

**Table S1.** Data extraction table for included studies: success of implementation, barriers, facilitators, motivators and recommendations given by authors.

Reference	Successful number <sup>a</sup>	Successful author <sup>b</sup>	Barriers	Facilitators	Motivators <sup>c</sup>	Recommendations
Barrado-Martín, Heward, Polman and Nyman [54]	54% (0-179%) <sup>d</sup>	NA	<ul style="list-style-type: none"> <li>• Not enjoying the PA</li> <li>• Competing commitments</li> <li>• Health issues</li> <li>• Occasional forgetfulness</li> <li>• Busy day</li> <li>• Holiday/traveling</li> <li>• Dyads not living together</li> </ul>	<ul style="list-style-type: none"> <li>• Dyadic approach</li> <li>• Reminders around the house</li> <li>• Tailoring exercises to participant's needs and environment</li> <li>• Possibility to carry booklet to somewhere else</li> <li>• Development of habit/daily routine</li> <li>• Feeling that any difficulty could be clarified by instructor</li> </ul>	<ul style="list-style-type: none"> <li>• Expectations of getting better/achieving benefits</li> <li>• Feeling committed</li> <li>• Doing it together with caregiver</li> <li>• Enjoyment of PA</li> </ul>	<ul style="list-style-type: none"> <li>• More visual material to support home PA</li> <li>• Developing exercise routines</li> </ul>
Barrado-Martín, Heward, Polman and Nyman [55]	75-83% <sup>e</sup>	Yes	<ul style="list-style-type: none"> <li>• Amount of content delivered</li> <li>• Lack of guidance at home</li> <li>• Negative perception of Tai Chi</li> <li>• Low sense of efficacy for caregiver or PwD</li> </ul>	<ul style="list-style-type: none"> <li>• Dyadic approach/support from caregiver</li> <li>• Quality instructor</li> <li>• Memory aids</li> <li>• Adaptation to participants needs</li> <li>• Positive environment</li> <li>• Positive feedback</li> </ul>	<ul style="list-style-type: none"> <li>• Perceived benefits by both PwD and caregiver</li> <li>• Social engagement</li> </ul>	<ul style="list-style-type: none"> <li>• Dyadic approach</li> <li>• Combination of class and home practice</li> <li>• Adapted instructional methods</li> <li>• Individual approach</li> <li>• Guidance with home PA</li> <li>• Explain potential benefits</li> </ul>
Dawson, Judge and Gerhart [53]	99.0% <sup>d</sup>	Yes	<ul style="list-style-type: none"> <li>• Frustration, inability to complete PA</li> <li>• Poor adherence despite willingness</li> <li>• Boredom</li> </ul>	<ul style="list-style-type: none"> <li>• Keep it short and simple</li> <li>• External memory aids</li> <li>• Learning by modelling</li> <li>• PwD chooses activity</li> <li>• Using familiar activities</li> </ul>		<ul style="list-style-type: none"> <li>• Strength-based approach is a useful framework for guiding implementation</li> </ul>
Donkers, van der Veen, Vernooij-Dassen, Nijhuis-van der Sanden and Graff [50]	NA	Yes	<ul style="list-style-type: none"> <li>• Collaboration between healthcare and welfare professionals</li> <li>• Difficulty transferring dyads to a professional involved in delivering the PA</li> </ul>	<ul style="list-style-type: none"> <li>• Focused on social participation</li> <li>• Community-based</li> <li>• Improved relationship with professionals</li> <li>• Low-cost opportunity for PA</li> </ul>	<ul style="list-style-type: none"> <li>• Experience of improvements in dyads' functioning and social participation</li> </ul>	<ul style="list-style-type: none"> <li>• Train professionals involved in intervention delivery (care planning, shared decision making, helping dyads set priorities)</li> </ul>

			<ul style="list-style-type: none"> <li>• PwDs already received PA treatment</li> <li>• Limited organised social activities</li> <li>• Difficulty finding appropriate social activities (insurance)</li> <li>• Lack of motivation by PwD</li> <li>• Caregivers perceived high burden</li> </ul>			
Hancox, Van Der Wardt, Pollock, Booth, Vedhara and Harwood [56]	25% high adherence 40% low adherence <sup>f</sup>	NA	<ul style="list-style-type: none"> <li>• Below a threshold of cognitive capacity</li> <li>• Low practical/emotional support</li> <li>• Lack purpose</li> </ul>	<ul style="list-style-type: none"> <li>• Practical and emotional support from professionals and caregivers</li> <li>• Memory support</li> <li>• Exercise routine</li> </ul>	<ul style="list-style-type: none"> <li>• Believe in and experience of benefits</li> <li>• Positive past experience of sport</li> <li>• Having a meaningful purpose</li> </ul>	<ul style="list-style-type: none"> <li>• Develop an individual exercise routine</li> <li>• Strong emotional support from caregivers</li> <li>• Explain purpose of exercises</li> </ul>
Henskens, Nauta, Scherder, Oosterveld and Vrijkotte [58]	72% completed follow-up	Yes	<ul style="list-style-type: none"> <li>• Understaffing</li> <li>• Limited time available for personalized care and stimulation</li> <li>• Doubts about at which stimulation becomes a burden</li> </ul>	<ul style="list-style-type: none"> <li>• Individually based instruction</li> <li>• Adapted to physical capabilities and personal preferences</li> <li>• Support from nursing staff and caregivers</li> <li>• Trained nursing staff</li> <li>• Nursing staff prepared to deliver PA</li> </ul>	<ul style="list-style-type: none"> <li>• Majority experienced benefits</li> <li>• Staff experienced benefits of PA</li> </ul>	<ul style="list-style-type: none"> <li>• Take understaffing and limited time into consideration</li> </ul>
Henwood, Neville, Baguley and Beattie [59]	63.2% <sup>d</sup>	NA	<ul style="list-style-type: none"> <li>• Facility resources: under-resourcing and under-staffing</li> <li>• Engagement</li> </ul>	<ul style="list-style-type: none"> <li>• Invested staff</li> </ul>		<ul style="list-style-type: none"> <li>• Care providers need to embrace the opportunity and support staff and residents</li> </ul>
Kruse, Cordes, Schulz and Wollesen [60]	72% (53-100%) <sup>d</sup>	Yes	<ul style="list-style-type: none"> <li>• Armrests</li> </ul>	<ul style="list-style-type: none"> <li>• Training modified to requirements PwDs</li> <li>• Instruction methods</li> <li>• Adaptation of exercises</li> </ul>		<ul style="list-style-type: none"> <li>• Consult nurse in advance</li> <li>• Individualized instructions combining verbal, auditory, visual and tactile cues were most effective</li> </ul>

				<ul style="list-style-type: none"> <li>• Individual instructions/supervision</li> <li>• One-on-one support</li> <li>• Activities related to everyday life</li> <li>• Support from relatives</li> </ul>	<ul style="list-style-type: none"> <li>• One-on-one support</li> <li>• Limited group size</li> <li>• Exercises more task-oriented and related to ADL</li> <li>• Tailored to PwD's capacities</li> </ul>
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MacAndrew, Kolanowski, Fielding, Kerr, McMaster, Wyles and Beattie [57]	86% <sup>d</sup>	Yes	<ul style="list-style-type: none"> <li>• Weather</li> <li>• Strict tailored timing of walk</li> <li>• PwD fatigue</li> </ul>	<ul style="list-style-type: none"> <li>• Benefits for PwDs and staff</li> <li>• Perceived having benefits for PwD's</li> <li>• Enjoying walk neighbourhood</li> </ul>	<ul style="list-style-type: none"> <li>• Shortened duration of walk</li> <li>• Walks in de afternoon</li> <li>• Group walks for socialisation</li> <li>• Support (professional, caregiver) for walks</li> </ul>
Sondell, Rosendahl, Gustafson, Lindelöf and Littbrand [51]	73.4% <sup>d</sup>	Yes	<ul style="list-style-type: none"> <li>• Low motivation</li> <li>• Health issues</li> <li>• Tiredness</li> <li>• Fear</li> </ul>	<ul style="list-style-type: none"> <li>• Functional exercises easy to follow</li> <li>• Exercises individualized</li> </ul>	<ul style="list-style-type: none"> <li>• Additional weekly session</li> <li>• Individualization of session times to daily routines.</li> <li>• Strategies to enhance motivation</li> </ul>
Tak, van Uffelen, Paw, van Mechelen and Hopman-Rock [52]	66% completed follow-up; 53% <sup>d</sup>	NA	<ul style="list-style-type: none"> <li>• Practical reasons (time and location)</li> <li>• Physical limitations</li> <li>• Dissatisfaction with content (intensity) program</li> <li>• Adjust exercise intensity</li> <li>• Cost</li> </ul>	<ul style="list-style-type: none"> <li>• Trained instructors</li> <li>• Quality aspects intervention (instructor, content)</li> </ul>	<ul style="list-style-type: none"> <li>• Clear benefits reported by PwDs</li> <li>• Adjust intensity of exercise program</li> <li>• Providing high-quality instructor and feasible content</li> <li>• Address specific outcome expectations</li> </ul>
Teri, Logsdon, McCurry, Pike and McGough [61]	81% completed 1st follow-up; 55% 2nd follow-up; 91% <sup>g</sup>	Yes	<ul style="list-style-type: none"> <li>• Identifying appropriate participants</li> <li>• Understanding protocol</li> <li>• Adhering to time schedule</li> </ul>	<ul style="list-style-type: none"> <li>• Individualized exercises</li> <li>• Educating caregivers</li> <li>• Behavioural problem solving</li> <li>• Support for AAA agencies</li> </ul>	<ul style="list-style-type: none"> <li>• Experienced benefits by dyads</li> <li>• Adequate financial resources</li> <li>• Staff must be trained, supervised and maintained</li> </ul>
Yu and Kolanowski [62]	95.8 & 100% <sup>d</sup>	Yes	<ul style="list-style-type: none"> <li>• Problems with attention and memory</li> </ul>	<ul style="list-style-type: none"> <li>• Training trainers for supervision of exercise</li> </ul>	<ul style="list-style-type: none"> <li>• Monitoring strategies</li> <li>• Regular exercise programs</li> </ul>

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| <ul style="list-style-type: none"> <li>• Burden on caregivers</li> <li>• Caregivers doubts about potential benefits             <ul style="list-style-type: none"> <li>• Safety</li> </ul> </li> <li>• Loss of motivation/resources</li> <li>• Disruptive behaviour during activity</li> <li>• Lack of exercise programs for PwDs</li> <li>• Obtaining collaboration form care practitioner</li> </ul> | <ul style="list-style-type: none"> <li>• Trusting relationship between trainer, PwD and caregiver             <ul style="list-style-type: none"> <li>• Caregiver collaboration</li> </ul> </li> <li>• Educating caregivers and participants             <ul style="list-style-type: none"> <li>• Networking</li> </ul> </li> <li>• Providing transportation</li> </ul> | <ul style="list-style-type: none"> <li>• Trusting relationship training, PwD and caregiver</li> </ul> |
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<sup>a</sup> Objective measure of success: adherence/attendance rates

<sup>b</sup> Subjective measure of success: conclusion of the author

<sup>c</sup> Motivators were classified by the author (W.R.F)

<sup>d</sup> Treatment adherence (% of recommended PA completed/ % attended sessions/attendance rate)

<sup>e</sup> Average attendance to classes

<sup>f</sup> Low = < 3 times a week, high = > 5 times a week

<sup>g</sup> Dyads engaged in assigned homework

Abbreviations: AAAs = Area Agencies on Aging; PwD = people with dementia; NA = not available/not announced; PA = Physical activity.