

Table S6

Parkinson's disease: Study Design Details and Participant Characteristics for Music Therapy/Singing as a Treatment Modality

Source	N	Study design	Sex (% female)	Age range (years)	Dysarthria type	Inclusion/exclusion criteria	Inferential statistics	Power analysis	Control group	Baseline data collected	Control intervention	Number of treatment sessions	Mode of treatment delivery	Home exercise plan	Patient-reported outcomes	Treatment effect size
Azeka wa et al. (2018)	5	Prospective, quasi-experimental	40.00%	57-81	Hypokinetic	Inclusion 1, 2, 3: <ul style="list-style-type: none"> • Hoehn & Yahr stage I-III • Age 50+ years • Onset of PD after age 50 	Yes	No	No	Yes – single baseline	No	6 (1 session p/week for 6 weeks)	In person, group	No	No	Yes
Di Benedetto et al. (2009)	20	Prospective, quasi-experimental	35.00%	Mean = 66	NR	Exclusion 5: <ul style="list-style-type: none"> • Alcoholism • Drug abuse • Psychiatric illness • Head injury • Hamilton Depression Scale score < 13 	Yes	No	No	Yes – single baseline	No	Speech/voice therapy: 20 hours (2 sessions p/week) Choral singing: 26 hours (1 session p/week)	In person, individual	No	No	No
Elefant et al. (2012)	10	Prospective, quasi-experimental	30.00%	55-84	NR	NR	Yes	No	No	Yes – single baseline	No	20 (1 session p/week for 20 weeks)	In person, group	No	Yes	No
Evans et al. (2012)	10	Prospective, quasi-experimental	35.00%	48-81	NR	Inclusion: <ul style="list-style-type: none"> • Parkinsonism • Able to read English songs • Independently mobile or have caregiver support Exclusion: <ul style="list-style-type: none"> • Requiring additional physical support 	Yes	No	No	Yes – single baseline	No	2 hour session every week for 2 years	In person, group	No	Yes	No
Haneishi (2001)	4	Prospective, quasi-experimental	100.00 %	67-77	NR	Inclusion 3: <ul style="list-style-type: none"> • One or more of: reduced loudness, change in vocal quality, imprecise articulation, monopitch, 	Yes	No	No	Yes – single baseline	No	12-14 (3 sessions p/week)	In person, individual	No	Yes	No

						vocal tremor, changes in speech rate, lowered pitch											
						<ul style="list-style-type: none">• Problems with breathing (e.g. shallow breath support)• No speech/voice therapy during the study• Sufficient hearing to follow directions• Sufficient vision to read large print• No diagnosis of dementia Maintain sitting for 60 minutes											
Higgins & Richardson (2019)	10	Prospective, quasi-experimental	50.00%	57-80	Hypokinetic	Inclusion 2, 3, 4: <ul style="list-style-type: none">• Hypokinetic dysarthria secondary to PD per SLP• No depression per Beck Depression Inventory Exclusion: <ul style="list-style-type: none">• No voice therapy in the previous year	Yes	No	No	Yes – single baseline	No	11 (1 session p/week for 11 weeks)	In person, group	Yes	No	No	
Shih et al. (2012)	13	Prospective, quasi-experimental	15.30%	54-70	NR	Inclusion 1, 4: <ul style="list-style-type: none">• Hoehn & Yahr stage I-V• Self-perceived voice/speech impairment• VHI > 8• Able to commit to 12 week study	Yes	No	No	No	No	12 (1 session p/week for 12 weeks)	In person, group	No	Yes	No	
Tamplin et al. (2019)	75*	Prospective, quasi-experimental	39.00%	51-93	NR	Inclusion 1, 4: <ul style="list-style-type: none">• (atypical PD not excluded)• English speakers• Normal cognition or	Yes	No	Yes	Yes – single baseline	Yes	Weekly group: 12 sessions; Monthly group: unspecified number	In person, group	No	Yes	No	

						mild cognitive impairment (MMSE 18-23) with mandatory caregiver support Exclusion: <ul style="list-style-type: none">Moderate to severe cognitive impairment (MMSE < 18) or memory problemsSevere language problems or hearing impairment						of sessions for 3 months				
Tamplin et al. (2020)	75**	Prospective, quasi-experimental	39.00%	51-93	NR	Inclusion 1: <ul style="list-style-type: none">PD or a caregiver to a person with PDCommunication change in person with PD (per self-report, caregiver or health professional) Exclusion: <ul style="list-style-type: none">MMSE < 18Severe language problems or hearing impairment	Yes	No	Yes	Yes – single baseline	Yes	2 hours of weekly or monthly treatment for 12 months	In person, group	No	Yes	No
Tanner et al. (2016)	28	Prospective, quasi-experimental	50.00%	Mean = 65.25	NR	Inclusion 1: <ul style="list-style-type: none">Hoehn & Yahr scale ≤ III	Yes	Yes	No	Yes – multiple baselines	No	36 (3 sessions p/week for 6 weeks; 2 treatment blocks)	In person, group	Yes	No	Yes
Yinger & Lapointe (2012)	10	Prospective, quasi-experimental	30.00%	59-84	NR	NR	Yes	No	No	Yes – single baseline	No	12 (2 sessions p/week for 6 weeks)	In person, group	No	No	No

Note. PD, Parkinson's disease; MMSE, Mini-Mental Status Examination; VHI, Voice Handicap Index; SLP, Speech-language Pathologist. Inclusion criteria: ¹Diagnosis of Parkinson's disease; ²No other neurological or cognitive comorbidity; ³Native English speaker; ⁴Normal cognition/MMSE > 24. Exclusion criteria: ⁵Abnormal cognition/MMSE < 24. **n* = 67 with Parkinson's disease, *n* = 5 with Lewy body dementia, *n* = 2 with progressive supranuclear palsy, *n* = 1 with multiple system atrophy. ** *n* = 71 with Parkinson's disease, *n* = 2 with progressive supranuclear palsy, *n* = 2 with multiple system atrophy.