Supplementary online material

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Supplementary Online Table 1: Effective Public Health Practice Project quality assessment of experimental studies for non-pharmacological interventions in Lewy body dementia

	EPHPP Quality Assessment Tool for Quantitative Studies	Study			
Component ratings	Questions	Rochester *et al.,* 2009	Takahashi *et al.,* 2009	Telenius *et al.,* 2015	Elder *et al.,* 2016
A) Selection bias	1. Are the individuals selected to participate in the study likely to be representative of the target population?	Somewhat likely	Somewhat likely	Very likely	Somewhat likely
	2. What percentage of selected individuals agreed to participate?	80-100% agreement	Can't tell	80-100% agreement	80-100% agreement
	Section rating	**Moderate**	**Moderate**	**Strong**	**Moderate**
B) Study design	Indicate the study design	Cohort	Cohort	Randomised controlled trial	Cohort
	Was the study described as randomised? If NO, go to Component C	No	No	Yes	No
	If YES, was the method of randomisation described? (See dictionary)	-	-	Yes	-
	If YES, was the method appropriate? (See dictionary)	-	-	Yes	-
	Section rating	**Moderate**	**Moderate**	**Strong**	**Moderate**
C) Confounders	1. Were there important differences between groups prior to the intervention?	Yes	Yes	Can't tell	Yes
	2. If yes, indicate the percentage of relevant confounders that were controlled	Less than 60% (few or none)	Less than 60% (few or none)	Can't tell	60-79% (some)
	Section rating	**Weak**	**Weak**	**Weak**	**Moderate**
D) Blinding	1. Was (were) the outcome assessor(s) aware of the intervention or exposure status of participants?	Yes	Yes	No	Yes
	2. Were the study participants aware of the research question?	Can't tell	Can't tell	Can't tell	Can't tell
	Section rating	**Weak**	**Weak**	**Moderate**	**Weak**
E) Data collection methods	1. Were data collection tools shown to be valid?	No	Yes	Yes	Yes
	2. Were data collection tools shown to be reliable?	No	Yes	Yes	Can't tell
	Section rating	**Weak**	**Strong**	**Strong**	**Moderate**
F) Withdrawals and drop-outs	1. Were withdrawals and drop-outs reported in terms of numbers and/or reasons per group?	NA	NA	Yes	Yes

	2. Indicate the percentage of participants completing the study.	80-100%	80-100%	80-100%	80-100%
	Section rating	**Strong**	**Strong**	**Strong**	**Strong**
G) Intervention integrity	1. What percentage of participants received the allocated intervention or exposure of interest?	80-100%	80-100%	Less than 60%	80-100%
	2. Was the consistency of the intervention measured?	Yes	No	Yes	Yes
	3. Is it likely that subjects received an unintended intervention that may influence the results?	No	No	Can't tell	Yes
H) Analyses	1. Indicate the unit of allocation	Organisation / institution	Organization / institution	Organization / institution	Organization / institution
	2. Indicate the unit of analysis	Individual	Individual	Organization / institution	Individual
	3. Are the statistical methods appropriate for the study design?	Can't tell	Can't tell	Yes	Yes
	4. Is the analysis performed by intervention allocation status (i.e. intention to treat) rather than the actual intervention received?	Can't tell	No	Yes	No
Paper global rating		**WEAK**	**WEAK**	**MODERATE**	**MODERATE**

Supplementary Online Table 2: CARE Criteria Checklist 2016 quality assessment of case report studies of non-pharmacological interventions in Lewy body dementia

	Care Checklist	**Study**										
		Hayden *et al.,* 1995	Loher *et al.,* 2002	Rasmussen *et al.,* 2003	Fujiwara *et al.,* 2004	Freund *et al.,* 2009	Barnikol *et al.,* 2010	Ciro *et al.,* 2013	Tabak *et al.,*2013	Gil-Ruiz *et al.,* 2013	Dawley 2015	Kim *et al.* 2016
Title	1. The words "case report" should be in the title along with the area of focus	No	No	No	No	No	No	No	Yes	No	Yes	No
Key Words	2. Four to seven key words—include "case report" as one of the key words	No	No	No	No	No	No	No	No	No	No	No
Abstract	3a. Background: What does this case report add to the medical literature?	No	No	Yes	Yes	Yes	No	Yes	Yes	No	Yes	Yes
	3b. Case summary: chief complaint, diagnoses, interventions, and outcomes	No	No	Yes	Yes	Yes	No	No	Yes	Yes	Yes	Yes
	3c. Conclusion: What is the main "take-away" lesson from this case?	No	No	Yes	No	Yes	No	Yes	Yes	No	Yes	Yes
Introduction	4. The current standard of care and contributions of this case—with references (1-2 paragraphs)	No	Yes	Yes	No	No	No	Yes	Yes	No	Yes	Yes
Timeline	5. Information from this case report organized into a timeline (table or figure)	No	No	No	No	Yes	Yes	No	Yes	No	No	Yes
Patient Information	6a. De-identified demographic and other patient or client specific information	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes
	6b. Chief complaint—what prompted this visit?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
	6c. Relevant history including past interventions and outcomes	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes
Physical Exam	7. Relevant physical examination findings	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Diagnostic	8a. Evaluations such as surveys, laboratory testing, imaging, etc.	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Assessment	8b. Diagnostic reasoning including other diagnoses considered and challenges	No	Yes	No	No	Yes	No	No	No	No	Yes	Yes
	8c. Consider tables or figures linking assessment, diagnoses and interventions	No	Yes	No	No	Yes	No	Yes	Yes	No	Yes	No
	8d. Prognostic characteristics where applicable	No	No	No	Yes	No	No	No	No	No	No	Yes

Interventions	9a. Types such as life-style recommendations, treatments, medications, surgery	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
	9b. Intervention administration such as dosage, frequency and duration	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	No
	9c. Note changes in intervention with explanation	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
	9d. Other concurrent interventions	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes
Follow-up and Outcomes	10a. Clinician assessment (and patient or client assessed outcomes when appropriate)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
	10b. Important follow-up diagnostic evaluations	No	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes
	10c. Assessment of intervention adherence and tolerability	No	Yes	Yes	No	Yes	No	Yes	No	No	Yes	Yes
	10d. Adverse and unanticipated events	No	Yes	Yes	No	Yes	No	No	No	No	No	Yes
Discussion	11a. Strengths and limitations in your approach to this case	No	No	No	No	No	No	Yes	Yes	No	Yes	No
	11b. Conclusions and rationale	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Patient Perspective	12. When appropriate include the assessment of the patient or client on this episode of care	No	No	No	No	No	No	No	No	No	No	Yes
Informed Consent	13. Informed consent from the person who is the subject of this case report is required by most journals	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes
Additional Information	14. Acknowledgement section; Competing Interests; IRB approval when required	No	No	No	No	Yes	Yes	Yes	Yes	No	Yes	Yes
	TOTAL CARE CHECKLIST SCORE (/28)	12	18	19	16	21	11	20	22	13	23	23

Supplementary Online Table 3: Parameters and methodology of stimulation therapies for Lewy body dementia

Citation	System	Location stimulated	Stimulus intensity	Total sessions	Courses of treatment	Intervention duration (days)	Stimulus duration (seconds)	Stimulation frequency	Sessions/day
ECT									
Rasmussen *et al.,* 2003									
Case 1	Thymatron DGX	Course 1: Bitemporal. Course 2 + maintenance: Right unilateral	Course 1: Varied. Course 2: Initial seizure threshold = 20%, subsequent = 100%. Maintenance = 100%	29	2 + maintenance	NR	NR	NR	NR
Case 2	Thymatron DGX	Bitemporal (3 sessions). Bifrontal (4 sessions)	Initial seizure threshold was 40%, subsequent doses at 60%	7	1	NR	NR	NR	NR
Case 3	Thymatron DGX	Right unilateral electode placement	Initial seizure threshold = 10%, subsequent doses = 60%	7	1	NR	NR	NR	NR
Case 4	Thymatron DGX	Bitemporal	Course 1: Dose 1 = 20%, Dose 2 & 3 = 30%. Course 2: Dose 1 = 20%, Dose 2-4 = 30%, Dose 5 & 6 = 60%. [A]	27	2 + maintenance	NR	NR	NR	NR
Case 5	Thymatron DGX	Bitemporal interspersed with bifrontal [B]	30% for all maintenance treatment	58	3	NR	NR	NR	NR
Case 6	Thymatron DGX	Bitemporal	Dose 1: 20%, Dose 2: 30%, subsequent doses at 60%	36-64	2 + maintenance	NR	NR	NR	NR
Case 7	Thymatron DGX	Bitemporal	Initial threshold = 20%, subsequent doses = 50%	9	1	NR	NR	NR	NR
Fujiwara *et al.,* 2004	NR	NR	Sufficient stimulation to result in 11.2 second tonic and 35.2 seconds clonic convulsion on average	6	1	NR	NR	NR	NR

Takahashi *et al.,* 2009	Thymatron System IV	Standard bifrontotemporal	Calculated using 'half age' method. Preset 0.5ms pulsewidth. Voltage titrated in 5-10% increments to reach seizure threshold	6	1	NR	20	Max 2 / session	NR
rTMS									
Takahashi *et al.,* 2009	Magistim Rapid System (MRS 1000/50). 70mm figure-of-eight coil	Dorsolateral prefrontal cortex	110% motor threshold on right side. 100% motor threshold on left side.	30	1	10	1Hz x 140 (right side). 10Hz x 5 (left side)	420 pulses/day (right side). 750 pulses/day (left side)	3 (right side). 15(left side)
tDCS									
Elder *et al.,* 2016	Edith DC Stimulator, through two 35cm^2 electrodes in 0.9% saline soaked bags	Anodal electrode: left dorsolateral prefrontal cortex. Cathodal electrode: right deltoid muscle	2.8mA	1	1	1	1200	NR	1

ECT–Electroconvulsive therapy; NR–Not reported; rTMS–Repetitive transcranial magnetic stimulation; tDCS–Transcranial direct current stimulation. [A]Dosage unknown for subsequent 18 maintenance doses; [B]Due to concerns of temporal stimulation negatively affecting memory.

Supplementary Online Table 4: Parameters and modality of deep brain stimulation in Parkinson's disease dementia case reports, with Unified Parkinson's Disease Rating Scale and Mini-Mental State Examination scores at time points relative to electrode implantation

Citation	Modality	Location stimulated	Voltage (V)	Pulse width (μs)	Frequency (Hz)
Loher *et al.,* 2002	Medtronic SP 5535-300 monopolar electrode	Left internal segment of globus pallidus	NR	NR	NR
Freund *et al.,* 2009; Barnikol *et al.,* 2010	Bilateral DBS electrodes in the STN and NBM	STN; NBM: Laterodorsal portion of intermediate sector (Ch4 intermedius).	STN: 4.2 (right), 3.5 (left); NBM: 1.0 (right), 1.0 (left)	STN: 60; NBM: 60	STN: 130; NBM: 20
Kim *et al.,* 2016	Bilateral subthalamic	STN	NR	NR	NR

Numbers within brackets indicate standard deviations. NBM–Nucleus basalis of Meynert; NR–Not reported; STN–Subthalamic nucleus.

Supplementary Online Table 5: Parameters and methodology of exercise and physical activity intervention in Lewy body dementia

Citation	Exercise Modality	Sessions per week	Session length (minutes)	Intervention duration (weeks)	Minutes per week	Target intensity	Progression
Rochester *et al.,* 2009	Temporal and spatiotemporal cueing whilst walking	1	1[A]	1	~1	NR	None
Ciro *et al.,* 2013	STOMP (skill building through task orientated motor practice)	5	120-180	2	600-900	NR	Increase in task complexity as appropriate
Tabak *et al.,* 2013	Stationary cycling	3	40	8	120	50-75% Max heart rate	5% of max heart rate increase/week
Dawley 2015	LVST BIG (Lee Silverman voice treatment - Big Intervention)	0.7	55	12	36.7	NR	Appropriate rise in movement complexity and speed
Telenius *et al.,* 2015	High Intensity Functional Exercises vs light activity control	2	50-60	12	100-120	12RM	Increase weight to preserve 12RM load

12RM–12 repetition maximum (the greatest weight which participant is only capable of lifting 12 times); [A]Estimated stimulus duration (verbal cueing)