Artigo de Revisão

https://www.revistardp.org.br doi https://doi.org/10.25118/2763-9037.2024.v14.1282

The use of cognitive behavioral therapy in the treatment of depression in patients with Parkinson's disease: an integrative review

A utilização da terapia cognitiva comportamental no tratamento da depressão em pacientes com doença de Parkinson: uma revisão integrativa

El uso de la terapia cognitivo conductual en el tratamiento de la depresión en pacientes con enfermedad de Parkinson: una revisión integradora

1 Bianca Araujo Vieira - ORCID - Lattes

2 Alexandre Almeida da Silva - ORCID - Lattes

3 Júlio Cesar Claudino dos Santos ORCID - Lattes

Affiliation of authors: 1, 2 [Graduandos, Fisioterapia, Centro Universitário Christus, UNICHRISTUS, Fortaleza, CE, Brasil]; **3** [Professor, Centro Universitário Christus, UNICHRISTUS, Fortaleza, CE, Brasil]

Chief Editor responsible for the article: Leonardo Baldaçara

Authors contributions according to the Taxonomia CRediT: Vieira BA [1,2, 5, 6, 12, 13, 14]; Silva AA [2, 5, 6, 13]; Santos JCC [3,7,11]

Disclosure of potential conflicts of interest: none

Funding: none

Approval Research Ethics Committee (REC): not applicable

Received on: 24/06/2024

Accepted on: 17/09/2024

Published on: 15/09/2024

How to cite: Vieira BA, Silva AA, Santos JCC. The use of cognitive behavioral therapy in the treatment of depression in patients with Parkinson's disease: an integrative review. Debates em Psiquiatria, Rio de Janeiro. 2024;14:1-17. https://doi.org/10.25118/2763-9037.2024.v14.1282

ABSTRACT:
Introduction: Parkinson's disease (PD) is a neurodegenerative condition characterized by degeneration of the substantia nigra and is associated with debilitating motor and non-motor complications. The appearance of depressive symptoms sometimes precedes motor symptoms and can be characterized as the first signs of PD. Pharmacological therapy through the use of antidepressants in patients affected by depression in PD is often adopted. However, non-pharmacological therapies can be integrated into the therapeutic protocol, so the aim of this study is to investigate the applicability and feasibility of cognitive-behavioral therapy, considering both the face-to-face modality and telehealth approaches. **Methods**: this is an integrative literature review based on the Whittemore and Knafl method, which is a research method that enables the synthesis and analysis of existing production on the use of cognitive behavioral therapy in the treatment of depression in patients with Parkinson's disease. **Results:** In this study, we conducted an integrative review on the efficacy of cognitive-behavioral therapy (CBT) in the treatment of depression in patients with Parkinson's Disease (PD). We observed that, although some studies suggest additional benefits when CBT is combined with medication, there is interest in investigating its efficacy alone. Different scales have been used to assess depressive symptoms, most notably the Hamilton Depression Rating Scale. Some interventions included sleep strategies to improve general well-being. Notably, the methodology varied between the studies, with some opting for virtual interventions, which showed a lower drop-out rate. **Conclusion:** In summary, our review highlights the effectiveness of cognitive-behavioral therapy (CBT) in treating depression in patients with Parkinson's disease (PD). Although the combination with medication seems promising, our results indicate that CBT alone may also be beneficial. In view of this, we suggest further research focused on virtual interventions, with a view to improving accessibility and adherence to treatment for this population.

Keywords: Parkinson disease, depression, cognitive behavioral therapy

RESUMO:
Introdução: A Doença de Parkinson (DP) é uma condição neurodegenerativa caracterizada pela degeneração da substância negra e está associada a complicações motoras e não motoras debilitantes. O surgimento de sintomas depressivos, por vezes, antecede os sintomas

motores, podendo caracterizar-se como os primeiros indícios da DP. A aplicação da terapia farmacológica mediante o uso de antidepressivos em pacientes afetados pela depressão na DP é frequentemente adotada. Entretanto, as terapias não farmacológicas podem ser integradas ao protocolo terapêutico, logo, o objetivo do presente estudo é investigar a aplicabilidade e viabilidade da terapia cognitivo-comportamental, considerando tanto a modalidade presencial quanto às abordagens de telessaúde. **Métodos:** trata-se de uma revisão integrativa da literatura baseada no método de Whittemore e Knafl, no qual configura-se sendo um método de pesquisa que possibilita a síntese e análise do que existe de produção sobre a utilização da terapia cognitiva comportamental no tratamento da depressão em pacientes com doença de Parkinson. **Resultados:** Neste estudo, realizamos uma revisão integrativa sobre a eficácia da terapia cognitivo-comportamental (TCC) no tratamento da depressão em pacientes com Doença de Parkinson (DP). Observamos que, embora alguns estudos sugiram benefícios adicionais quando a TCC é combinada com medicamentos, há interesse em investigar sua eficácia isolada. Diferentes escalas foram usadas para avaliar os sintomas depressivos, destacando-se a Escala de Avaliação de Depressão de Hamilton. Algumas intervenções incluíram estratégias de sono para melhorar o bem-estar geral. Notavelmente, a metodologia variou entre os estudos, com alguns optando por intervenções virtuais, o que mostrou uma menor taxa de abandono. **Conclusão:** Em suma, nossa revisão ressalta a eficácia da terapia cognitivo-comportamental (TCC) no tratamento da depressão em pacientes com Doença de Parkinson (DP). Embora a combinação com medicamentos pareça promissora, nossos resultados indicam que a TCC isolada também pode ser benéfica. Diante disso, sugerimos investigações adicionais focadas em intervenções virtuais, visando melhorar a acessibilidade e a adesão ao tratamento para essa população.

Palavras-chave: doença de Parkinson, depressão, terapia cognitivo comportamental

RESUMEN:
Introducción: La enfermedad de Parkinson (EP) es una afección neurodegenerativa caracterizada por la degeneración de la sustancia negra y se asocia a complicaciones motoras y no motoras debilitantes. La aparición de síntomas depresivos a veces precede a los síntomas motores y puede caracterizarse como los primeros signos de EP. En los pacientes afectados por depresión en la EP se suele utilizar terapia farmacológica

con antidepresivos. Sin embargo, las terapias no farmacológicas pueden integrarse en el protocolo terapéutico, por lo que el objetivo de este estudio es investigar la aplicabilidad y viabilidad de la terapia cognitivo-conductual, considerando tanto la modalidad presencial como los enfoques de telesalud. **Método:** se trata de una revisión bibliográfica integradora basada en el método Whittemore y Knafl, que se configura como un método de investigación que permite sintetizar y analizar la producción existente sobre el uso de la terapia cognitivo-conductual en el tratamiento de la depresión en pacientes con Enfermedad de Parkinson. **Resultados:** En este estudio realizamos una revisión integradora sobre la eficacia de la terapia cognitivo-conductual (TCC) en el tratamiento de la depresión en pacientes con Enfermedad de Parkinson (EP). Observamos que, aunque algunos estudios sugieren beneficios adicionales cuando la TCC se combina con medicación, existe interés en investigar su eficacia por sí sola. Se han utilizado diferentes escalas para evaluar los síntomas depresivos, sobre todo la Escala de Calificación de la Depresión de Hamilton. Algunas intervenciones incluían estrategias de sueño para mejorar el bienestar general. En particular, la metodología varió entre los estudios, y algunos optaron por intervenciones virtuales, que mostraron una menor tasa de abandonos. **Conclusión:** En resumen, nuestra revisión destaca la eficacia de la terapia cognitivo-conductual (TCC) en el tratamiento de la depresión en pacientes con enfermedad de Parkinson (EP). Aunque la combinación con medicación parece prometedora, nuestros resultados indican que la TCC por sí sola también puede ser beneficiosa. En vista de ello, sugerimos nuevas investigaciones centradas en intervenciones virtuales, con vistas a mejorar la accesibilidad y la adherencia al tratamiento de esta población.

Palabras clave: enfermedad de Parkinson, depresión, terapia cognitivo-conductual

Introduction

Parkinson's disease (PD) is a neurodegenerative condition characterized by degeneration of the substantia nigra and is associated with debilitating motor and non-motor complications [1].

PD is the second most prevalent neurodegenerative disorder, surpassed only by Alzheimer's disease. It is characterized by the motor triad of resting tremor, rigidity and bradykinesia [2].

In addition, PD also has the classic non-motor symptoms of the disease, such as cognitive impairment, sleep disorders and constipation, which are common early in the course of the disease and can contribute considerably to the individual's disability [3].

Among the non-motor alterations of PD, gastrointestinal dysfunction, cardiovascular dysregulation, urinary disorders, sexual dysfunction and depression are the most prevalent [4].

The appearance of depressive symptoms sometimes precedes motor symptoms and can be characterized as the first signs of PD and even worsen during later stages of the disease, causing substantial disability and significant impairment of quality of life. The manifestation of depressive symptoms in PD stems mainly from neurotransmitter dysfunction beyond the dopaminergic system, potentially encompassing serotoninergic, noradrenergic and cholinergic nuclei in the brainstem [5, 6].

Depression correlated with PD is associated with faster physical and cognitive decline, earlier onset of dopaminergic replacement, non-adherence to drug treatment, increased risk of falls and poorer quality of life [7]. Depression is the most prevalent non-motor manifestation in individuals with PD, affecting approximately 50% of patients [2].

Pharmacological therapy through the use of antidepressants in patients affected by depression in PD is often adopted. However, non-pharmacological therapies can be integrated into the therapeutic protocol in order to enhance the effectiveness of the treatment [8].

The most prevalent non-pharmacological therapeutic modality in the management of depression is Cognitive-Behavioral Therapy (CBT), a personalized treatment approach based on coping strategies [7].

CBT is a psychosocial intervention backed by scientific evidence, designed to modify dysfunctional thinking patterns and behaviors [1].

The method of applying CBT can be implemented both in person and through telehealth approaches in the treatment of depression. The option of remote approaches is particularly pertinent in view of the substantial barriers that obstruct the viability of face-to-face treatment, including

motor difficulties, dependence on others for locomotion, caregiver burden and reluctance to move outside the home environment [9].

Therefore, our study aims to investigate the applicability and feasibility of cognitive-behavioral therapy, considering both face-to-face modality and telehealth approaches, in order to contribute to the development of effective and accessible therapeutic strategies for the treatment of depression in patients with Parkinson's disease.

Methods

This study is an integrative literature review based on the Whittemore and Knafl method, which is a research method that enables the synthesis and analysis of what has been produced on the use of cognitive behavioral therapy in the treatment of depression in patients with Parkinson's disease with the aim of producing new questions, reflections and criticisms, helping to identify existing gaps and, consequently, advancing knowledge.

The research was based on a question formulated according to the PICO criteria, **P**opulation, **I**ntervention, **C**omparison and **O**utcome [10].

Thus, the following question was obtained: "In patients with Parkinson's disease who have depressive symptoms, is cognitive behavioral therapy a viable therapy when compared to conventional treatment?"

The inclusion criteria were specifically studies with primary data, such as clinical trials, case reports, pilot studies and experimental studies in humans, allowing for a broad spectrum of scientific literature.

Exclusion criteria were studies in which the patients had other pathophysiological conditions, such as Alzheimer's disease or cancer.

The searches were carried out in the following databases: Pubmed and SciElo, from August 2023 to November 2023.

The descriptors were selected from the Health Sciences Descriptors (DECS) and Medical Subject Headings (MeSH) searched only in English: Parkinson's disease OR Parkinson's disease AND depression AND cognitive behavioral therapy [Figure 1].

The studies were selected in duplicate by two partially blinded reviewers (AA) and (BA). The studies selected from the databases were organized using the Rayyan platform, where it was possible to exclude duplicate articles, select articles by title and abstract, including or not including them in this study and extracting the necessary information.

Results

The initial search identified 227 studies registered in the databases analyzed. All the records were analyzed by title and then selected by abstracts and full reading; eleven were considered eligible for inclusion. In total, this study included eleven articles [Table 1], although it was not possible to obtain the full text of one of them. The studies included were published between 2006 and 2023. The majority were carried out in the United States (n=8), as well as Japan (n=1) and Australia (n=2). All the studies recorded the post-treatment effects of CBT, while the analysis of short- and long-term follow-up data of the intervention and control conditions was carried out exclusively in seven studies.

Thus, eight clinical trials and three case series were included for analysis, which used CBT, both via videoconferencing and in face-to-face sessions, to treat depression in patients diagnosed with PD. The set of studies covered a total of 360 participants undergoing interventions for depression. Within this sample, 204 individuals were assigned to receive CBT alone or associated with drug treatment, while 156 were allocated to receive conventional therapy or make up the control group, also called the waiting list.

The studies employed professionals specialized in CBT in order to ensure maximum reliability in the implementation of the treatment. However, only PIERS et al. [9], SHINMEI et al. [1] and DOBKIN et al. [2] adopted the strategy of involving more than one CBT applicator, carrying out the application blindly and under the supervision of a third specialist. This procedure aimed to ensure a reduction in bias and promote reliability in the implementation of the treatment.

The intensity of the treatment varied between the various studies analyzed, but in general, the average time taken to apply the therapy per session ranged from 25 minutes to 2 hours [Table 1]. Post-treatment follow-up lasted up to 6 months [11], during which time the positive effects of CBT on improving depressive symptoms in patients with Parkinson's disease were maintained.

https://doi.org/10.25118/2763-9037.2024.v14.1282

The studies that investigated the face-to-face application of CBT [1, 2, 5, 8, 12, 13, 14] showed a higher dropout rate compared to those who opted for the telehealth modality. This outcome was attributed to difficulties related to the mobility of participants to the therapy location, as well as the caregiver's inability to transport, among other reasons. In addition, of the 8 clinical trials considered, only two implemented the procedure of blinding the evaluators, which contributed to reducing the risk of bias during the evaluation of the results.

The number of sessions, the time of application of the Cognitive-Behavioral Therapy sessions and the methodology of applying the therapy showed variability between the studies examined, highlighting the importance of establishing a personalized treatment protocol, adapted to the specific needs of each patient [Table 1].

Discussion

In this study, our main objective was to produce an integrative review on the applicability and feasibility of cognitive-behavioral therapy as a treatment for depression in patients with Parkinson's disease. The comparisons of interest were CBT vs placebo and CBT associated with drug treatment vs placebo. Although some studies associate the use of CBT together with pharmacological therapy for the treatment of depression, it is important to analyze whether the use of CBT alone is capable of reducing depressive symptoms in patients with PD.

Two studies, conducted by Troeung et al. [14] and Wuthrich et al. [15] employed a control group composed of individuals who were subjected to a wait-and-see condition, without receiving any form of intervention for the treatment of depression. This approach allowed a direct comparison between the effects of the therapeutic intervention and the absence of treatment, providing insights into the effectiveness of the intervention in question.

In addition, several investigations, notably those carried out by Dobkin et al. [2, 8, 12] and Wuthrich et al. [15], had as complementary interventions individualized psychoeducational sessions aimed at caregivers, designed as a strategy to maintain the results of CBT in the treatment of depression in PD patients.

The selected studies [1, 2, 5, 8, 11, 15] used the Hamilton Depression Rating Scale (HAM-D 17) to quantify and assess the severity of

https://doi.org/10.25118/2763-9037.2024.v14.1282

depressive symptoms both before and after the therapeutic intervention with CBT.

In addition, two studies [14, 15] chose to use the Depression, Anxiety and Stress Scale (DASS), with the former applying the DASS-42 version and the latter the DASS-21 version. Only one study, PIERS et al. [9] used only the Beck Depression Inventory-II (BDI-II) to quantify the depressive symptoms of PD patients. Only DOBKIN et al. [11, 12] used two forms of assessment, the HAM-D 17 and BDI-II to quantify depressive symptoms. These methodological choices reflect the need for a comprehensive assessment of psychological symptoms, as well as the need to determine which instrument has greater reliability.

In addition to depressive symptoms, in the case study conducted by Dobkin et al. [12], it was observed that the three patients analyzed faced sleep-related difficulties. Given this condition, sleep hygiene strategies were adopted, including restricting daytime naps and implementing regular sleep and wake routines, in order to mitigate insomnia symptoms. These interventions were considered necessary to promote an improvement in sleep quality and, consequently, in patients' general well-being, given that long-term changes in sleep can lead to an increase in depressive symptoms.

The clinical trial studies [1, 2, 5, 9, 10, 11, 13, 14] used previously determined protocols applied by therapists specializing in CBT for the treatment of depression. In view of this, two studies [2, 9] reduced the risk of bias by blinding the evaluators and therapists, thus increasing the methodological quality and reliability of the results found. Thus, in view of the methodological complexity of clinical trials, the use of scales such as Risk of Bias is fundamental for analyzing the quality of studies.

It was found that studies [9, 10, 11, 16], which used a virtual methodology through videoconferencing and telecalling, had lower dropout rates from the rehabilitation program with Cognitive-Behavioral Therapy (CBT) compared to studies that adopted face-to-face rehabilitation modalities [1, 2, 5, 8, 12, 13, 14]. These findings are associated with the problem of mobility for access to therapy application sites, dependence on the availability of the caregiver for monitoring during treatment and the occurrence of various complications.

The limitations of this study are associated with the difficulty in obtaining full access to one of the selected studies, making it impossible to read the entire text. In addition, data extraction from the selected studies was carried out by a single individual, and despite the use of two independent authors to reduce selection bias, the actors responsible for selecting the studies had prior knowledge of each other. Another relevant limitation was the lack of evaluation of the risk of bias of the studies analyzed in this review.

In summary, the results of this integrative review reinforce the importance of Cognitive-Behavioral Therapy (CBT) as an effective intervention in the treatment of depression in patients with Parkinson's Disease (PD). In addition, it is suggested that future research should benefit from standardizing therapeutic protocols and adopting strategies to mitigate logistical challenges, with the aim of further improving clinical outcomes in this specific population. It is also essential to carefully assess the methodological quality of the studies and potential bias, in order to guarantee the reliability of the results. Therefore, it is crucial to carry out studies with greater methodological rigor, such as systematic reviews, in order to further elucidate this issue.

References

1. Shinmei I, Kobayashi K, Oe Y, Takagishi Y, Kanie A, Ito M, Takebayashi Y, Murata M, Horikoshi M, Dobkin RD. Cognitive behavioral therapy for depression in Japanese Parkinson's disease patients: a pilot study. Neuropsychiatr Dis Treat. 2016;12:1319-31. https://doi.org/10.2147/NDT.S104777 PMID:27354802 - PMCID:PMC4908947

2. Dobkin RD, Menza M, Allen LA, Gara MA, Mark MH, Tiu J, Bienfait KL, Friedman J. Cognitive-behavioral therapy for depression in Parkinson's disease: a randomized, controlled trial. Am J Psychiatry. 2011;168(10):1066-74. https://doi.org/10.1176/appi.ajp.2011.10111669 - PMID:21676990 PMCID:PMC3186855

3. Ryman SG, Poston KL. MRI biomarkers of motor and non-motor symptoms in Parkinson's disease. Parkinsonism Relat Disord. 2020;73:85-93. https://doi.org/10.1016/j.parkreldis.2019.10.002 PMID:31629653 - PMCID:PMC7145760

4. Chen Z, Li G, Liu J. Autonomic dysfunction in Parkinson's disease: implications for pathophysiology, diagnosis, and treatment. Neurobiol Dis. 2020;134:104700. https://doi.org/10.1016/j.nbd.2019.104700 - PMID:31809788

5. Dobkin RD, Mann SL, Interian A, Gara MA, Menza M. Cognitive behavioral therapy improves diverse profiles of depressive symptoms in Parkinson's disease. Int J Geriatr Psychiatry. 2019;34(5):722-9. https://doi.org/10.1002/gps.5077 PMID:30714202

6. Ahmad MH, Rizvi MA, Ali M, Mondal AC. Neurobiology of depression in Parkinson's disease: Insights into epidemiology, molecular mechanisms and treatment strategies. Ageing Res Rev. 2023;85:101840. https://doi.org/10.1016/j.arr.2022.101840 PMID: 36603690.

7. Dobkin RD, Mann SL, Gara MA, Interian A, Rodriguez KM, Menza M. Telephone-based cognitive behavioral therapy for depression in Parkinson disease: a randomized controlled trial. Neurology. 2020;94(16):e1764-e1773. https://doi.org/10.1212/WNL.0000000000009292 - PMID:32238507 PMCID:PMC7282876

8. Dobkin RD, Allen LA, Menza M. Cognitive-behavioral therapy for depression in Parkinson's disease: a pilot study. Mov Disord. 2007;22(7):946-52. https://doi.org/10.1002/mds.21455 PMID:17377926

9. Piers RJ, Farchione TJ, Wong B, Rosellini AJ, Cronin-Golomb A. Telehealth tansdiagnostic cognitive behavioral therapy for depression in Parkinson's disease: a pilot randomized controlled trial. Mov Disord Clin Pract. 2023;10(1):79-85. https://doi.org/10.1002/mdc3.13587 PMID:36704072 PMCID:PMC9847300

10. Santos CMC, Pimenta CAM, Nobre MRC. The PICO strategy for the research question construction and evidence search. Rev Latino-Am Enfermagem. 2007;15(3):508–11. https://doi.org/10.1590/S0104-11692007000300023

11. Dobkin RD, Mann SL, Weintraub D, Rodriguez KM, Miller RB, St Hill L, King A, Gara MA, Interian A. Innovating Parkinson's care: a

randomized controlled trial of telemedicine depression treatment. Mov Disord. 2021;36(11):2549-58. http://doi.org/10.1002/mds.28548 - PMID: 33710659

12. Dobkin RD, Allen la, Menza M. A cognitive-behavioral treatment package for depression in Parkinson's disease. Psychosomatics. 2006;47(3):259-63. https://doi.org/10.1176/appi.psy.47.3.259

13. Calleo JS, Amspoker AB, Sarwar AI, Kunik ME, Jankovic J, Marsh L, York M, Stanley MA. A pilot study of a cognitive-behavioral treatment for anxiety and depression in patients with Parkinson disease. J Geriatr Psychiatry Neurol. 2015;28(3):210-7. https://doi.org/10.1177/0891988715588831 - PMID:26047635

14. Troeung L, Egan SJ, Gasson N. A waitlist-controlled trial of group cognitive behavioural therapy for depression and anxiety in Parkinson's disease. BMC Psychiatry. 2014;14:19. https://doi.org/10.1186/1471-244X-14-19 - PMID:24467781 PMCID:PMC3907935

15. Wuthrich VM, Rapee RM. Telephone-delivered cognitive behavioural therapy for treating symptoms of anxiety and depression in Parkinson's disease: a pilot trial. Clin Gerontol. 2019;42(4):444-53. https://doi.org/10.1080/07317115.2019.1580811 PMID:30821649

16. Veazey C, Cook KF, Stanley M, Lai EC, Kunik ME. Telephone-administered cognitive behavioral therapy: a case study of anxiety and depression in Parkinson's disease. J Clin Psychol Med Settings. 2009;16(3):243-53. https://doi.org/10.1007/s10880-009-9167-6 - PMID:19404724

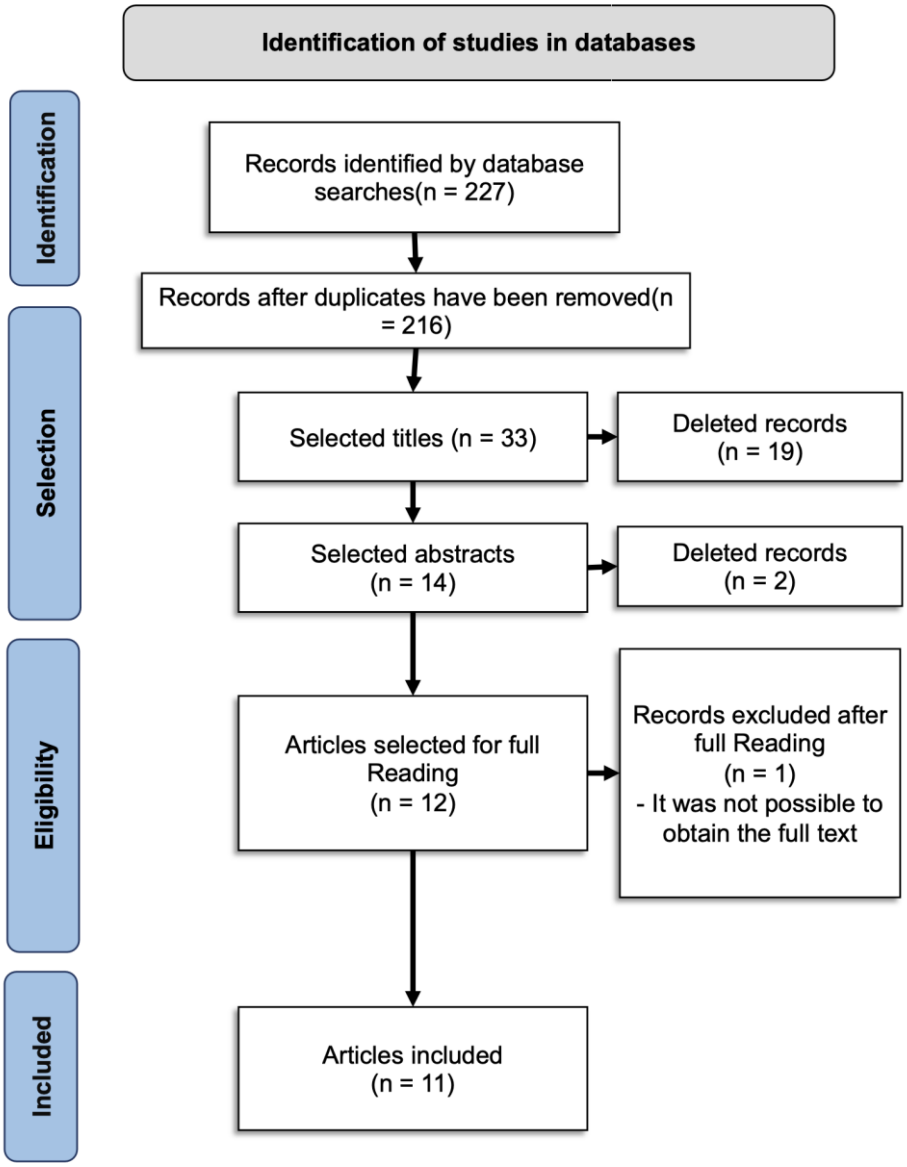

Figure 1. Flowchart of the selection of references used in the research

https://doi.org/10.25118/2763-9037.2024.v14.1282

Table 1. Flowchart of article selection

TITLE	AUTHOR	OBJECTIVE	RESULTS
Telehealth Transdiagnostic Cognitive Behavioral Therapy for Depression in Parkinson's Disease: A Pilot Randomized Controlled Trial	Piers et al., 2023 [9]	To evaluate the effectiveness, feasibility and acceptability of telehealth CBT intervention for depression in PcPD	At post-treatment and follow-up compared to pre-treatment, the intervention produced strong reductions in the clinical severity rating of the current DSM-5 diagnoses for depressive disorder. The therapist had 2 years of experience using the Unified CBT Protocol. The results indicate the efficacy, feasibility and acceptability of telehealth CBT for depression in PcPD
Cognitive behavioral therapy for depression in Japanese Parkinson's disease patients: a pilot study	Shinmei et al., 2016 [1]	Assessing the feasibility of CBT for Japanese patients with depression and PD	Patients reported significant improvements in depression (Hedges' g = -1.02, 95% confidence interval = -1.62 to -0.39). The effects were maintained over a 3-month follow-up period. All participants were taking antiparkinsonian medication during CBT
Cognitive Behavior Therapy for Depression in Parkinson's Disease: a Randomized Controlled Trial	Dobkin et al., 2011 [2]	To examine the efficacy of individually administered CBT versus clinical monitoring (without further treatment) for depression in patients with PD	The CBT group reported greater reductions in depression (HAM-D 17) versus clinical monitoring (P < 0.0001). At week 10, the mean change in HAM-D was 7.35 for CBT versus 0.05 for clinical monitoring (P < 0.0001)
Cognitive-behavioral therapy for depression in Parkinson's disease: a pilot study	Dobkin, Allen and Menza, 2007 [8]	To examine the feasibility and effect of an individual CBT treatment for depression in PD patients	Patients reported a significant decrease in symptoms of depression in both clinician-assessed (HAM-D) (P 0.0001) and self-report (BDI) measures (P 0.002). A significant decrease in

https://doi.org/10.25118/2763-9037.2024.v14.1282

		with a separate social support intervention for caregivers	negative inferences (P 0.001) as well as an increased perception of social support directed negative thoughts (P 0.0001) were also observed
Telephone-Delivered Cognitive Behavioural Therapy for Treating Symptoms of Anxiety and Depression in Parkinson's Disease: A Pilot Trial	Wuthrich and Rapee, 2019 [15]	To determine the feasibility, acceptability and initial effectiveness of telephone CBT for the treatment of depressive and anxious symptoms in people with Parkinson's disease	The CBT program was associated with significantly reduced depressive symptoms (Cohen's d = 0.90) at post-treatment, with gains maintained at the one-month follow-up
A Pilot Study of a Cognitive–Behavioral Treatment for Anxiety and Depression in Patients With Parkinson Disease	Calleo et al., 2025 [13]	To assess the feasibility and satisfaction of CBT for the treatment of anxiety and depression in patients with PD	Those who received CBT had a greater reduction in depression from baseline to post-intervention than those in the EUC group (CBT: mean ¼ -5.14, SD ¼ 5.49; EUC: mean = 2.25, SD = 4.79, z = 2.01, P = 0.045)
A Cognitive-Behavioral Treatment Package for Depression in Parkinson's Disease	Dobkin, Allen and Menza, 2006 [12]	To evaluate the application of CBT throughout the treatment period for depression in PD	All patients experienced a significant reduction in depressive symptoms over the course of treatment in both clinical outcome measures (Ham-D and BDI). These gains were observable halfway through treatment and maintained at the 1-month follow-up
A waitlist-controlled trial of group cognitive behavioural therapy for depression and anxiety in Parkinson's disease	Troeung, Egan and Gasson, 2014 [14]	Evaluating the effectiveness of a group CBT treatment for depression and anxiety in PD	The average reduction in depression for intervention participants was 3.91 compared to an increase of 0.29 for wait-list participants, F (1, 16) = 8.31, p = 0.011, d = 1.12

https://doi.org/10.25118/2763-9037.2024.v14.1282

Telephone-Administered Cognitive Behavioral Therapy: A Case Study of Anxiety and Depression in Parkinson's Disease	Veazey et al., 2009 [16]	To test the feasibility of telephone CBT for the treatment of depression and anxiety in people with PD	The results indicated that telephone CBT is a useful approach for targeting psychiatric symptoms in this population
Innovating Parkinson's Care: A Randomized Controlled Trial of Telemedicine Depression Treatment	Dobkin et al., 2021 [11]	To compare the efficacy of individual CBT for depression in PD by video home versus the usual clinical treatment (control group) for depression in PD	Video-to-home cognitive-behavioral therapy outperformed clinical treatment as usual on three separate measures of depression (P <0.001). The effects were observed at the end of the acute treatment and maintained during the 6-month follow-up
Cognitive behavioral therapy improves diverse profiles of depressive symptoms in Parkinson's Disease	Dobkin et al., 2019 [5]	To examine the impact of CBT on different types of depressive symptoms in PD	The CBT response was associated with significant improvements in mood, sleep, anxiety and somatic symptoms (HAMD) and negative attitudes towards oneself, impaired performance and somatic symptoms (BDI). Stabilized use of antidepressants moderated the effect of CBT on somatic complaints (HAMD and BDI)

https://doi.org/10.25118/2763-9037.2024.v14.1282

Table 2. CBT application protocol of the selected studies

Article	Sessions	Time	Methodology (CBT)
Piers et al., 2023 [9]	12	50-69 min	Video conferencing
Shinmei et al., 2016 [1]	6	60 min	Face-to-face
Dobkin et al., 2011 [2]	14	60-75 min	Face-to-face
Dobkin, Allen and Menza, 2007 [8]	10-14	45-60 min	Face-to-face
Wuthrich and Rapee, 2019 [10]	10	45 min	Video conferencing
Calleo et al., 2015 [13]	8	30-40 min	Face-to-face
Dobkin, Allen and Menza, 2006 [12]	12-14	N/R	Face-to-face
Troeung, Egan, Gasson, 2014 [14]	8	120 min	Face-to-face
Veazey et al., 2009 [16]	9	25-60min	Call
Dobkin et al., 2021 [11]	10	60 min	Video conferencing
Dobkin et al., 2019 [5]	N/R	60-90 min	Face-to-face

https://doi.org/10.25118/2763-9037.2024.v14.1282