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Review

Cognitive behavioural interventions for depression in chronic neurological conditions: A systematic review

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ABSTRACT

Objective: Chronic neurological conditions (CNCs) affect over one million people in the UK alone. Individuals with CNCs endure an increased prevalence of comorbid depression and anxiety. Poor mental health exacerbates the cost of the treatment and management of CNCs. CBT is recommended for the treatment of depression. However the application of CBT to individuals with CNCs may be limited by disease characteristics (e.g. mobility issues restricting therapy attendance and reducing engagement with behavioural activation, as well as difficulties challenging the veracity of disease-related negative thoughts that may reflect accurate appraisals). The objective of this review is to assess the clinical effectiveness of cognitive and behavioural interventions for depressive symptoms in individuals with non-acquired, medically explained CNCs.
Data sources: Searches of The Cochrane Controlled Trials Register, PubMed, and PsychINFO were conducted.
Results: All studies suggested that CBT is an effective treatment for depression comorbid to CNCs, however when CBT was compared to an active therapy control condition, between group differences were unstable.
Conclusion: CBT has promise for the treatment for depression in such conditions; however treatment protocols and outcome measures should be adapted for this population. Future trials should control for non-specific effects of therapy and, as much as possible, introduce blinding into methodologies.

Introduction

The prevalence rates of chronic neurological conditions (CNCs) vary significantly globally. Crude estimates of the prevalence of Parkinson's disease (PD) across Europe vary between 66.5 and 12,500 per 100,000 [1], whilst the prevalence of dementia is between 640 per 100,000 in the UK for ages between 75 and 84 and 1830 per 100,000 in Finland [2]. The prevalence of epilepsy also varies, with estimates of 330 per 100,000 affected in Italy and as much as 780 per 100,000 in Poland [3]. Whilst the latitude–prevalence relationship is no longer tenable in multiple sclerosis (MS; [4]), the prevalence of this condition also varies greatly across the world, with it being relatively rare in Asia (for example, in Siberia it is estimated to affect 12 to 41 per 100,000) and more common in areas like Europe and the United States of America (in the Shetland Islands, for example, the prevalence is estimated at 152 per 100,000; [5]). The management and treatment of these CNCs significantly increase the cost of care. In the UK, for example, poor mental health exacerbates this cost by up to 45%, equating to approximately £1 in every £8 spent [6].

People living with long term health conditions have an increased prevalence of psychiatric comorbidity [7], which is also true for CNCs. In PD the prevalence of emotional distress is high, with up to 50% of the population affected by depression [7], and up to 28% of patients fulfilling the criteria for a formal anxiety disorder whilst 40% present anxiety symptoms [8]. In MS the probability of a comorbid depression is also high, with a lifetime prevalence of 50% [9]. Dementia is also associated with a high prevalence of both anxiety and depression, with research suggesting that 72% of vascular dementia (VD) and 38% of Alzheimer's disease (AD) patients suffer two or more anxiety symptoms and 19% (VD) and 8% (AD) suffering depression [10]. An estimated 20–30% of epilepsy patients are affected by a psychiatric comorbidity and even more in patients with refractory seizures [11]. A study of 60 patients with refractory epilepsy revealed that approximately 70% had a comorbid DSM III disorder [12]. The consequences of comorbid psychiatric conditions in CNCs are widespread and severe. For example, depression and anxiety in PD are associated with faster disease progression [13], leaving the workforce [14], lower health-related quality of life [15], higher levels of dependency, and greater caregiver burden [16].

The National Institute for Clinical Excellence (NICE) guidelines for the management and treatment of depression in chronic physical health problems present a stepped-care model that consists of increasingly intensive levels of CBT interventions before suggesting SSRIs for treatment

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Table 1
Data extraction table.

First author and year	Intervention	Control	Sample size	CNC	Depression measures	Depression inclusion criteria	Attrition	Modifications to CBT	Number and duration of sessions	Effect size	Randomization refusals	Outcomes
Beckner, 2010 [33]	T-CBT	T-SEFT	N = 127 (T-CBT = 62; T-EFT = 65)	MS	BDI-II; HAM-D	BDI-II > 15 and HAM-D > 13	Seven dropouts [T-CBT = 3 (4.8%); T-EFT = 4 (6.1%)]	Based on CBT for depression manuals but with additional modules aimed at issues prevalent in MS (fatigue management and sexual difficulties).	16 weekly sessions; 50-minute duration.	Insufficient data to calculate.	Eligible of randomization = 150; refused randomization = 23 (15.3%).	Both treatments significantly reduced depression; those with high-levels of social support showed greater improvement from CBT.
Dobkin, 2011 [38]	Individual CBT + CM	CM	N = 80 (CBT = 41; CM = 39)	PD	HAM-D; BDI	DSM-IV diagnosis of major depression, dysthymia, or depression not otherwise specified.	Eight dropouts [CBT = 5 (12.2%); CM = 3 (7.7%)]	Stronger emphasis on behavioural and anxiety management; inclusion of supplementary caregiver education programme.	10 sessions; 60–75 minute duration.	Post treatment: HAM-D d = 1.59; BDI d = 1.1.	Eligible for randomization = 80; refused randomization = 0 (0%). *	Significant reduction in BDI and HAM-D for CBT
Forman, 2010 [24]	AG	WLC	N = 40 (AG = 20; WLC = 20)	MS	HADS	HADS subscale > 6 or GHQ-12 > 2	One participant did not complete outcome measures; seven did not attend all sessions	Included group sessions on information about MS and anxiety management.	Six sessions over 12 weeks; two-hour duration.	Post treatment (three months): d = 0.21; follow-up (six months): d = 0.25.**.	Eligible for randomization = 153; refused randomization = 113 (73.9%) — predominately unable to attend group sessions.	Fewer depressive symptoms in group intervention than WLC.
Gandy, 2014 [26]	Individual CBT	WLC	N = 59 (CBT = 31; WLC = 28)	Epilepsy	HADS; NDDI	Participants did not need to be diagnosed with a depressive disorder.	Two dropouts [CBT = 0; WLC = 2 (7.1%)]	CBT programme included sessions providing information about epilepsy (e.g. lifestyle factors), anxiety, and self-identity and epilepsy.	Nine sessions (including assessment); one-hour duration.	Post treatment: d = 0.60; follow-up: d = .39	Eligible for randomization = 59; refused randomization = 0 (0%).	CBT effective for depression but not maintained over time.
Graziano, 2014 [37]	Group CBT	IG	N = 82 (CBT = 41; IG = 41)	MS	CES-D; PANAS	No depression related inclusion criteria reported.	12 dropouts [CBT = 5 (12.2%); IG = 7 (17.1%)]	Groups divided into six subgroups based on age. CBT programme included group sessions on identify change and negative emotions related to illness.	Four sessions (excluding assessment) with one follow-up session after six months; two-hour duration.	CES-D post treatment: d = 0.04; CES-D follow-up: d = 0.40 **.	Eligible for randomization = 144; refused randomization = 62 (43.1%) — for work, family, and travel reasons.	No significant difference between intervention and control group at post-treatment, however significant difference at follow-up.
Larcombe, 1984 [31]	Group CBT	WLC	N = 20 (CBT = 10; WLC = 10)	MS	BDI; HAM-D	Self-reported duration of depression of at least three months and BDI > 19.	One dropout [CBT = 1 (10%); WLC = 0]	Behavioural interventions aimed to increase exposure to positive reinforcers that were hypothesized to have been limited by MS.	Six sessions (excluding follow-up interview and assessment); one and half hour duration.	BDI post treatment d = 3.27; HAM-D post treatment d = 2.59 **.	Eligible for randomization = 20; refused randomization = 0.	CBT group had significant differences to WLC at post-treatment on BDI and HAM-D.
Lincoln, 2011 [27]	AG	WLC	N = 151 (AG = 72; WLC = 79)	MS	BDI-II; HADS	HADS subscale > 7 or GHQ-12 > 2	20 dropouts [AG = 11 (15.3%); WLC = 9 (11.4%)]	Group sessions included psycho-education on MS and anxiety management topics.	Six sessions; two-hour duration.	HADS-D post treatment (four months): d = 0.33; follow-up (eight months) d = 0.42. BDI	Eligible for randomization = 221; refused randomization = 70 (31.7%).	Significant reduction in depression both within AG and between groups.