

Research Article

Preliminary Findings of an Active Multicomponent Lifestyle Intervention for People with Dementia and Their Carers: Mixed Methods Study

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There is a need for integrated and effective postdiagnostic rehabilitation programs for community-dwelling people with dementia and their carers to promote their quality of life and management of dementia. Here, we report on preliminary findings of the Sustainable Personalised Interventions for Cognition, Care, and Engagement (SPICE) Program conducted in Canberra, Australia. Over twelve weeks, six people with dementia and their carers completed five hours of weekly small group activities and separate individual appointments. SPICE is an active therapeutic intervention with five components delivered by allied health professionals: (1) cognitive stimulation therapy; (2) carer education, support, and capacity building; (3) physical activity; (4) Care Of People with dementia in their Environments (COPE) program; and (5) dietary assessment and advice. Participants completed questionnaires pre- and post-intervention and a program evaluation interview which was analysed by qualitative thematic analysis. The program demonstrated high program satisfaction ratings and program adherence (94% people with dementia and 92% carers) which supports intervention feasibility. The results of quantitative outcome measures suggest positive effects, but inferences cannot be drawn due to small sample size. Qualitative themes from participant experiences highlighted the following: (1) social connection, engagement, and interaction were key drivers of the success of the program; (2) clinicians fostered a positive and respectful culture; (3) carers were supported with strategies and skills to reframe dementia; and (4) reablement can be fun. The new combination of evidence-based interventions was feasible and considered valuable. Further results are required to confirm these findings and support a longer-term trial.

1. Introduction

There is a need for multidisciplinary approaches to post-diagnostic care following a dementia diagnosis in Australia [1] and worldwide [2]. The period following a dementia diagnosis provides a critical opportunity for healthcare

providers to facilitate appropriate treatment, care, and access to services [3]. Currently, pharmacotherapy and information are the primary support following a dementia diagnosis [2], while navigating care pathways and accessing treatment is often constrained by systemic and attitudinal barriers, including stigma [4].

There is an absence of a consistent pathway to equip people with dementia with tools to plan for the future, stay active in the community, and maintain quality of life, independence, and preferred daily activities [1, 5–8]. Access to existing postdiagnostic interventions typically relies on individuals independently identifying and seeking out services [6]. Carers report a preference for tailored information, and a common concern is that they often do not know what they are looking for when accessing dementia-specific services [3]. For people with dementia living in the community, information about services can sometimes be provided in an ad hoc manner during incidental hospital visits and by primary care physicians or nongovernmental organisations [1, 3, 5]. These service recommendations are often inconsistent and lack integration, resulting in barriers to accessing timely intervention and use only when at crisis point [9].

There is evidence supporting rehabilitation and reablement interventions delivered by allied health professionals including cognitive-oriented treatments, physical activity, and occupational therapy [10–14]. Interventions traditionally focussed on delaying or slowing the rate of cognitive decline. Yet, enhancing quality of life through interventions which provide opportunities for cognitive stimulation, working on communication skills, and those supporting functional independence and reducing risk of falls are now more common [10, 14–21], but often limited to research settings [8]. Benefits may be observed through interventions which specifically target carers. Carer-focussed psycho-educational interventions can reduce their stress, anxiety, and depression and improve self-efficacy and quality of life [11, 19, 22]. Carer interventions may improve the quality of life and neuropsychiatric symptoms of the person with dementia [22] by reducing risks arising from inadequate knowledge of caring [1, 5]. Despite these benefits, access to clinicians for intervention can be challenging for people with dementia and their carers [14]. Individual clinicians may find it difficult to address the range of support informal carers seek, and multidisciplinary appointments are not readily available. A further challenge is introduced when carers do not have access to appointments beyond those conducted with the person with dementia [1].

Due to the complex and often unpredictable nature of dementia, single-domain interventions may be insufficient when addressing multifaceted issues and the totality of needs [1, 5]. Multicomponent interventions are associated with a lower prevalence of requiring long-term institutional care for people with dementia when compared to single-component interventions [23]. For carers, multicomponent interventions can improve knowledge, attitudes, and self-efficacy [21]; enhance quality of life and well-being and reduce carer burden and depressive symptoms [24]. Multicomponent interventions may also be more economical than single-component interventions [23–25].

Considering the challenges in accessing and receiving appropriate and timely postdiagnostic dementia care, more evidence is needed to determine if intensive multicomponent interventions for people with dementia are effective. The present study examines the feasibility, acceptability, and

effectiveness of a new multicomponent, postdiagnostic rehabilitation intervention delivered by a multidisciplinary allied health team aiming to promote the quality of life of people with dementia and their carers.

2. Methods

2.1. Design. In this article, we report on preliminary findings from the first group of the Sustainable Personalised Interventions for Cognition, Care, and Engagement (SPICE) Program. A clustered, waiting-list design pilot study is being conducted, with data collection scheduled to be completed in early 2024. This study will recruit at least 24 dyads across two intervention groups and two waiting-list groups. Here, we report on the first six dyads to complete the program and their feedback, focusing on feasibility, acceptability, and preliminary results on effectiveness. The study is registered on the Australia New Zealand Clinical Trials Registry (ACTRN12622001522707) and received ethical approval from ACT Health (2022.ETH.00012).

2.2. Participants. Six dyads (six people with dementia and their six carers) were recruited in a convenience sample through referral or self-selection. People with dementia were eligible to participate if they met the following criteria:

- (i) Have a dementia diagnosis made by a health professional
- (ii) Have a Clinical Dementia Rating score of between 0.5 and 2 [26]
- (iii) Willing to participate in the program for greater than 10 of the 12 weeks (e.g., no planned absences)
- (iv) Have a primary carer (spouse, immediate family member, or paid carer) aged 18 years or over, willing and able to participate in the carer-required program components
- (v) Can converse in English
- (vi) Resident of the ACT

In the pilot study, there are no restrictions for enrolment based on time since diagnosis. Participants met with a researcher to read the participant information sheet and ask questions, and all provided written informed consent.

2.3. Intervention. The SPICE Program is based at the Brindabella Day and Ambulatory Rehabilitation Centre at the University of Canberra Hospital. The program was initiated by Canberra Health Services, designed in consultation with the University of Canberra and refined with Dementia Australia Advocates and staff. The SPICE Program aims to delay the progression of dementia and improve quality of life through an active therapeutic rehabilitation program, which includes education and skill development for carers. The twelve-week SPICE Program consists of five components: (1) cognitive stimulation therapy (CST)[15]; (2) carer social, emotional, and resilience education and capacity building (Supplementary Table 1) [27, 28]; (3) physical activity; (4) Care of People with dementia in their

Environments (COPE) Program [12]; and (5) dietary assessment and advice. Components one to three were completed weekly at the hospital, across 2.5 hours on both Wednesday and Friday. The physical activity program was optional for carers, however, all decided to participate. More detail is provided in Table 1.

2.4. Data Collection. Data collection occurred pre- and postintervention. The baseline assessment includes selected questions from the interRAI Home Care Instrument for sociodemographic information, falls, and hospitalisations [29]. A suite of quality of life instruments were used: Dementia Quality of Life (DEMQL) [30], DEMQL-Proxy (completed by the carer), and Carer Quality of Life (C-DEMQL) [31]. Cognitive function of people with dementia was assessed using Addenbrooke's Cognitive Examination (ACE-III). The ACE-III is a global cognitive screening measure to examine attention, orientation, memory, language, visual perception, and visuospatial skills [32]. The neuropsychiatric inventory was used with carers to assess the neuropsychiatric symptoms of the people with dementia [33]. The 12-item World Health Organisation Disability Assessment Schedule 2.0 (WHODAS 2.0) assessed disability and daily functioning [34].

A battery of physical function measures were administered: timed up and go (TUG) assessed functional mobility; the 10 metre walk test as an assessment of walking speed over a 14 metre track, measuring the middle 10 metres; the alternating step test as a measure of dynamic balance; and the 30 second sit-to-stand test to evaluate the participant's lower limb strength, speed, and coordination. Hand grip strength was also tested as an indicator of general physical status.

Finally, all participants completed a program satisfaction interview at the completion of the intervention. This survey consisted of twelve questions using 5-item Likert scales to measure participant's enjoyment, perceived usefulness, benefits, acceptability of the schedule and time burden, and ratings of each component of the program. Open-ended questions were also asked on whether the program changed anything for the participants, suggestions to improve the program and what was not useful, and whether they would recommend the program to others and why.

2.5. Data Analysis. Quantitative data were summarised by descriptive statistics (mean, standard deviation, range, and effect size). As we are reporting preliminary findings, inferential statistics were not used. Qualitative data from the program satisfaction interview were transcribed verbatim and independently analysed by two authors (N.M.D and L.W). The analysis used the six-phase process for data engagement, coding, and theme development described by Braun and Clarke (2020), undertaking data familiarisation, systematic data coding, generation of initial themes from coded data, developing and reviewing themes, refining, defining and naming themes, and writing [35, 36]. Two additional authors (I.H and D.G) refined and confirmed themes by discussion.

3. Results

Participant and carer characteristics are presented in Table 2. The group comprised four males and two females; five of whom were diagnosed with Alzheimer's disease and one with a combination of Alzheimer's disease and vascular dementia. The mean age for people with dementia was 77.7 (± 6.80) years. There were four female and two male carers; four were spouses, one daughter and one carer. Average age of the carers was 63.7 (± 15.2).

Indications of program feasibility and acceptability are evident in the data on attendance and from the program satisfaction interview. Attendance to the hospital-based components of the program was 94% for people with dementia and 92% for carers. On four occasions, a dyad left early (and therefore missed the exercise group) due to another appointment. All participants completed the COPE program in their homes over ten appointments, except for one dyad who achieved their outcomes in nine. All three dietary assessment and advice appointments were attended, with the exception of one dyad who completed only two of three dietary appointments. The program satisfaction questionnaire revealed scores greater than four out of five on a Likert scale for all participants for enjoyment of the program, perceived benefits, and usefulness. All participants agreed that they would like it to continue. No participants indicated the program was a burden relating to the time commitment required. All program components were individually considered useful by all participants. Results of Likert-style questions are presented in Supplementary Table 2.

Indications of program effectiveness are derived from the pre- and postpsychosocial outcome measures (Table 3) and physical function outcome measures (Table 4). These data suggest the SPICE Program may improve quality of life and well-being among people with dementia and their carers, with the means of all psychosocial and all but one of the physical outcome measures (hand grip strength in carers) showing positive change.

3.1. Qualitative Analysis of Program Satisfaction Interview.

The vast majority of participant feedback was positive, highlighting the program as engaging, enjoyable, inclusive, and supportive. Four overall themes are described below, with selected quotes presented in Table 5. Responses are coded by dyad (1-6) and person with dementia (P) and carer (C).

3.1.1. Theme 1: Social Connection, Engagement, and Interaction Were Key Drivers of the Success of the Program.

The majority of participants valued the social aspect of the program. People with dementia said SPICE was easy to be part of and they enjoyed the opportunity for an outing. People with dementia enjoyed listening and speaking with each other in the CST program (1P, 2P, and 5P). Carers recognised CST as an opportunity for reminiscence, connection, and laughter. People with dementia gained confidence by working on their communication skills and feeling

TABLE 1: The multicomponent SPICE intervention implemented over twelve weeks.

Component	Description	Schedule	Participants	Facilitator(s)
(1) Cognitive stimulation therapy	Small group, strength-based intervention designed to encourage cognitive activity, adapted from the United Kingdom and a Cochrane review to provide a more culturally appropriate iteration for Australia. It includes storytelling, word games, and reminiscence to encourage memory recall of the past and memory formation during the present Psychoeducational group for carers to communicate and learn from allied health professionals about caring for a person with dementia. It aims to provide actionable information to improve quality of life of the dyad and self-efficacy of the carer via strategies for behavioural changes, self-care, and mindfulness. The structure of this component is presented in Supplementary Materials 1	2 × 12 weeks Wednesday and Friday (1 hour each)	People with dementia	Occupational therapist and allied health assistant
(2) Social, emotional, and resilience education and capacity building	Structured, repeated, circuit-based exercise program; modifiable to the capabilities of each participant. Selected exercises target balance, lower and upper limb strength, dual tasking, and cardiovascular fitness. Some exercises also focus on building bone strength and density through high-impact actions. Exercises were selected to reduce the person with dementia's risk of falling and improve general physical health and quality of life COPE is a structured eight to ten session intervention provided in the participant's home and delivered by a COPE-trained occupational therapist. Sessions focus on identifying meaningful engagement opportunities as well as supporting carers to implement strategies for managing identified care challenges. The two recommended consultations by a nurse were not included	1 × 12 weeks Wednesday (1 hour)	Carers	Varied each week but included occupational therapist, social worker, clinical psychologist, neuropsychologist, speech pathologist, and pharmacist
(3) Physical activity		2 × 12 weeks Wednesday and Friday (1 hour each)	People with dementia and carers*	Physiotherapist and allied health assistant
(4) Care of people with dementia in their environment (COPE) program		1 × 10 weeks by appointment (1 hour each)	People with dementia and carers	Occupational therapist

TABLE 1: Continued.

Component	Description	Schedule	Participants	Facilitator(s)
(5) Dietary assessment and advice	<p>Consists of a dietary evaluation, and individualised dietary advice, education, and counselling focussed on making subtle and achievable changes to the diet of the person with dementia. One session is conducted online to discuss foods already in the home</p>	<p>1 x 3 weeks by appointment (1 hour and 2 x 45 minutes)</p>	<p>People with dementia (also attended by carer)</p>	<p>Dietitian and assistant</p>

Note. Components 1 and 2 were completed concurrently at the University of Canberra Hospital, followed by a 30 minute group afternoon tea prior to component 3. *Key.* * = physical activity is optional for carers but was completed by all group one carers.

TABLE 2: Baseline demographics.

Dyad	Person with dementia					Carer		
	Diagnosis	Age	Sex	CDR	Time since diagnosis	Relationship	Age	Sex
1	Alzheimer's disease	67	Male	1	2–4 years	Spouse	61	Female
2	Alzheimer's disease	81	Male	1	1–2 years	Spouse	76	Female
3	Mixed dementia	72	Male	1	2–4 years	Spouse	62	Female
4	Alzheimer's disease	79	Male	1	6–12 months	Carer	38	Male
5	Alzheimer's disease	85	Female	1	6–12 months	Daughter	63	Female
6	Alzheimer's disease	82	Female	0.5	0–3 months	Spouse	82	Male

TABLE 3: Psychosocial outcome measures.

Outcome measure	Pre	Post	Effect size (<i>d</i>)	Mean change
	Mean \pm SD (range)	Mean \pm SD (range)		
Dementia quality of life (/112)	87.5 \pm 13.0 (67.0–100)	94.2 \pm 8.82 (78.0–103)	0.603	+6.66
Dementia quality of life-proxy (/124)	79.2 \pm 16.9 (57.0–104)	93.7 \pm 12.9 (77.0–103)	0.965	+14.5
Carer quality of life (/150)	89.5 \pm 17.4 (63.0–105)	97.2 \pm 14.0 (76.0–111)	0.486	+7.66
Addenbrooke's cognitive examination (/100)	50.2 \pm 19.8 (34.0–80.0)	54.8 \pm 15.8 (40.0–75.0)	0.257	+4.63
Neuropsychiatric inventory-Q (/36)*	13.2 \pm 4.21 (6.00–17.0)	8.00 \pm 2.37 (5.00–11.0)	1.52	-5.17
Neuropsychiatric Inventory-Q carer distress (/60)*	19.3 \pm 8.04 (6.00–28.0)	11.2 \pm 5.70 (4.00–19.0)	1.16	-8.17
WHO disability assessment schedule 2.0 (/60)**	18.2 \pm 7.08 (11.0–28.0)	14.0 \pm 5.83 (6.00–20.0)	0.648	-4.16

Key: * = higher scores indicate greater neuropsychiatric symptoms and distress; ** = higher scores indicate higher disability or loss of function. *n* = 6.

TABLE 4: Physical function outcome measures.

Outcome measure	Pre	Post	Effect size (<i>d</i>)	Mean change
	Mean \pm SD (range)	Mean \pm SD (range)		
<i>People with dementia (n = 6)</i>				
(i) Timed up and go (seconds)*	9.80 \pm 1.92 (7.84–11.6)	8.51 \pm 2.11 (5.67–11.92)	0.639	-1.29
(ii) Alternate step test (seconds)*	14.0 \pm 3.70 (8.88–18.0)	11.3 \pm 2.86 (7.2–13.4)	0.817	-2.66
(iii) 10 metre walk (metres/second)	1.51 \pm 0.510 (1.09–2.30)	1.63 \pm 0.357 (1.22–2.09)	0.273	+0.115
(iv) 30 second sit-to-stand (repetitions)	11.8 \pm 4.73 (6.00–20.0)	13.0 \pm 4.21 (9.00–19.0)	0.268	+1.25
(v) Hand grip strength (kg)	22.5 \pm 8.67 (10.6–29.5)	23.4 \pm 9.00 (11.6–31.6)	0.104	+0.942
<i>Carers (n = 6)</i>				
(i) Timed up and go (seconds)*	8.08 \pm 2.65 (6.25–13.17)	6.52 \pm 2.02 (5.09–10.55)	0.662	-1.55
(ii) Alternate step test (seconds)*	10.0 \pm 4.65 (7.72–19.5)	8.16 \pm 2.74 (6.09–13.6)	0.482	-1.88
(iii) 10 metre walk (metres/second)	1.76 \pm 0.309 (1.22–2.13)	1.84 \pm 0.348 (1.22–2.16)	0.243	+0.0850
(iv) 30 second sit-to-stand (repetitions)	13.0 \pm 4.65 (6.00–20.0)	14.3 \pm 4.14 (7.00–19.0)	0.295	+1.33
(v) Hand grip strength (kg)	23.9 \pm 6.24 (14.4–33)	23.5 \pm 5.60 (15.6–29.4)	0.0675	-0.440

Key. * = lower represents improved performance.

what they had to say what was valuable and people were listening, with several carers reporting the person with dementia becoming more socially engaged outside of the program as well as inside it (1C, 4C, 5C, and 6C). All components were perceived to have worked together synergistically and contributed to enhancing social connection (2C and 5C). Carers suggested the program's intensity enabled the formation of bonds and a social support system that was not experienced in previous dementia-specific groups they had been part of (1C, 2C, and 3C). This connection was further demonstrated by carers initiating interaction outside the program via a WhatsApp group, finding value in using the chat application to share experiences and advice (1C, 3C, 4C, and 5C). Carers said future activities are planned together, and they hope bonds formed by the people with dementia will continue (1C and 2C).

3.1.2. Theme 2: Clinicians Fostered a Positive and Respectful Culture. Clinicians delivering the SPICE Program were described as treating the people with dementia with dignity and respect within an inclusive environment (2C and 5C), welcoming, accepting, and caring for people as adults rather than patients (1C, 2C, and 5C). The person-centred focus was appreciated in participant feedback, as the components for people with dementia catered to the needs of the individual using a strength-based approach (1P, 1C, and 2C). Carers noted that the program's components facilitated success through fostering a physically and socially safe environment. For example, the exercise program was designed to be easy to follow for people with dementia, with assistance from their carer (1C and 5C), and CST was delivered in a judgement-free environment (5C). Carers noted a program strength to be its inclusiveness and the unique

TABLE 5: Selected supporting quotes.

Theme 1: social connection, engagement, and interaction were key drivers of the success of the program	
1P	I changed because of the people in the group, and I think it was useful
2P	Good way to spend an hour or two. Stimulating questions
5P	I just liked it being done. Because it was great to hear, and there were a lot of people there and I think that was nice. I really enjoyed it. I'm very upset that it's not there
1C	I think he's quicker to make conversation and to maintain conversation and possibly even initiate conversation
1C	I think that 1P has realised that he can make friends. So there was like a period of time when he finished working to when he started the SPICE group where he wasn't actually building connections with people at all. But since starting the SPICE program he has built connections and he's recognised that it's valuable. And I think that's overflowed into the other people we meet where he actually voluntarily connects with them
1C	He values I think the connection with the other participants because he can see that they are on a level footing. He enjoyed the laughter, he enjoyed the camaraderie and just the light-hearted banter
2C	2P really liked the people in the group, whether it was the way the things were structured, or whether it was the participants or a mixture of both. And that's the only time I didn't have to put a rocket up in to get him out. It was actually (2P) taking the initiative himself, he kept asking over and over again, what time are we leaving what time are we leaving. So I think the social impact was really important for 2P far more than any other aspect, you know
2C	Thinking back I think one of the big strengths of the program is the inclusiveness. The fact that we all undertook activities together so no feeling of 'babysitting' or differentiation. Everyone got to know everyone else and interacted with not just other carers, but the others [in the] group in their own right as people. I think that is pretty unique
3C	It made 3P more confident with speaking to people. I think he's more outgoing. He's less depressed. His balance is a little bit better. And I think that made him feel better. Just being with the other people with dementia, he didn't feel so aware of his, you know, things that are failing on him if you like
4C	The program has changed 4P, like he more feel comfortable to talking to somebody else, more confident and he seemed to be happier. He's more talkative
4C	We become very close actually. We share a lot on WhatsApp
5C	She became a lot more communicative, a lot more confident. She's a lot more engaged with, with people around her, and she feels less judged. So she's actually talking a lot more, even though people don't understand her
5C	... it's a program to help the carers and the carers to cope with the dementia, but also to give the dementia patients social connection, enjoyment, yeah Laughter. You know, I haven't heard 5P laugh for years, you know, for ages, that's just extraordinary you know
6C	She was sort of funnier than actually she is at home. And I thought that helped her a lot
Theme 2: clinicians fostered a positive and respectful culture	
1P	Well, there were people who were speaking about things and talking to us about things. Those people I thought that they were very beneficial to me
1C	... I think he felt quite validated that I can do this. This is something that I'm good at and now somebody else is recognising I'm good at this and he just felt, I think, he felt very successful doing it
1C	There's no feeling of, there's no feeling of having to like perform or please anybody. You can just be who you are. You know, it's okay. Because you guys, as professionals understand that some of this is not pretty. And it's okay
2C	I think it is a wonderfully constructed program hitting every aspect, incredibly well thought out by people who really care about what they're doing, and it's the care aspect and the sheer dedication. ... (clinicians) just wholeheartedly giving themselves and enjoying it on the way
2C	I think 2P felt cared (for), cherished and welcomed, which I don't think he's felt on the few occasions that he's been to other, other similar sessions
2C	Like (the OTs) really accepted people, joked with them, got where they were at and treated them as adults, and as people who were worth having a conversation with

TABLE 5: Continued.

5C	I also think it's the caring of all of you, all of the SPICE program people. They spent a lot of time listening to her, trying to understand what she was saying and engaging with her. So it's given her a lot more. It's given her a lot more engagement with people and a lot more enjoyment of people. She was shutting herself off for a long time
5C	So I loved (the OT's) approach, she's very flexible. She you know, she's not setting standards that people can't meet. She's actually understanding exactly where she's going. She communicated with mum so well, she just really, you know, could see what mum was trying to say. It was lovely
5C	There were some really good questions coming out and there was really good understanding. For example, 6C was saying, you know, sometimes he loses his patience and to say that in a group because you can't say that to your family. You can't say that to your friends. It's something that, that the group allowed you to say
Theme 3: carers were supported with strategies and skills to reframe dementia	
1C	I think it's given me an understanding that I can choose, if I want to, to build into doing things with 1P and enjoy it rather than just throw my hands up and go 'too hard'. It's given me some . . . strategies that I can go back to and go, 'Yeah, I think that can work. I'm gonna give it a go.'
1C	. . . and information that I had no idea was out there. And identifying things that I had no idea were going to be a problem. But they are and then we have like, can think forward and go 'okay, it's not necessarily yet but I know what to do'
1C	I think the one that stands out would be the dealing with agitation, so that not to take it as I'm to blame
2C	I think a lot of those, the ones on self-compassion and I honestly haven't had time to look over them, all the notes that we got from those. But I think that there were a number of things there that I can tease out when I have some headspace to do it. . . . They're certainly very useful. And I think that's something that I will use on a future basis
2C	For me, well, because we've got this really warm group that we've I mean, we've been texting quite a bit even since Friday. You know, and I think that will be ongoing, hopefully. So yes, in that there's a group of people that you can say anything to and it's okay. And given that, we were all in the same sort of situation here. We've got that bond
3C	. . . just not feeling as quite so lonely and just also the sharing of information. You know, just hearing people talk about different things, sort of may not be what they were talking about, but it prompts you to think in a slightly different way about something, something to attend to
3C	I mean, I know the small groups are out there, but they always seemed like, too hard to get involved in. But, you know, this sort of threw us together and we've all been very supportive of each other. It's been a lovely group. It's been great. A lot of the COPE program for me was reminding me of things I already knew. So not a lot of that was very new, but that's still handy anyway
4C	The program, I think, provided a lot of information, and so I learned a lot of new skills to, to support 4P. And I understand more about dementia and those skills, I think [are] really useful for me in the future, now, or in the future. So because I knew more about dementia it means I can [be] able to take care of 4P better
4C	Actually, I learned a lot from them. People sharing and very friendly. I feel very safe to be with them. Yes, I'm not alone. Actually, I feel yeah, somebody's in for me
5C	But for her it's engagement. It's about getting her sentences out. It's about communicating an idea. And I've learned to say that's good enough, you know, I don't need to know her innermost thoughts at all. I just need her to talk and to engage. And I've learned that through the program too
5C	The other thing is confidence . . . you're never sure you're doing the right thing. And to be able to sort of get that confidence of yeah, I'm on the right page. I'm doing everything I can, not to be so quite hard, so hard on yourself, and then to sort of understand where it's going and where it's coming from
5C	I did learn to be a little bit more patient

TABLE 5: Continued.

6C	Well, I learned a lot to help me look after my wife when she gets, even when she gets a bit worse. Because at the beginning, I got more cranky. And I learned how to cope with it (by) cooperating and so I'm getting a bit wiser. I'm not getting cranky or anything like that. Because of all those things I think back what I learned here in the program, and it has taught me a lot so far
Theme 4: reablement can be fun	
1P	It changed my confidence
2P	It was fun to participate
3P	I suppose you could call it watching the way the other people took up those, those exercises, and the mind exercises more than anything. It was interesting watching that. Seeing how people stood on top of the decisions that were made. But it was interesting then
3P	Yeah, the balloon volleyball. I enjoyed that incredibly
4P	But it's just that I thought it was wonderful, there were always people dancing and jumping and moving around, a lot of fun
5P	I'd just say I've I enjoyed it. And I and I'd love to do some more
6P	Because, it's good what you, if you see people and whatever you do, it's not too much. It's good
1C	He seemed quite comfortable and relaxed around everybody. Which isn't always the case. There are other places sometimes where I can see that he's, he's tense is not really happy to be there, but here he was happy
3C	3P's definitely good on routine. And he'll learn a lot better, and he likes the music . . . he's been doing tandem walking at his gym class now for nearly three years and he hasn't improved. So, but he seems to have improved from this and I think it's the music part as well, because he's not aware that he's doing so much
5C	The exercises were really simple, and they were routine. So they didn't vary from week to week. There was a lot of positive support. The music was a really nice touch. There was a lot of engagement and the emphasis was on fun. . . . it was a good program instead of, if you go to a normal one, it's all about achievement and this one is much more about engagement and fun
5C	And so every week she'd come back [from CST], she said " <i>that was so much fun.</i> " We had never laugh(ed) so much. She couldn't explain what she did. I had no idea what she did. But it was a lot of fun apparently
6C	The exercise because we haven't done much exercise in the last few years, even so she doesn't like it. But when she came, she didn't like to come here, but when we were here she actually enjoyed it and I was quite surprised that she could do it

way people with dementia and carers were able to interact and get to know each other due to the small group size and friendly environment fostered by clinicians (2C and 5C). Carers reported that clinicians genuinely cared and were invested (2C and 5C), evident by adapting to their individual needs and providing advice and resources beyond expectations (3C and 5C).

3.1.3. Theme 3: Carers Were Supported with Strategies and Skills to Reframe Dementia. Carers received a wide array of benefits from the education and support received during the program. The individualised strategies developed during the carer components and COPE were highly valued (5C). Carers noted gaining skills to increase participation in meaningful activities with the person with dementia (1C and 4C), a greater ability to problem-solve issues, and strategies to manage behavioural and communication difficulties (4C and 5C). Carers also received psychological benefits from the program. Several noted that their attitude towards the person they care for had changed (1C and 5C) as they applied knowledge attained through the program to better manage

their emotions through patience and acceptance, remaining in the present, exercising self-compassion, and not blaming the person with dementia or themselves (1C, 2C, 4C, 5C, and 6C). Where some of the carers did have previous experience receiving dementia education, the reminders about previous knowledge were beneficial (1C and 3C). Carers were also inspired to apply what they learned during the program to make changes outside the program curriculum (1C, 3C, and 4C), for example, seeking out new opportunities for social engagement, including mentally and physically stimulating activities for dyads to do together such as line dancing, singing (choir), playing pool, and purchasing a treadmill for use at home.

3.1.4. Theme 4: Reablement Can Be Fun. People with dementia reported that the SPICE Program was fun, particularly the CST and physical activity components. People with dementia commented on how much they talked and laughed during the CST activities, and conversation often continued into the afternoon tea break, where they would discuss the daily CST activity with carers and each other (2P,

5P, and 5C). The physical activity sessions were viewed as a social activity as well as a physical one, incorporating activities which the group enjoyed doing together such as balloon volleyball (3P, 4P, 5C, and 6C). During week two, clinicians asked group members about their music preferences and developed personally tailored playlists for future sessions, which enhanced both enjoyment and motivation to exercise (3C and 5C). CST and the physical activity program were viewed as simple to do and mentally stimulating (3P, 6P, and 5C), and over time, built the confidence of the people with dementia (1P, 1C, and 3C). When a person with dementia was reluctant to attend on a few days, a strategy employed by carers was to remind them that they previously enjoyed attending (2C and 6C). One carer used this strategy to encourage the person with dementia to go to other activities outside of SPICE (5C).

3.2. Challenges and Suggestions for Improvement. The primary challenge expressed by carers was a lack of time to implement some of the education and strategies from the carer program, COPE sessions, and dietary assessment and advice (1C and 2C). While this led to a sense of guilt for some carers, it was also viewed as an opportunity for program benefits to extend past the twelve weeks as they would have more time to revisit strategies and learnings (1C, 2C, and 4C). When reflecting on the COPE Program, one carer said *“I don’t think that you can expect the person with dementia to actually take on board much of what’s said, but it may be useful information and useful strategies for the person who cares for them”* (2C). One person with dementia expressed disappointment in not knowing what the components were leading towards in the future, feeling a sense of loss when it ended, and wanting to know the next steps (3P). The same participant would have liked to get more information about dementia during the program (3P). One carer reported feeling confused by a summary of the complex Australian aged care system funding models and wanted more detail on Dementia Australia services (5C). Two carers said they would have appreciated the opportunity for individual appointments with a social worker to discuss more sensitive issues (1C and 3C). While there was a general perception that carers could be open in sharing their experiences with each other, some issues were still considered too sensitive (3C). Another suggestion was for options to continue to gather and have access to other community-based programs where the group could continue to meet (2C and 3C).

4. Discussion

These preliminary findings of the SPICE Program demonstrate that an intensive, multicomponent intervention is both feasible and valuable for people with dementia and their carers. High program satisfaction ratings and positive feedback from all participants were supported by positive results from the psychosocial and physical outcome measures. The qualitative analysis revealed that all participants had a high appreciation for the social aspects of the program and the bond the group was able to form over the twelve

weeks. Despite the considerable time commitment, adherence to all components was high. The five hours spent together each week enabled group members to develop a sense of familiarity and friendship with one another. High attendance rates appear to be influenced by the group members’ enjoyment of the program, the relationships formed, and the inclusive environment fostered by clinicians. While social engagement and interaction were a feature of the program for all participants, carers also indicated that the strategies and lessons learned during COPE and the carer program empowered them as carers. This finding aligns with the success of previous results supporting COPE delivery [12, 37], as well as other occupational therapy-based programs [11, 38].

The overall success of the first implementation of the SPICE program can be attributed to several factors supported by participant feedback. The program design successfully incorporated group and dyadic components into an intense but manageable twelve-week active therapeutic intervention. The five hours spent together each week enabled group members to form friendships which strengthened over time. Currently, there is not conclusive evidence that group interventions have significant advantages over individual interventions [24]. However, in a randomised controlled trial, individual CST did not demonstrate the same clinical benefits as group CST [39]. For carers, group interventions can facilitate the formation of support networks and expand their social resources with benefits such as greater well-being and resilience [28, 40]. A recent meta-analysis of 31 multicomponent interventions for carers found benefits to their well-being, and reductions in depression, anxiety, and carer burden [19]. However, only 21 included studies were conducted face-to-face, and the majority were held only once per week or fortnightly.

People with dementia reported the face-to-face components of the program to be useful. The majority of positive comments referred to the CST program as fun; allowing participants to express themselves in a safe and judgement-free environment. The physical activity group was also considered effective, regardless of whether a participant was already exercising outside of the program. CST and exercise have both been demonstrated to delay the progression of neuropsychiatric symptoms [18, 41]. However, one person with dementia expressed a sense of loss and confusion after the program, and other carers echoed similar sentiments. Carers started their own WhatsApp group to communicate throughout the program and so that they could continue meeting postprogram. While referrals, recommendations, and resources to stay engaged in activities were provided to participants during and at the end of the program, further consideration should be given to guide participants to continue maximising social connections and activity engagement postprogram.

Limitations include the small and heterogeneous sample (age and time since diagnosis). As such, inferential statistics were not possible. Another Australian pilot study recruited participants within eight months of diagnosis and found some participants were reluctant to receive support [4]. In our sample, participants may have been more accepting of

their diagnosis at their current stage of dementia. The quantitative outcome measures suggest a favourable impact of the program over the twelve weeks, and quality of life in self-report and proxy measures improved for the people with dementia. However, the quantitative outcome measures selected did not specifically evaluate the social engagement and interaction described in the program evaluation interviews. Two clinicians involved in program delivery completed some outcome measures with participants, and familiarity may have affected their responses. A future trial should aim to use naïve or blinded assessors.

Following completion of the first group and consideration of feedback from participants, some minor modifications were made for the ongoing study and potential future iterations of the program. Referrals to a social worker will be offered for more sensitive issues not suitable for discussion in a group setting. Some carers did not have time to implement all new strategies and recommendations during the intensive twelve-week program. This may impact clinical delivery and have an added benefit of providing a toolkit of strategies for postprogram implementation by carers. While interest in participating in the SPICE Program has been high to account for potential attrition, seven dyads will be recruited to the two waiting-list groups.

In conclusion, the preliminary findings of the multi-component SPICE Program demonstrated high acceptance, adherence, and enjoyment for people with dementia and their carers. The program's intensity was feasible, and the components address many of the dementia care and lifestyle factors that were important to carers. Carers felt supported and were empowered with new strategies, improved understanding of dementia, and problem-solving for behavioural and communication issues. The pilot study, scheduled to finish data collection in early 2024, will help inform a future appropriately powered trial and potentially support ongoing program delivery to people with dementia and carers in the ACT region.

Data Availability

The quantitative data used to support the findings of this study are available from the corresponding author upon request.

Conflicts of Interest

The authors declare that they have no conflicts of interest.

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Supplementary Materials

Supplementary Table 1: social, emotional, and resilience education and capacity-building program. Supplementary Table 2: program satisfaction results for Likert scale questions. (*Supplementary Materials*)

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