


Qualitative study on the perceived effects of Mindfulness-Based Health Promotion one year after its implementation

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Abstract

This research aimed to explore the perceived effects of a Mindfulness-Based Health Promotion program among healthcare workers at a Colombian hospital one year after its implementation. This was a qualitative study. Sixteen workers of said hospital (n = 14 female; n = 2 male) between 27 and 65 years old participated. A thematic analysis was conducted based on interview responses. The intervention demonstrated significant effects on self-awareness, emotions, social interaction, healthy habits, and coping with stress. Moreover, the impact of the program got beyond the workplace and influenced various aspects of participants' daily lives. It is concluded that the program's positive effects on participants persisted one year after its implementation.

Keywords: coping; emotions; healthcare personnel; mindfulness; qualitative research.

Estudio cualitativo sobre los efectos percibidos de un programa de *mindfulness* basado en la promoción de la salud un año después de su implementación

Resumen

El objetivo de esta investigación fue explorar los efectos percibidos por trabajadores de un Hospital de Colombia a partir de un programa de *mindfulness* basado en la promoción de la salud un año después de su implementación. Esta investigación es cualitativa y participaron 16 trabajadores (n = 14 mujeres; n = 2 hombres) entre los 27 y 65 años vinculados laboralmente a dicho hospital. Se realizó un análisis temático a partir de las respuestas dadas por los entrevistados. Los hallazgos indicaron que los principales efectos de la intervención se presentan en la autoconsciencia, emociones, interacción social, hábitos saludables y manejo del estrés. Los efectos del programa trascienden el escenario laboral donde se realizó la práctica y abarcan diferentes facetas de la vida cotidiana de los participantes. Se concluye que dicho programa mantuvo los efectos positivos en los participantes un año después de su implementación.

Palabras clave: manejo; emociones; personal de la salud; *mindfulness*; investigación cualitativa.

Estudo qualitativo sobre os efeitos percebidos de um programa de *mindfulness* baseado na promoção da saúde um ano após de sua implementação

Resumo

O objetivo desta pesquisa foi explorar os efeitos percebidos por trabalhadores de um hospital na Colômbia a partir de um programa de *mindfulness* baseado na promoção da saúde, um ano após de sua implementação. Este estudo é qualitativo e contou com a participação de 16 trabalhadores (n = 14 mulheres; n = 2 homens) com idades entre 27 e 65 anos, vinculados profissionalmente ao hospital. Foi realizada uma análise temática a partir das respostas dos entrevistados. Os achados indicaram que os principais efeitos da intervenção manifestaram-se na autoconsciência, emoções, interação social, hábitos saudáveis e manejo do estresse. Os efeitos do programa transcendem o ambiente de trabalho onde foi realizado e abrangem diferentes facetas da vida cotidiana dos participantes. Conclui-se que o programa manteve os efeitos positivos nos participantes um ano após de sua implementação.

Palavras-chave: gestão; emoções; profissionais de saúde; *mindfulness*; pesquisa qualitativa.

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JEL classification: I31; M12; O54.

How to cite: Quiroz-González, E.; Delgado-Abella, L. & Lupano, M. (2024). Qualitative study on the perceived effects of Mindfulness-Based Health Promotion one year after its implementation. *Estudios Gerenciales*, 40(173), 420-431. <https://doi.org/10.18046/j.estger.2024.173.6723>

DOI: <https://doi.org/10.18046/j.estger.2024.173.6723>

Received: 13-02-2024

Accepted: 28-11-2024

Available on line: 28-02-2025

1. Introduction

Healthcare professionals require psychosocial support to preserve and foster their well-being (Stuijzand et al., 2020), especially in the post-pandemic era characterized by a global crisis that poses a particular threat to mental health (Blasco-Belled et al., 2022). Coping with this situation firsthand has posed an unprecedented challenge for healthcare workers, who have experienced a considerable increase in the risk of psychological disorders, substance abuse, post-traumatic stress symptoms, depression, suicidal ideation, anxiety, stress, and burnout (Hill et al., 2022; Manríquez-Robles, 2022; Łaskawiec et al., 2022; Zhou et al., 2022).

International public health policies must facilitate the development of strategies to prevent the psychological consequences of the pandemic and promote practices that support well-being (Blasco-Belled et al., 2022; Costa et al., 2022; Peters et al., 2022). Among the recommended interventions for the mental health care of healthcare workers are mindfulness-based approaches (Ornell et al., 2020).

Mindfulness is a practice rooted in cultivating non-judgmental, present-moment awareness, originated in the Indian subcontinent about 2,500 years ago (Lomas & Iltzan, 2016). It wasn't until approximately 40 years ago, through the groundbreaking contributions of Jon Kabat-Zinn—who integrated mindfulness into psychotherapy—that its scientific use for enhancing health and well-being in specific contexts began to take shape (Kabat-Zinn, 2005).

Besides Mindfulness-Based Stress Reduction (MBSR), introduced by Kabat-Zinn in the 1970s, other mindfulness interventions have been developed for application in various fields and for different purposes. In recent years, interventions that focus more on increasing well-being rather than solely on symptom reduction have emerged (Allen et al., 2021).

Juárez et al. (2022) highlight that few studies in Latin America report the effects of mindfulness techniques on the psychological health of the working population. Their recent meta-analysis concluded that mindfulness significantly influences anxiety, depression, stress, psychiatric symptoms, and quality of life. However, the authors pinpoint the need to interpret these results cautiously and call for more extensive and rigorous studies with Latin American employees.

Our research used the Mindfulness-Based Health Promotion (MBHP) protocol, a program designed by the Centro Mente Aberta based on MBSR, Mindfulness-Based Cognitive Therapy, and Mindfulness-Based Relapse Prevention models. This program is adapted for health promotion among the Spanish-speaking population (Demarzo, 2020; Duran et al., 2022). The MBHP is applied in this study with a focus of analysis from qualitative research.

It is essential to emphasize that qualitative studies contribute to epistemological and methodological development through innovation (Chapela Mendoza et al.,

2022). Few empirical studies have investigated well-being and mindfulness in healthcare settings using qualitative methods (Weisbaum & Chadi, 2022), and no reports were found regarding the post-COVID-19 pandemic era. Therefore, this research aims to explore the perceived effects of a MBHP program among healthcare workers at a Colombian hospital one year after its implementation.

To achieve this purpose, a conceptual approach to mindfulness is taken, especially the MBHP program, which has shown positive effects on health workers. Subsequently, the methodological deployment to perform the thematic analysis is presented. Results are presented by categories and subcategories. Finally, some recommendations, limitations, contributions to scientific literature, and future research lines are presented.

2. Literature review

Mindfulness is a type of meditative practice defined as “the awareness that emerges through paying attention on purpose, in the present moment, and nonjudgmentally to the unfolding of experience moment by moment” (Kabat-Zinn, 2003, p.145). Several studies have reported its effectiveness in improving the psychological functioning of healthcare professionals in various countries, including Cuba (Ruiz-Íñiguez et al., 2023), China (Zhou et al., 2022), Australia (Xu et al., 2021), Spain (Fuertes et al., 2019), and Chile (Reynaldos-Grandón & Pedrero, 2021), among others.

In general, studies report a reduction in stress levels and an increase in perceived well-being (Lomas et al., 2019). Given the interest generated by the study of the efficacy of mindfulness-based interventions in healthcare personnel, several reviews analyze their effects on specific professions within the medical-care field, including nursing personnel (Guillaumie et al., 2017); occupational therapists (Luken & Sammons, 2016); mental health professionals (Rudaz et al., 2017); medical students (Daya & Hearn, 2017) and social workers (Trowbridge & Mische Lawson, 2016). Overall, consulted reviews report a disparity in the quality and modality of the interventions performed (Van Dam et al., 2018) and a greater need for controlled trials (Lomas et al., 2019).

In this population, few studies have reported long-term follow-up on the effectiveness of mindfulness-based interventions on mental health; nevertheless, some successful findings are available: three months (Suyi et al., 2017), one year (Kriakous et al., 2021), and two years (Fuertes et al., 2019) post-intervention. However, van Berkel et al. (2014) did not find positive effects six and twelve months after a worksite mindfulness-related multi-component health promotion intervention.

The effectiveness of MBHP is being studied increasingly and more attention has been paid in recent years to its application and impact across various settings. Research in Brazil employing quantitative methods with diverse populations has reported positive outcomes. Mapurunga et al. (2020) conducted a nested randomized controlled trial

with elderly participants and found that MBHP improved quality of life, cognitive function, psychological health, sleep quality, self-compassion, and religiosity.

Trombka et al. (2021) conducted a multicenter randomized controlled trial with police officers and found improvements in quality of life and symptoms of anxiety and depression at post-intervention and a six-month follow-up. Rodrigues de Oliveira et al. (2021) conducted a randomized pilot clinical trial and reported positive changes in perceived stress, resilience, positive and negative effects, and quality of life among a group of teachers after participating in an MBHP program. In a randomized controlled pragmatic study with women diagnosed with obesity, Salvo et al. (2018) found that MBHP resulted in improved eating behavior and reduced binge eating.

In Colombia, Quiroz-González et al. (2024) studied the effects of an MBHP intervention with healthcare workers, showing that, as a result of the intervention, participants developed strategies to better manage emotions and thoughts, avoiding impulsive reactions.

Regarding qualitative research on mindfulness-based interventions, literature is limited and covers diverse populations, but in general, participants reported positive effects on their psychological health (Neate et al., 2022; Proulx et al., 2020; Wrapson et al., 2022). In the educational setting, qualitative studies with students, teachers, and employees who received mindfulness-based training reported improvements in emotional regulation and well-being (Cheng et al., 2022; Fletcher et al., 2022) and increased ability to cope with diverse stressors (Alves Peixoto et al., 2022; Nardi et al., 2022). They also found upward spirals leading to multiple positive benefits (Hugh-Jones et al., 2018). In the organizational context, Bonde et al. (2023) found that mindfulness interventions can improve social relationships at work.

There is also qualitative research into healthcare workers. In interdisciplinary oncology teams, using a mindfulness-based intervention aimed at training in compassion, presence, and resilience, five benefits were found: learning to take breaks, mindfulness, working on the concepts of stress and self-care, gaining self-compassion, receiving organizational recognition, and the institution perceives your condition due to stress (Nissim et al., 2019). Similarly, after participating in an MBSR program, an interdisciplinary group of surgery residents achieved increased awareness of their thoughts, emotions, and bodily responses; increased self-reflection, acceptance, and non-judgment; improved resilience; and greater self- and others-acceptance, both personally and professionally (Verweij et al., 2018).

Banerjee et al. (2017) studied the facilitators and barriers reported by medical staff to engage in mindfulness training. The analysis produced four main themes: attitudes toward commitment, intervention characteristics, change processes, and perceived consequences. In the same vein, Lyddy et al. (2016) focused on the difficulties associated with transferring the positive effects of mindfulness training to the actual work environment. They concluded that further

research is needed to explore the types of training that yield better results in this context.

Some mixed-methods studies (qualitative and quantitative) have been conducted using MBHP. For instance, Teixeira et al. (2024) conducted research to analyze the effects of mindfulness-based psychosocial group interventions for health promotion in primary care units. Through focus groups, they identified several emerging categories that reflect the perceived benefits reported by patients (e.g., the opportunity to experience mindfulness, daily life experiences influencing adherence, coping strategies for difficulties and challenges, benefits of the mindfulness group on emotional suffering).

3. Methodology

Sixteen workers ($n = 14$ female; $n = 2$ male), aged between 27 and 65, employed at a low-complexity hospital in Valle del Cauca, Colombia, participated in this study. They underwent MBHP training 12 months prior to the study's implementation. Table 1 provides further participant characterization.

3.1 Interview

Participants answered the following questions:

- 1) How was your experience during the mindfulness training?
- 2) What benefits have you experienced from mindfulness practice?
- 3) Besides mindfulness practice, what other situations or conditions do you think are related to the benefits you mentioned?
- 4) What changes have you noticed after the training?
- 5) Apart from mindfulness practice, what situations or conditions do you think are related to the mentioned changes?
- 6) Do you continue practicing any of the exercises learned during training? If so, which one(s)?
- 7) Would it be beneficial to have this type of training in the workplace? What benefits would it provide?
- 8) How often do you think such training should be conducted?
- 9) Do you think there may be obstacles to implementing these practices in the workplace? 10) Do you consider that it could be possible to apply it virtually or in a self-managed way?

3.2 Procedure

The MBHP training took place during September and October 2021. The program was provided free of charge and lasted for two months, with a weekly commitment of two hours included within the participants' working hours. Following the protocol, eight sessions were conducted covering the following topics: 1) What is mindfulness? Breaking free from autopilot; 2) Mindfulness of breathing; 3) Mindfulness in daily life; 4) Mindfulness for challenging

Table 1. Sociodemographic and work-related characteristics of the participants.

Variable	Response Option	Frequency (n)	Percentage (%)
Marital Status	Single	7	44 %
	Married	1	6 %
	Common-law marriage	8	50 %
Educational attainment	Elementary school	1	6 %
	High School	1	6 %
	Technician/technologist	7	44 %
	Undergraduate	6	38 %
Type of contract	Graduate	1	6 %
	Permanent	4	25 %
	Indefinite	9	56 %
	Provision of services	2	13 %
Role	Work or Labor	1	6 %
	Assistant	6	38 %
	Administrative	10	63 %

Source: own elaboration.

situations; 5) Mindfulness of the mind and thoughts; 6) Silence; 7) Mindfulness and compassion; and 8) Mindfulness for life. Each session incorporated active methodologies such as experiential activities, breathing exercises, mindful eating, group activities, conscious dialogues, mindful walking, and body scan. Additionally, each participant received a journal to record their weekly progress and experiences with assigned tasks in writing. Upon completion of the program, attendees received a participation certificate.

The training was led by a psychologist certified as a *Mindfulness na Promoção da Saude* instructor by the Universidade Federal do Estado de São Paulo (UNIFESP) and the Centro Brasileiro Mente Aberta. In November 2022, one year after the training concluded, semi-structured audio-recorded interviews were conducted. These interviews were led by two psychologists, one of whom was a researcher in this project. The interviews took place in person at the hospital facilities. The interview comprised ten open-ended questions, including inquiries about participants' experience during mindfulness training, benefits they experienced from mindfulness practice, and changes they noticed after the training. These questions aimed to explore the perceived effects one year after participating in mindfulness training. Each interview lasted approximately 30 minutes and concluded when data saturation was achieved. No incentives were offered for participation.

3.3 Data Analysis

A thematic analysis was applied, adopting a qualitative approach (Clarke & Braun, 2014). According to Braun and Clarke (2006) "thematic analysis is a method for identifying, analyzing and reporting patterns (themes) within data. It minimally organizes and describes your data set in (rich) detail" (p.79). Whereby the proposed themes were derived

from an inductive paradigm, with data coding and theme development resulting from the data analysis process. The following steps were followed: a) familiarization with the data; b) generating initial codes; c) searching for themes; d) reviewing themes; e) defining and naming themes; and f) preparing the report with the final model (Braun & Clarke, 2006).

For this purpose, interviews were recorded and later transcribed *verbatim*. Transcription was initially made using Google Docs (Voice Typing); then, each recording was verified by the research team. For coding, the research team used Microsoft Excel and different colors were used to differentiate the proposed codes. Each researcher coded the data independently and systematically. Subsequently, in a joint session, codes were compared and discussed by the research team until a consensus was reached. After several review and theoretical discussion meetings, a final model of themes grouped into categories and subcategories was established.

3.4 Ethical Considerations

This study adheres to the guidelines of the Declaration of Helsinki (WMA, 2024) and the Universal Declaration of Ethical Principles for Psychologist regulations (2008). Consent was obtained for both participation in the study and the recording of interviews. The research was approved by the Ethics Committee of the university that lead the research (Minutes n.º 05 of 2021). Participants' anonymity was maintained.

4. Results

In the initial section, the responses of each of the 16 participants were analyzed. Five categories corresponding to the perceived effects of the participants were identified and labeled as follows: Self-awareness, Emotions, Social

Interaction, Healthy Habits, and Stress Coping. Each category includes subcategories representing facets of the overarching theme.

4.1 Self-awareness

Participants (11/16) mentioned changes related to becoming more self-aware and acting accordingly. They mentioned creating space for themselves and engaging in self-care actions and activities. Thus, three subcategories identified in this topic were self-care, being aware, and self-knowledge.

4.2 Emotions

Participants (9/16) reported two types of emotional benefits as a result of the intervention. On the one hand, they perceived an increase in positive emotions, including tranquility, joy, and gratification. On the other hand, they learned to better control negative emotions such as frustration, anger, or sadness due to mindfulness training.

4.3 Social interaction

Participants (12/16) noticed changes in their behavior within the workplace, describing improvements in patient/client interactions, enhanced organizational climate in their areas, and better integration within work teams. They also mentioned transferring these changes to their socio-familial contexts by applying the learned skills, such as non-judgmental attitudes, constructive dialogue, and helping others.

4.4 Healthy habits

Participants (11/16) began acting with greater consciousness, being present in daily routines they used to perform automatically without much thought. These practices included hygiene habits like brushing teeth or bathing and healthy eating and exercise routines, like going for walks. They also started using body scanning to be mindful of their bodies. The intervention led them to internalize and practice various mindfulness techniques daily, bringing them satisfaction and tranquility. Some of these practices involve the experience of savoring and activating the senses, being attentive to sensations, breathing techniques, sleep reconciliation, and active pauses.

4.5 Coping with stress

Participants (16/16) highlighted acquiring strategies for coping with work-related and personal stress. Two subcategories emerged: emotion-focused strategies involved changing emotions generated by stressful situations through relaxation, reframing, and self-control, while problem-focused strategies involved organization, problem reflection, and a proactive problem-solving approach.

Overall, all participants had a gratifying experience during the intervention and noticed positive changes in various aspects of their lives beyond the workplace setting. Most of them continue to practice some of the exercises learned during training; although not everyone performs them daily, they try to incorporate them into their lives.

In summary, [Figure 1](#) presents the categories and subcategories. [Table 2](#) provides the general categories and subcategories with examples of phrases from the interviewees.

In the second section of the interview, issues related to future intervention implementations were addressed. In this line of thought, 100% of the interviewees answered that it would be beneficial to have this type of training in the workplace. Their responses can be categorized into two types regarding the benefits it would bring. First, they mentioned that it would provide them with a space of containment and support; for example, one participant stated: "Some people have no one to talk to, they don't have a space to vent, we don't know how they live at home. For me, these actions help people to see life differently, to be able to find relief, release anger, complexes, and they are very helpful."

Second, most participants pointed out that another benefit is related to having tools to manage stress and preserve mental health. They associated this second benefit mainly with the type of work they do within the institution, as it involves a high workload and significant emotional impact due to it being a healthcare service. For example, one participant responded: "They benefit the staff because we are exposed to a lot of pressure at work, meeting goals, there are many demands, so it's good to have these kinds of spaces for that."

Regarding possible obstacles to implementing the practices in their workplaces, only four people mentioned potential barriers. The obstacles they referred to were related to a lack of financial resources and the institution's dynamics, as employees might argue that they don't have time for these activities. One interviewee even mentioned that some employees might refuse to participate due to disinterest or lack of motivation: "I think there could be obstacles because sometimes many people say, 'I don't like that,' and they don't take the time to get to know and check out the activity."

As for the possibility of conducting the intervention virtually, only three people stated that they would prefer that modality. The rest argued that they find it more effective to do it in person as it avoids interruptions, prioritizes contact with others, and provides time and space to connect with oneself. Regarding conducting the intervention in a self-managed way, although many considered it viable, they believed it was necessary to first go through the in-person experience guided by an instructor. Furthermore, they commented that, even if it is done autonomously, they believe having external guidance and orientation is essential.

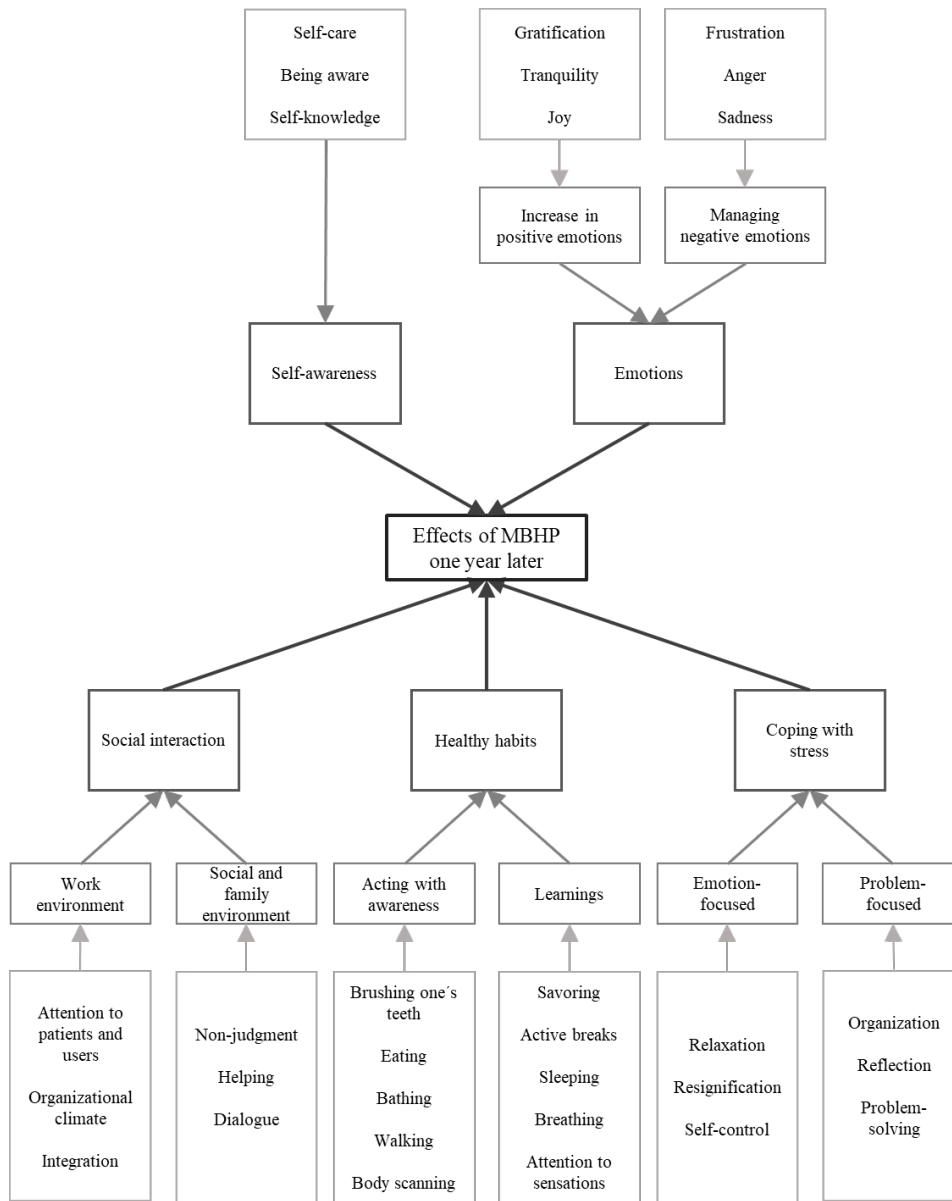


Figure 1. Model of the effects one year after the MBHP intervention.
Source: own elaboration.

5. Discussion and conclusions

5.1 Discussion

This study aims to explore the perceived effects of a Mindfulness-Based Health Promotion (MBHP) program among workers in a Colombian hospital one year after its implementation. Findings indicate that the intervention’s main effects are self-awareness, emotions, social interaction, healthy habits, and coping with stress.

One year after mindfulness training, participants reported positive effects related to **self-awareness**. This advance enabled them to embrace self-care practices, be mindful of everyday situations, and enhance self-knowledge. These findings align with the state of

consciousness cultivated through mindfulness (Kabat-Zinn, 2017), which leads to attentional self-regulation and a focus on personal experiences observed with openness, curiosity, and acceptance (Bishop et al., 2004), fostering reflection and receptiveness (Evans et al., 2023). In this sense, MBHP aims to develop awareness and recognize internal phenomena like sensations and thoughts and external phenomena like sounds and smells (Demarzo, 2018; Duran et al., 2022).

Other studies also identified positive changes in participants following mindfulness interventions. For instance, Alves Peixoto et al. (2022) reported changes in self-awareness, leading to improved self-relationships (Neate et al., 2022). The observed changes in self-awareness may be associated with formal and informal mindfulness practices

Table 2. General categories and subcategories on the effects of MBHP one year later.

General Categories	Subcategories and quote examples from the Interviewees
Self-awareness	Self-care: "I learned to care for myself, to think about myself... I was not used to thinking about taking care of myself, but now I try to tell myself: look, take care of yourself; you also get tired, you can get sick, or you can be emotionally affected." Being aware: "I also discovered that there were situations where I wasn't fully present, like not paying attention to the people around me." Self-knowledge: "The experience was very satisfying, like when you meet yourself, and there were moments of questioning." Increase in positive emotions = Gratification: "It was very good, very gratifying, I learned many things I didn't know before, or things I didn't realize I was doing at the time." Tranquility: "It allowed me to accept changes calmly." Joy: "I used to come with negativity, sadness, but mindfulness always brought joy and happiness into my life."
Emotions	Managing negative emotions = Frustration: "I was laid off, and it was tough because I thought, what mistake did I make? When I started practicing mindfulness, I could... realize many things, think about what I'm doing wrong." Anger: "Managing anger or, for example, irritation, I breathe, I talk, and I don't blurt things out rudely, I take the time to think about how to say things." Sadness: "These are spaces that help a lot, for people to see life differently, or to be able to vent out all those situations of sadness." Work environment = Attention to patients and users: "Regarding patients and users of the hospital, there was a positive change in how we treated them." Organizational climate: "The work environment improved a lot, with colleagues, and it's noticeable in how we address each other, it was very enriching for everyone's life." Integration: "I have seen a lot of change because we have settled in, there's more collaboration, we work together in all areas."
Social Interaction	Family and social environment = Non-judgment: "Trying to understand, perhaps, the other person's situation and not judging them for doing things wrong, or because I don't like it. Trying to understand what they are going through, in other words, not judging, it's wrong, and giving them a wake-up call." Helping: "Doing things with love, giving the best to others, helping them." Dialogue: "When there are problems in relationships, then I try to calm down, I try to talk because things have a solution." Acting with awareness = Brushing one's teeth: "Brushing one's teeth, even if it takes time, consciously." Eating: "I feel when I'm eating, I give myself time, I enjoy it." Bathing: "While bathing, I feel the water on my skin, the soap sliding, I enjoy that moment more." Walking: "Walking mindfully, getting into a mental state, thinking." Body scanning: "For stress, I really like body scanning. I've tried practicing it during exercise, feeling the strength, the muscle contraction."
Healthy habits	Learnings = Savoring: "Savoring, feeling the taste of each thing." Active breaks: "For me, the greatest benefit is feeling that we need an active break, and we have to give ourselves that... because the daily obligations require it, otherwise, we get overwhelmed and sick." Sleeping: "The main benefit that I tell everyone is sleeping, because I had trouble falling asleep, and with the techniques we learned in the training, I fall asleep in about five deep breaths, I relax, and I can sleep." Breathing: "When we started the mindfulness process, I said, I have to be more patient, calmer. Let's breathe and try to improve." Attention to sensations: "The experience was outstanding; you learn to discover things you weren't aware of, like, for example, identifying smells, the space around you." Emotion-focused = Relaxation: "I try to relax, I feel it helps a lot when there's too much fatigue or work-related stress due to obligations." Resignification: "For me, these spaces help a lot for people to see life differently." Self-control: "Now I think before speaking, I take time to respond."
Coping with stress	Problem-focused = Organization: "It helped me get organized and make more time for myself, which I had never done before." Reflection: "Having the ability to reflect, to look for other ways out without reaching a point of stress." Problem-solving: "It helped me a lot to relax when there's a problem and see that there's always a solution."

Source: own elaboration.

proposed in MBHP training. Particularly, informal practices in daily life offer opportunities to activate awareness and break free from automatic patterns (Trombka et al., 2018).

Furthermore, mindfulness practice positively impacts **emotions**. Particularly by increasing positive emotions such as gratification, tranquility, and joy. This result aligns with research by Fredrickson et al. (2017). It is also consistent with a previous study where participants reported having tools for emotional control, balance, and anxiety management after mindfulness intervention (Alves Peixoto et al., 2022). Thus, mindfulness fosters gratitude, peace (Neate et al., 2022), and tranquility (Banerjee et al., 2017).

Mindfulness also facilitates the management of negative emotions such as frustration, anger and sadness. Other studies have reported a reduction in negative affect

following mindfulness interventions (Lindsay et al., 2018; Rodrigues de Oliveira et al., 2021, Schumer et al., 2018; Strega et al., 2018; Teixeira et al., 2024; Wilson et al., 2022), including those using technological devices (Victorson et al., 2020). Changes in emotions may be mainly linked to topics addressed in sessions 5 and 7 of MBHP training, which focus on mindfulness of the mind and thoughts and mindfulness and compassion, respectively, touching on gratitude and fears.

Mindfulness has been shown to offer many psychological benefits to individuals, but it is less known whether these benefits extend to others. In the results of this study, we found that participation in the MBHP program led to improvements in **social interaction**. Participants emphasized implementing communication strategies

such as non-judgment and dialogue, which can be linked to prior research showing that mindfulness, whether seen as a personality trait or a practice, is associated with higher levels of prosocial behavior, involving behaviors aimed at helping or benefiting others (Eisenberg et al., 2006). This strategy is reflected in emerging subcategories such as organizational climate, integration, and helping. Participants mentioned that the program helped them cultivate an altruistic and respectful attitude toward others.

Similarly, our findings align with the meta-analysis conducted by Donald et al. (2019), demonstrating evidence of a relationship between mindfulness and prosocial behavior. The authors explain this relationship, including mindfulness increasing attention levels and facilitating self-decentering, allow individuals to notice and respond more effectively to others' needs. This is also consistent with qualitative studies, such as that of Bonde (2023), who found that mindfulness practices positively impact social relationships at work. In line with this, Neate et al. (2022) identified that mindfulness fosters improved connections and relationships with others by developing skills like active listening.

Notably, while the MBHP program was conducted in a professional health context, participants mentioned that the benefits of social interaction extended beyond the workplace to their socio-familial sphere. This is fostered in the program through module 3: Mindfulness in daily life.

Furthermore, participants reported the effects of adopting **healthy habits**, especially those that enable conscious action and new ways of conducting daily practices. This could be related to mindfulness's focus on cultivating non-judgmental present-moment attention, leading to richer experiences (Alves Peixoto et al., 2022). In a study with healthcare workers who received mindfulness intervention, participants emphasized the importance of practicing mindful exercises like conscious breathing and walking. They argued that these should become habits due to their benefits (Banerjee et al., 2017).

Besides, changes in internal mechanisms for developing mindfulness and transferring these learnings to different life situations were observed in an online mindfulness intervention. Specifically, changes were identified in daily experiences approached with kindness and non-judgment (Neate et al., 2022).

These healthy habits are promoted in various MBHP program sessions, including practices such as body scan, mindful eating, and mindful walking. Additionally, they align with the informal practices proposed during training, such as mindful tooth brushing, eating, and bathing. According to Trombka et al. (2018), these informal practices promote awareness by bringing the learnings from formal sessions into everyday activities.

Numerous studies have shown the positive effects of mindfulness-based interventions in reducing stress among healthcare workers (Lomas et al., 2019), including the MBHP program analyzed in this study (Demarzo, 2020; Demarzo & García Campayo, 2015; Salvo et al., 2018; Trombka et al., 2021). However, fewer studies have explored the impact of these programs on strategies to

cope with stress (Donald & Atkins, 2016; Finkelstein-Fox et al., 2019; Teixeira et al., 2024).

Thematic analysis revealed that participants in the MBHP program highlighted one of its main benefits as acquiring coping tools for handling both work-related and personal stress. This finding can be linked to Lazarus and Folkman's (1984) classification of coping strategies into problem-focused coping and emotion-focused coping. For instance, regarding emotion-focused strategies, participants reported that the intervention helped them gain better emotional self-control and avoid reactive responses.

As for problem-focused strategies, they began to value the importance of organization and planning for finding solutions. MBHP works to transmit these tools primarily through module 4: Mindfulness for challenging situations. This is a strength of this intervention, as several studies emphasize the need for interventions that not only reduce stress but also promote the health of healthcare workers (Janssen et al., 2020; Lemos et al., 2021). Our findings support the idea that mindfulness training promotes health, aligning with previous research results (Alves Peixoto et al., 2022; Banerjee et al., 2017; Demarzo & García-Campayo, 2015; Neate et al., 2022).

Promoting health has been a primary focus of positive psychology, a subdiscipline that has seen significant growth in the last two decades (Martín-del-Río et al., 2021; van Zyl and Salanova, 2022). Specifically, Positive organizational psychology emphasizes the importance of putting individuals at the center of work relationships and nurturing their strengths, virtues, and capacities (Salanova et al., 2019). Therefore, mindfulness training is an effective intervention to promote the health of those who care for others' health.

In this context, the MBHP approach used in this study has maintained its positive effects on participants one year after the intervention, possibly because, as suggested by Hugh-Jones et al. (2018), discrete and time-limited experiences provided by the training link together to generate multiple positive benefits through upward spirals. This potential explanatory mechanism aligns with the conservation of resources theory, especially with resource caravans and their capacity to sustain and enhance psychological resources (Hobfoll et al., 2018).

Finally, it is important to highlight that qualitative research, by recognizing the social and human dimension (Lanka et al., 2021), provides interpretive richness, contextualization of the environment or surroundings, details and unique experiences (Hernández et al., 2014) that have been valuable in enhancing the understanding of quantitative results in the field of mindfulness.

Qualitative findings raise new questions regarding the relationship between psychological and social variables involved in the effectiveness of mindfulness interventions. Likewise, they provide a deeper insight and understanding of participants' own perspectives on various aspects of the intervention and its short, medium and long-term effects (Nardy et al., 2020; Stjernswärd, 2020).

5.2 Conclusions

The main results obtained in this study are relevant to both qualitative and quantitative research findings. This research significantly contributes to scientific literature by documenting that the effects on MBHP participants persists one-year post-intervention, particularly, the sustained internalization of healthy practices and habits among participants. These findings are compelling as they illustrate that the program's effects transcend the workplace setting and influence diverse facets of participants' daily lives.

This study pioneered the use of this mindfulness program in a Latin American country from a qualitative perspective. We believe that qualitative research, specifically thematic analysis, allows us to understand the phenomenon studied from the experience, perceptions, and stories of participants by grouping patterns (themes) within a set of data, in this case obtained from interviews. The flexibility of thematic analysis allows it to be adapted to various disciplines, making it suitable for social and administrative sciences. In this study, this methodology allowed us to approach the effects of MBHP training one year after its implementation and find that these effects are grouped into five major themes. It is noteworthy that the perceived benefits resulting from the program not only brought about personal changes but also enhanced participants' interpersonal relationships and communication skills.

5.3 Limitations and recommendations

This study identified at least two limitations. The first is related to the small number of participants ($n=16$). However, it is important to note that in qualitative studies, collecting data from large samples is not necessarily a crucial requirement, and it is common to work with small samples (Marks & Yardley, 2004).

The second limitation could be related to the specific characteristics of the institution and locality where the practice was conducted, as it was a small establishment where people often knew each other. This aspect may have led to a tendency to respond positively and not express criticism or objections to the intervention. While the interviewers tried to maintain a neutral stance that did not induce responses, it is possible that bias was not completely eliminated.

Regarding future lines of work, it would be interesting to study the online implementation of this type of intervention and analyze whether similar effects are obtained, especially in the long term. Although some participants expressed reluctance to the virtual implementation of the program, many argued that it would be more convenient and feasible, given the challenges of attending in-person sessions due to high work demands in healthcare settings like the one studied. Building upon these findings, future studies could investigate the effectiveness of shorter intervention programs and assess whether positive outcomes persist with a reduced number of sessions.

It would also be relevant to analyze the role of potential mediating variables, such as examining whether coping strategies acquired due to the program mediate stress reduction (Finkelstein-Fox et al., 2019; Lazarus & Folkman, 1984; Terry & Hines, 1998).

In terms of processing qualitative data, future studies could incorporate the support of software such as Atlas.ti, NVivo, Dedoose, or Taguette (Chandrasekar, et al., 2024) and could also make use of tools with artificial intelligence, which facilitates the analysis of large volumes of information. These programs facilitate research work, especially when it comes to big qualitative data analysis.

Finally, future studies could aim to conduct mixed-method research, combining qualitative and quantitative methodologies (Levitt et al., 2018) to increase the rigor of the findings. Among the strengths of this study, it stands out that it was conducted using a novel mindfulness program (MBHP) suitable for application among healthcare workers in the Latin American context. Additionally, it is noteworthy that there is a scarcity of research conducted in Latin American countries into the effects of such practices on healthcare workers (Juárez et al., 2022). Furthermore, few empirical studies have examined the impact of mindfulness on well-being in healthcare settings using a qualitative approach (Weisbaum & Chadi, 2022).

In Colombia, human resource management areas have been positioning themselves in a strategic field for achieving business objectives (Calderón-Hernández et al., 2023). In this sense, those who lead these areas must promote the implementation of intervention programs that have scientific evidence, such as the MBHP, especially in healthcare institutions.

Another strength of this research lies in the sustained effects observed one year after the intervention. Future studies can explore whether the effects of this program endure for even longer periods, as demonstrated by other research with different intervention modalities that have shown lasting results up to two and even four years after the intervention (e.g., Fuertes et al., 2019; Solhaug et al., 2019).

Conflict of interest

The authors declare no conflict of interest.

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Estudios Gerenciales

vol. 40, no. 173, p. 420 - 431, 2024

Universidad Icesi,

ISSN: 0123-5923

DOI: <https://doi.org/10.18046/j.estger.2024.173.6723>