authentic when giving thanks, prioritizing quality over quantity. If there's no reason to say thank you, don't.
Gratitude letter / note	Once	Choose a day and time of the week to do this activity. Sit down in a quiet place with no interruptions. Take a mental look back at your career and try to identify a very special person who has been of great value in your

		professional life. Write a note (e-mail or whatever you prefer) to this person, describing the reasons for your gratitude. Be specific in your thanks, highlighting the reasons why you recognize the person, their actions and behavior. Try to notice the feeling generated by the exercise and record it.
Week 4 – Empathy Empathetic behavior	Daily	Every day of the week, identify opportunities in your work environment to develop your empathic ability through active listening. To do this, remain attentive to others, being present and without distractions, adopting a curious and interested attitude in your daily interactions.
Empathic reflection	Once	Choose a day and time of the week to do this activity. Sit in a quiet place with no interruptions. Think of a person you admire and interact with in your work and make a list of as many qualities as you can identify on them. Repeat the exercise with at least two other people. Now, think of a person you interact with in your day-to-day work and find challenging to get along with for whatever reason. Make a list of at least 3 of this person's qualities. Evaluate how your beliefs and judgments affect the level of listening and interaction with this person? Reflect on what it would be like if you were in their shoes, with the resources they have? Evaluate what you could do differently in your next interaction with them. Try to notice the insights generated by the exercise and record them.

Table 2
Intervention program plan & measurement points

Sample / Instruments	Start	W1	W2	W3	W4	End
Participants						
Socio-demographic questionnaire	x					
Social Desirability Scale (EDSMC)	x					
Depression, Anxiety and Stress Scale (DASS)	x					x
Self-Compassion Scale Short Form (SCS-SF)	x					x
Clinical Perfectionism Questionnaire (CPQ)	x					x
Ruminative Response Scale (RRS)	x					x
Weekly Task		x	x	x	x	
Intervention Feedback Questions			x	x	x	x
Control Group						
Socio-demographic questionnaire	x					
Social Desirability Scale (EDSMC)	x					
Depression, Anxiety and Stress Scale (DASS)	x					x
Self-Compassion Scale Short Form (SCS-SF)	x					x
Clinical Perfectionism Questionnaire (CPQ)	x					x
Ruminative Response Scale (RRS)	x					x

Figure 1

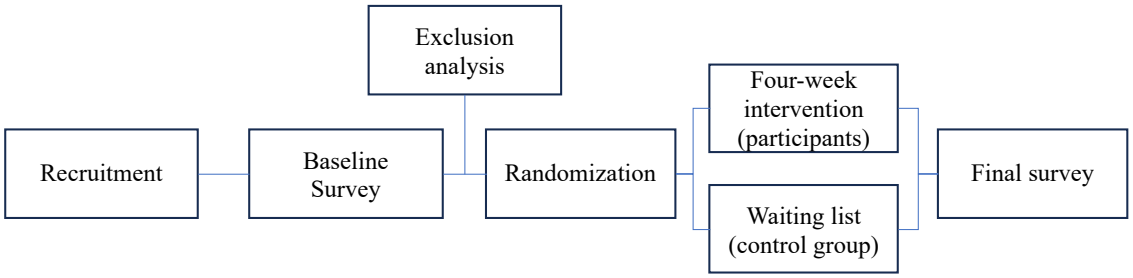

Fig. 1: Implementation Process

Article 2

3.2 EFFECTS OF A GRATITUDE INTERVENTION PROGRAM ON MENTAL HEALTH AMONG BRAZILIAN CORPORATE LEADERS: A FEASIBILITY STUDY

EFFECTS OF A GRATITUDE INTERVENTION PROGRAM ON MENTAL HEALTH AMONG BRAZILIAN CORPORATE LEADERS: A FEASIBILITY STUDY

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Abstract

Objective: This feasibility study investigated the effects of a gratitude intervention among senior leaders within the Brazilian labor market, by conducting an online experimental protocol. It aimed to explore feasibility and obtain preliminary data on the efficacy of this protocol in order to contribute to establish effect sizes for a future randomized controlled trial (RCT).

Methods: A sample of 134 leaders were randomly divided into an experimental (intervention) and control group (on the waiting list). The intervention spanned of four weeks and consisted of different tasks to induce gratitude, generosity and empathy, with the main outcomes being the effects on the mental health measuring variation in levels of depression, anxiety, stress, self-compassion, ruminative responses and perfectionist beliefs, as well as identifying possible obstacles to fostering gratitude within a corporate environment. This involved the use of self-report scales with descriptive statistics to illustrate the characteristics of the sample and the differences between the groups in the dependent variables

Results: The participants expressed good acceptance of the intervention, with a considerable attrition. The intervention showed significant results in reducing scores for anxiety, stress, and depression, compared to controls. There were no significant differences for perfectionism, self-compassion and ruminative response scores.

Conclusion: The program proved to be a feasible and useful intervention to improve mental health for leaders and it could contribute to the field of corporate mental health research and the development of future gratitude interventions. It should be explored in other organizational settings, as well as in clinical sets, to allow generalization to a wider context.

Keywords: Gratitude; mental health; leadership; anxiety, stress; depression.

Introduction

Mental health is currently a relevant matter worldwide and for most of the global population it is intertwined with work, becoming a challenge in the workplace and bringing significant costs for employers and society at large. Mental health is defined as being “more than the absence of mental health conditions” (WHO (2022). “Rather, mental health is a state of mental well-being that enables people to cope with the stresses of life, to realize their abilities, to learn well and work well, and to contribute to their communities”, according to WHO (2022). Gratitude interventions have been critically reviewed and shown to be promising exercises to promote gratitude states, having favorable correlation with well-being, mental health and work-related outcomes such as job performance, organizational commitment, and citizenship behavior (Cain, 2018; Komase et al, 2021). In general terms, gratitude is considered a positive emotional response to the experience of receiving a benefit from another person, or life itself, more likely experienced when one perceives themselves as the recipient of a valuable outcome, demanding real effort and based on an altruistic, sincere motivation to do good (McCullough et al., 2002; Wood et al., 2008).

Some findings of gratitude effects are correlated with physiological factors, promoting improvement in social relationships, subjective well-being, physiological health and stress relief. As indicated by Damasio and collaborators (2017) the effects of gratitude are multiple: (I) Social relationships - improves interpersonal relationships, causing increased feelings of inclusion and social closeness, predicts reciprocal pro-social behavior and can reduce symptoms of mental illness; (II) Health - correlates with subjective well-being and improved physiological health. Gratitude is associated with greater satisfaction with life, resilience, health issues and better sleep quality, as well as lower levels of burnout and reduced stress, inflammation and depression; (III) Stress relief - improved homeostasis. The mu opioid system is centrally involved in restoration, as evidenced by its roles in analgesia, positive affect, reward, social motivation, long-term affective bonds and stress relaxation. Future studies are needed to test this hypothesis of gratitude's positive effects. (Henning, Fox, Kaplan, Damasio & Damasio, 2017). A more recent systematic review on effects of gratitude intervention on mental health among workers (Komase et al, 2021), showed significant improvement in perceived stress and depression. The studies with longer intervention periods were more likely to report

effects of exercises on mental health outcomes than studies spanning shorter periods (Jans-Beken et al, 2019). Gratitude intervention among workers, should be tailored to their limited time to work on tasks and according to the reviews of gratitude intervention studies, the most common intervention durations were 4 and 6 weeks. (Jans-Beken et al, 2019; Komase et al, 2021).

Gratitude interventions in workplaces might be effective in improving mental health, with a numerous studies showing improvement in perceived stress and depression (Komase et al, 2021). A variety of interventions are used aiming to increase or improve levels of gratitude, and the most commonly categories are gratitude lists (Emmons and McCullough, 2003), grateful contemplation (Wood, Froh, & Geraghty, 2010; Rash et al, 2011) and behavioral expressions of gratitude (Seligman et al, 2005). Some other constructs are positively related to gratitude, notably empathy and generosity. Empathy could be defined "as a cognitive and emotional ability to share and understand thoughts, beliefs, and intentions of others" (Fischer et al, 2019) establishing a cognitive-affective bond between two or more people, and has been claimed, not to be only a reflex response to someone's behavior, but also a skill that can be learned/developed (Rogers, 1985/2001b). Research shows that gratitude is associated with empathy (Lazarus and Lazarus, 1994) and suggests that cultivating empathy can increase recognition of benevolent actions given by others, just as cultivating gratitude can potentially increase empathy, leading to a positive cycle of feeling gratitude and having empathic responses to others (Worthen & Isakson, 2007). Furthermore, evolutionary theories propose that gratitude is an adaptation for reciprocal altruism. Experiencing gratitude motivates recipients to repay their benefactors and extend generosity to others, and expressions of gratitude also reinforce the generosity of benefactors (McCullough, Kimeldorf & Cohen, 2008). Therefore, the protocol contemplates gratitude, generosity and empathy tasks and the general aim of this study were to investigate its impact on the mental health of leaders in the Brazilian labor market.

In addition to accessibility serving as a criterion for selecting this sample, addressing the mental health of leaders emerges as a pivotal factor in enhancing organizational health and performance. Compromised mental health may impact those in leadership positions, underling their decision making, resulting in far-reaching, social consequences. For instance, depleted resources and increased stress leads to poor, impulsive, or emotion-

driven decisions. (Barling & Cloutier, 2016). Moreover, there exists a broad consensus regarding the correlation between leadership behavior and employee health (Dietz et al, 2020), so leaders have a critical role in mental health for the entire organizations, becoming a crucial population to invest in. According to World Health Organization (WHO, 2022) “Protecting and promoting mental health at work is about strengthening capacities to recognize and act on mental health conditions at work, particularly for persons responsible for the supervision of others, such as managers”. Furthermore, this particular sample holds another advantage, since social learning is the acquisition of new behaviors through direct experience or by observing the behavior of role models (Bandura, 1971) and expressing gratitude could make some people feel insecure in a workplace, it could be more effective to implement interventions of this nature starting at the top of the organizations. In this scenario, employees would first hear expressions of gratitude from their superiors, thereby utilizing leaders' displays of gratitude as behavioral cues and consequently mirroring such behavior (Smith, 2013; Dietz et al, 2020). Additionally, research in this domain indicates that grateful leaders engender greater trust among their subordinates, who perceive them as more benevolent and principled (Ritzenhöfer et al., 2017).

By conducting this investigation on the mental health of leaders in the Brazilian labor market, the hypothesis is that by completing the activities contained in the intervention, the participants will show some improvement in their mental health, particularly in anxiety, stress and depression levels. Although studies are showing gratitude interventions to be promising for mental health and well- being, there are still a gap for new studies, since most are coming from North America and Europe and not using leadership samples (Wood, Froh, & Geraghty, 2010; Davis et al., 2016). Thus, this study could contribute given its distinct sample and regional characteristics and being, to the best of our knowledge, the first to investigate the effects of gratitude intervention on the Brazilian leaders mental health’s.

Methods

A four week on-line experimental program with a quantitative empirical design and two measuring points. This involves the use of self-report scales with descriptive statistics to illustrate the characteristics of the sample and the differences between the participants and the control group in the dependent variables. Instruments with solid psychometric properties, validated and adapted to the Brazilian context were selected.

Sample

In addition to availability, sample selection was based on the literature regarding the impact leaders may have on workplace mental health and culture (Smith, 2013; Dietz et al, 2020; WHO, 2022). A sample of 134 Brazilian leaders with organizational experience in national and multinational companies from different market segments were recruited, after the screaming process of 176 people. Participants were aged between 21 and 63 (M = 46.6, SD = 8.2 ; 51 females, 82 males and 1 non-binary). Inclusion criteria included having worked for at least three years in a public or private company and the exclusion criteria included a history or current presence of psychiatric disorders, including substance abuse disorder. Participants were randomly allocated to the intervention or control group (waiting list).

Intervention tasks

All the tasks were based on previous studies mentioned above and adapted to the selected sample. Each week had a different theme and task, designed to take advantage of the positively correlation among gratitude, generosity and empathy. The intervention started in week one with a gratitude theme by suggesting the use of a gratitude diary (Emmons & McCullough, 2003; Seligman, 2005). Week two was based on generosity, presenting a practice based on acts of kindness (Lyubomirsky et al, 2004). Week three explored again the gratitude theme and presented a task on behavioral expressions of gratitude, encouraging the participants to express their grateful feelings to others and to write a gratitude note (Seligman et al, 2005; Wood, Froh, & Geraghty, 2010). Week four closed the intervention with an empathy theme and presented a task composed by active listening daily practice and perspective-taking. (Rogers, 1985/2001b; Lajante et al, 2023). Furthermore, all the tasks had contemplation components with the aim of inducing a more global reflection process.

Procedures and Measurement points

Upon acceptance to take part in the study, all participants responded to an online survey. This was done to screen for exclusion criteria and establish a baseline. Once this step was completed, the sample were randomized into the intervention and control group. The participants received the tasks by e-mail on a weekly basis and the control group stayed on a waiting list.

The instruments were applied to the participants and the control group at the same measurement points. The socio-demographic questionnaire and Social Desirability Scale were only applied at baseline. The other scales were applied a week before and after the intervention. Feedback questions were sent at the end of each week.

Instruments

The primary outcome of the program was mental health, measured as anxiety, stress and depression (Komase et al, 2021; Cregg & Cheavens 2022; Almansa, Freitas & Vazquez, 2020). Three additional constructs were selected as secondary outcomes: self-compassion, based on previous studies indicating positive associations between gratitude and self-compassion (Homan & Hosack, 2019); perfectionist beliefs, considering findings suggesting gratitude helps coping with negative perfectionism (Chan, 2012); and rumination, based on research indicating that participants with higher levels of gratitude reported lower levels of rumination (Çolak & Güngör, 2021).

Primary outcome

The Depression, Anxiety and Stress Scale (DASS-21; Lovibond & Lovibond, 2004; Vignola & Tucci, 2014), a self-reported instrument measuring depression, anxiety and stress was selected. The scale has 21 items scored 0-3 to assess three factors: depression, anxiety and stress. Each of the three DASS-21 subscales contains 7 items. The depression scale assesses dysphoria, hopelessness, devaluation of life, self-deprecation, lack of interest, anhedonia and inertia. The anxiety scale assesses autonomic arousal, skeletal muscle effects, situational anxiety, and subjective experience of anxious affect. The stress scale is sensitive to levels of chronic non-specific arousal.

Secondary outcomes

Three scales were selected:

Self-Compassion Scale Short Form - SCS-SF (Raes et al, 2011; Rocha, Pereira & Peluso, 2022): Self-compassion might be defined as "sensitiveness to one's own suffering, along with a commitment to relieve or prevent it" (Irons & Beaumont, 2017). This scale considers three components: self-kindness, mindfulness and common humanity and has 12 items on a Likert scale of 1-5.

Clinical Perfectionism Questionnaire - CPQ (Fairburn, Cooper, & Shafran, 2003; Rocha et al, 2022): The perfectionism is presented by the tendency of a person to pursue self-demanding standards and the subjective consequences provided by achieving them or not. Two factors of perfectionism are considered: perfectionist efforts and perfectionist concerns. The scale is made up of 12 items to be answered according to the frequency of occurrence between 0-4.

Ruminative Response Scale - RRS (Treynor, Gonzalez & Nolen-Hoeksema, 2003): Rumination involves self-focused attention, characterized by self-reflection and repetitive and passive focus on one's negative emotions. This 22-item self-report scale measures the presence and frequency of ruminative thoughts, with each item scored from 1 (almost never) to 4 (almost always).

Other instruments

Socio-demographic questionnaire: To collect the demographic information from the participants, questions were applied at baseline, relating to gender, age, education, marital status, length of time working, length of time in a leadership position.

Marlowe Crowne Social Desirability Scale - MCSDS (Crowne & Marlowe, 1960; Gouveia et al., 2009): Social desirability bias is defined as the "need for subjects to respond in culturally sanctioned ways" and also "need for social approval" (Crowne & Marlowe 1960). The scale is an abbreviated version consisting of 20 items of everyday behavior to be answered as true (V) or false (F). This scale was only used at baseline.

Feedback Questions: At the end of each week, participants were asked to provide the following feedback, on a scale of 0 to 5: How well did you do last week's activity? How useful was last week's activity?

Statistical analysis

Descriptive statistics were generated to illustrate the characteristics of the sample. Differences between groups in the dependent variables were explored through mixed-

design analyses of variance (ANOVAs), with group (experimental or control) as the between-subjects variable and time (pre and post) as the within-subjects variable. Statistically significant differences will be assessed using $\alpha < 0.05$. Effect sizes will be calculated for all tests and only participants who responded to the scales at time 1 and 2 were included.

Ethical considerations

The project was submitted and approved by a local research ethics committee; CAAE: 65554522.9.0000.5235 and all participants provided informed consent to participate.

Results

Descriptive data

The control and experimental groups were compared regarding age, gender, and social desirability. The means, standard deviations, and values for t-tests (age and social desirability) and chi-square tests (gender) are presented in Table 1.

[PLEASE INSERT TABLE 1]

Adherence

There was a considerable attrition and the final sample consisted of 55 participants (41% of the sample), with 79 different participants dropping out during the intervention (69% of the initial sample). There were no sociodemographic differences for gender ($\chi^2(2) = 1.18$, $p = .554$, $\varphi = .09$), cohabitation ($\chi^2(2) = .24$, $p = .626$, $\varphi = .07$), work position ($\chi^2(2) = 3.91$, $p = .562$, $\varphi = .27$), mental health condition ($\chi^2(2) = .83$, $p = .659$, $\varphi = .12$), age ($t(113.64) = 1.35$, $p = .181$, *Cohen's d* = .24), education ($t(132) = -1.42$, $p = .159$, *Cohen's d* = .25) and working time ($t(123.80) = .37$, $p = .712$, *Cohen's d* = .06). In cases of dropout, however, there were significant differences for depression ($t(100.97) = 2.13$, $p < .05$, *Cohen's d* = .39) and stress scores ($t(110.80) = 2.04$, $p < .05$, *Cohen's d* = .37). The dropout group had a lower average for depression (M = 2.62, SD = 2.48) and stress

(M = 4.85, SD = 3.42) in baseline scores than the group that completed the study (M = 3.67, SD = 3.03, M = 6.13, SD = 3.68; respectively). No differences between groups were found for DASS total (t (114.93) = 1.94, p = .054, *Cohen's d* = .35), anxiety (t (126.62) = .331, p = .742, *Cohen's d* = .06), mental rumination (t (122.02) = .87, p = .387, *Cohen's d* = .15), self-compassion (t (105.42) = -.09, p = .930, *Cohen's d* = .02) and perfectionism (t (124.97) = .58, p = .566, *Cohen's d* = .10) baseline scores.

In relation to participants in the intervention group (n = 67), there were no sociodemographic differences for gender ($\chi^2(2) = .18$, p = .676, φ = 0.05), cohabitation ($\chi^2(2) = .10$, p = .749, φ = .04), work position ($\chi^2(2) = 2.82$, p = .554, φ = .21), mental health condition ($\chi^2(2) = 1.71$, p = .425, φ = .16), age (t (46.08) = .01, p = .991, *Cohen's d* = .00), education (t (37.26) = -1.02, p = .316, *Cohen's d* = .29) and working time (t (57.21) = -.76, p = .449, *Cohen's d* = .19) when comparing the dropout group (n = 42) and which remained until the end of the study (n = 25). No differences were found in the baseline of anxiety (t (43.94) = 1.82, p = .080, *Cohen's d* = .50), depression (t (39.57) = 1.93, p = .060, *Cohen's d* = .53) scores. There were significant differences for DASS total (t (44.81) = 2.57, p = .014, *Cohen's d* = 3.90) and stress (t (45.87) = 2.68, p = .010, *Cohen's d* = .80) baseline scores. The dropout group had a lower average for DASS total (M = 8.55, SD = 7.39) and stress (M = 4.38, SD = 3.64) in baseline scores than the group that completed the study (M = 13.84, SD = 8.57, M = 7.04, SD = 4.10; respectively). Baseline scores for mental rumination (t (56.38) = 1.24, p = .222, *Cohen's d* = .31), self-compassion (t (33.81) = -.722, p = .518, *Cohen's d* = .19), and perfectionism (t (57.62) = .661, p = .511, *Cohen's d* = .016) were also not significant.

Effects of the intervention for anxiety, stress and depression

The mixed design ANOVAs showed significant results for the gratitude-based intervention in reducing scores for mental health problems. Interaction effects (group X time) were found for DASS-21 total (F (1, 56) = 9.05, p < .05; η_p^2 .14), anxiety (F (1, 56) = 5.84, p < .05; η_p^2 = .10), stress (F (1, 56) = 5.33, p < .05; η_p^2 = .09) and depression (F (1, 56) = 7.21, p < .05; η_p^2 = .12) scores. The Partial Eta-squared (ηp^2) indicated a medium effect size for anxiety and stress and a large effect size for total and depression scores. This result indicates that the group in which the gratitude-based intervention was administered had a reduction in DASS-21 total, anxiety, stress, and depression scores; compared to controls.

There was no significant main effect of time for DASS-21 total (F (1, 56) = .70, p = .405; η_p^2 = .01), anxiety (F (1, 56) = .27, p = .604; η_p^2 = .01), stress (F (1, 56) = .12, p = .733; η_p^2 = .00) and depression (F (1, 56) = 1.42, p = .239; η_p^2 = .03). Finally, there was no significant main effect of group for DASS-21 total (F (1, 56) = .20, p = .657; η_p^2 = .00) , anxiety (F (1, 56) = 1.25, p = .269; η_p^2 = .02), stress (F (1, 56) = .233, p = .631; η_p^2 < .01) and depression (F (1, 56) = .03, p = .862; η_p^2 < .01). Figures 1, 2, 3 and 4 present comparisons between the control and experimental groups for total, anxiety, stress, and depression scores, respectively.

[PLEASE INSERT FIGURE 1]

[PLEASE INSERT FIGURE 2]

[PLEASE INSERT FIGURE 3]

[PLEASE INSERT FIGURE 4]

Correlations between the MCSDS score and the delta (T2 - T1) of the DASS total, anxiety, depression, and stress scores were conducted for the experimental group to investigate possible effects of social desirability. No significant correlations were found between social desirability and DASS total (*rho* = -.14; p = .522), anxiety (*rho* = -.17; p = .429), depression (*rho* = -.21; p = .335), and stress (*rho* = -.04; p = .869) scores.

Effects of the intervention on secondary outcomes

Regarding perfectionism, the mixed-design ANOVA did not show a significant interaction (F (1, 54) =.16, p = .689; η_p^2 = .00), time (F (1, 54) = 1.84, p = .181; η_p^2 = .03) or group main effect (F (1, 54) = .193 p = .662; η_p^2 = .00).

Regarding self-compassion, the mixed-design ANOVA did not show significant results for interaction (F (1, 53) =2.24, p = .141; η_p^2 = .04) or group effects (F (1, 53) = .39, p = .537; η_p^2 = .01). However, there was a significant main effect of time (F (1, 53) = 10.81, p < .01; η_p^2 = .18), with lower scores in the follow-up.

Finally, in relation to the ruminative response, the mixed-design ANOVA showed no significant interaction (F (1, 53) = 2.1, p = .154; η_p^2 = .04), main effect of time (F (1, 53)

= .27, p = .608; η_p^2 = .01) or group (F (1, 53) = .03, p = .870; η_p^2 = .00) tests. Figures 4, 5 and 6 show the comparison of perfectionism, self-compassion and ruminative response scores of the control and experimental groups during the pre- and post-intervention stages.

[PLEASE INSERT FIGURE 5]

[PLEASE INSERT FIGURE 6]

[PLEASE INSERT FIGURE 7]

Weekly feedback

At the end of each week, participants were asked to provide feedback for the tasks. The final score was 4,04/5 for their perception on how well they did the tasks and 4,34/5 regarding how useful the tasks were. Feedback provided weekly by the participants presented some benefits, as followed: (i) *Greater well-being*, *better mood and sense of accomplishment* - There was a perception that focusing on the good things was rewarding and also that carrying out the exercise brought well-being, greater sense of lightness and even a greater sense of accomplishment. "Just planning the activity got the feeling of gratitude improving my mood and the way I dealt with the team", one participant said; (ii) *Change in perspective* - Realizing that there is a tendency to focus more on the difficulties and problems of everyday life, than on the good things, were perceived as bringing happiness and it was worth it to exercise. There were also some sense of accomplishment and reflections regarding the need to practice more generosity in the workplace; (iii) *Change in behavior* – The tasks helped to move away from a reactive and critical stance to a more positive one, doing kindness actions has strengthened relationships with the team and practicing empathy has helped with more beneficial behaviors, such as *"listening and holding back impulsiveness, although difficult, has helped to resolve issues that at another time would have been more aggressive and unlistenable"*.

The main challenges reported were related to three main factor: (i) *Routine* - Fitting tasks into everyday life creating the habit of reflecting and recording the results requested were a challenge, since the routine consumes all the time; (ii) *Hybrid work* - makes the environment more distant, with less eye contact or proximity; (iii) *Aggressive work environment* – It is challenging to be able to see talents, qualities and good things in people who act with discrimination, prejudice, authoritarianism, leading with rudeness and fear.

Discussion

The main findings of the present study demonstrated that the protocol was able to improve the mental health of the participants by promoting a medium effect size for anxiety and stress and a large effect size for depression. This result indicates that the group in which the intervention was administered had a reduction in anxiety, stress, depression and for the DASS-21 total scores, compared to controls. The reduction in scores cannot be attributed to the mere passage of time. In other words, the reduction in scores associated with these mental health problems did not occur in the control group. The primary outcome of the program were to investigate mental health by measuring anxiety, stress and depression scores (Komase et al, 2021; Cregg & Cheavens 2022; Almansa, Freitas & Vazquez, 2020) and the results are aligned with literature, regarding the significant positive effects gratitude has been shown on mental health.

Research suggests that individuals who engage in regular gratitude practices experience higher levels of subjective well-being, decreased symptoms of depression and anxiety, and increased overall life satisfaction (Emmons & McCullough, 2003; Wood et al., 2010). Gratitude interventions in workplaces might be effective in improving mental health, with a numerous studies showing improvement, specifically in perceived stress and depression (Komase et al, 2021) as we could measure. Furthermore, being able to contribute to leaders' mental health can be crucial for enhancing organizational health and performance (Barling & Cloutier, 2016) and the correlation between leadership behavior and employee health (Dietz et al, 2020).

In terms of the secondary outcomes, there were no significant effects of the intervention for perfectionism, self-compassion and ruminative response scores. The literature on secondary outcomes is not as extensive as that of the primary outcomes (Komase et al, 2021; Wood et al., 2010,) still we expected to observe some effects in self-compassion, based on previous studies indicating positive associations between gratitude and self-compassion (Homan & Hosack, 2019); perfeccionism, stemming from findings suggesting gratitude to cope with negative perfectionism (Chan, 2012); and ruminative response, based on research indicating that participants with higher levels of gratitude reported lower levels of rumination (Çolak & Güngör, 2021). This suggests a need for new studies to investigate whether the intervention was not suitable for yielding those results or if different scales could be more effective in measuring the constructs. In addition, the last three scales that were answered in the survey completed by the participants were exactly the ones that had no significant effect. This could indicate a possible lack of presence during completion, making the data less reliable.

The sample was characterized by a senior group of leaders with a considerable organizational presence, represented by a 25 years in average of working time experience and a high hierarchical level with 51,5% of the population represented by Directors and CEOs. The control and experimental groups were comparable in terms of age and gender, showing an effective randomization process. The social desirability scores that aimed to measure the bias of being socially acceptable were comparable for both groups as well. There were negative moderated correlations between social desirability and total DASS, anxiety, depression, stress and the age of the participants. Small to moderate correlations were also observed on those with higher social desirability tending to report fewer symptoms, just as the social desirability score tended to be higher in younger people.

Acceptance of the intervention was good, with most participants approached during recruitment being willing to take part in the study. However, there was high attrition during the program. This dropout rate was expected, primarily attributable to the lack of human interaction and the requisite discipline and motivation demanded of participants on self-administered online interventions (Wood et al., 2010). Endeavors were undertaken to mitigate participant attrition, including the dispatch of weekly reminders and provision of WhatsApp communication for those electing this channel. Furthermore, results indicated lower scores for the DASS (depression and stress) in

participants that dropped out of the intervention relative to those who completed it. This may suggest that participants gave up due to lower demand.

These findings underscore the profound impact of gratitude on mental health and highlight its potential as an effective strategy for promoting psychological well-being. Regarding the contribution to the field of clinical psychology, there is a potential to use those simple and easy techniques to increase gratitude, alongside with other existing clinical interventions (Wood, Froh, & Geraghty, 2010). Thus, it could be embedded in larger multi-intervention programs, for instance, in combination with stress reduction exercises (Flinchbaugh et al., 2012). At a corporate level, the program could be incorporated to institutional trainings, and even integrated into leadership and management training projects. Given the potential benefits of gratitude on employees' mental health, it would be possible that gratitude could became a fundamental resource in organizations aiming to strengthening individual well-being, as well as for pro-social behavior and a culture of greater citizenship (Fabio, Palazzeschi & Bucci, 2017). In a complementary way, it is also hoped that after living these positive experiences, the leaders themselves, will be able to expand those practices within their respective teams, contributing to a more positive management style and a healthier environment. For example, it is important to study the types of interventions that could be implemented to promote institutionalized gratitude with a long-term cultural impact.

Limitations

Since the data were collected using self-reported scales, measurement error and biases may have influenced the results. Nevertheless, most gratitude interventions rely on self-reported data, and the online environment prevented the use of behavioral or physiological measurements. Due to the structure of the intervention, it was not possible for the intervention implementer to be blind about the sample. However, blinding of the outcomes assessment was done to mitigate bias. A high dropout rate was already expected for self- performed online intervention, due to the absence of human contact and the need for participants to be disciplined and motivated to carry them out (Wood et al., 2010), especially considering the corporate environment. Therefore, efforts were made to reduce

participant dropouts, such as sending weekly reminders and offering a WhatsApp communication for those who have chosen this channel. Finally, this was an 'open-label' feasibility study, with no pre-registration, with the main aim of establishing acceptability and effect sizes for a future clinical trial.

Conclusion

The protocol showed improvement on the leaders' mental health and could be considered a useful intervention with potential to be used at a corporate level, incorporated to institutional initiatives due to the benefits of gratitude on employees' mental health. It could be explored, as well as, in clinical sets, to allow generalization to a wider context. To the field of gratitude research, it can contribute to the development of future interventions in Brazil and worldwide.

Author contributions

RA and DM designed, planned and conducted the study. RA, CC, and MR collected and analyzed the data. DM and WM designed and conducted the statistical analyses. RA and WM drafted the manuscript. RA, DM and WM interpreted the data, provided substantive suggestions for revisions and critically reviewed subsequent versions of the manuscript. They also reviewed and approved the final version of the manuscript.

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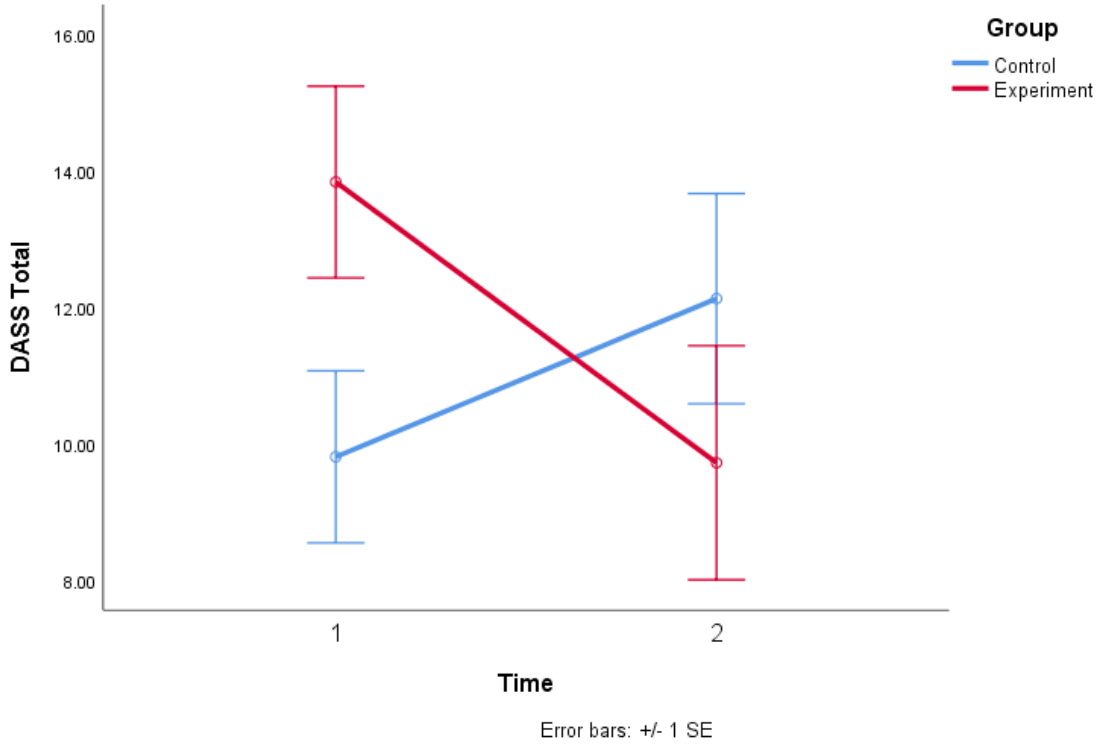
Table and Figures

Table 1- Descriptive Data

Variable	Group	Mean (n)	SD	*df*	*t* (χ^2)	*p-value*
Age	0	67	46.4	128.79	-.35	.726
	1	64	46.9			
Social desirability (EDSMC)	0	65	10.3	125.34	.57	.568
	1	63	10.1			
Male	0	43		2	2.40	.301
	1	38				
Female	0	22				
	1	29				
Non-binary	0	1				
	1	0				

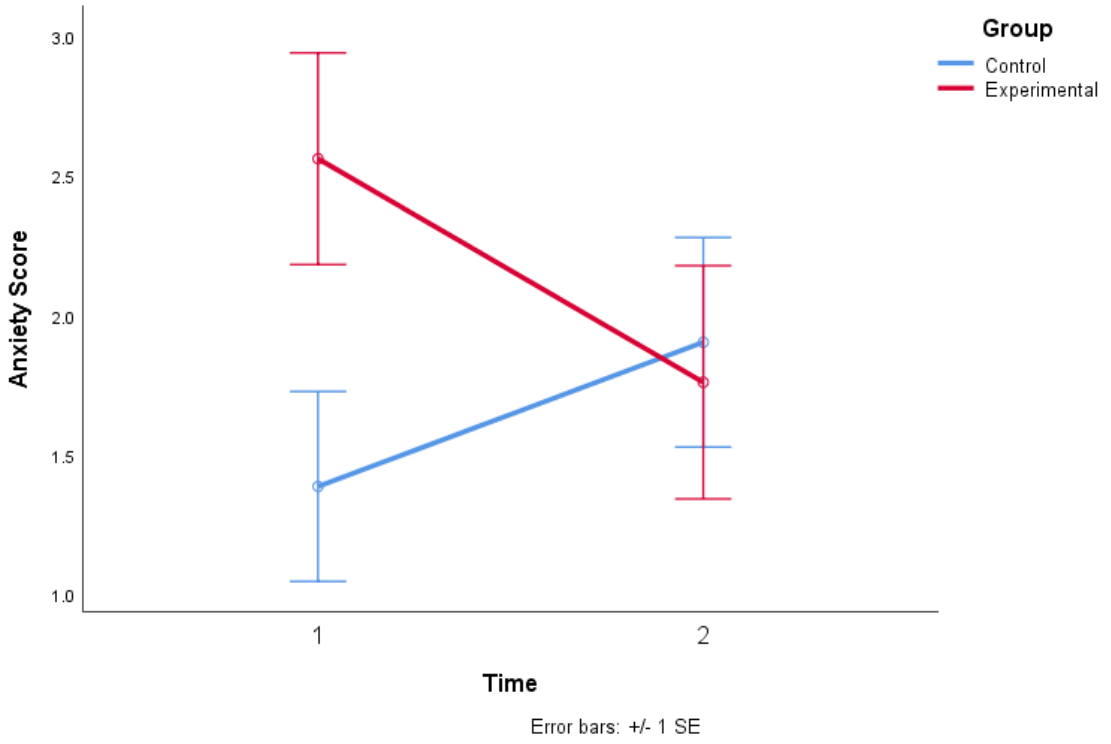
0 = control group, 1 = experimental group.

Figure 1 - DASS total score of control and experimental group before and after intervention



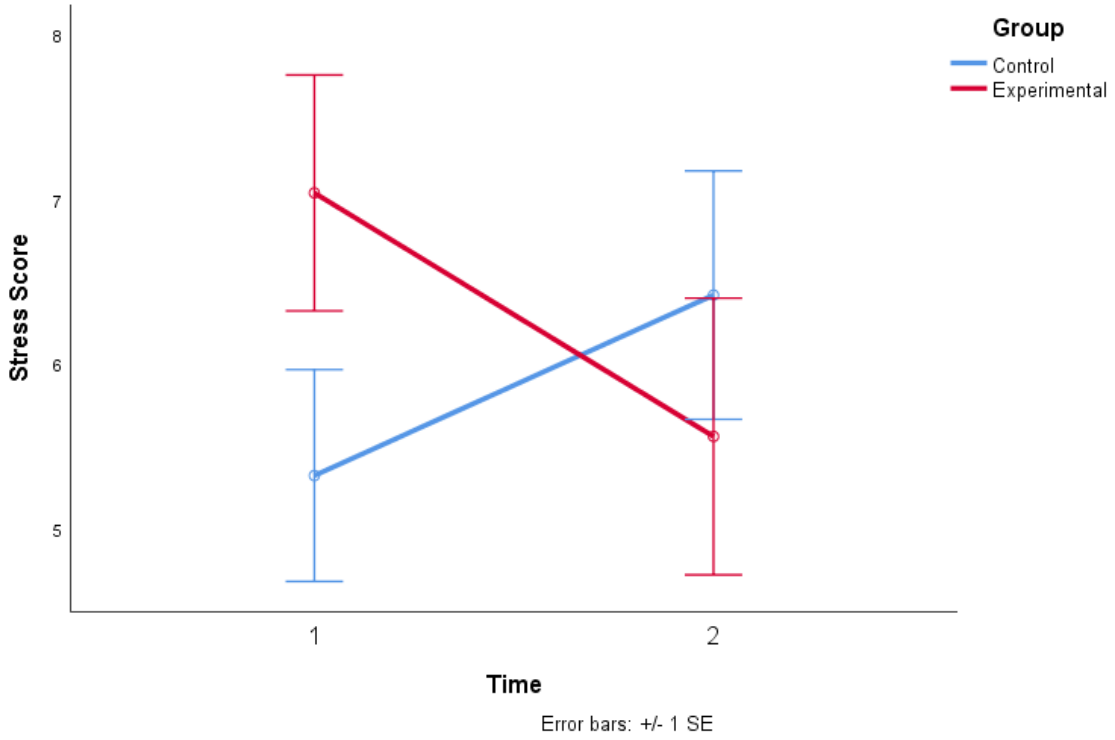
The experimental group (red line) showed significant differences between the DASS total score before (time 1) and after (time 2) intervention. The control group (blue line) did not show significant differences.

Figure 2 - Anxiety scores of control and experimental group before and after intervention



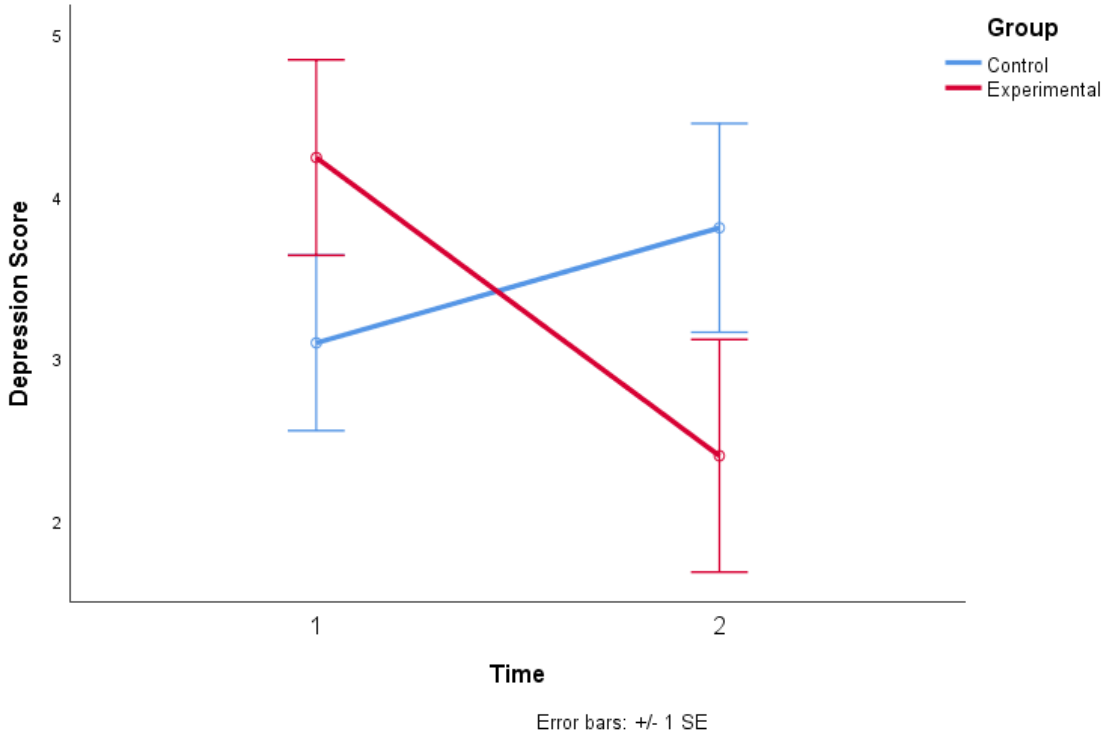
The experimental group (red line) showed significant differences between the anxiety score before (time 1) and after (time 2) intervention. The control group (blue line) did not show significant differences.

Figure 3 – Stress scores of control and experimental group before and after intervention



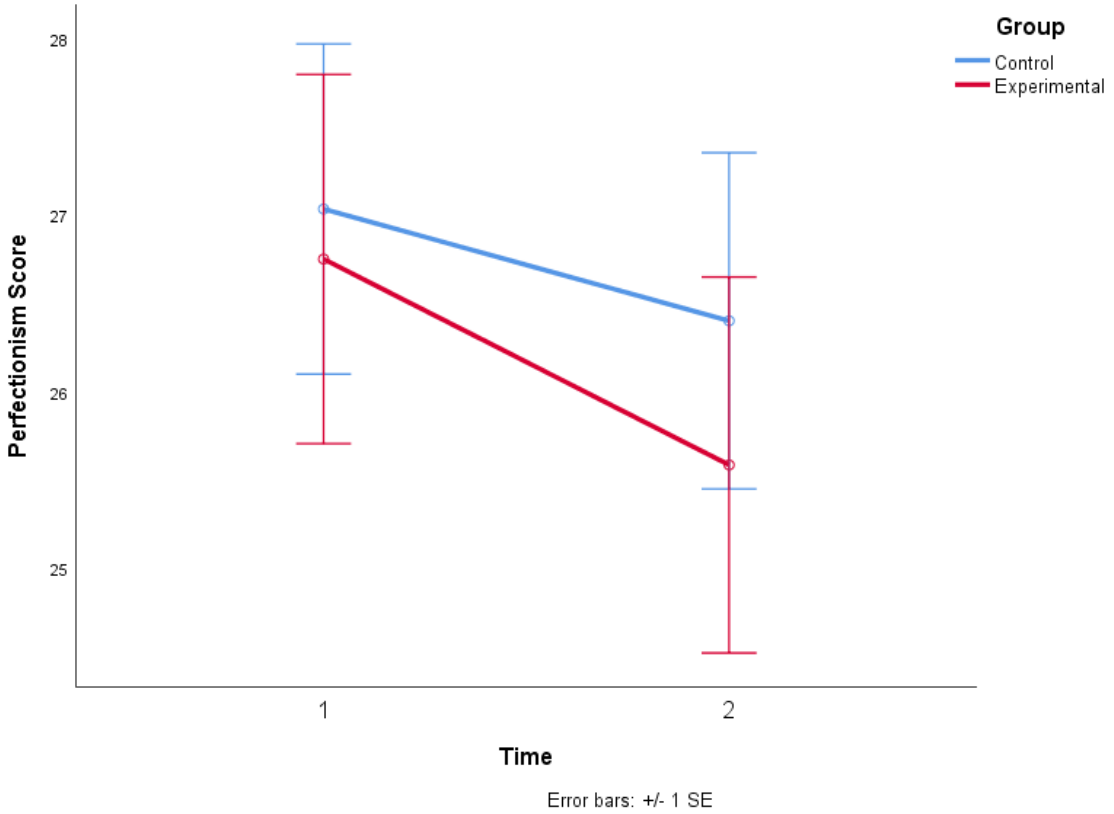
The experimental group (red line) showed significant differences between the stress score before (time 1) and after (time 2) intervention. The control group (blue line) did not show significant differences.

Figure 4 – Depression scores of control and experimental group before and after intervention



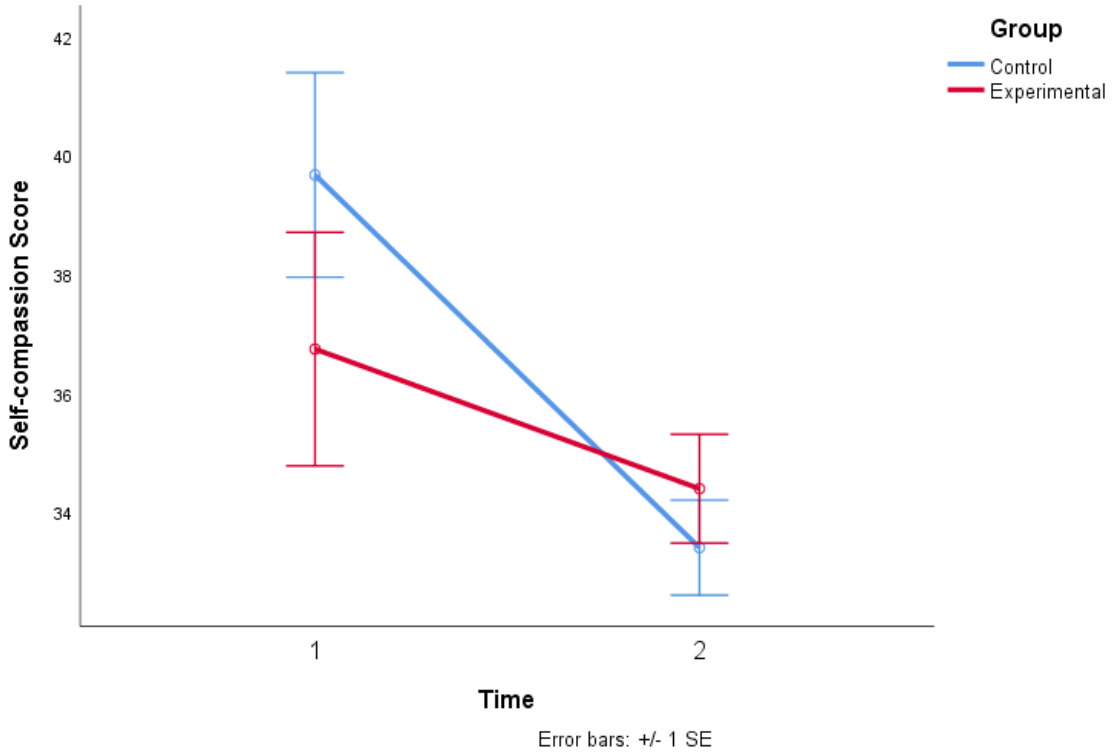
The experimental group (red line) showed significant differences between the depression score before (time 1) and after (time 2) intervention. The control group (blue line) did not show significant differences.

Figure 5 – Perfectionism scores of control and experimental group before and after intervention



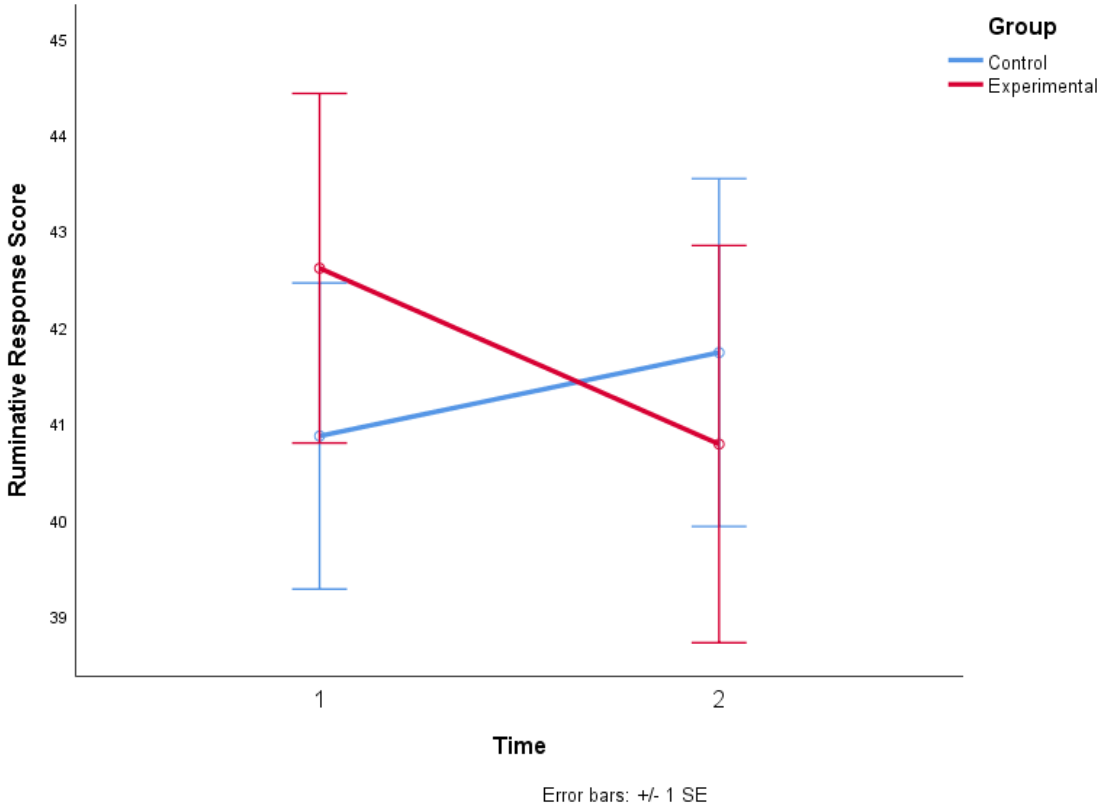
The experimental group (red line) and the control group (blue line) did not show significant differences between the perfectionism score before (time 1) and after (time 2) intervention.

Figure 6 – Self-compassion scores of control and experimental group before and after intervention



The experimental group (red line) and the control group (blue line) showed significant differences between the self-compassion score before (time 1) and after (time 2) intervention, therefore, it is not possible to attribute this decrease to the effect of the intervention.

Figure 7 – Ruminative response scores of control and experimental group before and after intervention



The experimental group (red line) and the control group (blue line) did not show significant differences between the ruminative response score before (time 1) and after (time 2) intervention.

4 GENERAL DISCUSSION

The objective of this study was developing and testing the feasibility of a gratitude intervention program, aiming to collaborate on the participants' mental health. In general terms, the overall results were achieved and are aligned with literature, showing a positive effect on participants' mental health, notably on anxiety, stress and depression scores. Article 1 explored the theme of gratitude and its benefits by presenting an intervention consisting of a set of activities on gratitude, generosity and empathy. Gratitude interventions were reviewed and shown to be promising exercises to promote gratitude states, having favorable correlation with well-being, mental health and work-related outcomes such as job performance, organizational commitment, and citizenship behavior (Cain, 2018; Komase et al, 2021). The tasks proposed for the interventions were based on the most commonly categories: gratitude lists (Emmons and McCullough, 2003), grateful contemplation (Wood, Froh, & Geraghty, 2010; Rash et al, 2011) and behavioral expressions of gratitude (Seligman et al, 2005). In addition, two other constructs being positively related to gratitude, were included: empathy and generosity (Fischer et al, 2019; Lazarus and Lazarus, 1994; McCullough, Kimeldorf & Cohen, 2008). Therefore, the final protocol contemplates gratitude, generosity and empathy tasks and the general aiming were to investigate its impact on the mental health of leaders in the Brazilian labor market. In order to customize the program to the specific sample of leaders, the tasks were tailored to their limited time of work and the duration of the program were defined according to the reviews of gratitude intervention studies, where the most common intervention duration of 4 weeks were selected (Jans-Beken et al, 2019; Komase et al, 2021).

In article 2, the findings of the present study demonstrated that the protocol was able to improve the mental health of the participants by promoting a medium effect size for anxiety and stress and a large effect size for depression, indicating a reduction in anxiety, stress, and depression scores when compared to controls. Furthermore, results indicated lower scores for the DASS (depression and stress) in participants that dropped out of the intervention relative to those who completed it. This may suggest that participants gave up due to lower demand.

The results were aligned with literature, concerning the positive effects gratitude has been shown on mental health and the data on the efficacy of this protocol may contributed for a future Randomized Controlled Trial (RCT), as planned. Even with a customized communication channel, the high dropout rate was one of the major problems, during the course of the intervention, although expected due to the self- performed online intervention model (Wood et al., 2010) and the live style of the participants. Issues related to fitting tasks into everyday life, the hybrid work and the aggressive work environment were mentioned by the leaders as being challenges during the program. Regarding the benefits perceived, it was possible to observe a greater well-being, better mood and sense of accomplishment, change in perspective and change in behavior. In terms of technical challenges related to an on-line implementation approach, data were lost during file digitization and therefore could not be taken into account.

The sample were composed by a senior group of leaders with 25 years in average of working time experience. Being able to contribute to the mental health of people with this considerable organizational presence can be crucial for enhancing employees and organizational health and performance (Barling & Cloutier, 2016; Dietz et al, 2020), contributing to a more positive management style and more humanitarian culture. At a corporate level, the results of the program could be incorporated to institutional trainings or workshops at all levels of the organization. These programs could provide practical tools and strategies for incorporating gratitude into daily work routines and interactions. Gratitude communication channels could be stablished to support it, such as email newsletters, intranet platforms, or social media groups, dedicated to sharing expressions of gratitude and appreciation. Furthermore, it could be even integrated into leadership and management training projects, to encourage leaders and managers to model gratitude by expressing appreciation for their team members' efforts and contributions. When leaders demonstrate gratitude, it sets a positive example for employees and reinforces the importance of appreciation within the organization (Smith, 2013; Dietz et al, 2020; WHO, 2022). Given the potential benefits of gratitude on employees' mental health, it would be possible that gratitude could became a fundamental resource in organizations, aiming to strengthening individual well-being, as well as for pro-social behavior and a culture of greater citizenship (Fabio, Palazzeschi & Bucci, 2017).

The contribution to the field of clinical psychology could be significant. In addition to exploring the relationship between gratitude and mental health, this program holds promise due to its utilization of simple and accessible techniques aimed at fostering gratitude, which can complement existing clinical interventions (Wood, Froh, & Geraghty, 2010). Therapists could integrate gratitude exercises, such as gratitude journaling or gratitude letter writing, into individual or group therapy sessions. Clients could be encouraged to reflect on and express gratitude for positive experiences, relationships, or personal strengths to use gratitude as a coping strategy to manage stress, anxiety or depression. This may involve helping clients identify sources of gratitude in their lives, develop a regular gratitude practice, and use gratitude as a tool for reframing negative thoughts and promoting resilience. Based on client feedback and outcome measures, interventions can be adjusted or modified to better meet clients' needs and preferences. Furthermore, it has the potential to be integrated into larger multi-intervention programs, such as in combination with stress reduction exercises (Flinchbaugh et al., 2012).

Based on the results of the primary outcome, future studies could explore several avenues to enhance understanding and effectiveness of this online gratitude program on mental health. Some potential areas for further research include to investigate the long-term impact of gratitude interventions on mental health outcomes, examining whether any benefits are sustained over time; explore potential moderators and mediators of the relationship between gratitude interventions and mental health outcomes; exam individual differences, as personality traits and cultural factors, that may influence intervention effectiveness; explore how contextual factors, such as organizational culture or social support networks, may influence the effectiveness of gratitude interventions; investigate the effectiveness of other technology-based gratitude interventions, such as smartphone apps and their potential for reaching a wider audience. Future studies can contribute to a deeper understanding of gratitude interventions and their potential to promote mental health in various populations and settings. In terms of the secondary outcomes, since there were no significant effects of the intervention for perfectionism, self-compassion and ruminative response scores, new studies could explore if different scales could be more effective in measuring the constructs.

In summary, the current work highlights the positive impact gratitude interventions may have on mental health. The program could be considered useful and has potential to be used at a corporate level and in clinical sets and also contribute to the development of future interventions on the field of gratitude research in Brazil and worldwide.

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