http://doi.org/10.47626/1516-4446-2025-4691

Supplementary Material S1

A search strategy based on the PICOS model (Population, Intervention, Comparator, Outcome, and Study design) is a widely used approach in systematic reviews to ensure the selection of relevant studies. However, when applying this methodology to our review, during the initial screening of retrieved articles, we identified that the strict definition of the “S” (study design) criterion led to the exclusion of recent and relevant studies that could significantly contribute to understanding the investigated topic. This exclusion not only limited the scope of the results but also restricted the inclusion of more current and high-quality evidence.

Faced with this methodological issue, we decided to revise the search strategy, removing the restriction by study design and conducting a new search that included publications up to the year 2024. Our decision was based on the need to ensure that the results better reflect the current state of the scientific literature. This approach would allow for a broader retrieval of literature, ensuring that relevant recent studies were incorporated into the analysis. The revision of the search strategy was conducted carefully to maintain methodological quality and minimize biases in study selection. As expected, the revised strategy retrieved more recent studies, which strengthened the robustness of the analysis, allowing for a more comprehensive and representative evaluation of the investigated topic.

http://doi.org/10.47626/1516-4446-2025-4691

Supplementary Table S1 Article scores according to the PEDro Scale

Author	#1	#2	#3	#4	#5	#6	#7	#8	#9	#10	#11	Total
Atmaca et al.[1]	1	0	0	1	0	1	1	1	1	1	1	8
Atmaca et al.[2]	1	0	0	1	0	0	0	1	1	1	1	6
Becker et al.[3]	1	1	0	1	0	0	1	1	0	1	1	7
Brecke et al.[4]	1	0	0	1	0	0	0	0	0	1	1	4
Block et al.[5]	0	1	0	1	0	0	1	0	0	1	1	5
Cao et al.[6]	1	0	0	1	0	0	0	1	1	1	1	6
Fan et al.[7]	1	0	0	1	0	0	0	1	1	1	1	6
Feusner et al.[8]	1	0	0	1	0	0	0	1	1	1	1	6
Freyer et al.[9]	1	0	0	1	0	0	0	1	1	1	1	6
Fullana et al.[10]	1	0	0	1	0	1	0	1	0	1	1	6
Gao et al.[11]	1	0	0	1	0	0	0	1	0	1	1	5
Han et al.[12]	1	0	0	1	0	0	0	1	1	1	1	6
Hoexter et al.[13]	1	1	0	1	0	0	1	0	0	1	1	6
Kim et al.[14]	1	0	0	1	0	0	0	1	1	1	1	6
Li et al.[15]	1	1	0	1	0	0	0	1	1	1	1	7
Li et al.[16]	1	0	0	0	0	1	1	0	0	1	1	5
Ma et al.[17]	1	1	0	1	0	0	1	1	0	1	1	7
Moody et al.[18]	1	1	0	1	0	0	1	1	0	1	1	7
Nabeyama et al.[19]	1	0	0	1	0	0	0	0	1	1	1	5
Nakao et al.[20]	1	1	0	1	0	0	1	1	1	1	1	8
Shin et al.[21]	1	0	0	1	0	0	0	1	1	1	1	6
Van der Straten et al.[22]	1	0	0	1	0	0	0	0	0	1	1	4
Yang et al.[23]	1	0	0	1	0	0	0	1	1	1	1	6
Yoo et al.[24]	1	0	0	1	0	0	0	1	1	1	1	6
Zhao et al.[25]	1	1	0	1	0	0	0	1	1	1	1	7
Zhong et al.[26]	1	1	0	1	0	0	0	1	1	1	1	7

1-11 criteria of PEDro Scale scoring: #1 eligibility criteria were specified, #2 subjects were randomly allocated to groups, #3 allocation was concealed, #4 the groups were similar at baseline regarding the most important prognostic indicators, #5 there was blinding of all subjects, #6 there was blinding of all therapists who administered the therapy, #7 there was blinding of all assessors who measured at least one key outcome, #8 measures of at least one key outcome were obtained from more than 85% of the subjects initially allocated to groups, #9 all subjects for whom outcome measures were available received the treatment or control condition as allocated or, where this was not the case, data for at least one key outcome was analyzed by “intention to treat”, #10 the results of between-group statistical comparisons are reported for at least one key outcome, #11 the study provides both point measures and measures of variability for at least one key outcome.

http://doi.org/10.47626/1516-4446-2025-4691

Supplementary Table S2 MeSH Terms for the systematic review

WORKGROUP	PUBMED	LILACS	EMBASE
SSRI	((((("Obsessive-Compulsive Disorder"[Title/Abstract] OR "Compulsive Behavior"[Title/Abstract] OR "obsession"[Title/Abstract] OR "obsessional"[Title/Abstract] OR "obsessions"[Title/Abstract] OR "obsessive"[Title/Abstract] OR "compulsion"[Title/Abstract] OR "compulsions"[Title/Abstract] OR "compulsive"[Title/Abstract])) AND (("drug therapy"[Title/Abstract] OR "Serotonin Reuptake Inhibitors"[Title/Abstract] OR "clomipramine"[Title/Abstract] OR "SSRI"[Title/Abstract] OR "serotonin and noradrenalin reuptake inhibitor"[Title/Abstract]))) AND (("fMRI"[Title/Abstract] OR "Functional Magnetic Resonance Imaging"[Title/Abstract] OR "Magnetic Resonance Imaging"[Title/Abstract] OR "MRI"[Title/Abstract] OR "Connectivity"[Title/Abstract] OR "MRI Scan"[Title/Abstract] OR "Functional MRI"[Title/Abstract] OR "rsfMRI"[Title/Abstract] OR "Resting State Functional Magnet Resonance Imaging" OR "DTI"[Title/Abstract] OR "Cortical Thickness"[Title/Abstract] OR "Diffusion tensor imaging"))) AND (clinicaltrial[Filter] OR randomizedcontrolledtrial[Filter]) AND (1995/1/1:2024/1/1[pdat])	(("obsessive-compulsive disorder") OR ("compulsive behavior") OR (obses*) OR (compuls*)) AND ((drug therapy) OR (clomipramine) OR (ssri) OR (selective serotonin reuptake inhibitor) OR (serotonin AND noradrenaline reuptake inhibitors)) AND ((fmri) OR ("Functional Magnetic Resonance Imaging") OR ("Magnetic Resonance Imaging") OR (mri) OR (connectivity) OR ("MRI Scan") OR ("MRI Scan") OR ("DTI") OR ("Diffusion tensor imaging") OR ("rsfMRI") OR ("resting state functional Magnet Resonance Imaging") OR ("Cortical Thickness") OR ("Functional MRI")) AND (db:("LILACS"))	'obsessive compulsive disorder' OR 'obsession' OR 'compulsion' AND 'drug therapy' OR 'serotonin reuptake inhibitors' OR 'clomipramine' OR 'SSRI' OR 'serotonin and noradrenalin reuptake inhibitor' AND ((2013:py OR 2014:py OR 2015:py OR 2016:py OR 2017:py OR 2018:py OR 2019:py OR 2020:py) AND 'fmri' OR 'functional magnetic resonance imaging' OR 'magnetic resonance imaging' OR 'mri' OR 'rsfMRI' OR ' resting state functional Magnet Resonance Imaging' OR 'connectivity' OR 'cortical thickness' OR 'mri scan' OR 'functional mri' OR 'DTI' OR 'Diffusion tensor imaging' AND (1997:py OR 2000:py OR 2002:py OR 2003:py OR 2004:py OR 2005:py OR 2006:py OR 2007:py OR 2008:py OR 2009:py OR 2010:py OR 2011:py OR 2012:py OR 2013:py OR 2014:py OR 2015:py OR 2016:py OR 2017:py OR 2018:py OR 2019:py OR 2020:py OR 2021:py OR 2022:py OR 2023:py OR 2024:py) AND ('clinical trial'/de OR 'controlled clinical trial'/de OR 'randomized controlled trial'/de)

CBT	((("Obsessive-Compulsive Disorder"[Title/Abstract] OR "Compulsive Behavior"[Title/Abstract] OR "obsession"[Title/Abstract] OR "obsessional"[Title/Abstract] OR "obsessions"[Title/Abstract] OR "obsessive"[Title/Abstract] OR "compulsion"[Title/Abstract] OR "compulsions"[Title/Abstract] OR "compulsive"[Title/Abstract])) AND (("cognitive behavioral therapy"[Title/Abstract] OR "CBT"[Title/Abstract] OR "behavioral"[Title/Abstract] OR "behavioural"[Title/Abstract] OR "behavior"[Title/Abstract] OR "exposure and response prevention"[Title/Abstract] OR "CBT"[Title/Abstract]))) AND (("fMRI"[Title/Abstract] OR "Functional Magnetic Resonance Imaging"[Title/Abstract] OR "Magnetic Resonance Imaging"[Title/Abstract] OR "MRI"[Title/Abstract] OR "Connectivity"[Title/Abstract] OR "MRI Scan"[Title/Abstract] OR "Functional MRI"[Title/Abstract] OR "rsfMRI"[Title/Abstract] OR "Resting State Functional Magnet Resonance Imaging" OR "DTI"[Title/Abstract] OR "Cortical Thickness"[Title/Abstract] OR "Diffusion tensor imaging")) AND (clinicaltrial[Filter] OR randomizedcontrolledtrial[Filter]) AND (1995/1/1:2024/1/1[pdat])	((("obsessive-compulsive disorder") OR ("compulsive behavior") OR (obses*) OR (compuls*)) AND (("cognitive behavioral therapy") OR (CBT) OR (ERP) OR ("exposure and response prevention")) AND ((fmri) OR ("Functional Magnetic Resonance Imaging") OR ("Magnetic Resonance Imaging") OR (mri) OR (connectivity) OR ("MRI Scan") OR ("DTI") OR ("Diffusion tensor imaging") OR ("rsfMRI") OR ("resting state functional Magnet Resonance Imaging") OR ("Cortical Thickness") OR ("Functional MRI")) AND (db:("LILACS"))	'obsessive compulsive disorder' OR 'obsession' OR 'compulsion' AND 'cognitive behavioral therapy'/exp OR 'cognitive behavioral therapy' OR 'cbt' OR 'erp'/exp OR 'erp' OR 'exposure OR response prevention'/exp OR 'exposure OR response prevention' AND 'fmri' OR 'functional magnetic resonance imaging' OR 'magnetic resonance imaging' OR 'mri' OR 'connectivity' OR 'mri scan' OR 'rsfMRI' OR 'resting state functional Magnet Resonance Imaging' OR 'functional mri' OR 'cortical thickness' 'DTI' OR 'Diffusion tensor imaging' #4 AND AND (1996:py OR 2000:py OR 2002:py OR 2003:py OR 2006:py OR 2007:py OR 2008:py OR 2009:py OR 2010:py OR 2011:py OR 2012:py OR 2013:py OR 2014:py OR 2015:py OR 2016:py OR 2017:py OR 2018:py OR 2019:py OR 2020:py OR 2021:py OR 2022:py OR 2023:py OR 2024:py) AND ('clinical trial'/de OR 'controlled clinical trial'/de OR 'randomized controlled trial'/de)

References

1. Atmaca M, Yildirim H, Yilmaz S, Caglar N, Mermi O, Korkmaz S, et al. Orbito-frontal cortex and thalamus volumes in the patients with obsessive-compulsive disorder before and after cognitive behavioral therapy. Int J Psychiatry Med. 2018;53:243-55.
2. Atmaca M, Yildirim H, Yilmaz S, Caglar N, Baykara S, Kekilli Y, et al. Pituitary gland volumes in patients with obsessive-compulsive disorder before and after cognitive-behavioral therapy. Braz J Psychiatry. 2018;40:420-3.
3. Becker HC, Beltz AM, Himle JA, Abelson JL, Block SR, Taylor SF, et al. Changes in brain network connections after exposure and response prevention therapy for obsessive-compulsive disorder in adolescents and adults. Biol Psychiatry Cogn Neurosci Neuroimaging. 2024;9:70-9.
4. Brecke V, Thorsen AL, Ousdal OT, Vriend C, Alnæs D, Hagen K, et al. Diffusion tensor imaging before and 3 months after concentrated exposure response prevention in obsessive-compulsive disorder. Front Psychiatry. 2021;12:674020.
5. Block SR, Norman LJ, Zhang X, Mannella KA, Yang H, Angstadt M, et al. Resting-state connectivity and response to psychotherapy treatment in adolescents and adults with OCD: a randomized clinical trial. Am J Psychiatry. 2023;180:89-99.
6. Cao R, Yang X, Luo J, Wang P, Meng F, Xia M, et al. The effects of cognitive behavioral therapy on the whole brain structural connectome in unmedicated patients with obsessive-compulsive disorder. Prog Neuropsychopharmacol Biol Psychiatry. 2021;104:110037.
7. Fan Q, Yan X, Wang J, Chen Y, Wang X, Li C, et al. Abnormalities of white matter microstructure in unmedicated obsessive-compulsive disorder and changes after medication. PLoS One. 2012;7:e35889.
8. Feusner JD, Moody T, Lai TM, Sheen C, Khalsa S, Brown J, et al. Brain connectivity and prediction of relapse after cognitive-behavioral therapy in obsessive-compulsive disorder. Front Psychiatry. 2015;6:74.
9. Freyer T, Klöppel S, Tüscher O, Kordon A, Zurowski B, Kuelz AK, et al. Frontostriatal activation in patients with obsessive-compulsive disorder before and after cognitive behavioral therapy. Psychol Med. 2011;41:207-16.
10. Fullana MA, Zhu X, Alonso P, Cardoner N, Real E, López-Solà C, et al. Basolateral amygdala-ventromedial prefrontal cortex connectivity predicts cognitive behavioural therapy outcome in adults with obsessive-compulsive disorder. J Psychiatry Neurosci. 2017;42:378-85.
11. Gao J, Yang X, Chen X, Liu R, Wang P, Meng F, et al. Resting-state functional connectivity of the amygdala subregions in unmedicated patients with obsessive-compulsive disorder before and after cognitive behavioural therapy. J Psychiatry Neurosci. 2021;46:E628-38.
12. Han JY, Kang DH, Gu BM, Jung WH, Choi JS, Choi CH, et al. Altered brain activation in ventral frontal-striatal regions following a 16-week pharmacotherapy in unmedicated obsessive-compulsive disorder. J Korean Med Sci. 2011;26:665-74.
13. Hoexter MQ, de Souza Duran FL, D'Alcante CC, Dougherty DD, Shavitt RG, Lopes AC, et al. Gray matter volumes in obsessive-compulsive disorder before and after fluoxetine or cognitive-behavior therapy: a randomized clinical trial. Neuropsychopharmacology. 2012;37:734-45.

14. Kim M, Jung WH, Shim G, Kwon JS. The effects of selective serotonin reuptake inhibitors on brain functional networks during goal-directed planning in obsessive-compulsive disorder. Sci Rep. 2020;10:20619.
15. Li P, Yang X, Greenshaw AJ, Li S, Luo J, Han H, et al. The effects of cognitive behavioral therapy on resting-state functional brain network in drug-naive patients with obsessive-compulsive disorder. Brain Behav. 2018;8:e00963.
16. Li W, Xie M, Chen H, Zhang X, Zhang H, Xu Z, et al. Resting-state functional connectivity of amygdala subregions predicts treatment outcome for cognitive behavioral therapy in obsessive-compulsive disorder at a 4-month follow-up. Psychiatry Res. 2024;335:115876.
17. Ma JD, Wang CH, Huang P, Wang X, Shi LJ, Li HF, et al. Effects of short-term cognitive-coping therapy on resting-state brain function in obsessive-compulsive disorder. Brain Behav. 2021;11:e02059.
18. Moody TD, Morfini F, Cheng G, Sheen C, Tadayonnejad R, Reggente N, et al. Mechanisms of cognitive-behavioral therapy for obsessive-compulsive disorder involve robust and extensive increases in brain network connectivity. Transl Psychiatry. 2017;7:e1230.
19. Nabeyama M, Nakagawa A, Yoshiura T, Nakao T, Nakatani E, Togao O, et al. Functional MRI study of brain activation alterations in patients with obsessive-compulsive disorder after symptom improvement. Psychiatry Res. 2008;163(3):236-47.
20. Nakao T, Nakagawa A, Yoshiura T, Nakatani E, Nabeyama M, Yoshizato C, et al. Brain activation of patients with obsessive-compulsive disorder during neuropsychological and symptom provocation tasks before and after symptom improvement: a functional magnetic resonance imaging study. Biol Psychiatry. 2005;57:901-10.
21. Shin DJ, Jung WH, He Y, Wang J, Shim G, Byun MS, et al. The effects of pharmacological treatment on functional brain connectome in obsessive-compulsive disorder. Biol Psychiatry. 2014;75:606-14.
22. Van der Straten A, van Wingen G, van den Heuvel OA, et al. Pharmacological and psychological treatment have common and specific effects on brain activity in obsessive-compulsive disorder. Depress Anxiety. 2024;2024:6687657
23. Yang XY, Sun J, Luo J, Zhong ZX, Li P, Yao SM, et al. Regional homogeneity of spontaneous brain activity in adult patients with obsessive-compulsive disorder before and after cognitive behavioural therapy. J Affect Disord. 2015;188:243-51.
24. Yoo SY, Jang JH, Shin YW, Kim DJ, Park HJ, Moon WJ, et al. White matter abnormalities in drug-naïve patients with obsessive-compulsive disorder: a diffusion tensor study before and after citalopram treatment. Acta Psychiatr Scand. 2007;116:211-9.
25. Zhao HZ, Wang CH, Gao ZZ, Ma JD, Huang P, Li HF, et al. Effectiveness of cognitive-coping therapy and alteration of resting-state brain function in obsessive-compulsive disorder. J Affect Disord. 2017;208:184-90.
26. Zhong Z, Yang X, Cao R, Li P, Li Z, Lv L, et al. Abnormalities of white matter microstructure in unmedicated patients with obsessive-compulsive disorder: Changes after cognitive behavioral therapy. Brain Behav. 2019;9:e01201.