A mixed-methods evaluation of the impacts of an online Carer wellbeing and connection program

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A B S T R A C T

Objective: To evaluate a facilitated, 90-min session, delivered for four weeks, Online Carer Wellbeing and Connection Program in Victoria, Australia.
Methods: One hundred and three carers took part in the evaluation. Eighty-six completed both pre- and post-program surveys evaluating program impacts on psychological distress, perceived loneliness, and social support. Qualitative interviews were conducted ($n = 76$) post-program for experiential data.
Findings: Paired samples *t*-tests showed significant decreases between pre- and post-program for psychological distress ($M = 25.10$, $SD = 7.08$; $M = 22.00$, $SD = 6.57$; $t(85) = 4.88$, $p = 0.000$), perceived loneliness ($M = 6.69$, $SD = 1.89$; $M = 6.14$, $SD = 1.76$; $t(85) = 3.45$, $p = 0.000$) and perceived social support ($M = 8.31$, $SD = 2.48$; $M = 8.83$, $SD = 2.21$; $t(85) = -2.54$, $p = 0.013$). Thematic analysis identified positive experiences and the mechanisms of action (or the ingredients for program success) as: 1. Delivery by a trained facilitator; 2. Provision of respite for person being cared for during meetings; 3. Technical assistance; 4. Online modality; 5. Inclusivity; 6. Diversity of experience; 7. Shared understanding; 8. Safety; 9. Emotional release; 10. Reflection, and; 11. Self-care practices.
Innovation: A model illustrating the mechanisms of action based on the findings of the mixed-methods evaluation is presented to support wider implementation and translation.
Conclusion: The online program effectively reduced psychological distress and loneliness and improved carer wellbeing.

1. Introduction

Over 2.65 million Australians are considered "informal carers," and globally, billions of hours of informal caring are delivered in home environments [1,2]. The term "informal carers" is used to refer to family members or friends who provide day to day living support for individual/s who may have significant and substantive health needs [3]. Caring for a loved one can be rewarding but may also lead to stress, financial and personal impacts, poorer wellbeing and social isolation [4]. Carer burden can also impact care provision, and lead to individual physical, social and mental health challenges, loneliness and quality of life [5].

Data from the Carers Australia 2021 Carer Wellbeing Survey found carers were four times more likely to feel lonely than the general population and 64% reported being socially isolated [3]; a factor associated with very high levels of psychological distress [6]. These trends are mirrored globally. In one survey of 457 carers, the highest area of unmet need was for self-care [2].

The COVID-19 pandemic has continued to compound challenges for carers [7]. Opportunities for carer social connection were further reduced and feelings of fear, depression, anxiety, stress were elevated and sleep disturbances and dietary issues increased [8]. Carers also reported experiencing higher levels of psychological distress and poorer wellbeing during the COVID-19 lockdown periods in Victoria, Australia where prolonged home isolation was the longest globally [9]. These issues persist along with continued unmet wellbeing needs.

Despite the known impacts of caring, surprisingly few evidence-

based supports focus on carers directly and aim to reduce loneliness and improve social connection [4]. Furthermore, uptake can be low as carers find it difficult to attend activities not directly related to their caring roles, high levels of existing burden are experienced, and locating supports geographically convenient to or matched to interests creates barriers [10]. Online technologies could increase access to social opportunities, with prior research showing that the use of technology and the internet for fostering social connections to be acceptable to carers [8,11]. However, while some online carer support programs exist, these have been predominantly directed at carers of people with dementia [12,13] and little has been reported for carers widely or as having been co-designed with carers.

To respond to carers' connection and wellbeing needs, the four-week Online Carer Wellbeing and Connection Program was co-designed by Carers Victoria in 2020. Over four weeks carers met in small groups for 90-min and worked with a trained facilitator to explore: isolation; connection; ways to recognize these experiences and, to connect to self; create change and identify the barriers and stages to change; and things that could help to stay on track. A feasibility pilot was undertaken in early 2020 and a pilot trial from November 2020–October 2021. This paper reports the results of the mixed-methods evaluation from the pilot trial. This includes reporting on the identification of the mechanisms of action, that is the essential ingredients for program success, to inform future implementation and translation.

2. Methods

2.1. Design

A mixed-method evaluation was conducted from November 2020–October 2021 (see Fig. 1). The evaluation included a structured pre- and post-program survey, and telephone interviews to gather experiential data and areas for program improvement. Two adaptations of the program were also evaluated during the pilot trial. One was a men's specific group and the other was an interpreted Vietnamese carers group. Based on program improvements suggested by participants, co-design was undertaken at pilot trial completion in November 2021. The co-design focused on creating solutions to areas for improvement from carer perspectives with carers who had participated in the program for future implementation and translation. The evaluation was approved by The University of Melbourne Human Research Ethics Committee (ID: 2057948.1).

2.2. Participant recruitment, selection and setting

Adult carers were recruited by Carers Victoria who lived within the funder's geographical catchment region "North Western Melbourne Primary Health Network" (NWMPHN). NWMPHN is funded by the Australian Government and is responsible for local area needs assessments across physical, mental, and social health and commissioning of services to meet these needs. This program was funded as the In-Touch Initiative and the Online Program was delivered to address social isolation, loneliness, and carer wellbeing. Carers Victoria recruited 134 eligible carers after staff checked that the mental health needs of the carer were not too complex for the program, that the carer lived in the area and, that they were currently caring for someone in their household with physical, intellectual, or mental health support needs. The details of 103 carers who consented to the evaluation were shared securely by Carers Victoria to the research team who completed audio consent for the evaluation (see Fig. 2).

2.3. The online Carer connection and wellbeing program

Fig. 3 shows the content and duration of the co-designed, four-week online program which was delivered by a trained facilitator of Carers Victoria.

2.4. Qualitative and quantitative measures

Qualitative and quantitative data were collected by telephone. The pre- and post-survey measured psychological distress (Kessler-10, K10 [14] and Kessler-10 plus (K10+ [14]), loneliness (UCLA 3-item Loneliness Scale [15]) and perceived social support (Oslo Social Support Scale 3-item, OSSS-3 [16] (see Table 1). Experiences, barriers to participation and improvements about the program were shared in semi-structured qualitative interviews. The men's only participants completed the same pre- and post-surveys (included in this reporting), but for the qualitative evaluation, some men took part in a group discussion, while the Vietnamese women completed a purposefully designed feedback survey.

2.5. Data analysis

Quantitative data were analyzed using Stata version 17.1 [20] and summarized using frequencies and percentages. Carers were divided into 5 groups according to the round they were assigned to (round 4 and 5 groups were merged as two Vietnamese women's groups were conducted during round 5, leaving one group of carers for pre- and post-program survey responses). Following descriptive analysis, a paired-samples t-test compared scores for psychological distress ($K-10$), perceived loneliness (UCLA Loneliness Scale-3) and perceived levels of social support (OSSS-3). Effect sizes were calculated using Cohen's
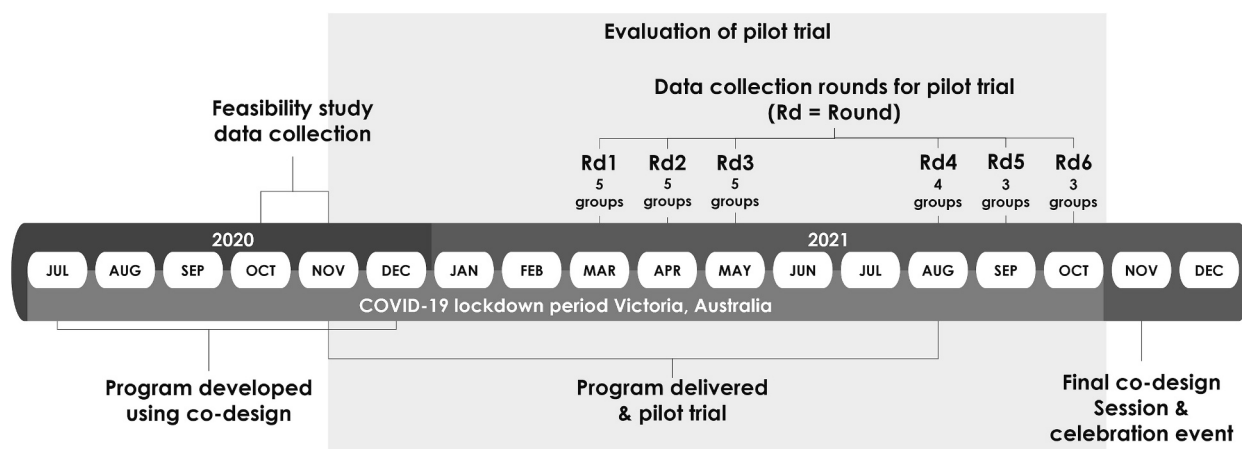

Fig. 1. Overview of the evaluation of the Online Carer Wellbeing and Connection Program.
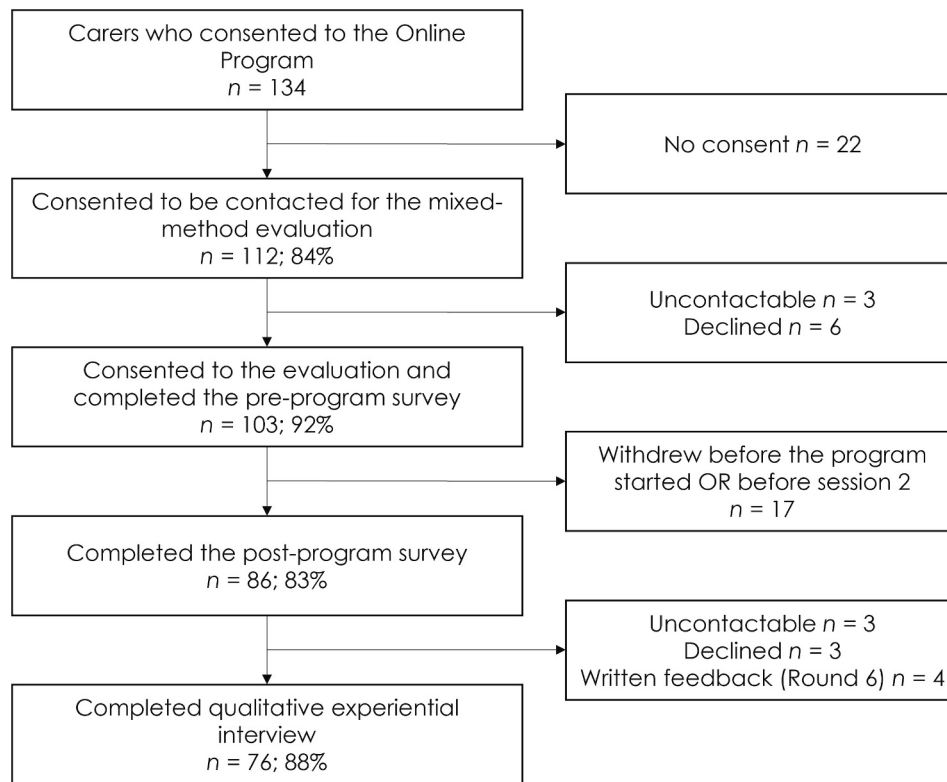
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┌─────────────────────────────┐
│ Carers who consented to the │
│       Online Program        │
│          n = 134            │
└─────────────────────────────┘
              │            ┌──────────────────────────┐
              │───────────→│   No consent n = 22      │
              ↓            └──────────────────────────┘
┌─────────────────────────────┐
│ Consented to be contacted   │
│ for the mixed-method        │
│ evaluation                  │
│     n = 112; 84%            │
└─────────────────────────────┘
              │            ┌──────────────────────────┐
              │───────────→│  Uncontactable n = 3     │
              ↓            │  Declined n = 6          │
                           └──────────────────────────┘
┌─────────────────────────────┐
│ Consented to the evaluation │
│ and completed the           │
│ pre-program survey          │
│     n = 103; 92%            │
└─────────────────────────────┘
              │            ┌──────────────────────────┐
              │───────────→│ Withdrew before the      │
              │            │ program started OR before│
              ↓            │ session 2   n = 17       │
                           └──────────────────────────┘
┌─────────────────────────────┐
│ Completed the post-program  │
│ survey                      │
│     n = 86; 83%             │
└─────────────────────────────┘
              │            ┌──────────────────────────┐
              │───────────→│ Uncontactable n = 3      │
              │            │ Declined n = 3           │
              ↓            │ Written feedback         │
                           │ (Round 6) n = 4          │
                           └──────────────────────────┘
┌─────────────────────────────┐
│ Completed qualitative       │
│ experiential interview      │
│     n = 76; 88%             │
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Fig. 2. Recruitment Flow to Pilot Trial and Mixed-Method Evaluation.

d [21].

Seventy-six interviews were analyzed using a 'listen and theme approach'. This meant interviewers noted key themes and patterns related to participant experiences, improvements and benefits shared during the interview [22,23]. Patterns from the listen and theme approach provided the basis of the coding framework and interview data was organized according to: 1. Overall perceived benefits; 2. Elements of value in the program; 3. The online modality and facilitation, and; 4. Elements that could be improved and overall barriers. The interview transcripts were reviewed again using a thematic analysis [22,24] to establish the mechanisms of action for the online program.

3. Results

3.1. Study population

Participant demographics for the evaluation are shown in Table 3. One hundred and three carers consented to the evaluation, 86/103 (84%) completed the pre- and post-survey and 76/103 (74%) completed a telephone interview. Across the 6 rounds, 25 groups were held with four men's groups and two Vietnamese women groups held in rounds 4, 5 and 6. The mean age of carers was 54.13 years ($SD = 10.50$), nearly three quarters were female ($n = 74$; 71.8%), half were married ($n = 53$; 51.5%), a majority were born in Australia ($n = 70$; 68%), half had a bachelor degree or higher ($n = 53$; 51.5%) and just over half were currently employed ($n = 56$; 54.4%) (see Table 2 and Appendix A). One third of carers reported self-rated health as poor or fair (36%).

Carers provided information about the first ($n = 103$), and where applicable, the second person that they cared for ($n = 47$). The mean age of the first person cared for was 43.12 years ($SD = 29.79$), the majority were male ($n = 61$; 59%), a family member ($n = 77$; 75%), and most lived with the carer ($n = 88$, 85%; see Appendix B). The average duration in the caring role was 10 years ($M = 10.07$, $SD = 7.06$). For the second person being cared for, the mean age was 34.09 years ($SD = 28.47$), and the majority were female ($n = 31$; 66%), a family member (n

= 39; 83%) and lived with the carer ($n = 38$; 80.9%). The average duration in the caring role was also 10 years ($M = 9.97$, $SD = 7.40$). Common names of conditions for person being cared for were Autism (first person $n = 30$; 30%; second person $n = 15$; 37%), anxiety (first person $n = 11$; 10.9%; second person $n = 9$; 22%) and intellectual disability (first person $n = 11$; 11%; second person $n = 4$; 10%) (see Appendix C).

Carers outlined the key activities undertaken as part of their caring role/s as well (see Appendix D). These activities related to cognitive or emotional support (96%), health care appointment facilitation and attendance (85%), and communication tasks (79%), followed by household chores (75%), meal preparation (77%) and transportation (74%). Most time per week was devoted to self-care (22h), cognitive or emotional support (17 h), and household chores (10h).

3.2. Impacts of psychological distress, loneliness and connection

At pre-program, 22/86 (26%) carers were likely to be experiencing severe psychological distress and 26/86 (30%) were likely to be experiencing moderate psychological distress. A majority of carers reported feelings of loneliness ($n = 59$; 69%) and only 6 (7%) of carers reported strong social support. Most carers ($n = 53$; 62%) said that physical health problems did not cause their psychological distress, or only led to distress a little of the time, while 11 carers (13%) reported that physical health conditions were the reason for their distress all, or most of the time. Carers who only completed the pre-program survey were compared against carers who completed both time points and had similar demographics and mental health profiles. Small differences were found in education level and psychological distress (post-survey available $M = 25.10$, $SD = 7.08$ vs post-survey not available $M = 22.24$, $SD = 9.60$; see Appendix E and F).

Improvements were identified between pre- and post-program measurements on all items related to psychological distress, levels of loneliness and perceived social support (see Table 3). There was a significant difference in the psychological distress (K-10) scores at pre- (M

PROGRAM ELEMENTS	SESSION	SESSION FOCUS	GOAL/S OF SESSION
Trained Facilitator	Week one, Session one, 90-Minutes	Defining what connection & belonging is to the carer. What is self care/wellbeing?	To explore isolation and connection and to identify how it impacts on carers
Technical support moderator	Week two, Session two, 90-Minutes	How carer values shape experiences. Exploring how carers might change their understanding of connectedness	To understand what helps us recognise what feels good and finding meaning in connection
Respite offered for person being cared for	Week three, Session three, 90-Minutes	Strategies for building confidence. Exploring how to cope with challenges in building connectedness	To explore connection to self, how we create change and to identify barriers to change
Morning, afternoon & evening sessions / Pre-readings emailed prior to sessions	Week four, Session four, 90-Minutes	Exploring self-identity & connection to self. Action planning & goal setting	To explore the stages and process of change and what might help to keep you on track

Fig. 3. Overview of the Four-Week Online Carer Wellbeing and Connection Program.

= 25.10, SD = 7.08) and post-program (M = 22.00, SD = 6.57); $t(85)$ = 4.88, p = 0.000 with a moderate effect size (d = 0.53). There was a significant difference in the perceived loneliness (UCLA Loneliness Scale) scores at pre- (M = 6.69, SD = 1.89) and post-program (M = 6.14, SD = 1.76); $t(85)$ = 3.45, p = 0.000 with a small to moderate effect size (d = 0.37). There was a significant difference in the social support (OSSS-3) scores at pre- (M = 8.31, SD = 2.48) and post-program (M = 8.83, SD = 2.21); $t(85)$ = −2.54, p = 0.013 with a small effect size (d = 0.27). There was no significant difference between pre- and post-program responses for the number of times carers had seen a health professional over last four-weeks or days out of role due to psychological distress (K10+).

3.3. Mechanisms of action for the online Carer wellbeing and connection program

The mechanisms of action, that is, the ingredients that were identified from all data analyses combined that were critical to the program's success, are illustrated in Fig. 4. The four-week program content is depicted around the outer light gray square, and the mechanisms (ingredients for success) appear in the black boxes These mechanisms are derived from the carer experiences explained in the inner circle/pie pieces from the qualitative interview themes. The key mechanisms of action were identified as: delivery by a trained facilitator, provision of respite for person being cared for during meetings, technical assistance, online modality, inclusivity, diversity of experience, shared understanding, safety, emotional release, reflection, and self-care practices.

Carers shared largely positive experiences of taking part in the online program. The connections helped carers to alleviate feelings of loneliness and isolation as people expressed the feeling that they "weren't alone". This was expressed by one carer as:

"The group helps relieve you. It doesn't relieve the caring, it doesn't relieve the pressure, but it relieves that isolation and feelings of loneliness and that is a massive contributor to mental health deterioration."

For some carers the opportunity for connection during the COVID-19 lockdowns was critically important. Reflecting on the program, one carer suggested that:

"I think it's provided us with some good tools and skill sets and I think it reinforced the feeling that we're not alone, and I suppose in sort of dealing with COVID, locked down and things like that it just helps us feel a little bit more connected."

Carers said that the groups were inclusive and respectful. They felt confidentiality and privacy were maintained and this supported a sense of safety within the group. One carer shared:

"We had the sense of privacy and trust there so that we can talk about anything … There was the atmosphere of sharing there, very connecting

Table 1
Measures Included in the Pre- and Post-Program Surveys.

Concept and measure	Response options	Total score	Example question/s	Validation
Demographic questions	Varied	Not applicable	What is your highest level of education?	Not applicable
Psychological distress Kessler 10 (K10), 10-items [14]	5-point Likert scale (1 = *none of the time* to 5 = *all of the time*)	Range from 10 to 50. Higher scores = greater psychological distress	In the last four-weeks, about how often did you feel hopeless?	Moderate to substantial reliability kappa and weighted kappa scores of 0.42 to 0.74 [17]
Days out of role due to psychological distress Kessler 10+ (K10+), 2-items [14]	Number of days unable to manage day-to-day activities	Range from 0 to 28 days	In the last four-weeks, how many days were you totally or partially unable to work, study or manage your day-to-day activities because of these feelings?	
Times consult a health professional about psychological distress Kessler 10+ (K10+), 1-item [15]	Number of visits to the health professional about psychological distress	Range from 0 to 89 visits	In the last 4 weeks, how many times have you seen a doctor or any other health professional about these feelings?	
Amount of time psychological distress was related to physical health problems Kessler 10+ (K10+), 1-item [15]	5-point Likert scale (1 = *none of the time* to 5 = *all of the time*)	Range from 1 to 5. Higher scores = greater impact of physical health problems on psychological distress	In the last 4 weeks, how often have physical health problems been the main cause of these feelings?	
Loneliness UCLA Loneliness Scale, 3-items [18]	3-point Likert (1 = *hardly ever* to 3 = *often*)	Range from 3 to 9. Higher scores indicate greater levels of loneliness	How often do you feel that you lack companionship? How often do you feel left out? How often do you feel isolated from others?	Reliability (α = ranging from 0.89 to 0.94) and test-retest reliability over a 1-year period (r = 0.73) [15]
Social support OSSS-3 Social Support (OSSS-3), 3-items [19]	4- and 5-point Likert (1 = *none* to 4 = *5+ people*) (1 = *none* to 4 = *a lot*) (1 = *very difficult* to 5 = *very easy*)	Range from 3 to 14. Higher scores indicate higher levels of social support	How many people are so close to you that you can count on them if you have great personal problems?	Internal consistency acceptable (α = 0.64) [16]

there."

The groups created a safe space to learn and share without judgement. The safe space enhanced feelings of connectedness and provided an emotional outlet.

"*[It was] just something to look forward to, like you know, if you were having a bad week and then you know this is coming up and you wanted to sort of vent on how you were feeling and stuff like that, you could.*"

Emotional release facilitated through program participation encouraged further changes within day-to-day responses to challenges. The group provided safety and confidence for this, as illustrated by one carer saying:

"*I found that I did build a bit of a bond and connection with all the other people in the group because of sharing our experiences.*"

And another, who said:

"*That's what we do in a in a group, you know, we help one another, and they share the stories and I guess because of my age, I was able to tell stories and stories that could help someone else who needs to know.*"

Carers also reported that without the program they would not have learned about new resources for information, such as searching for videos on YouTube. However, some said that whilst they noted other resources (such as walking groups) were valuable and that they would like to attend, it would still be a challenge to fit these activities into their busy lives. Carers also shared that there were techniques that they learned within the sessions for self-care and managing their stress which they found beneficial.

The learnings from other carers and the facilitator prompted carers to reflect on individual responses to situations and to have an alternative way to respond to stressors that were directly linked with caring roles. An example of this was shared by one carer,

"*But having that time to just sit and reflect and talk to other people was really, really significant. I noticed when I started, I was so overwhelmed and like, 'I'm not coping'. And I'm basically thinking I'm not doing a good enough job. By the end, I was like 'you know what?' I'm doing all right.*"

Some carers also reflected that the group had prompted them to recognize the need for self-care with one saying:

"*This group has given me, I suppose, the perspectives that it's OK to put my needs first sometimes.*"

The opportunity for reflection and sharing perspectives, coupled

with reminders for self-care and learning how to make time for self-care practice was helpful for carers.

"*We spoke a lot about self-care which is so important which a lot of us seem to forget about, so it was really good discussing that.*"

Some carers specifically reported that the breathing techniques shared during the online program were a good reminder and a likely strategy for future use. Others reflected that finding an hour and half for self-care in day-to-day life would be too challenging. However, others suggested that 10 min throughout the day would be a helpful starting point.

Overall, the online modality worked for most people because there was no travel time involved and the timing was convenient. For some carers this meant that they were more likely to attend and for others the online modality was the only way that they could attend. This was particularly apparent during the lockdowns in Victoria but also due to not being able to travel or being in a location where no in-person groups were held.

"*Just being able to do it by Zoom and not having to travel to say you know to [location] from [location] and drive an hour and find a park, having the technology option for people that that works better for was ideal as well because it feels like you know you can slot it into your day and do it.*"

The benefits of the online modality were still countered with mixed perspectives about online groups and there was a preference for in-person sessions:

"*Look it wasn't too bad. I mean, I always prefer face to face. I do think you'd get a lot more out of it and you just get more feeling out of it but you know it was OK.*"

Some carers were interrupted by the person they care for during the group session which was mentioned as making other carers feel uncomfortable. Carers also described challenges around finding space within households that were fit for purpose to shut the door, attend the group and to talk. While a range of sessions were offered at different times of the day for the pilot trial, some people still mentioned that the times would be difficult for people who might have full-time employment options.

Many of the resources provided did refer people to existing programs and groups about these topics which may help to supplement the shared experiences of carers within the groups.

Table 2
Baseline Characteristics of Carers Enrolled in the Evaluation (N = 103).

		Total (N = 103)
Age		*M* (*SD*)
		54.13 (10.50)
		n (%)
Female		74 (71.8)
Age		
	25–34	1 (1.0)
	35–44	18 (17.5)
	45–54	36 (35.0)
	55–64	33 (32.0)
	65–74	10 (9.7)
	75 or more	5 (4.9)
Marital status		
	Married	53 (51.5)
	Widowed	3 (2.9)
	Divorced	19 (18.4)
	Separated	11 (10.7)
	Never married	12 (11.7)
	De Facto	5 (4.9)
Born in Australia		70 (68.0)
English as first language		77 (74.8)
Remoteness MMM*		
	Metropolitan area	89 (86.4)
	Regional area	14 (13.6)
Highest level of education completed		
	Left school before completing Year 10	1 (1.0)
	Completed Year 10 or equivalent	7 (6.8)
	Completed Year 12 or equivalent	8 (7.8)
	Certificate or Diploma	34 (33.0)
	Bachelor degree or higher	53 (51.5)
Current employment status		
	Employed	56 (54.4)
	Unemployed, looking for work	18 (17.5)
	Not in labour force	29 (28.2)
Pension or benefit		68 (66.0)
Type of pension or benefit		
	Carer Payment	24 (35.3)
	Carer Allowance	23 (33.8)
	Age Pension	7 (10.3)
	Disability Support Pension	2 (2.9)
	Other	12 (17.6)
Pension or benefit main income source		39 (59.1)
Received package from the NDIS**		52 (50.5)
Assistance for the person cared received		53 (51.5)
Smoking status (Yes)		5 (4.9)
Overall health rate		
	Excellent	7 (6.8)
	Very good	23 (22.3)
	Good	41 (39.8)
	Fair	26 (25.2)
	Poor	6 (5.8)

* The Modified Monash Model (MMM) measures remoteness and population size on a scale MM 1 to MM 7 where MM 1 is a major city and MM 7 is very remote. MMM classifications are based on the Australian Statistical Geography Standard (Postcodes) - Remoteness Areas (ASGS-RA) framework. Post Office Boxes (PO Boxes) postcodes are not included in MMM classification.

** NDIS = National Disability Insurance Scheme.

"… Like in the setting that we were in, you know people who have [navigated the NDIS] or haven't done it and sharing their stories and what worked for them and it could be really helpful."

Most carers said that the length of each session was optimum at 90-min. Carers also found the four weeks for the program delivery was sufficient but overwhelming at times. There was agreement across all carers interviewed, for a fifth follow-up session as a minimum requirement for future delivery. The fifth follow-up session would allow for an informal check-in with each other as well as an update on personal goals and progress and would offer another social connection back to the group.

Table 3
Mental health characteristics of victorian carers pre- and post-program (N = 86).

	Total (*N* = 86)	
	Pre-survey	Post-survey
	M (*SD*)	*M* (*SD*)
Psychological Distress (K10) *	25.10	22.00
	(7.08)	(6.57)
Days totally out of role (K10+)	2.91	2.42
	(5.20)	(4.59)
Days partially out of role (K10+)	6.95	5.69
	(8.81)	(6.89)
Times seen health professional about these feelings (last four-weeks) (K10+)	1.14	1.06
	(1.66)	(1.48)
Total Loneliness Score (UCLA) *	6.69	6.14
	(1.89)	(1.76)
Total Social Support Score (OSSS-3) **	8.31	8.83
	(2.48)	(2.21)
	n (%)	*n* (%)
Psychological Distress (K10)		
1-Likely to be well	22 (25.6)	39 (45.3)
2-Likely to have a mild mental disorder	16 (18.6)	18 (20.9)
3-Likely to have a moderate mental disorder	26 (30.2)	16 (18.6)
4-Likely to have a severe mental disorder	22 (25.6)	13 (15.1)
How often physical health problems caused psychological distress (K10+)		
None of the times	32 (37.2)	38 (44.7)
A little of the time	21 (24.4)	20 (23.5)
Some of the time	22 (25.6)	19 (22.4)
Most of the time	10 (11.6)	7 (8.2)
All of the time	1 (1.2)	1 (1.2)
Loneliness (UCLA Loneliness Scale)		
Not lonely	27 (31.4)	31 (36.0)
Lonely	59 (68.6)	55 (64.0)
Social Support (OSSS-3)		
Poor support	46 (53.5)	39 (45.3)
Moderate support	34 (39.5)	39 (45.3)
Strong support	6 (7.0)	8 (9.3)

* *p* < 0.001.
** *p* = 0.013.

4. Discussion and conclusion

4.1. Discussion

The Online Carer Wellbeing and Connection Program is a first co-designed program by, with and, for diverse carers. The evaluation established that program participation substantially reduced carers' psychological distress as measured by the Kessler-10+. There was a reduced expression of loneliness (the UCLA loneliness scale) and increased perceived social support using the OSSS-3. Experiential data collected in interviews, a group discussion with men and from the Vietnamese's women's feedback questionnaire supported these findings. This makes the online program a model of promise that warrants further implementation and testing and possible scaling without the requirement for randomised controlled evidence.

A strength of this online program was the embedded co-design, and applicability across carer diverse groups. Previous work has generally focused on 'peer programs' where carers with similar backgrounds, for example, caring for people with a common condition such as dementia [25], or mental ill-health [26], are brought together. The evaluation was also conducted during strict COVID-19 related restrictions in Victoria, Australia in 2021 and when restrictions had eased.

Some limitations of the program included that male carer numbers were lower, which reflects broad carer demographics, but the male-only groups indicated transferability is possible. Additionally, due to the funding restrictions on geographic location, only a small number of carers were from rural areas. Future implementation of the program should investigate the level of impact on different carer groups (for example younger carers, or other culturally and linguistically diverse
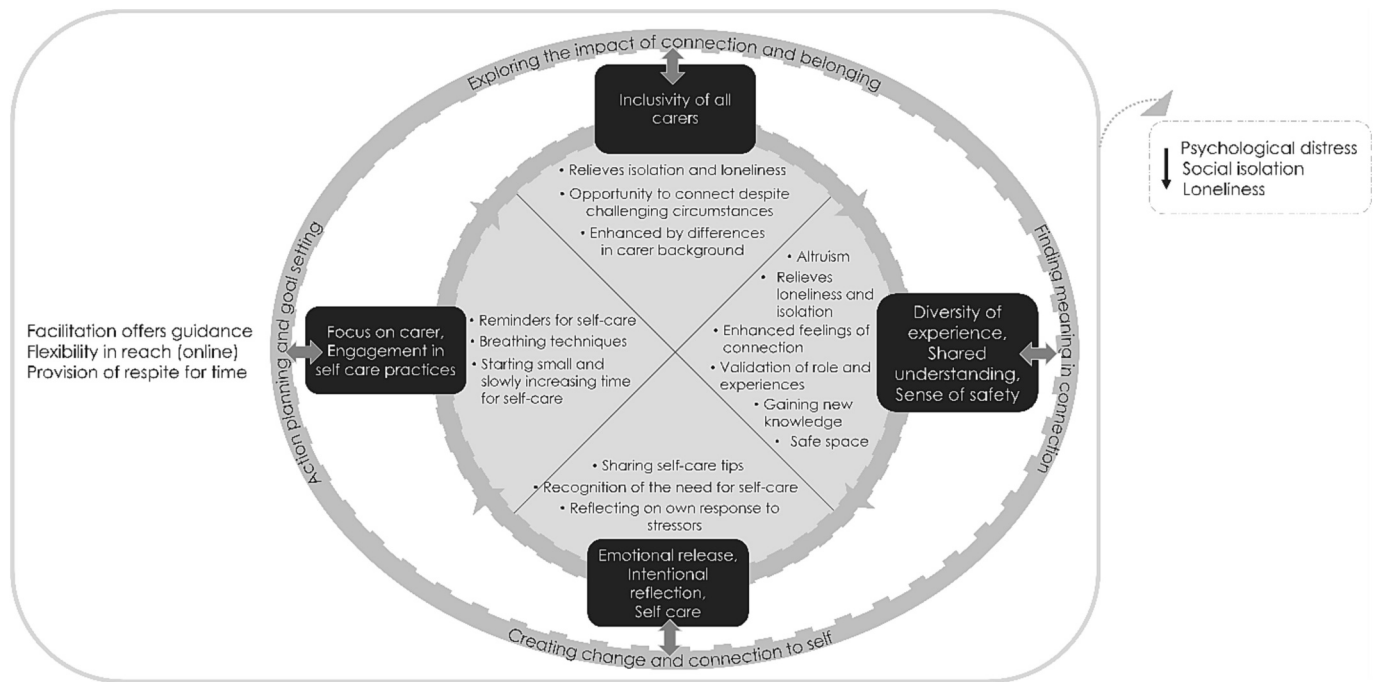
Fig. 4. The Mechanisms of Action of the Online Carer Wellbeing and Connection Program.

groups, and rural carers).

It is possible that quantification of the effects and attribution of the observed outcomes solely to the program without a control group who were exposed to the same contextual factors is a limitation. But, given the current criticisms of randomised controlled trial designs [27] and the shift to adaptive and hybrid implementation and effectiveness designs to solve challenges of scalability, and the need to develop implementable responses to carer unmet need, this provides a strong rationale for a larger implementation study to document the program and its impacts without randomization. One such design could be a demonstration project. In a demonstration project the implementation of the online program could be documented at-scale, and within current policy contexts to evaluate the real-world impacts [28]. To date, demonstrations projects have shown the utility of practical guidance for working with carers in healthcare settings [29] and more widely, the acceptability and feasibility of online stepped care for depression [30,31]. In this case, a demonstration project would enable the impacts of the program within real-world contexts to be determined.

If taken up, any demonstration project would also benefit from incorporating the concept of a clinically meaningful change (CMC) or minimally important difference (MID) within the assessment of change to psychological distress, loneliness and social support. Previous studies have identified a change of between 6 and 7 points as representing a clinically significant change for the K10 [32,33]. In more recent literature there has been greater attention to Clinically Meaningful Change (CMC) or Minimum Important Difference (MID) [34]. This means that, "the clinically meaningful difference is a threshold value for which any change as large or larger is considered meaningful to patients, clinicians, or both" [35].

4.2. Innovation

To implement this program further and respond to unmet carer needs [2], the effective ingredients for change [36,37] are required. This evaluation established these mechanisms as: a trained facilitator to deliver the program, provision of respite for carers and technical assistance, flexibility to join without travelling to a destination, communal belonging fostered through inclusion of carers with diverse

backgrounds, enabling connection with other carers and self, and creating time and space for reflection and staging change through self-care practices.

This evaluation of the Online Carer Wellbeing and Connection Program demonstrated that the four-week, online program substantially reduced psychological distress and loneliness and resulted in a slight increase in perceived social support. The mechanisms of action (the key ingredients for program success) were identified from the program to support the implementability, scalability and transferability of this model across primary care and community contexts. Online programs appear to be acceptable for carers despite a desire for in-person options for social connection to remain available. In the absence of programs regionally and remotely, this program could foster much needed connection and address unmet needs for self-care.

4.3. Conclusion

Carer wellbeing is paramount for themselves, the people they care for and the global economy. As a model of promise the Online Carers' Wellbeing and Connection Program should be expanded and efforts should be made to address the challenges of implementation and translation. Moving beyond a controlled trial design, there is merit to test this program in a non-experimentally designed demonstration project to confirm the current evaluation findings and to provide much needed support to carers.

Funding

Data sharing

Due to the sensitive nature of the questions asked in this study, survey respondents were assured raw data would remain confidential and would not be shared.

Data not available / The data that has been used is confidential.

" I confirm all patient/personal identifiers have been removed or disguised so the patient/person(s) described are not identifiable and cannot be identified through the details of the story."

CRediT authorship contribution statement

Amy Coe: Formal analysis, Writing – original draft. **Jennifer Bibb:** Writing – review & editing, Writing – original draft. **Roxanne Kritharidis:** Formal analysis, Investigation, Writing – review & editing, Project administration. **Mary O'Mara:** Conceptualization, Methodology, Investigation, Writing – review & editing, Project administration. **Rebekah Lautman:** Conceptualization, Methodology, Investigation, Writing – review & editing, Project administration, Funding acquisition. **Konstancja Densley:** Methodology, Formal analysis, Validation, Investigation, Data curation, Writing – review & editing, Writing – original draft. **Sarah Kovarik:** Conceptualization, Methodology, Investigation, Writing – review & editing. **Catherine Kaylor-Hughes:** Writing – review & editing. **Matthew Lewis:** Writing – review & editing. **Victoria J. Palmer:** Conceptualization, Methodology, Validation, Formal analysis, Writing – review & editing, Writing – original draft, Supervision, Funding acquisition.

Declaration of Competing Interest

We have no known conflict of interest to disclose.

Acknowledgements

Appendix A. Supplementary data

Supplementary data to this article can be found online at https://doi.org/10.1016/j.pecinn.2023.100218.

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