

# Strategies to engage people with dementia and their informal caregivers in dyadic intervention: A scoping review

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## Abstract

Dyadic interventions simultaneously engage both people with dementia (PWD) and their informal caregivers (ICGs). This scoping review study identified the strategies for engaging dyads, described the perceptions of the dyads on these strategies, and reported the attrition rates of the dyadic interventions reported in the literature. Articles published up to July 2020, reporting a PWD-ICG-dyads intervention were searched in PubMed (Medline), PsycInfo, CINAHL, and the SSCI. Backwards citation chasing was conducted. A total of 37 studies were included. Seven engagement strategies were identified, which involved: ensuring a good-quality interventionist; offering take-home supporting materials; establishing peer support among the participants; tailoring the intervention content; conducting the intervention in a convenient location; conducting the intervention in a comfortable physical environment, and using a short and succinct programme. The dyads' subjective experiences of these strategies were reported. The attrition rates of the included studies were ranged 0% - 59.1%.

**Keywords:** Dementia; Caregiver; Intervention; Engagement

## Introduction

In 2019, over 50 million people around the world were living with dementia, with the number projected to rise to 152 million by 2050.<sup>1</sup> The majority of people with dementia (PWD) live in the community.<sup>2</sup> A large number of them are supported by one or more informal caregiver(s).<sup>3</sup> Caregiving, by definition, involves at least two persons. There is an increasing number of studies showing that the health conditions of PWD and their informal caregivers (ICGs) are inter-related.<sup>4,5</sup> The Actor-Partner Interdependence Model explains that while one's characteristics affect one's behaviour, at the same time there is a "partner effect" that influences the partner's outcomes.<sup>6</sup> Grounded on this postulation, dyadic interventions are developed to simultaneously engage both PWD and ICGs (i.e., the dyad) together in the intervention because of their mutual influence between them and therefore thought to be more effective.<sup>7</sup>

In the past decade, an increasing number of dyadic interventions have been developed to improve the health of both PWD and their ICGs. For example, a dyadic exercise intervention developed by Lamotte and the team to improve the functional independence of PWD and reduce caregiving burden of ICGs.<sup>8</sup> Dyadic intervention is generally conceptualized as an intervention that involves both the care-recipient (i.e. the PWD) and the caregivers, that may include emotional support, education, skills training, and counselling, or enrichment activities for experiencing the positive meaning of caregiving.<sup>9</sup> For instance, ICGs were trained to use tailored activities that drew upon preserved abilities and reduced task demands; taught how to manage situational distress; and instructed on how to understand the behavioural symptoms of PWD, while the PWD enjoyed the tailored activities prescribed by professional after comprehensive assessment and delivered by ICG.<sup>10</sup> This dyadic intervention that simultaneously involved both the PWD and ICG resulted in a reduction in behavioural symptoms and an increase in functional independence, at the same time lowering behaviour-related ICG distress. There is some evidence indicating that dyadic interventions are likely to be more effective than interventions that focus on PWD or ICGs alone.<sup>7,11,12</sup> While dyadic interventions are effective in improving outcomes for the dyads, engaging PWD-ICG dyads in dyadic interventions has been a challenge for practitioners as shown in low recruitment and high attrition rates, or low compliance.<sup>13,14</sup>

Engagement is defined as actions that participants must take to obtain the greatest benefit from the health care services available to them.<sup>15</sup> Their level of engagement can be seen in their **perceptions** (e.g., intrinsic interest and enjoyment, temporal dissociation),<sup>16</sup> and **behaviours** (e.g., completion of the specified course of expected treatment or tasks, and attendance at requisite sessions).<sup>17</sup> Non-engagement behaviours as reflected in attrition may pose a challenge to the effectiveness and cost-efficiency of a programme, as evidenced in the literature.<sup>18</sup> Attrition from the intervention may occur for a variety of reasons. ICGs of PWD are likely to drop out from the programme or to not fully adhere to the regimen as designed, because of their heavy caregiving burden, poor health, or multiple obligations (such as work, study, and child care).<sup>19</sup> In a dyadic intervention, the likelihood of dropping out is even higher than an intervention that involved solely PWD or ICG, because the withdrawal of either the PWD or ICG for any reason is regarded as a dropout as mutual participation is expected in a dyadic intervention.

There appears to have been limited consideration given to the question of how to engage dyads of PWD and ICG throughout the intervention programme. In contrast, strategies to engage participants have been discussed in other study populations. For example, employing a small group and delivering the intervention at an appropriate season were reported to be effective at enhancing engagement in a weight management intervention for school children.<sup>18</sup> Telephone reminders, phone assessments, and remuneration were found to be successful strategies for enhancing the engagement of pregnant women in a parental care study.<sup>20</sup> However, there is a dearth of reviews that summarise strategies used to enhance engagement in dyadic interventions involving PWD and their ICGs and describe their perceptions and engagement behaviours.

## AIMS

The objectives of this study are as below:

- 1 To identify the strategies being employed to engage PWD and ICGs as dyads in psychosocial interventions designed for improving health, as reported in the literature;
- 2 To describe the perceptions of PWD and/or their ICGs towards those strategies; and
- 3 To report the attrition rates of the dyadic interventions reported in the literature.

## Methods

This scoping review was guided by Arksey and O'Malley's five-stage framework,<sup>21</sup> and followed the advice of Levac and his team<sup>22</sup> to synthesize and analyze a wide range of literature to provide greater clarity on the various engagement strategies and experiences of PWD and ICGs engaged in dyadic interventions. According to Arksey

and O'Malley's framework, there are five different stages to undertaking a scoping review: (1) identifying the research question; (2) identifying relevant studies; (3) selecting studies; (4) charting the data; and (5) collating, summarising, and reporting the results.

To further strengthen the rigour of this scoping study, we reported our study according to the Preferred Reporting Items for Systematic Reviews and Meta-Analyses Extension for Scoping Reviews (PRISMA-ScR) guidelines<sup>23</sup> (Supplementary File 1).

In stage 1, we developed a broad research question that summarised the breadth of the empirical evidence, in line with the exploratory and inductive nature of a scoping review.<sup>21</sup> The research questions to be answered in this study were:

- 1 What strategies have been employed to engage PWD and ICGs in the dyadic psychosocial interventions designed for improving health reported in the literature?
- 2 What were the perceptions of PWD and/or ICGs towards those strategies?
- 3 What attrition rates were reported?

In stage 2 of Arksey and O'Malley's model, relevant studies were identified through searches of electronic databases and reviews of the reference lists of included articles.

## Eligibility

The Population, Concept, and Context framework<sup>24</sup> was employed to determine which articles were eligible for inclusion in the review. The target study **population** were dyads in which one member had been diagnosed with any type and severity of dementia (e.g., Alzheimer's disease, vascular diseases, or frontotemporal lobe dementia) and their ICG. In this study, an ICG is defined as an individual who provides care because of a personal or familial relationship, rather than a financial or professional relationship. Studies that included PWD and/or their ICGs who had other psychiatric disorders (such as Schizophrenia) were excluded, who may need special care. The **concept** in this study was the engagement strategies targeting engagement behaviours, and the perceptions of the dyad participants. The **context** was any psychosocial intervention aimed at improving the health (i.e. physical and mental) and well-being outcomes of both the PWD and their ICGs simultaneously and requiring both persons to participate. Psychosocial interventions are interpersonal or informational activities, techniques, or strategies that target biological, behavioural, cognitive, emotional, interpersonal, social, or environmental factors with the intention of improving the health and well-being of the participants.<sup>25</sup> Studies that involved ICGs delivering the intervention to the PWD without the purpose of improving their health were excluded. For example, studies involving trained ICG to support the PWD in doing exercises to improve PWD's physical fitness were excluded, unless the intervention was purposively designed to improve both the ICG's and PWD's physical fitness. This study aimed to identify dyads' engagement strategies to participate in dyadic psychosocial interventions that relied much on the dyads' voluntariness. Studies reporting the formal care under the infrastructures were excluded, such as post-discharge home visits by a dementia nurse specialist, or discharge planning. These care approaches were usually covered by insurance or subsidized or needed to be paid out-of-the-pocket, or they were standard practices that may affect the voluntariness of participation. Consequently, these approaches were highly individualized, resulting in the engagement strategies being too heterogeneous for synthesis.

Because this scoping review aimed to identify strategies employed for engaging dyad participants, non-empirical studies such as systematic reviews were also excluded. Preliminary literature searches on the databases (as mentioned in the below section). Our research team could read both English and Chinese, but we could not find relevant articles that were written in Chinese. Therefore, this review only included articles published in English.

## Information sources and search strategy

Article searches on electronic databases were conducted on 7<sup>th</sup>–16<sup>th</sup> June 2019, and on 3<sup>rd</sup> August 2020 to identify studies published between June 2019 – July 2020, using a combination of the following keywords in either title or MeSH term: (dementia OR Alzheimer OR cognitive impairment) AND (dyad\* OR couple\* OR family caregiver OR informal caregiver) AND (intervention OR therapy). The databases that were searched included PubMed (Medline), PsycInfo, CINAHL, and the Social Science Citation Index (SSCI). For example,

((Dementia OR Alzheimer[MeSH]) AND (Dyad\*[Title] OR couple[Title] OR "informal care\*" [Title] OR "family care\*" [Title])) AND (intervention[Title] OR therapy[Title]) AND (English[Language]) was entered in PubMed (Medline) for searching the literature.

We searched for published literature from the start date of the database up to July 2020. The citation chasing of the included articles was performed to identify relevant articles. A research librarian assisted in performing the article searches. All articles were exported to EndnoteX9. Duplicate articles were removed.

## Selection of sources of evidence

Stage 3 of Arksey and O'Malley's model involves reviewing and selecting articles. Titles and abstracts were first screened, followed by a full-text screening, according to the eligibility criteria. This two-step screening process was conducted independently by two baccalaureate final year nursing students. To ensure consistency between the two reviewers, they were provided with training on the selection criteria before they began the process of screening citations. Any disagreements or uncertainties between the two reviewers were brought to the first author and discussed until a consensus was reached.<sup>22</sup>

## Data charting

Data charting was performed in stage 4 of Arksey and O'Malley's framework. A data charting form was designed based on the research questions. Information on the studies was extracted, including data on the authors, year of publication, country of origin, research design, study setting, number of recruited dyad participants, attrition rate (if any) and types of intervention, strategies used specifically for engaging dyad participants explicitly reported by the authors or the participants, and the dyad participants' perceptions of the strategies. Given the objectives (i.e., to identify the strategies used to engage dyads in dyadic psychosocial interventions and the dyads' perceptions of those strategies, and the attrition rates reported), no assessment of the quality of the individual studies was conducted. We did not exclude research articles that reported results from the same original study because the data that those articles contained related to the research objectives were found to differ from each other. Data charting was done independently by two reviewers and the results were cross-checked to ensure that accurate and essential information had been extracted.

## Collating and summarising the data

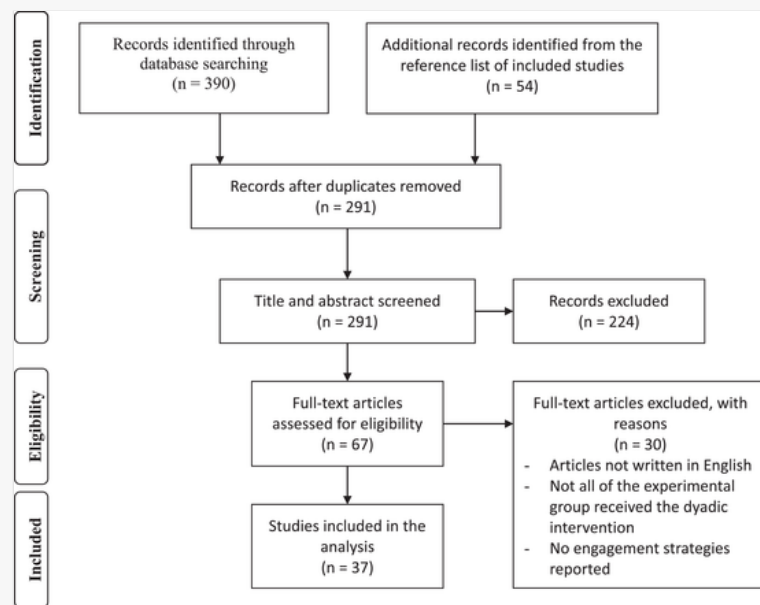
For the last stage of Arksey and O'Malley's framework, we followed the advice of Levac et al.<sup>22</sup>, and developed a descriptive summary to collate and summarise the results. Further, we conducted the thematic analysis to analyze and report the findings. Guided by Braun and Clarke's approach of inductive thematic analysis,<sup>26</sup> the analysis was performed with six steps: (i) familiarising ourselves with the data; (ii) generating initial codes; (iii) searching for themes; (iv) reviewing and refining themes; (v) naming themes; and (iv) writing a report thematically. Since inductive thematic analysis is data-driven, with no attempt made to fit the data into a pre-existing theoretical framework,<sup>26,27</sup> it matches with the exploratory nature of a scoping review.<sup>21</sup>

## Results

### Search results

The database search yielded 390 articles, while the supplementary strategy brought forth 54 studies. Among these, 153 were duplicates leaving 291 results. After screening the titles and abstracts, 224 articles were excluded because they were irrelevant to the research questions. This left 67 articles for full-text screening. Among them, 30 articles were further excluded because these studies did not report any engagement strategies; articles not written in English; or some of the participants were just either the PWD or ICGs only (i.e. not in dyad). As a result, a total of 37 articles were included in the narrative synthesis of results (Fig. 1).

Fig. 1



Flow diagram of the study selection process.

With regard to study designs, the 37 articles included mixed-method studies ( $n = 3$ ), qualitative studies ( $n = 13$ ), quasi-experimental studies ( $n = 4$ ), and randomized controlled trials ( $n = 17$ ). The majority of the studies were conducted in various Western countries, in North America (the USA [ $n = 16$ ] and Canada [ $n = 2$ ]), Europe (the UK [ $n = 7$ ], the Netherlands [ $n = 4$ ], Denmark [ $n = 3$ ], Finland [ $n = 1$ ], and Norway [ $n = 1$ ]), and Australia ( $n = 2$ ). Another one conducted in both the USA and Japan. The reported attrition rates ranged from 0% to 59.1%. Because of the different study designs, the number of dyads that were recruited varied widely across the included studies, ranging from 4 to 488 dyads. Table 1 outlines the characteristics of the included studies.

alt-text: Table 1

Table 1

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Characteristics of the included studies.

Interventions/Reference	Country	Study design				Setting				Recruited number of dyads	Attrition rate
		Mixed method	Qualitative	Quasi-experimental	RCT	Home-based	Community-based	Others			
Cognitive-behavioural therapy ( $n = 4$ )											
Quayhagen <i>et al.</i> , 2000 <sup>46</sup>	USA				✓	✓	✓		103	Unclear	
Yates <i>et al.</i> , 2016 <sup>45</sup>	UK		✓			✓			22	59.1%	
Orgeta <i>et al.</i> , 2015 <sup>43</sup>	UK				✓	✓			356	23.3%	
Orrell <i>et al.</i> , 2017 <sup>63</sup>	UK				✓	✓			356	23.3%	
Cognitive training ( $n = 2$ )											
Moniz-Cook <i>et al.</i> , 1998 <sup>36</sup>	UK			✓		✓			30	Unclear	
Zarit <i>et al.</i> , 1982 <sup>49</sup>	USA				✓			✓	35	Unclear	
Communication training ( $n = 2$ )											
Olthof-Nefkens <i>et al.</i> , 2018 <sup>34</sup>	The Netherlands		✓					✓	4	0%	
Williams <i>et al.</i> , 2018 <sup>38</sup>	USA		✓			✓			24	37.5%	
Couple life story approach and life review ( $n = 4$ )											
Ingersoll-Dayton <i>et al.</i> , 2016 <sup>65</sup>	USA and Japan		✓			✓			29	0%	
Haight <i>et al.</i> , 2003 <sup>64</sup>	USA			✓		✓			22	Unclear	
Woods <i>et al.</i> , 2016 <sup>50</sup>	UK				✓	✓			488	28.3%	
Ingersoll-Dayton <i>et al.</i> , 2013 <sup>73</sup>	USA		✓						24	16.7%	
Multi-component intervention ( $n = 10$ )											
Gitlin <i>et al.</i> , 2010 <sup>33</sup>	USA				✓	✓			237	27%	
Phung <i>et al.</i> , 2013 <sup>51</sup>	Denmark				✓			✓	330	39.4%	
Sørensen <i>et al.</i> , 2008 <sup>48</sup>	Denmark		✓			✓			11	9.1%	
Waldorff <i>et al.</i> , 2012 <sup>44</sup>	Denmark				✓	✓			330	16.4%	
Eloniemi-Sulkava <i>et al.</i> , 2009 <sup>66</sup>	Finland				✓	✓			125	0%	
Prick <i>et al.</i> , 2014 <sup>37</sup>	The Netherlands				✓	✓			111	21.2%	
Fortinsky <i>et al.</i> , 2014 <sup>40</sup>	USA			✓		✓			31	22.6%	
Prick <i>et al.</i> , 2016 <sup>29</sup>	The Netherlands				✓	✓			111	21.2%	
Prick <i>et al.</i> , 2017 <sup>67</sup>	The Netherlands				✓	✓			111	21.2%	
Teri <i>et al.</i> , 2020 <sup>32</sup>	USA		✓			✓			255	45.1%	

Physical exercise (n = 3)										
Barrado-Martín <i>et al.</i> , 2019 <sup>35</sup>	UK		✓			✓		✓	10	20%
D' Amico <i>et al.</i> , 2016 <sup>68</sup>	UK					✓	✓		131	13.7%
Dal Bello-Haas <i>et al.</i> , 2014 <sup>47</sup>	Canada	✓						✓	154	0%
Psychoeducation and counselling (n = 8)										
Auclair <i>et al.</i> , 2009 <sup>31</sup>	USA					✓	✓		42	0%
Epstein <i>et al.</i> , 2007 <sup>39</sup>	USA					✓	✓		12	0%
Whitlatch <i>et al.</i> , 2006 <sup>30</sup>	USA		✓				✓		31	0%
Barton <i>et al.</i> , 2014 <sup>42</sup>	USA		✓				✓	✓	66	?
Andersen, 2013 <sup>53</sup>	USA					✓		✓	80	15%
Bruvik <i>et al.</i> , 2013 <sup>69</sup>	Norway					✓		✓	230	13.5%
Stockwell-Smith <i>et al.</i> , 2018 <sup>70</sup>	Australia	✓					✓	✓	88	28.4%
Orsulic-Jeras <i>et al.</i> , 2019 <sup>28</sup>	USA		✓					✓	49	18.4%
Sensory intervention or art-based intervention (n = 4)										
Baker <i>et al.</i> , 2012 <sup>41</sup>	Australia	✓					✓		5	0%
Clair, 2002 <sup>52</sup>	USA			✓			✓		15	46.7%
Clair and Ebberts, 1997 <sup>71</sup>	USA		✓					✓	15	20%
Couture <i>et al.</i> , 2020 <sup>72</sup>	Canada		✓				✓		5	0%

Note: RCT: Randomized controlled trial.

## Dyadic psychosocial interventions

The dyadic interventions examined in the included studies were cognitive-behavioural therapy ( $n = 4$ ), cognitive training ( $n = 2$ ), communication training ( $n = 2$ ), a couple life story and life review ( $n = 4$ ), multi-component intervention ( $n = 10$ ), physical exercise, ( $n = 3$ ), psychoeducation and counselling ( $n = 8$ ), and sensory or art-based intervention ( $n = 4$ ).

## Engagement strategies

Seven types of strategies that engaged dyads in psychosocial interventions were identified, namely: ensuring a good-quality interventionist; offering take-home supporting materials; establishing peer support among the participants; tailoring the intervention content; conducting the intervention in a convenient location; conducting the intervention in a comfortable physical environment; and using a short and succinct programme. Fifteen studies adopted one strategy to enhance engagement, while twenty-two studies used two or more strategies (please see Table 2 for detail).

alt-text: Table 2

Table 2

*i* The table layout displayed in this section is not how it will appear in the final version. The representation below is solely purposed for providing corrections to the table. To preview the actual presentation of the table, please view the Proof.

Engagement strategies employed in the studies.

	Ensuring a good-quality interventionist	Offering take-home supporting materials	Establishing peer support among participants	Tailoring the intervention content	Conducting the intervention in a convenient location	Conducting the intervention in a comfortable physical environment	Using a short and succinct programme
Quayhagen <i>et al.</i> , 2000 <sup>46</sup>			✓				
Yates <i>et al.</i> , 2016 <sup>45</sup>		✓					
Orgeta <i>et al.</i> , 2015 <sup>43</sup>		✓					
Orrell <i>et al.</i> , 2017 <sup>63</sup>	✓				✓		
Moniz-Cook <i>et al.</i> , 1998 <sup>36</sup>	✓	✓					
Zarit <i>et al.</i> , 1982 <sup>49</sup>			✓				
Olthof-Nefkens <i>et al.</i> , 2018 <sup>34</sup>	✓	✓		✓			
Williams <i>et al.</i> , 2018 <sup>38</sup>	✓	✓				✓	
Ingersoll-Dayton <i>et al.</i> , 2016 <sup>65</sup>	✓						
Haight <i>et al.</i> , 2003 <sup>64</sup>	✓						
Woods <i>et al.</i> , 2016 <sup>50</sup>			✓				
Ingersoll-Dayton <i>et al.</i> , 2013 <sup>73</sup>		✓		✓			
Gitlin <i>et al.</i> , 2010 <sup>33</sup>	✓				✓		✓

Phung <i>et al.</i> , 2013 <sup>51</sup>			✓	✓			
Sørensen <i>et al.</i> , 2008 <sup>48</sup>	✓		✓			✓	
Waldorff <i>et al.</i> , 2012 <sup>44</sup>		✓		✓			
Eloniemi-Sulkava <i>et al.</i> , 2009 <sup>66</sup>	✓		✓	✓			
Prick <i>et al.</i> , 2014 <sup>37</sup>	✓	✓					✓
Fortinsky <i>et al.</i> , 2014 <sup>40</sup>	✓						
Prick <i>et al.</i> , 2016 <sup>29</sup>	✓	✓					✓
Prick <i>et al.</i> , 2017 <sup>67</sup>	✓	✓					
Teri <i>et al.</i> , 2020 <sup>32</sup>	✓			✓			
Barrado - Martín <i>et al.</i> , 2019 <sup>35</sup>	✓		✓	✓	✓	✓	
D' Amico <i>et al.</i> , 2016 <sup>68</sup>				✓			
Dal Bello-Haas <i>et al.</i> , 2014 <sup>47</sup>			✓				
Auclair <i>et al.</i> , 2009 <sup>31</sup>	✓						
Epstein <i>et al.</i> , 2007 <sup>39</sup>	✓						
Whitlatch <i>et al.</i> , 2006 <sup>30</sup>	✓	✓			✓		
Barton <i>et al.</i> , 2014 <sup>42</sup>		✓					
Andersen, 2013 <sup>53</sup>					✓		✓
Bruvik <i>et al.</i> , 2013 <sup>69</sup>		✓	✓				
Stockwell-Smith <i>et al.</i> , 2018 <sup>70</sup>		✓			✓		
Orsulic-Jeras <i>et al.</i> , 2019 <sup>28</sup>	✓				✓		
Baker <i>et al.</i> , 2012 <sup>41</sup>		✓				✓	
Clair, 2002 <sup>52</sup>				✓			
Clair and Ebberts, 1997 <sup>71</sup>			✓	✓			
Couture <i>et al.</i> , 2020 <sup>72</sup>				✓	✓		

## Engagement strategies and the perceptions of the dyad participants

### *Ensuring a good-quality interventionist*

Positive characteristics of a good-quality interventionist were described, including being enthusiastic, warm, caring, helpful, friendly, knowledgeable, skilful, effective, and influential.<sup>28–30</sup> With an interventionist of good quality, a supportive, safe, and comfortable environment for the participants to engage in the intervention was built.<sup>28, 31, 32</sup> The participants felt that they were being treated respectfully and equally, and that they were being understood during the intervention.<sup>28, 33, 34</sup> Some participants also expressed their enthusiasm and satisfaction with the support that they received from the interventionists,<sup>35, 36</sup> while some participants found their conversation with the interventionists both enjoyable and beneficial.<sup>37, 38</sup> They appreciated the interventionists' ability to help them improve their self-confidence,<sup>34, 39</sup> reduce their sense of loneliness,<sup>37</sup> and make them feel better about the future.<sup>40</sup>

### *Offering take-home supporting materials*

Supporting materials, such as advice pamphlets, a manual, a logbook, and education cards, were provided to the participants.<sup>30, 34, 36, 41–45</sup> Dyads were generally satisfied with those materials, claiming that they were useful,<sup>34, 36</sup> easy to use,<sup>43, 45</sup> and could help them to actively participate, engage in discussions, and involve themselves in the process of the intervention.<sup>30, 34, 41, 43</sup>

### *Establishing peer support among the participants*

In some studies, various types of group activities were designed to establish peer relationship and support. The participants thought that during the group activities, their interactions and communication with others were enhanced,<sup>46</sup> and that they were able to develop new relationships and bonding with others.<sup>35, 46</sup> The participants engaged in informal conversations with other dyads, shared information, and supported each other.<sup>46</sup> Joining group activities allowed dyads to meet other dyads in a similar situation, cope with challenges together, and learn from each other.<sup>47–49</sup> These activities boosted their self-esteem and helped them to manage their everyday life and social relations.<sup>48</sup> Dyads also enjoyed the socializing component,<sup>35, 50</sup> and some of them expressed the wish that peer support groups could be available throughout the course.<sup>48</sup> They even looked for support groups to join on a permanent basis.<sup>49, 51</sup>

### *Tailoring the intervention content*

Dyads appreciated that the content of the intervention was personally tailored.<sup>34</sup> Tailoring refers to modifying the content of the intervention according to dyads' interests and their abilities. For example, in one study, the interventionists had adapted the Tai-chi classes to meet the participants' needs or requests by simplifying the Tai-chi steps

to be practised during the intervention.<sup>35</sup> Another study collected information on the preferences of the participants at the beginning of the programme as well as feedback from them, and took those into account in the design of subsequent sessions to motivate active participation.<sup>52</sup>

### ***Conducting the intervention in a convenient location***

To make the intervention more convenient and accessible to participants, the venues of interventions were chosen with consideration given to the accessibility of cars and the availability of public transport. Some studies even chose a home-based intervention to avoid any problems with mobility or travel. Dyads showed great appreciation for a convenient location.<sup>28</sup>

### ***Conducting the intervention in a comfortable physical environment***

A comfortable physical environment was picked by researchers from a list of designated criteria, namely, that it is familiar, spacious, and well maintained.<sup>38</sup> Some of the dyads admitted that a comfortable physical environment was essential to fostering engagement in dyadic communication.<sup>38</sup>

### ***Using a short and succinct programme***

Reduced number of face-to-face sessions to be attended was emphasized in some studies.<sup>29,37,53</sup> The participants reported that the intervention was neither burdensome nor time-consuming when the strategy of “a reduced workload” was used in the study.<sup>33</sup> Details of the engagement strategies and the relevant perceptions of the ICGs/PWD are presented in [Table 3](#).

alt-text: Table 3

Table 3

*i* The table layout displayed in this section is not how it will appear in the final version. The representation below is solely purposed for providing corrections to the table. To preview the actual presentation of the table, please view the Proof.

Elaboration on the engagement strategies and the perceptions of informal CG/PWD participants.

Engagement strategies	Elaboration of the engagement strategies	Participants' perceptions of the engagement strategies
Ensuring good-quality interventionist	Qualities of a good interventionist Enthusiastic Warm Caring Helpful Friendly Knowledgeable Skilful Effective Influential Able to create a supportive, safe, and comfortable environment Able to help improve the participants' self-confidence	Had a feeling of being respected Had a feeling of equality Had a feeling of being understood Enjoyed and benefited from the conversations with the interventionist Appreciated the help from the interventionist Created a positive future
Offering take-home supporting materials	Use of Advice pamphlets Manual Logbook Education cards Materials had to be Easy to use Useful	Facilitated active participation, discussion, and involvement in the process of the intervention
Establishing peer support among the participants	While participating in group-based activities, Participants were allowed to meet others in similar situations Engaged in informal conversations with other dyads	Enhanced the participants' interaction and communication with others Shared information among peers Coped with challenges together Learnt from each other Supported each other Developed new relationships and bonding with others Boosted their self-esteem Helped in managing everyday life and social relations Enjoyed the socializing component Wished to have peer support groups available throughout the intervention Looked for support groups to join permanently
Tailoring the intervention content	Modify services according to the participants' interests and abilities	Felt personal Motivated active participation
Conducting the intervention in a convenient location	Accessible by car Accessible by public transport	Great appreciation for the convenience of the location Home-based interventions avoided problems with mobility or travel
Conducting the intervention in a comfortable physical environment	Familiar environment Spacious size A well-maintained place	Thought that a comfortable environment was essential to foster engagement in dyadic communication
Using a short and succinct programme	Reduced the number sessions to be attended	Felt that the intervention was not burdensome Felt that the intervention was not time-consuming

## **Discussion**

To the best of our knowledge, this study is the first to explore the strategies that have been adopted to engage PWD and ICG in dyadic interventions. From the included studies, seven types of engagement strategies were identified. The interventionist is the essence of a good intervention. Inadequate rapport with and trust in the interventionist are barriers that would inhibit the participants from engaging in the programme. An interventionist with the qualities identified from this review may help to overcome these barriers. By providing encouragement and being positive, the dyads' acceptance of and willingness to engage in the intervention could be enhanced.<sup>54</sup> The participants in the included studies appreciated the enthusiasm of the interventionist; showed satisfaction with the support offered by the interventionist; and expressed their enjoyment at having a conversation with the interventionist. Having a positive experience with the interventionist (such as experiencing mutual respect) may also help in building trust and rapport between the dyads and the interventionist. When a positive therapeutic relationship is established, interventionists will be able to better understand the difficulties and feelings of the dyads, which will allow them to better support the dyads in the dyadic intervention, yielding better outcomes and higher levels of adherence.<sup>54</sup>

Another key component of an intervention is the materials that are employed. Information is “an instigating or foundational element in many core models of health behaviour change”.<sup>55</sup> Providing take-home supporting materials is another strategy that has been identified for engaging dyad participants. This is because presenting take-home information may allow key messages that were provided during the intervention to be reinforced, and insufficient attention from the interventionist to be overcome.<sup>56</sup>

Furthermore, some of the dyadic interventions in the included studies were conducted on a group basis. Participants were given the opportunity to meet with peers sharing a similar background. If peer support was established in the programme, the dyad participants were more likely to become better engaged. A study has shown that peer similarity was positively and significantly associated with perceived support.<sup>57</sup> Peer support could be achieved when the dyad participants interacted, communicated, and developed new relationships in the group activities. In the reviewed studies, through joining the group activities embedded in the intervention programme, the participants could communicate with other dyads in similar situations, which allowed them to cope with the challenges together. The sharing of personal stories and expression of similar emotions when they are worried and distressed would give them a sense of relief, enjoyment, decreased loneliness, and a feeling of connection.<sup>58</sup> While peer support groups have long been implemented in dyadic interventions for cancer patients and ICGs, a study reported that the development of close relationships not only enhanced feelings of emotional support but also promoted the engagement of the dyads in the intervention.<sup>59</sup> The consistency of the findings across study populations indicated that the support of peers could motivate dyads to remain in the dyadic intervention and promote their engagement in it.

Tailoring interventions to fit the needs of the participants is common in interventional studies. It was suggested that tailored interventions could evoke more positive affective responses, and they have been associated with greater recall and use.<sup>60</sup> Engagement refers to the affective responses of the participants, the aesthetic appeal of the intervention, and the participants’ perceptions of the interactivity and feedback provided by the interventionist. For this reason, tailoring the intervention content would help to engage the participants. A mix-methods study also found that without tailoring, the intervention appeared to be less acceptable to the participants because it was viewed as offering no personal benefit in the absence of personalized elements.<sup>60</sup> Particularly, the PWD’s cognitive impairment, coupled with physical frailty, may limit their ability to partake in interventions.<sup>61</sup>

This review showed that the attrition rate of the PWD-ICG in the dyadic intervention could be as high as 59.1%.<sup>45</sup> On average, ICG provided PWD with 3.6 hours a day of assistance in the activities of daily living, and 2.6 h in supervision.<sup>62</sup> PWD are usually older adults who are generally physically frail as compared to other segments of the population, such as adolescents. It is not uncommon to have ICG participants drop out from the study because they are busy in their caregiving role, or to have older adults withdraw from the study because of sickness. To attract dyad participants to participate and remain in the intervention, especially participants from families that are experiencing significant and temporal stress, a short and succinct programme that minimizes the amount of extra work involved, such as one that involves a minimal number of face-to-face sessions or home-based activities, should be useful.

To ensure the validity and generalizability of dyadic intervention results, there is a need for future projects to consider various engagement strategies for enhancing their perceptions towards the intervention as well as the engagement behaviours (e.g. recruitment and attrition). Some of the studies included in this review employed more than one strategy to promote the engagement of the dyads. There were also numerous studies in which no such strategies were reported. Our findings provide important insights to clinicians and researchers for developing future studies and practices for the benefits of PWD and their ICGs. Last but not least, the majority of the dyadic intervention studies included in this review were conducted in Western countries. In Asian societies, the cultural values of familism mean that family members are expected to provide support to older people as part of their filial responsibilities. Whether interventions should be designed to make use of these values to influence the engagement of the participants is an issue that has yet to be addressed.

## Limitations

Although an exhaustive and systematic search of the literature was conducted, relevant articles published in other languages or other databases may have been missed in this scoping review. Personal preferences of the PWD-ICG dyads for types of interventions, which might be irrelevant to the engagement strategies can influence the dyads’ engagement in an intervention. Caution should be exercised in the application of the findings. A large number of studies that did not mention the use of any strategies for engaging dyad participants were not included in our study. Because such strategies were not the major components that must be reported in trials, other types of strategies may have been employed, which were not reported. Lastly, recruitment strategies may have an influence on the participants’ engagement which is not explored in this review.

## Conclusions

Interventions for PWD and ICGs have been shifted from focusing on the individuals to a dyadic perspective or a family-centered model. Promoting engagement in a dyadic intervention is essential to improving the outcomes of interventions and compliance of the intervention. This review identified seven strategies for engaging participants in the interventions, namely, ensuring a good-quality interventionist; offering take-home supporting materials; establishing peer support among the participants; tailoring the intervention content; conducting the intervention in a convenient location; conducting the intervention in a comfortable physical environment; and using a short and succinct programme that requires less commitment from the dyads. Multiple strategies were used in the included studies. The perceptions from the participants of the dyadic interventions were generally positive.

## Declaration of Competing Interest

The authors declare that they have no conflict of interest.

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## Author contributions

D. Cheung, K. Ho, and V. Chiang contributed to the formulation of the research questions and the design of the review. K.Y. Chan and D. Cheung extracted, checked, and analysed the data. K.Y. Chan, D. Cheung, and S.K. Tang wrote the manuscript. All of the authors critically read, commented on, and approved the final manuscript.


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## Supplementary materials

Supplementary material associated with this article can be found in the online version at doi:[10.1016/j.gerinurse.2021.02.002](https://doi.org/10.1016/j.gerinurse.2021.02.002).

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 The corrections made in this section will be reviewed and approved by a journal production editor. The newly added/removed references and its citations will be reordered and rearranged by the production team.

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## Appendix Supplementary materials

[Multimedia Component 1](#)

alt-text: Image, application 1

## Queries and Answers

Q1

**Query:** Please confirm that givennames and surnames have been identified correctly.

**Answer:** Yes

Q2

**Query:** The author names have been tagged as given names and surnames (surnames are highlighted in teal color). Please confirm if they have been identified correctly.

**Answer:** Confirmed.