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REVIEW

Cognitive-behavioural therapy interventions for health professionals in organisational contexts: A systematic literature review

Ana Paula Pinheiro Santana Ruiz [a,*], **João Nuno Ribeiro Viseu** [b], **Cristian David Cifuentes-Tinjaca** [c], **Saúl Neves de Jesus** [a]

[a] *Faculty of Human and Social Sciences, Research Center in Psychology (CUIP), University of Algarve, Portugal*
[b] *Department of Psychology, School of Social Sciences, University of Évora, Center for Research in Education and Psychology (CIEP), University of Évora, Portugal*
[c] *Faculty of Nursing, Universidad Nacional de Colombia, Bogotá, Colombia*

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Abstract | **Introduction:** Health professionals are particularly vulnerable to various stressors in the work environment, making it essential to study strategies that promote improvements in their well-being. Evidence-based interventions, such as Cognitive Behavioural Therapy, are widely recognised for their effectiveness in managing different stressors and disorders. **Objective:** This review aimed to identify and synthesise Cognitive Behavioural Therapy interventions (online or face-to-face) applied to health professionals in organisational contexts. **Method:** A systematic literature review was conducted of articles addressing Cognitive Behavioural Therapy interventions (online or in-person) applied to healthcare professionals in organisational settings. The search for primary studies was conducted in January 2025 in the following databases: PubMed (Medline), Scopus, Web of Science, and B-ON. **Results:** A total of 1,579 studies were identified, of which 13 met the eligibility criteria. The study characteristics, individual and organisational outcomes assessed, evaluation time points, and the method, model, and description of the interventions were analysed. **Conclusion:** The interventions identified included combinations with mindfulness and Acceptance and Commitment Therapy, demonstrating efficacy in reducing stress, psychological distress, fatigue, insomnia, depression, anxiety, emotional exhaustion, Post-Traumatic Stress Disorder, alcohol consumption and distress. At the same time, they promoted increased resilience, psychological well-being, mental health, psychological flexibility and normalisation.

Keywords: Interventions, cognitive-behavioural therapy (CBT), application method (online/face-to-face), health organisations, health professionals

Intervenciones de Terapia Cognitivo-Conductual para profesionales de la salud en contextos organizacionales: revisión sistemática de la literatura

Resumen | **Introducción:** Los profesionales de la salud son particularmente vulnerables a diversos factores de estrés en el entorno laboral, por lo que es esencial estudiar estrategias que promuevan mejoras en su bienestar. Las intervenciones basadas en la evidencia, como la Terapia Cognitivo-Conductual, son ampliamente reconocidas por su efectividad en el manejo de diferentes factores de estrés y trastornos. **Objetivo:** Esta revisión tuvo como objetivo identificar y sintetizar intervenciones de Terapia Cognitivo-Conductual (en línea o presenciales) aplicadas a profesionales de la salud en contextos

* Corresponding author.
E-mail: anapaularuiz72@gmail.com

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organizacionales. **Método:** Se realizó una revisión sistemática de la literatura de artículos que abordaron intervenciones de Terapia Cognitivo-Conductual (en línea o presenciales) aplicadas a profesionales de la salud en entornos organizacionales. La búsqueda de estudios primarios se realizó en enero de 2025 en las siguientes bases de datos: PubMed (Medline), Scopus, Web of Science y B-ON. **Resultados:** Se identificaron un total de 1579 estudios, de los cuales 13 cumplieron con los criterios de elegibilidad. Se analizaron las características del estudio, los resultados individuales y organizacionales evaluados, los momentos de evaluación, así como el método, el modelo y la descripción de las intervenciones. **Conclusión:** Las intervenciones identificadas incluyeron combinaciones con *mindfulness* y Terapia de Aceptación y Compromiso, demostrando eficacia en la reducción del estrés, el distrés psicológico, la fatiga, el insomnio, la depresión, la ansiedad, el agotamiento emocional, el Trastorno de Estrés Postraumático, el consumo de alcohol y la angustia. Al mismo tiempo, promovieron una mayor resiliencia, bienestar psicológico, salud mental, flexibilidad psicológica y normalización.

Palabras clave: Intervenciones, Terapia Cognitivo-Conductual (TCC), método de aplicación (en línea/presencial), organizaciones sanitarias, profesionales sanitarios

Healthcare professionals are particularly vulnerable to emotional exhaustion and stress, which has negative impacts on work performance, patient safety, and the efficiency of the healthcare system (Izdebski et al., 2023; Johnson et al., 2018; Rothenberger, 2017). The consequences include reduced creativity, quality of care, and job satisfaction, as well as an increase in turnover, absenteeism, depressive symptoms, and fatigue (Abdoh et al., 2021; Costeira et al., 2022; Fasbender et al., 2019; Lacy & Chan, 2018; Lukan et al., 2022), in addition to insomnia (Costeira et al., 2022; Serafin et al., 2021) and suicidal ideation (Costeira et al., 2022; Wang et al., 2020). In addition, there is a higher risk of occupational injuries, including cardiovascular diseases (Dall'Ora et al., 2020; Foli et al., 2019; Grandinetti et al., 2021; Havaei et al., 2021; Kaushik et al., 2021; Li et al., 2021; Serafin et al., 2021; Wang et al., 2020; Zandi et al., 2020), substance abuse (Costeira et al., 2022; Foli et al., 2019) and risk of medical errors (Profit et al., 2014).

Stress among health professionals has become a relevant problem, affecting both workers and the economy (Waqas et al., 2019). This impact has been compounded by the long-term sequelae of COVID-19, which continue to affect the mental and behavioural health of these professionals (Costeira et al., 2022; Li et al., 2021; Saleem et al., 2021). In addition, nurses face high levels of stress due to the complexity of clinical environments, a globally recognised challenge (Costeira et al., 2022; Dall'Ora et al., 2020; Lukan et al., 2022; Okuhara et al., 2021). Costeira et al. (2022) emphasise the need for better working conditions, highlighting the scarcity of specific studies on this issue.

Managing stress in the workplace requires strategies that facilitate the adaptation of professionals, including access to information, training, and resources for positive *coping* and self-care (Costeira et al., 2022). The interventions are divided into two main approaches: (1) improvement of stressors, through organisational practices and culture (Costeira et al., 2022; Lee & Jang, 2019) and (2) cognitive-behavioural interventions, such as Cognitive-Behavioural Therapy (CBT) and relaxation techniques (Costeira et al., 2022; Junker et al., 2021). Given the high degree of suffering of these professionals, Doukas et al. (2024) highlight the importance of evidence-based interventions, such as CBT, to promote the well-being of the workforce. CBT interventions are widely adopted in countries such as the USA (Albott et al., 2020; DePierro et al., 2020), France (Geoffroy et al., 2020), Italy (Lissoni et al., 2020), and Sierra Leone (Cole et al., 2021).

CBT is an effective treatment for depressive disorders, anxiety, and the mental health impacts of stress, addressing cognitive, affective, and interpersonal aspects (Brantnell et al., 2023; Helminen et al., 2023; Shali, 2024). Inserted in behavioural therapies, it evolved in three distinct generations. The first, between 1920 and 1950, focused on the modification of problematic behaviours through classical and operant conditioning, prioritising measurable behaviours and disregarding internal processes. Methods such as systematic desensitisation have been widely used to treat phobias and anxiety (Azevedo et al., 2022). The second generation (1960-1990) integrated cognitive elements, recognising the impact of dysfunctional thoughts and beliefs on behaviour. CBT emerged as the leading model, combining cognitive and behavioural techniques to restructure thoughts and promote healthy emotional and behavioural changes (Azevedo et al., 2022; Hayes, 2016). The third generation, designated by Hayes et al. (2011) as Contextual Cognitive-Behavioural Therapies, emerged in the 1990s, reformulating previous approaches with a contextual focus and psychological flexibility, i.e., healthy adaptation to adversity without losing one's own values. This phase includes techniques such as mindfulness and acceptance, as well as approaches such as Acceptance and Commitment Therapy (ACT) (based on pervasive consciousness), Behavioural-Dialectical Therapy (BDT), Functional Analytic Psychotherapy (FAP), Behavioural Activation (BA), Integrative Behavioural Couples Therapy (IBCT), and Mindfulness-Based Therapy (MBT), promoting an integrated, evidence-based view that considers psychosocial and contextual aspects (Azevedo et al., 2022). CBT also incorporates techniques such as motivational interviewing, self-monitoring, and interoceptive exposures to influence behaviour and strengthen resilience, making it a promising intervention (Bandura, 1977; Shali, 2024).

Face-to-face CBT requires significant organisational resources and frequent visits from participants. With the rise in mental health issues at work, many organisations are adopting "digital health" technologies such as telehealth, wearable devices, and online services, expanding access and reducing costs (Brantnell et al., 2023; Kern et al., 2023; Lal, 2019). These technologies aim to supplement care, personalise treatments, and reinforce prevention (Krisher et al., 2024). CBT via the internet (I-CBT) operates similarly to the face-to-face version, using secure digital interactions for therapeutic support (Kern et al., 2023). The efficacy of I-CBT is controversial in the literature. Studies indicate that its effectiveness and satisfaction are comparable to face-to-face CBT when well structured (Andrews et al., 2018; Carlbring et al., 2018; Dear et al., 2015; Titov et al., 2015). However, challenges such as technological dependence, dropout rates, and ethical issues have been broached (Bisen & Deshpande, 2021; Maqsood et al., 2024; Thanetnit, 2022). I-CBT has demonstrated efficacy in 25 clinical disorders, with a strong impact on depression and anxiety (Hedman et al., 2012), in addition to being cost-effective and accessible (Cavanagh, 2014; Donker et al., 2015). It also reduces geographical barriers (Weightman, 2020) and has proven to be scalable, especially after the pandemic (Kern et al., 2023). I-CBT's recognition is growing (Matsumoto et al., 2020; Poletti et al., 2021), but further studies are needed on its clinical implementation (Brantnell et al., 2023; Ellis et al., 2020).

The discrepancy in the literature on the efficacy of online therapies may be linked to difficulties in implementation. Brantnell et al. (2023) highlight obstacles such as lack of resources, high costs, and ineffective reimbursement systems. Davies et al. (2020) report that the rigid structure of online therapies can compromise personalisation, increasing the dropout rate. Hybrid models, combining online and face-to-face sessions, emerge as an alternative to improve adherence. Educating professionals in digital literacy, selecting appropriate approaches, and creating technological support are essential to overcome these barriers. These factors align with the five domains of the Consolidated Framework for Implementation Research (CFIR), which encompass intervention characteristics, internal and external environment, profile of individuals, and implementation process (Davies et al., 2020).

Health organisations are strategic environments to implement mental health prevention programmes and promote the well-being of workers. However, adherence to psychological interventions is still limited (Krisher et al., 2024). Despite the potential of these programmes to expand access to appropriate treatments and increase productivity, there is a paucity of evidence on the effectiveness of digital interventions for health workers (Krisher et al., 2024; Serrano-Ripoll et al., 2021). Therefore, this systematic review aims to identify and synthesise CBT interventions and their application methods (online or face-to-face) in samples composed of health professionals in organisational contexts. This temporal cut-off was established to capture the most recent developments in CBT practice, reflecting methodological advances and the growing integration of digital and organisational approaches in healthcare settings. According to McKenzie et al. (2024), in the Cochrane Handbook for Systematic Reviews of Interventions (Chapter 3, MECIR C18), defining a specific time frame is a legitimate methodological decision when it is justified and aligned with the review's objectives

Method

Guideline and typology

The guideline of this systematic review of the literature will follow the guidelines of the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) 2020 (Page et al., 2021), with the typology of textual synthesis PICo, with the population (P) being health professionals, the intervention/phenomenon of interest (I) interventions in Cognitive Behavioural Therapy (CBT) and the context (Co) in health organizations/institutions.

Eligibility criteria

The inclusion criteria include studies with (1) samples mostly composed of professionals who work in the health area, in public or private organizations; (2) primary experimental studies describing interventions theoretically grounded in Cognitive-Behavioural Therapy (CBT), even if combined with components from third-wave approaches (e.g., ACT, MBCT, or MBSR), as long as CBT constitutes the main theoretical basis; (3) studies published in peer-reviewed journals; (4) studies published in the last eight years (2018-2025); (5) studies published in Portuguese, English or Spanish. Exclusion criteria include: (1) samples that exclusively include non-health professionals; (2) studies with professionals who are not working in health organisations; (3) samples composed exclusively of students or residents in training; (4) secondary studies, such as reviews, meta-analyses, and gray literature; (5) pilot studies, protocols without results, opinion articles, books and publications without empirical data; (6) studies that do not describe interventions or exclusively address other psychological approaches; and (7) inaccessible full-text articles.

Research strategy

The databases used were PubMed (Medline), Scopus, Web of Science and B-ON, with the following descriptors: "Health Personnel" OR "Health Professionals" OR Organization*AND Intervention* AND "Cognitive Behavioral Therapy". These descriptors varied according to the type of database. In PubMed, the search equation used was: (("Health Personnel"[Mesh]) AND ((Intervention*[Title/Abstract]) AND ("Cognitive Behavioral Therapy"[Mesh]))) AND (((((("Health Care Economics and Organizations"[Mesh]) OR ("Health Maintenance Organizations"[Mesh])) OR ("Joint Commission on Accreditation of Healthcare Organizations"[Mesh])) OR ("Health Planning Organizations"[Mesh])) OR ("Organizations"[Mesh])). In Web of Science and Scopus, the research equation used was: ("Health Personnel" OR "Health Professionals" OR Organizations) AND Intervention AND "Cognitive Behavioral Therapy". At B-ON,

the research equation used was: ("health professionals" or "healthcare professionals" or "health personnel" or "healthcare personnel") AND (intervention or program or training) AND ("cognitive behavioral therapy" OR cbt OR "cognitive behavioural therapy") AND "health organizations". The survey was conducted between January 6 and 30, 2025. These keywords were defined and aligned according to the existing literature and the objective that guides this study.

Selection process and data collection

The first selection was based on the title and abstract of the studies, which, for greater transparency, were transcribed into a Microsoft Excel spreadsheet, where those who did not meet the criteria were analysed according to the eligibility criteria and excluded. Two researchers participated in this stage, in addition, in situations of doubt regarding inclusion/exclusion, a third researcher was consulted. The full analysis of the articles was carried out using Microsoft Excel, where a summary Table of the individual information of each study was created. The information extracted from the studies included: objective, sample, study design, type of intervention, theoretical model of the intervention, method of application of the intervention and the main results obtained from the intervention.

Risk of study bias assessment

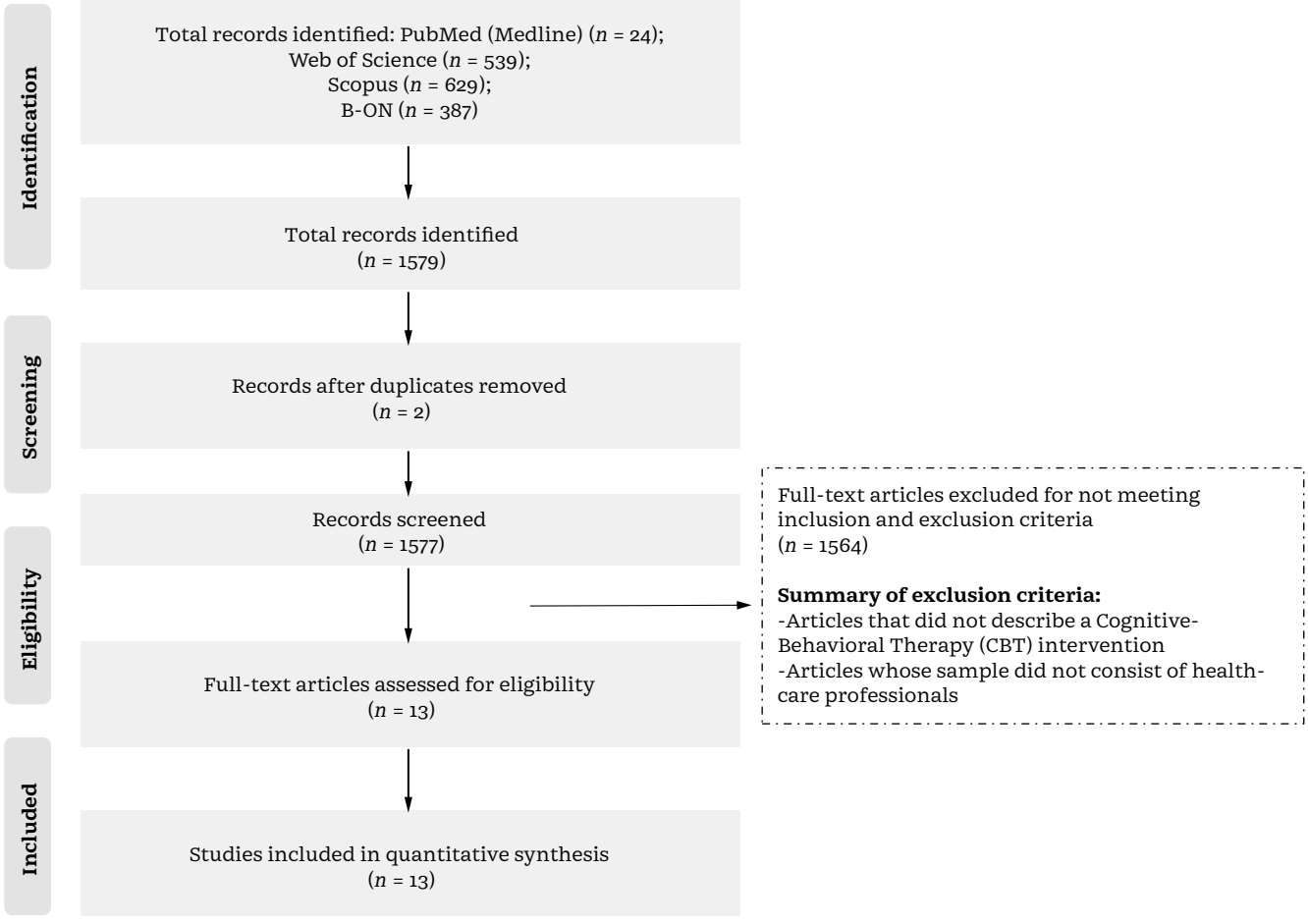
The evaluation of the primary studies was conducted using the Joanna Briggs Institute (JBI) Critical Appraisal Checklist for Randomised Controlled Trials (Tufanaru et al., 2020). This tool comprises thirteen evaluation items designed to assess the methodological rigour and potential risk of bias in each included study, and each item was rated according to the JBI response system ("Yes", "No", "Uncertain", or "Not applicable").

Results

Selection of studies

The search in the databases resulted in the inclusion of 13 articles (Figure 1). In PubMed, 24 articles were identified, of which three met the inclusion and exclusion criteria. In the Web of Science, the investigation returned 539 articles, but only one met the criteria; however, it was not included in the final sample due to the unavailability of access. In Scopus, 629 articles were found, with 12 selected for meeting the criteria, but four were later excluded—two for being duplicates and two for lack of access. At B-ON, the search resulted in 387 articles, of which two were included in the review because they met the established criteria.

Figure 1. PRISMA of included studies



Note. Adapted from Moher et al. (2009).

Quality of the primary studies

Overall, the studies demonstrated acceptable methodological quality, although results varied across items. Several papers lacked sufficient reporting, leading to "Uncertain" classifications, and many items were "Not applicable" because some studies did not include control groups, making certain JBI criteria irrelevant. Out of 169 total ratings (13 items × 13 studies), 84 were "Yes" (49,70%), 25 "No" (14,79%), 27 "Uncertain" (15,97%), and 33 "Not applicable" (19,52%). In brief, approximately half of the criteria were met, but interpretation should account for reporting gaps and methodological heterogeneity (Table 1). As the JBI does not provide a final scoring system for each study, we opted to compute aggregated frequencies across all studies in order to observe whether the body of evidence, as a whole, presented a balanced methodological profile, rather than assigning individual quality grades.

Characteristics of the studies

This review included 13 studies, as illustrated in Table 2, which presents the composition of the sample analysed. The study by Mellins et al. (2020) was excluded from this analysis, because, although it evaluated health professionals from Columbia University Irving Medical Centre (CUIMC; academic and palliative care medical centre) (meeting the inclusion criterion), its study methodology allowed for recurrent participation, making it impossible to determine the total number of respondents and calculate the response rate. Study samples ranged from 26 to 2,186 participants, with a mean of 278.83 healthcare workers (*SD* = 278.83). The most represented country was the United States of America (USA), corresponding to 23.08% (*n* = 3) of the sample. Regarding the methodology, 69.23% (*n* = 9) of the studies included only experimental groups, and two of these studies (22.22%) had two experimental groups (Table 2).

The studies identified analysed the effectiveness of interventions and various organisational outcomes, either alone or in combination. Stress was the most frequent theme, accounting for 30.76% (*n* = 4) of the sample. In addition, it was the subject of analysis in another study (Barrett & Stewart, 2021), where it was analysed along with other variables. The remaining themes were

Table 1. Evaluation of the quality of studies

Studies	Quality Issues												
	1	2	3	4	5	6	7	8	9	10	11	12	13
Santiago et al. (2019)	N/A	N/A	N/A	N/A	I	I	N/A	S	N/A	N/A	S	S	N
Ameli et al. (2020)	S	N	S	I	N/A	I	S	S	S	S	S	S	N
Segal-Engelchin et al. (2020)	S	S	I	S	S	S	S	I	S	S	S	S	S
Mellins et al. (2020)	N/A	N/A	N/A	N/A	I	I	N/A	S	N/A	N/A	S	S	N
Barrett and Stewart (2021)	S	N	I	N	I	I	S	S	S	S	S	S	N
Tuna and Ermis (2022)	N	N/A	S	N	I	I	S	S	S	S	S	S	N
Taylor et al. (2022)	S	S	S	I	N/A	I	S	S	S	S	S	S	N
Amra et al. (2023)	S	I	S	N	I	I	N	S	S	S	S	S	N
Tian et al. (2023)	N	N/A	N/A	N/A	N/A	N	N/A	S	N/A	N/A	S	S	N
Nomeikaite et al. (2023)	S	I	S	N	I	N/A	S	S	S	S	S	S	N
Vis et al. (2023)	S	N/A	I	N	I	I	S	S	S	S	S	S	N
Moghaddam et al. (2024)	S	N	S	I	I	I	S	S	S	S	S	S	N
Doukas et al. (2024)	N/A	N/A	N/A	N	I	S	N/A	S	N/A	S	S	S	N

Note. Prepared by the authors based on the Joanna Briggs Institute (JBI) Critical Appraisal Checklist for Randomised Controlled Trials. This JBI tool contains 13 questions that assess methodological rigour and potential risk of bias in randomised controlled trials, as follows: (1) Was true randomisation used for assignment of participants to treatment groups?; (2) Was allocation to treatment groups?; (3) Were treatment groups similar at baseline?; (4) Were participants blind to treatment assignment?; (5) Were those delivering treatment blind to treatment assignment?; (6) Were outcome assessors blind to treatment assignment?; (7) Were treatment groups treated identically other than the intervention of interest?; (8) Was follow up complete, and if not, were differences between groups adequately described and analysed?; (9) Were participants analysed in the groups to which they were randomised?; (10) Were outcomes measured in the same way for treatment groups?; (11) Were outcomes measured in a reliable way?; (12) Was appropriate statistical analysis used?; (13) Was the trial design appropriate, and were any deviations from the standard RCT design accounted for?. The questions were answered using the following options: S = Yes; N = No; I = Uncertain; N/A = Not Applicable. (Tufanaru et al., 2020).

examined individually in separate studies, each representing 7.69% of the total sample (Table 2).

Intervention delivery and structural characteristics

The 13 studies included face-to-face (38.46%; *n* = 5) and online (61.53%; *n* = 8) application methods. Among these, the year 2023 stood out as the most studied in the face-to-face format, representing 37.5% (*n* = 3) of the studies, while 2020 was the year with the highest predominance of the online method, corresponding to 40% (*n* = 2) of the studies.

The majority (61.53%; *n* = 8*)* adopted the pre-test and post-test as evaluation moments, i.e., the authors initially analysed the baseline of the professionals and, later, performed a new evaluation at the end of the proposed intervention. All studies (100%; *n* = 13) included interventions based on Cognitive-Behavioural Therapy (CBT). Additionally, 84.61% (*n* = 11) of the sample also added a specific theoretical model, integrated with CBT, such as the Acceptance and Commitment Therapy (ACT) used in the study by Tian et al. (2023; Table 3).

In the analysis of the intervention structures, 61.53% (*n* = 8) of the studies presented a description classified as "good", providing sufficient detail to clearly understand the content and format of the interventions. Regarding the resources used, 86.67% (*n* = 13) of the studies provided support materials to participants, including digital platforms, manuals, applications, or other structured resources. Only two studies reported unclear information or absence of support materials (Moghaddam et al., 2024; Santiago et al., 2019). Furthermore, 93.33% (*n* = 14) of the interventions were delivered by trained professionals, with only one study not explicitly reporting this information (Taylor et al., 2022 – second programme). Most interventions (84.61%; *n* = 11) were delivered in a group format. The number of sessions ranged from 1 (Amra et al., 2023) to 14 (Doukas et al., 2024), with an average of 6.09 sessions (*SD* = 3.48). With respect to session duration, there was substantial variability both among studies and within sessions from the same study. For example, Taylor et al. (2022) reported sessions ranging from 3 to 20 minutes. Overall, the minimum session duration was 3 minutes (Taylor et al., 2022) and the maximum was 2 hours (Segal-Engelchin et al., 2020; Table 3).

Description of interventions

The 13 studies analysed included 15 interventions, as the study by Barret and Stewart (2021) and Taylor et al. (2022) presented two interventions (each). These interventions, although distinct, can be grouped into four main categories: (1) Mindfulness-based interventions (26.66%; *n* = 4), (2) ACT Therapy Interventions (13.33%; *n* = 2) and (3) Interventions based on the General CBT Guidelines (60%; *n* = 9).

Table 2. Individual/organisational outcomes studied

Authors (Year)	Country	Total (*n*)	Experimental Group (*n*)	Control Group (*n*)	Outcomes Assessed
Santiago et al. (2019)	Brazil	26	26	–	Stress
Ameli et al. (2020)	United States	78	43	35	Stress
Segal-Engelchin et al. (2020)	Israel	51	51	–	Distress
Barrett and Stewart (2021)	Ireland	42	22; 20	–	Stress, burnout, mental health, psychological flexibility
Tuna and Ermis (2022)	Turkey	58	31	27	Depression, anxiety, insomnia, sex drive
Taylor et al. (2022)	England	2182	1095	1087	Stress
Amra et al. (2023)	Iran	57	31	26	Insomnia
Tian et al. (2023)	China	28	28	–	Psychological distress
Nomeikaite et al. (2023)	Not reported	196	100; 96	–	Stress
Vis et al. (2023)	Multinational (Europe, Australia, Kosovo)	495	495	–	Normalisation (psychosocial well-being)
Moghaddam et al. (2024)	Iran	64	64	–	Rumination and fatigue
Doukas et al. (2024)	United States	69	69	–	Depression, anxiety, PTSD, alcohol use, psychological well-being

Note. The studies by Barrett and Stewart (2021), Nomeikaite et al. (2023) and Segal-Engelchin et al. (2020) considered professional activity as a criterion, including only practicing professionals and excluding those who did not have an employment relationship - *no information

Table 3. Description of the interventions: Application method, evaluation moments, study intervention model and structure

Authors	Method	Evaluation moments	Intervention Framework	Description detail	Structure sessions
Santiago et al. (2019)	F	Pre and post-test	**Model:** Mindfulness-based Stress Reduction (MBSR) and CBT **Intervention:** Mindfulness	Non-existent	4 weekly group sessions, 1h30
Ameli et al. (2020)	F	Pre, post, follow-up	**Model:** MBSR and CBT **Intervention:** Mindfulness Self-Care	Good	5 group sessions, 60–70 min
Segal-Engelchin et al. (2020)	F	Pre and post-test	**Model:** Stress and Coping Model (MSC) and CB-ART **Intervention:** Art-based CBT	Good	3 group sessions, 2h
Amra et al. (2023)	F	Pre and post-test (1 month)	**Model:** Cognitive Behavioural Therapy for Insomnia (CBT-I) **Intervention:** CBT for Insomnia	Moderate	1 group session, duration NR
Moghaddam et al. (2024)	F	Pre and post-test	**Model:** ACT and CBT **Intervention:** ACT	Moderate	8 group sessions, duration NR
Mellins et al. (2020)	O	Pre and post-test	**Model:** Peer Support, Stress and Coping Models, Problem-Solving Therapy, CBT and ACT **Intervention:** CopeColumbia	Good	1–13 group sessions, 20–60 min
Barrett and Stewart (2021) (1st)	O	Pre and post-test	**Model:** ACT and CBT **Intervention:** ACT	Good	3 weekly individual sessions, duration NR
Barrett and Stewart (2021) (2nd)			**Model:** CBT **Intervention:** CBT	Good	3 weekly individual sessions, duration NR
Taylor et al. (2022) (1st)	O	Pre, mid (1.5 months), post	**Model:** Mindfulness-Based Interventions (MBIs) and CBT **Intervention:** Digital Headspace Mindfulness	Good	≥10 individual daily sessions, 3–20 min
Taylor et al. (2022) (2nd)			**Model:** Moodzone self-help model **Intervention:** Self-help website	Weak	Self-guided individual practice, ~10 min
Tuna and Ermis (2022)	O	Pre and post-test	**Model:** CBT **Intervention:** MHSP Mindfulness	Good	8 weekly group sessions, 30–40 min
Tian et al. (2023)	O	Pre and post-test	**Model:** ACT and CBT **Intervention:** Self-Help Plus	Moderate	5 group nightly sessions, 10 min
Nomeikaite et al. (2023)	O	Pre, post, follow-up (3 months)	**Model:** CBT and Mindfulness **Intervention:** FORES-T+	Good	6 weekly group sessions, duration NR
Vis et al. (2023)	O	10 repeated evaluations	**Model:** Cognitive Behavioural Therapy on the Internet (CBCI) and Normalisation Process Theory (NPT) **Intervention:** ItFits toolkit	Good	Multi-cycle group programme, duration NR
Doukas et al. (2024)	O	Pre (5th) and post (10th and 14th)	**Model:** CBT **Intervention:** Tele-CBT	Moderate	14 weekly group sessions, duration NR

Note. The classification of the interpretation of the "Description of Interventions" illustrated in the Table is subjective and is based on the level of detail available in the studies. The defined categories are non-existent (no description), weak (not very specific), moderate (detailed enough) and good (very detailed).

F = Face-to-face; O = Online; NR = Not reported

Mindfulness-based interventions in CBT

Santiago et al. (2019) conducted a face-to-face Mindfulness intervention with primary health care professionals. The study did not detail the intervention, only mentioning that it was administered by a physician and took place in four sessions of 1h 30min. Similarly, Ameli et al. (2020) conducted a face-to-face Mindfulness-based Self-Care (MBSC) intervention, providing physical materials with descriptions, practice plans, and guided meditations. Practices included mindful breathing,bodyscanning,mindfulwalking,mindfulmovements, mindful eating, and loving-kindness meditation. Taught by a trained teacher, the intervention used a "buddy" system to strengthen the community and encourage practice. The five sessions covered: (1) introduction to mindfulness, (2) increased awareness and focused attention, (3) awareness of pleasant and unpleasant experiences, (4) transformation of difficult emotions through mindfulness, and (5) compassion. The intervention lasted a total of 7.5 hours, with sessions of 60 to 70 minutes.

Tuna and Ermis (2022) also conducted an online mindfulness intervention through the CBT-based Mental Health Support Programme (MHSP). The intervention was administered by therapists and structured in eight sessions of 30 to 40 minutes, delivered weekly. The sessions are designed to provide a safe and supportive environment to discuss customer concerns to develop collaboration, including active listening, reflection, and validation of concerns. They carried out activities such as: (1) psychoeducation, with an explanation of the functional and dysfunctional parts of psychological responses; and associations between cognitions and behaviours; (2) normalisation of emotions (e.g., anxiety and uncertainty are common in epidemics, without indicating mental disturbance); (3) cognitive restructuring, with negative evaluations related to the epidemic (e.g., I can't deal with stress") and with behavioural and cognitive strategies; (4) behavioural modifications for dysfunctional behaviours, with behavioural activation (inclusion of small activities, e.g., reading novels, watching favourite TV shows, among others); (5) problem-solving and coping strategies were suggested as homework exercises to improve the skills taught in the session; (6) self-care interventions/strategies, including receiving supervision when needed, for a healthy lifestyle and sleep habits.

Taylor et al. (2022) applied Mindfulness-Based Stress Handling (MBSH) via Headspace (experimental group) compared to the Moodzone programme (active control group), both in online format. Headspace offers mindfulness practices and psychoeducational materials for routine activities, including an introductory series on mindfulness principles and practices, packages for specific emotional challenges (stress and anxiety), and SOS mindfulness sessions for times of acute stress. The programme was guided by the platform's co-founder (Andy Puddicombe). Initially, the participants took the Take Ten package (10 minutes a day for 10 days). After this phase, they received full access to the content and were encouraged to practice mindfulness daily, being able to choose content and adjust the duration of the sessions between 3 and 20 minutes. Headspace, having a dynamic approach, allowed access to new and updated content during the study. In the introductory sessions, users were verbally instructed to bring nonjudgmental awareness to the body, breath, thoughts, and feelings. Later sessions also encouraged awareness of difficulties during practice, such as boredom and restlessness, and behavioural choices.

ACT therapy-based interventions in CBT

Moghaddam et al. (2024) conducted a 4-group ACT Intervention of 8 people, where each group received training based on Hayes' model in the following areas: (1) creative hopelessness; (2) control is the problem, not the solution; (3) acceptance as an alternative agenda; (4) a transcendent sense of self; (5) deactivation of language and cognition; (6) values; (7) will and commitment; and (8) the therapeutic relationship in the ACT. The intervention structured in eight face-to-face sessions was given by a trainer specialised in the area.

Barret and Stewart (2021) also performed an ACT intervention comparing it to a CBT intervention, both performed over the course of two weeks. The ACT online intervention was adapted from the book "A Practical Guide to Acceptance and Commitment Therapy" (Hayes, 2004) and structured in three sessions, accompanied by videos recorded with an actor in the role of therapist. The first session, "Control and Awareness," used metaphors such as "Don't Think About It" and "Leaves in a Stream" to reduce experiential avoidance and cognitive diffusion. The second session, "Acceptance and Values", included exercises such as "Monster of the Tin Can" and "Tombstone Exercise", addressing cognitive diffusion, self-concept, values and acceptance. The third session, "Acceptance and Action", included exercises in goal setting, overcoming barriers and behavioural commitment, using the metaphor of the "Bubble on the Road", to promote values and committed action. During the sessions, the principles of ACT for stress management were explained, seeking the concepts of accessibility, cognitive diffusion, mindfulness, self-as-context, values and committed action. In addition, the videos were accompanied by mindfulness exercises based on ACT.

CBT-based general guidelines interventions

Barret and Stewart (2021), also carried out a CBT intervention, based on the book "Relaxation and Stress Reduction Workbook" (Davis et al., 2008) and focusing on identifying symptoms of occupational stress, questioning dysfunctional thoughts, reinforcing positive actions and professional balance. The programme was also structured in three sessions. The first, "Symptoms, Sources and Responses to Job Stress", included questionnaires and tests to identify stress symptoms and response patterns, with the aim of identifying occupational stressors, identifying maladaptive patterns of thinking, feeling, behaviour and response to stress. The second, "Motivation, Reconceptualisation and Relaxation", included goal setting, reinforcement, breathing and relaxation exercises and challenging thoughts, to promote motivation, relaxation techniques and chal-

lenge stressful thoughts. The third, "Conflict Negotiation, Pacing and Balancing", included conflict resolution exercises and identification of leisure activities, to increase conflict resolution skills and the organisation of work tasks. The programme focuses on a better understanding of the interplay between thoughts, emotions, physical sensations, and behaviours, as well as promoting cognitive restructuring, behavioural activation, and the development of competition. Participants completed online exercises and assessments, following written instructions and examples for completing forms and assignments.

Amra et al. (2023) also used CBT, however, for the treatment of insomnia (CBT-I). The intervention, face-to-face and unique, began with participants filling out a sleep diary for two weeks. During the session, a specialised therapist evaluated the records, took a brief history and explained stimulus control, in addition to addressing dysfunctional cognitions and behaviours that can lead to chronic insomnia. Similarly, Segal-Engelchin et al. (2020) conducted a CBT, but Art-based Intervention (CB-ART) structured in three face-to-face workshops (two hours each) taught by the study investigators. The intervention began with a lecture on the impact of stress and the analysis of drawings based on narrative and visual elements. In the first workshop, participants drew their emotions about war (stress drawing) and shared their perceptions as a group, with the aim of identifying their sources of stress. In the second, they created new images representing their personal and social resources to face challenges (resource design). In the third, they integrated the two drawings (integrated design) to connect their resources to the stress images, promoting coping strategies, allowing participants to learn how to "build bridges". Participants drew on A4 papers with oily pastels.

CBT was also used by Doukas et al. (2024) in telehealth via video (online), including group workshops for resilience development, a web application with psychoeducation and self-screening, and a service that provides confidential behavioural health care. Treatment was conducted by clinical psychologists or licensed social workers, with medication management by psychiatrists when necessary. This intervention lasted 14 weekly sessions over three months and two weeks, with the possibility of adjustment as needed. Vis et al. (2023) also followed the guidelines of CBT on the Internet (CBT), with the innovation of having a Framework for intervention tailoring strategies (ItFits-toolkit), through psychoeducation, activation/behavioural change, cognitive restructuring, and relapse prevention. They also integrated the Normalisation Process Theory (NPT) through brainstorming, structured discussions, and research. The online toolkit included four modules: (1) setting goals and identifying barriers, (2) selecting strategies to overcome them, (3) developing a work plan, and (4) applying the strategies and reviewing progress. Implemented in six groups of 12 organisations over 30 months, each organisation assigned up to five implementers, with a leader coordinating the process.

Tian et al. (2023) implemented the Self-Help Plus Programme (SH+), a guided, multimedia intervention via online WeChat, using pre-recorded materials and a self-help manual divided into grounding, unhooking, acting on your value, being kind, and making room). Before the first session, participants received an in-person introduction and an online reinforcement. The five sessions were sent by audio and video, addressing stress management and individual exercises. An illustrated course reviewed the essential content, supplemented by additional videos to reinforce understanding.

Mellins et al. (2020) implemented the CopeColumbia online intervention, a comprehensive peer-to-peer psychological support, emotional fatigue mitigation, and resilience strengthening programme. The programme included three main components: (1) Peer Support Groups, 30-minute virtual sessions to discuss challenges and teach CBT and problem-solving strategies; (2) One-to-One Peer Support Sessions, 20-minute meetings to personalise coping strategies and refer for treatment if needed; and (3) Town Halls, virtual lectures on stress management, anxiety, and self-care. The CopeColumbia website has made available ongoing resources on mental health, mindfulness, and resilience in the context of COVID-19. The topics covered followed the phases of the pandemic: (1) beginning, marked by anxiety and uncertainty about the disease; (2) peak, with trauma, grief and challenges in the reallocation of professionals; and (3) reintegration, with exhaustion and adaptation to the "new normal". The sessions followed a standard structure, with introduction, sharing of challenges, discussion of resilience strategies and closing with positive reflections. Initially planned as single sessions, they were extended according to the needs of the participants, ranging from 1 to 13 meetings. The groups were led by 11 professors from the Department of Psychiatry at CUIMC, including psychiatrists and psychologists.

Nomeikaite et al. (2023) implemented the FOREST+ programme (with and without therapist), consisting of six sessions unlocked weekly. Module 1 - Introduction - provided an overview of the intervention, addressing psychoeducation on stress, emotional exhaustion and recovery. Module 2 - Psychological Detachment - taught body relaxation techniques and strategies to improve sleep quality. In Module 3 - Distancing - the participants worked on strategies for managing intrusive thoughts and disconnecting from work in their leisure time. Module 4 - Mastery) - focused on the development of skills, the practice of challenging activities and the encouragement of physical exercise. Module 5 - Control - highlighted the importance of self-care and the feeling of control over one's own life. Finally, Module 6 – Keeping the Change Alive – consolidated the contents of the programme, reinforcing continuous practice. The intervention included psychoeducational texts, videos, audios and practical exercises and was conducted by a team of nine psychologists who followed specific guidelines and participated in weekly supervisions.

The study by Taylor et al. (2022), who also applied a Mindfulness-Based Stress Handling (MBSH) intervention via Headspace (described earlier), performed a second intervention as an active control group, Moodzone programme, to compare both interventions in an online format. However, as Moodzone does not describe mind-

fulness practices, offering only psychoeducational materials on stress management, this intervention was not considered in the topic of mindfulness-based interventions. The Moodzone website, which featured evidence-based psychosocial recommendations, advice and guidance on how to manage work stress and mental health effectively, advised participation for at least ten minutes a day. The website offered five sections with relevant information, recommendations and guidance to answer the respective questions: (1) "What causes stress at work?", (2) "How to manage stress at work", (3) "Learn to talk", (4) "Identify the signs of stress at work" and (5) "Who else can help with stress at work?". It also included video materials, audio tracks, podcasts, and links to other related resources.

Discussion

The present study aimed to identify and synthesise CBT interventions (online or face-to-face) with samples composed of health professionals in organisational contexts. Thirteen studies were identified, of which most presented an online methodology (61.53%), with experimental groups (69.23%) and pre- and post-test moments (61.53%). The intervention in digital methodology is in line with the increasing rise of "digital health" technologies reported by Brantnell et al. (2023), Kern et al. (2023), and Lal (2019). Their samples ranged from 26 to 2,186 participants (M = 278.83; SD = 278.83), 23.08% of which were studied in the USA. Stress reduction was the most studied organisational result (30.76%) and 2023 was the year with the highest number of studies (30.76%), with the analysis of the results of normalisation, insomnia, psychological distress and stress. The greater number of studies of stress in health professionals corroborates the importance highlighted in the literature by Costeira et al. (2022), Dall'Ora et al. (2020), Lukan et al. (2022), Okuhara et al. (2021) and Waqas et al. (2019).

This review identified 15 CBT interventions in the existing literature, and 84.61% of the studies also incorporated other theoretical models. For the synthesis of the interventions, three main categories were established: (1) Mindfulness-based interventions (26.66%), (2) ACT Therapy interventions (13.33%) and (3) Interventions based on the General CBT Guidelines (60%). Two studies (Barret & Stewart, 2021; Taylor et al., 2022) presented two interventions each, which is why they were included in more than one category. These theoretical models fit into Contextual Cognitive-Behavioural Therapies, however, considering the diversity of approaches in this third generation, only two were analysed in interventions. Highlighting a gap in the application of structured interventions in Dialectical Behaviour Therapy (DBT), Functional Analytic Psychotherapy (FAP), Behavioural Activation (BA) and Integrative Couples Behavioural Therapy (IBCT), for health professionals.

Among the 15 interventions analysed, several strategies were identified, of which 66.66% (n = 10) resorted to psychoeducation to provide information and explanations on various topics (Amra et al., 2023; Barret & Stewart, 2021; Doukas et al., 2024; Nomeikaite et al., 2023; Segal-Engelchin et al., 2020; Taylor et al., 2022; Tian et al., 2023; Tuna & Ermis, 2022; Vis et al., 2023). The study by Barret and Stewart (2021) used psychoeducation in its two interventions. In addition, 40% (n = 6) of the interventions applied mindfulness exercises (Ameli et al., 2020; Barret & Stewart, 2021; Mellins et al., 2020; Santiago et al., 2019; Taylor et al., 2022; Tuna & Ermis, 2022), including mindful breathing, body scanning, mindful walking, mindful movements, mindful eating, and loving-kindness meditation (Ameli et al., 2020); and non-judgmental awareness of the body, breath, thoughts, and feelings (Taylor et al., 2022). Behavioural activation/change, which refers to changes in habits, was present in 20% (n = 3) of the interventions (Barret & Stewart, 2021; Tuna & Ermis, 2022; Vis et al., 2023). Cognitive restructuring was used in 20% (n = 3) of the studies to modify dysfunctional and intrusive thoughts (Barret & Stewart, 2021; Tuna & Ermis, 2022; Vis et al., 2023). Coping strategies were used in 26.66% (n = 4) of the interventions (Mellins et al., 2020; Segal-Engelchin et al., 2020; Tian et al., 2023; Tuna & Ermis, 2022). Additionally, 13.33% (n = 2) (each) have implemented resilience strategies (Doukas et al., 2024; Mellins et al., 2020); conflict resolution (Barret & Stewart, 2021- CBT; Mellins et al., 2020); breathing and body relaxation exercises (Barret & Stewart, 2021; Nomeikaite et al., 2023); and the preparation of action plans, the definition of goals and objectives, as well as the identification of obstacles and the resources needed to overcome them (Barret & Stewart, 2021; Vis et al., 2023). Some studies used more specific strategies, specifically, 6.66% (n = 1) (each) used therapeutic metaphors (Barret & Stewart, 2021- ACT); lectures (Mellins et al., 2020); drawings and visual expressions (Segal-Engelchin et al., 2020); normalisation of emotions (Tuna & Ermis, 2022); structured discussions and brainstorming (Vis et al., 2023); self-care strategies (Tuna & Ermis, 2022); intrusive thought management strategies (Nomeikaite et al., 2023); and completion of a sleep diary and stimulus control to avoid chronic insomnia (Amra et al., 2023). The interventions analysed demonstrate the flexibility of CBT, combining individual and collective strategies, and are corroborated with the strategies described by Azevedo et al. (2022), Hayes (2016) and Shali (2024). Regardless of the type of strategies used, all interventions achieved their pre-established objectives, with relevant individual and organisational benefits. As verified in the literature (Brantnell et al., 2023; Helminen et al., 2023; Shali, 2024).

The study by Tuna and Ermis (2022) evaluated the impact of the Mental Health Support Programme (MHSP), based on CBT with a mindfulness approach, and found a reduction in symptoms of depression and anxiety. The programme also aimed to reduce the effects of insomnia and sexual desire. However, similar results were observed between the experimental group and the control group, indicating that these variations may require more specific approaches. They highlighted the need for further studies to assess the effectiveness of this type of intervention on these outcomes. In turn, the Cognitive-Behavioural Therapy for Insomnia intervention by Amra et al. (2023), with only one session accompanied by a self-help leaflet, showed promise for acute insomnia, relieving symptoms according to

the classification of the index of its severity. After one month, heart rate variability indicated an increase in parasympathetic nervous system (PNS) activity and a reduction in the LF/HF ratio (low and high frequency) in the intervention group, indicating a positive impact on autonomic sleep regulation. However, the intervention did not suppress sympathetic nervous system (SNS) activity, highlighting the need for further studies to assess its long-term effectiveness. These physiological changes agree with what Knapp and Beck (2008) identified about changes in brain areas.

Mindfulness was also used in the study by Ameli et al. (2020), with the MBSC intervention, in which they identified that, after the intervention, the experimental group (compared to the control group) showed a better reduction in stress, as well as improvements in anxiety, positive affect, self-care and mindfulness status (as analysed by the Mindful Attention Awareness Scale Trait and State). However, they did not observe significant changes in burnout (emotional exhaustion and depersonalisation), negative affect or mindfulness trait. The authors emphasise that their participants did not have high levels of burnout at the beginning of the study, which may explain the non-change in levels. In the post-intervention analysis among participants in the experimental group, they found that improvements were sustained in stress, anxiety, and trait and state mindfulness. However, these improvements were not maintained in self-care and depersonalisation at the thirteen-week follow-up. These results indicate that the professionals continued to practice the exercises learned during the intervention. According to the study's authors, this intervention proved to be effective and feasible to promote mindfulness in time-limited professionals, requiring only 7.5 hours in total. In addition, it presents affordable costs for the organisation, without compromising the quality of the programme.

Similarly, Taylor et al. (2022), also presented a brief mindfulness intervention with the MBSH programme, where they also found a reduction in stress. The programme was well accepted, with an average participation of 3.5 days per week in the initial intervention and two days in the follow-up phase. The authors highlight MBSH as an effective and low-cost alternative, facilitating adherence and access by health professionals. Santiago et al. (2019), also, adopted a brief mindfulness intervention that they considered effective to be applied in the health system of their country (Brazil), at the end of this intervention the participants reported an improvement in their stress and in the management of their own thoughts. All professionals stated that they recommend this mindfulness intervention to their colleagues. The authors identified the need for a shorter version of the programme and low retention rates as the main barriers. However, they reported good acceptability by stakeholders and highlighted that their results indicate a high demand, 92% of professionals, for stress reduction interventions in PHC.

Stress was also studied by Nomeikaite et al. (2023) with the FOREST+ (online) intervention, with or without the support of a therapist. Regardless of the type of support, the four components of stress recovery – psychological detachment, relaxation, skill development, and control – increased significantly after the intervention. In addition, the intervention reduced symptoms of perceived stress, depression, and anxiety, improving psychological well-being. The therapist's level of support did not influence the participants' involvement, since the time dedicated to the programme was similar between the groups. However, the group with regular support showed initial improvements in psychological detachment and relaxation skills, but after three months, the differences were not sustained, suggesting that the support accelerated learning, with no long-term impact. The results indicate that this intervention is effective regardless of therapeutic support, considering that the optional therapist support requires fewer resources, with up to four times fewer therapists and seven times less time per participant, they concluded that this intervention reduces costs and expands access to psychological support, especially for health professionals who have limited support. As identified in the literature (Brantnell et al., 2023; Cavanagh, 2014; Donker et al., 2015; Kern et al., 2023; Lal, 2019). FOREST+ was well received, with 80% of participants recommending the programme. The results reinforce the effectiveness of online interventions in stress management and mental health, indicating that different support formats are equally effective, aligning with the literature on comparing the effectiveness of I-CBT and traditional CBT (Andrews et al., 2018; Carlbring et al., 2018; Dear et al., 2015; Titov et al., 2015). Nomeikaite et al. (2023) highlight that the effectiveness of this programme may have been enhanced by the regular email reminders or short phone interviews that participants received, in addition to including videos and audio recordings of psychologists, psychoeducational texts, and various exercise sheets, providing more complete support.

Stress, along with emotional exhaustion, mental health, and psychological flexibility, was the focus of the study by Barrett and Stewart (2021), which compared two online interventions: ACT-based Stress Management and an intervention following the general CBT guidelines. The results indicated that both approaches were equally effective in reducing perceived stress, emotional exhaustion, and improving mental health, with stress decreasing from moderate-high to moderate-low and mental health scores moving out of clinically harmful levels over the course of the programme. However, no significant differences in psychological flexibility were found between the groups over time, possibly because the participants had acceptable (typical) levels of flexibility at the beginning of the study. The study by Moghaddam et al. (2024), who also carried out an intervention with ACT, found a reduction in rumination and fatigue (chronic and acute) in their professionals after the intervention, as well as significant improvements in reflection on problem-solving, detachment and recovery between shifts. They reinforced that, due to the high level of stress inherent to the profession, the regular implementation of this intervention in health organisations can benefit the mental health of these professionals and improve the quality of patient care. Organisations in the health sector should

evaluate the adoption of policies that encourage mental wellness initiatives, including ACT. By focusing on the mental health of workers, it is possible to increase job satisfaction and improve retention rates.

During COVID-19, Tian et al. (2023) investigated the psychological distress of nurses and found that the Self-Help Plus (SH+) Intervention, in an online format, significantly reduced this distress, promoting relaxation, increasing awareness and the ability to be in the "present moment". In addition to the decrease in depression, they observed an increase in psychological flexibility and subjective well-being. The professionals also reported improvements in sleep, as they were able to better manage their emotions and "difficult" thoughts. However, the reduction in anxiety and PTSD symptoms was not statistically significant, leading the authors to highlight the need for a more robust randomised controlled trial. They also identified the need for improvements in the intervention, since, although the short videos were well accepted, adherence to the programme was a challenge. To make the content more interesting and engaging, they suggested the inclusion of scenes and stories close to the reality of the participants. Among the suggestions of the participants, the availability of the online manual for greater accessibility and efficiency, the inclusion of brief and objective introductions before each segment to facilitate the understanding of the objectives, and the modification of the interface of the mini programme, making it more intuitive and adapted to the needs of the users, stood out.

The CB-ART Intervention by Segal-Engelchin et al. (2020) also aimed to reduce the distress of health professionals and was successful, resulting in a significant reduction of this symptom. The study analysed the participants' narratives regarding the three designs – stress, resources and integrated – and their compositional characteristics. The authorities of the images of stress reflect emotional turmoil, intense anguish and concern for the safety of family members and clients, in addition to the emotional overload resulting from caring for others. Participants identified two main resources for coping with stress: support from family and home environment and leisure activities such as listening to music and going to the beach. Compositionally, the stress drawings were marked by a single large, dark object in the centre, while the feature and integrated drawings featured several elements of varying sizes and lighter cores, distributed throughout the space, revealing a positive emotional shift. The reduction in the size of the stressful image in the integrated design was the only compositional element significantly associated with the reduction of distress, reducing a transformation in the perception of stress.

Mellins et al. (2020), also used an intervention based on the general guidelines of CBT, where they found that the group approach to promote a sense of community and reduce social isolation used in the CopeColumbia intervention was very useful by the participants' reports (76%). Participants also reported (subjectively) a significant decrease in their emotional distress by increasing their resilience. The authors stated that CopeColumbia's experience highlighted the importance of psychological support for health professionals in times of crisis, reinforcing the need for ongoing interventions to promote well-being and resilience. Grounded in the idea that health workers are psychologically strong, the programme emphasised that with the right support, most will be able to strengthen their resilience. This programme was developed during a rapidly evolving situation, so they prioritised meeting clinical needs over research methods. That is why their results were considered "uncertain" because they did not carry out an objective and systematic assessment of changes in psychological well-being before and after the intervention (Mellins et al., 2020). These results are in line with the literature, which supports the effectiveness of CBT in strengthening resilience (Bandura, 1977; Shali, 2024).

The general CBT guidelines were also used in the study by Vis et al. (2023), but on the internet with the It-Fits-toolkit. They observed a moderate but significant effect on the normalisation of this kit among mental health providers in the implementation of CBCI. Normalisation refers to the process of incorporating new practices into the daily workflow. However, the kit did not impact patients' acceptance of I-CBT and did not increase the time required of implementers relative to their usual practices. Despite this, implementers found the kit usable and satisfactory, suggesting that it can improve I-CBT implementation without additional effort. They identified a temporal effect, with a slight decline in normalisation scores in the control condition, a trend partially attenuated by the ItFits-toolkit. This result was considered "unexpected" by the authors, since, according to the principles of the NPT, they expected an increase in normalisation as implementers became involved in I-CBT. The decline may be linked to the complexity of offering the service to patients. In addition, the noncompliance rate of 72.6% underscores the challenges in patient adherence, implementation, and involvement with I-CBT. The high dropout rate in ICT interventions was corroborated in the literature by Davies et al. (2020), Bisen and Deshpande (2021) and Maqsood et al. (2024) and Thanetnit (2022) and Davies et al. (2020) underscored that the structural rigidity of online therapies can limit the personalisation of treatment, contributing to the increase in this dropout rate.

This result, although corroborated by the literature (Davies et al., 2020), diverges from that identified in the CBT intervention in telehealth via video conducted by Doukas et al. (2024). In this intervention, there was a high commitment to treatment, evidenced by low rates of abandonment and absences. After 14 sessions, healthcare professionals recorded a significant reduction in symptoms of depression, suicidal ideation, anxiety, PTSD, and alcohol consumption, as well as an improvement in psychological well-being. These results suggest that short-term CBT is effective in reducing clinical symptoms and increasing the well-being of health professionals. The authors emphasised the importance of evidence-based interventions, such as the one used in this study, not only for the individual well-being of professionals, but also for the potential benefits to the quality of patient care and workforce retention.

The efficacy identified by Hedman et al. (2012) in 25 clinical disorders was corroborated in this review, where the efficacy of different CBT formats for stress reduction was studied and identified (Ameli et al., 2020; Barrett & Stewart, 2021; Nomeikaite et al., 2023; Santiago et al., 2019; Taylor et al., 2022); rumination, fatigue (Moghaddam et al., 2024); acute insomnia (Amra et al., 2023); psychological distress (Segal-Engelchin et al., 2020; Tian et al., 2023); depression, anxiety (Doukas et al., 2024; Tuna & Ermis, 2022); emotional exhaustion (Barrett & Stewart, 2021); PTSD, alcohol consumption (Doukas et al., 2024); and distress (Tian et al., 2023). In addition to increased resilience (Mellins et al., 2020), psychological well-being (Doukas et al., 2024), mental health (Barrett & Stewart, 2021) and psychological flexibility (Tian et al., 2023), still with moderate effects on increasing normalisation (Vis et al., 2023). These results are corroborated with the needs identified in health professionals (Abdoh et al., 2021; Costeira et al., 2022; Dall'Ora et al., 2020; Fasbender et al., 2019; Foli et al., 2019; Grandinetti et al., 2021; Havaei et al., 2021; Izdebski et al., 2023; Johnson et al., 2018).

This systematic review constitutes a meaningful contribution to the scientific literature by consolidating empirical evidence on Cognitive-Behavioural Therapy interventions implemented within the occupational context of healthcare professionals, an area in which existing knowledge has remained dispersed and conceptually underdeveloped. By synthesising delivery formats, therapeutic components, and measured outcomes, the review clarifies both the scope and effectiveness of available approaches, particularly digital modalities, while also highlighting critical gaps, including the limited application of structured contextual models such as DBT, FAP, BA, and IBCT in this population. The findings establish a rigorous conceptual and methodological foundation to guide future intervention design, enabling researchers and organisational leaders to utilise this synthesis as an initial framework for evidence-based programme development, with greater precision in selecting techniques, structuring protocols, and anticipating clinical and organisational outcomes. In essence, this review advances understanding of the role of CBT in supporting the mental health of healthcare workers and provides essential guidance for the development of institutional policies and practices aimed at promoting well-being and occupational sustainability.

Limitations

This study has several limitations, including the possible restriction of the selection criteria, the comprehensive results, the non-accessibility of some studies and the restriction of languages, which may have made it impossible to include more studies. In addition to these limitations, difficulties were also observed related to the inconsistency in the use of academic terminology, with various strategies/activities named inappropriately with regard to what is recommended in theory. It was also found that there was a lack of relevant information in certain studies, such as details regarding the structure of the intervention. The lack or incoherence of this information compromises the possibility of replicating the interventions in different contexts, limiting their practical applicability and the comparison of results in future investigations.

Theoretical implications

Despite these limitations, this study offers relevant contributions to the advancement of scientific knowledge, especially by addressing the gap identified by Costeira et al. (2022), which highlights the need for specific research on the promotion of better working conditions for more effective management of labour demands. This review identified 15 interventions that, in general, proved to be effective and successful, according to the authors themselves and due to the positive results presented, both individually and organisationally, in the health sector. The results are particularly significant for organisations in Portugal, considering the scarcity of studies in this area, as reported by Costeira et al. (2022). No intervention was identified in this country, which reinforces the existence of this gap. In addition, there was a need for more research on CBT-based interventions applied to health professionals, since, although 1,579 studies were identified, only thirteen addressed CBT interventions specifically aimed at this audience. In addition, three studies with the same theme were identified that could have been included in this systematic review. However, because these are exclusively investigation protocols that have not yet been carried out and, therefore, without the presentation of empirical results, they were excluded (Bailey et al., 2021; Serrano-Ripoll et al., 2021; Strauss et al., 2018). The failure to carry out these studies may indicate challenges related to implementation, namely difficulties in recruiting and accessing health professionals to participate in investigations. Such a scenario limits the advancement of scientific knowledge and highlights structural barriers that hinder the effective application of interventions in organisations. This data corroborates the conclusions of Krisher et al. (2024), which highlight the limited adherence of health professionals to psychological interventions. In this sense, it is suggested that future studies explore the application of interventions in health organisations, especially in Portugal. This review also contributes to the scientific evidence concerning the effectiveness of CBT interventions, both alone and in combination with approaches such as mindfulness and ACT, in mitigating various stressors in the work environment. These results suggest that health organisations can adopt CBT-based interventions as an effective strategy to promote healthier work environments.

Declaration of conflicting interests

The authors declare no potential conflicts of interest regarding the research, authorship and/or publication of this article.

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