

DETAILED REPORT

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DETAILED REPORT

INTRODUCTION

The following Detailed Report provides the evaluation findings of the *Kinto Care Coaching* intervention for family/friend informal caregivers and contains the following sections: 1) Study Rationale; 2) Description of the *Kinto Care Coaching* program; 3) Conceptual Model and Study Hypotheses; 4) Method including: a) Design and Procedures, b) Participants, c) Attrition Analysis and d) Measures; 5) Results including: a) Preliminary Analysis, b) Analytic Strategy, c) Primary Efficacy Analyses, and d) Intervention Descriptive Information; and 6) Key Takeaways and Implications.

1. STUDY RATIONALE

Caring for individuals living with dementia presents unique challenges for caregivers, including changing roles and responsibilities, financial concerns and planning, increased emotional and health strains, and decreased well-being. Research has found significant benefits from caregivers who participate in evidence-based programs. However, many of these programs are not scalable nor sustainable outside of a research context. To date, few studies have leveraged technology to address this issue for engaging and intervening with informal family and friend caregivers.

2. DESCRIPTION OF THE KINTO CARE COACHING INTERVENTION PROGRAM

Kinto Care Coaching Intervention is an innovative program that uses technology via a mobile app to address the needs of informal caregivers of persons living with dementia. Program components include: 1) an initial assessment of care needs; 2) an initial one-on-one virtual care coaching meeting that develops an Action Plan that includes both financial and caregiver support goals; 3) interactive and on-going support and educational resources through the mobile app; 4) access to support groups; and 5) on-going chat groups, with both their care coach and support group peers.

3. CONCEPTUAL MODEL AND STUDY HYPOTHESES

The Stress Process Model (SPM) for Caregivers was the conceptual model used for the study premise and for selecting measures and study hypotheses. The SPM has been widely used in research on stress and coping for caregivers. The domains of the SPM include: 1) Background and Care Context, 2) Objective and Subjective Stressors, 3) Coping and Social Support Resources, 4) Secondary Stressors: Role and Intra-Psychic Strain, and 5) Psychosocial Well-Being Outcomes. Prior studies extend the SPM's category of "coping and social support" to include interventions. For the current study, the *Kinto Care Coaching Intervention* was conceptualized as such in improving outcomes for caregivers. The SPM guided study hypotheses that included hypothesized significant improvements for participants in the intervention condition as compared to participants in the waitlist control condition for the following secondary stressors and psychosocial well-being outcomes: Unmet Needs; Unmet Needs Distress; Financial Self-Efficacy; Dyadic Relationship Strain and Role Captivity; Emotional Health Strain; Caregiver Mastery; Personal Gain; Loneliness; Caregiver Burden; Anxiety Symptoms; and Depressive Symptoms. Exploratory hypotheses also were examined and included measures of Instrumental Activities of Daily Living (IADL)/Personal Activities of Daily Living (PADL) Difficulty; IADL/PADL Distress; Cognitive Difficulty; Cognitive Distress; Behavioral Frequency; and Behavioral Distress.

4. METHOD

a) DESIGN AND PROCEDURES

A randomized controlled trial research design was used to examine the efficacy of the *Kinto Care Coaching Intervention*. After consenting to participate in the study, caregivers completed the baseline/Time 1 survey and were then randomly assigned to the intervention condition or the waitlist

control condition. Participants in the intervention condition received the *Kinto Care Coaching Intervention* that used technology via a mobile app to implement the 6-week structured protocol that consisted of the following: 1) initial assessment of care needs; 2) an initial one-on-one virtual care coaching meeting that developed an Action Plan that included both financial and caregiver support goals; 3) interactive and on-going support and educational resources through the mobile app; 4) access to support groups; and 5) on-going chat groups, with both their care coach and support group peers. Participants randomly assigned to the waitlist control condition were eligible to receive a modified version of the intervention after completion of the study.

To examine intervention efficacy, outcomes were assessed across time that included both short-term and long-term impacts. In total, participants completed 3 surveys: Time 1 (Baseline); Time 2 (after program completion); and Time 3 (45 days after Time 2). All evaluation surveys were completed via Survey Monkey. Once participants completed all 3 of the evaluation surveys, they received a \$120.00 gift certificate as compensation for their time.

A total of 3 cohorts were recruited for the study from May through December 2023. Participants were primarily recruited using a recruitment agency that pre-screened potential participants along with digital ads/social media and the Trial Match database. Trial Match is an online recruitment database of the Alzheimer's Association that is used to recruit and match dementia caregivers and individuals with dementia with current research projects.

b) PARTICIPANTS

Eligibility requirements for study participation included: self-identified family and/or friend informal (i.e., not paid) caregivers who were currently providing care for or supporting an individual living with dementia or memory loss; aged 18 years or older; providing 5 or more hours of care per week (e.g., care and support tasks could range from assistance with finances, cleaning, dressing, walking, cooking, etc.); access to internet and a computer, phone, or tablet; live within the United States; able to participate in the intervention if randomly assigned; and currently not participating in another research study.

Figure 1 provides the consort chart detailing information about the flow of participants throughout the study protocol, including recruitment through the last data collection period. A total of N=672 individuals were assessed for study eligibility. Of these, n=177 were excluded from the study due to the following: did not meet study inclusion criteria (n=41); duplicate submission (n=62); and incomplete submission (n=74). A total of n=495 individuals completed the Time 1 baseline survey and were randomly assigned to intervention condition (n=249) or the waitlist control condition (n=246). Of the participants assigned to the intervention condition, n=148 participants attended the one-on-one coaching session which was deemed the minimum dosage required for participation. A total of n=316 participants completed the Time 2 survey, with n=137 in the program condition and n=179 in the waitlist control condition and a total of n=306 participants completed the Time 3 survey, with n=135 in the program condition and n=171 in the waitlist control condition.

A total of N=329 participants, n=137 participants in the intervention condition and n=192 participants in the waitlist control condition, completed the protocol and were included in the analyses for assessing efficacy. Protocol completion consisted of participants who completed the Time 1 survey and the Time 2 and/or the Time 3 survey/s. For individuals assigned to the intervention condition they needed to have completed the first care coaching session which was set as the minimum required dose for participation. For participants who were missing either a Time 2 or Time 3 survey, the overall sample mean was used to replace their respective missing data for each outcome.

Figure 1 Consort Chart

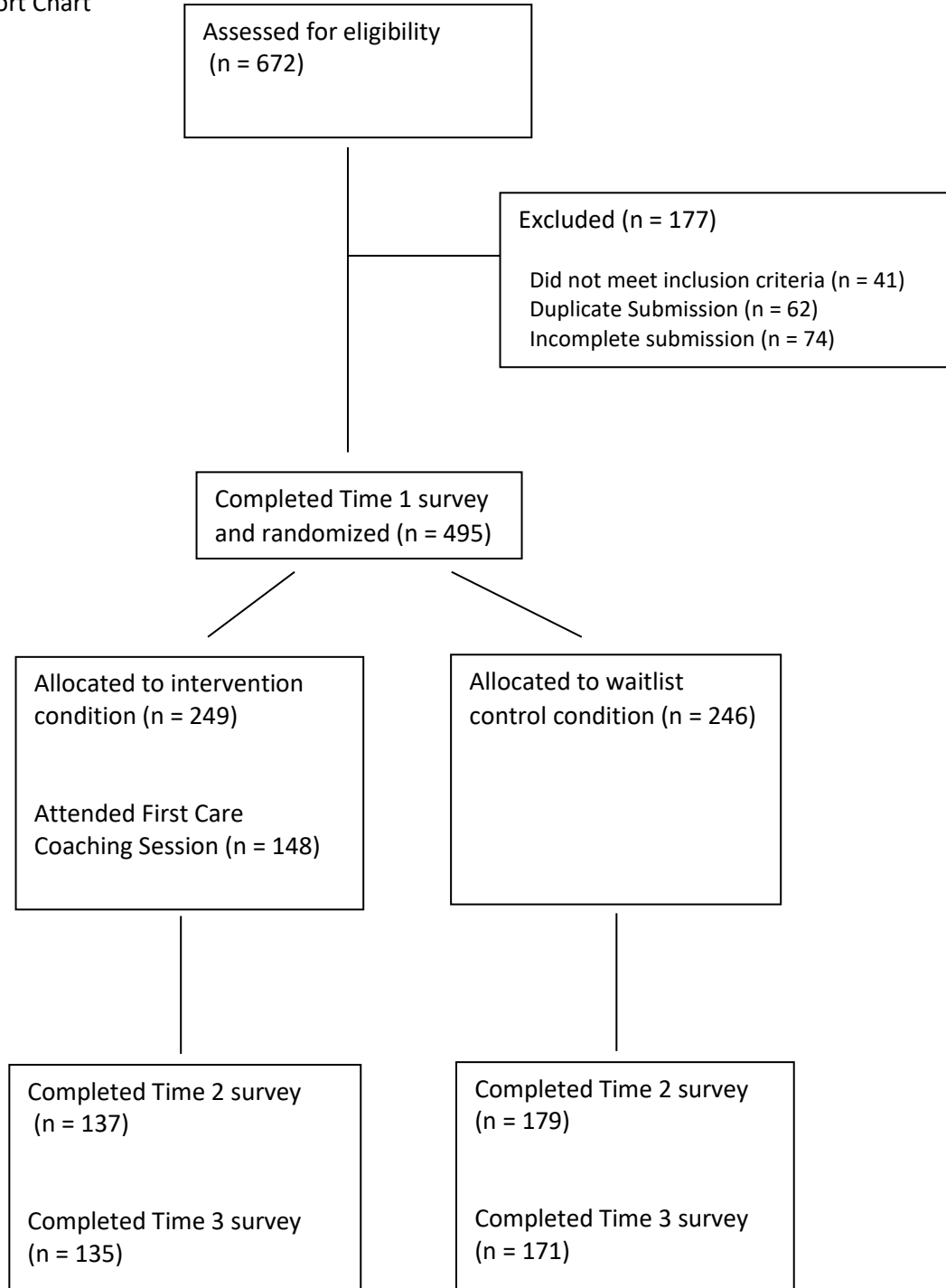


Table 1 provides baseline demographic and caregiving characteristics for the full sample (N=495) and each of the conditions at Time 1 (Baseline). Participants on average were 55.52 years old (SD=13.56) and the majority were female (76%), Caucasian (69.9%), married (66.9%), and heterosexual (89.9%). Most participants worked part- or full-time (60.6%), had a bachelor's or post/professional degree (68.7%), and had yearly incomes of \$75,000 or more (52.5%). Participants primarily provided care to a parent/in-law (56%) or a spouse/partner (28.9%) with the majority of persons living with dementia residing in their own home (57.6%). Most of the sample was providing care between 1 and 5 years (65.7%) with over one-third of the sample (38%) indicating they provided 40 or more hours a week caregiving. Lastly, most participants were caring for an individual diagnosed with Alzheimer's disease (57%).

Table 1 – Time 1 Demographics, Full Sample, Intervention, Control

| Variable | <i>Full Sample</i> N = 495 | <i>Intervention</i> N = 249 | <i>Waitlist Control</i> N = 246 |
|-----------------------------------|-------------------------------|--------------------------------|------------------------------------|
| | % or M(SD) | % or M (SD) | % or M (SD) |
| Age | 55.52 (13.56) | 56.08 (13.43) | 54.95 (13.70) |
| Gender | | | |
| Male | 21.6 | 21.3 | 22 |
| Female | 76 | 76.3 | 75.6 |
| Other/Missing | 2.4 | 2.4 | 2.4 |
| Orientation | | | |
| Straight/Heterosexual | 89.9 | 88 | 91.9 |
| Bisexual | 1.8 | 3.2 | 0.4 |
| Gay or Lesbian | 4 | 4.4 | 3.7 |
| Self Describe | 0.2 | 0.4 | 0 |
| Prefer not to answer/Missing | 4 | 4 | 3.3 |
| Race | | | |
| White | 69.9 | 67.5 | 72.4 |
| Black/African-American | 18.6 | 19.7 | 17.5 |
| Asian | 3 | 3.2 | 2.8 |
| American Indian/Alaskan native | 1.2 | 1.6 | 0.8 |
| Hispanic* | 12.9 | 11.6 | 14.2 |
| Native Hawaiian | 0.2 | 0 | 0.4 |

| | | | |
|------------------------------------|------|------|------|
| More than one race | 3 | 4 | 2.0 |
| Some other race | 2.6 | 2.8 | 2.4 |
| Prefer not to answer | 1.2 | 1.2 | 1.2 |
| Spanish Speaker | | | |
| Yes | 10.7 | 10 | 11.4 |
| No | 89.3 | 90 | 88.6 |
| Choose to Speak Spanish with Coach | | | |
| Yes | 1.8 | 1.6 | 21.5 |
| No | 21.0 | 20.5 | 2 |
| Did not speak Spanish | 77.2 | 77.9 | 76.4 |
| Income | | | |
| Less than \$25,000 | 5.1 | 5.2 | 4.9 |
| \$25,000-\$49,999 | 12.3 | 11.2 | 13.4 |
| \$50,000-\$74,999 | 20.6 | 21.7 | 19.9 |
| \$75,000-\$99,999 | 17.6 | 15.7 | 19.5 |
| \$100,000-\$250,000 | 30.3 | 29.7 | 30.9 |
| \$250,000 or more | 4.6 | 4 | 5.3 |
| Prefer not to answer | 9.3 | 12.4 | 6.1 |
| Level of Education | | | |
| Some high school | 0.2 | 0.4 | 0 |
| High School, GED, or equivalent | 6.1 | 5.6 | 6.5 |
| Some college | 24.6 | 21.7 | 27.6 |
| Bachelor's degree | 39.4 | 39 | 39.8 |
| Post/professional degree | 29.3 | 32.5 | 26.0 |
| Missing | 0.4 | 0.8 | 0 |
| Marital Status | | | |
| Married | 66.9 | 66.7 | 67.1 |

| | | | |
|----------------------------|------|------|------|
| Single | 20 | 19.7 | 20.3 |
| Widowed | 2.8 | 3.2 | 2.4 |
| Divorced | 7.9 | 8 | 7.7 |
| Other | 1.8 | 1.6 | 2 |
| Missing | 0.6 | 0.8 | 0.4 |
| Work Status | | | |
| Employed Full Time | 44.6 | 40.6 | 48.8 |
| Employed Part Time | 16 | 14.9 | 17.1 |
| Retired | 22.4 | 24.5 | 20.3 |
| Unemployed | 10.3 | 11.6 | 8.9 |
| Other | 6.7 | 8.4 | 8.9 |
| Relationship to PLWD | | | |
| Parent/in-law | 56 | 55.4 | 56.5 |
| Spouse/Partner | 28.9 | 30.9 | 26.8 |
| Grandparent | 3.8 | 4.8 | 2.8 |
| Other family relative | 4.4 | 4.4 | 4.5 |
| Friend or neighbor | 1.8 | 0.4 | 3.3 |
| Sibling | 2 | 1.6 | 2.4 |
| Other | 3 | 2.4 | 3.7 |
| How Long Caring | | | |
| Less than 1 year | 9.9 | 12 | 7.7 |
| Between 1 and 2 years | 26.9 | 25.7 | 28 |
| Between 2 and 5 years | 38.8 | 38.2 | 39.4 |
| 5 years or more | 24 | 24.1 | 24 |
| Missing | 0.4 | 0 | 0.8 |
| Time Spent Caring Per Week | | | |
| Less than 9 hours | 6.3 | 6.4 | 6.1 |
| Between 10 and 14 hours | 13.9 | 12 | 15.9 |

| | | | |
|--|------|------|------|
| Between 15 and 19 hours | 10.1 | 9.2 | 11 |
| Between 20 and 29 hours | 17.8 | 17.7 | 17.9 |
| Between 30 and 39 hours | 12.9 | 11.2 | 14.6 |
| 40 or more hours | 38 | 41.8 | 34.1 |
| Missing/Not provided | 1 | 1.6 | 0.4 |
| Currently Attending a Support Group | | | |
| Yes | 12.7 | 12 | 13.4 |
| No | 87.1 | 88 | 86.2 |
| Missing | 0.2 | 0 | 0.4 |
| Where PLWD Lives | | | |
| In their own residence | 57.6 | 57 | 58.1 |
| In their own residence (alone) | 5.3 | 5.6 | 4.9 |
| Living with family or friends | 17.8 | 16.9 | 18.7 |
| Assisted Living/Residential Care | 5.3 | 6 | 4.5 |
| Independent senior housing (alone) | 1.4 | 0.8 | 2 |
| Skilled nursing home | 1.8 | 1.6 | 2 |
| Continuing care retirement community | 0.8 | 0.8 | 0.8 |
| No fixed residence | 0.4 | 0.4 | 0.4 |
| Other | 9.7 | 10.8 | 8.5 |
| Diagnosis Type | | | |
| Alzheimer's Disease/other related dementia | 57 | 53.8 | 60.2 |
| Frontotemporal Dementia | 5.7 | 4.4 | 6.9 |
| Lewy Body Dementia | 3.2 | 3.6 | 2.8 |
| Memory loss | 33.1 | 33.7 | 32.5 |
| Mild cognitive impairment | 17.6 | 16.9 | 18.3 |
| Mixed Dementia | 10.7 | 10 | 11.4 |
| Parkinson's Disease Dementia | 3.4 | 3.2 | 3.7 |

| | | | |
|----------------------|------|------|-----|
| Unspecified Dementia | 19.2 | 15.7 | 5.3 |
| Vascular Dementia | 7.5 | 9.6 | 5.3 |
| I'm not sure | 7.1 | 9.2 | 4.9 |
| Other (specify) | 6.1 | 5.6 | 6.5 |

*Note. Hispanic ethnicity was asked as a separate question

Independent t-tests, one-way ANOVAs, and chi square tests were conducted to ensure random assignment resulted in equivalent groups between the intervention and waitlist control conditions on select demographic and caregiving characteristics. No significant differences were found between the two conditions for any of the variables including: age, gender, orientation, race, income, educational attainment, marital status, relationship to individual with dementia, length of time providing care, amount of care provided weekly, or living arrangement of the individual with dementia. A significant group difference was found for employment status, with 65.9% of participants in the waitlist control condition having more caregivers working part- or full-time as compared to 55.5% of caregivers in the intervention condition. Additionally, 38.1% of participants in the waitlist control condition had fewer caregivers that were retired, unemployed, or indicated other as compared to 44.5% of caregivers in the intervention condition. To account for this difference, employment status was included as a covariate in all subsequent analyses. Except for employment status, these findings indicated random assignment was successful in producing equivalent groups based on the demographic and caregiving characteristics and that participants in the intervention condition and the waitlist control condition were not significantly different from one another at baseline across a wide range of variables.

Given the attrition of participants across time, Table 2 contains the demographic information and caregiver characteristics for participants who completed the defined study protocol and were the final participant sample used for the statistical analyses. Protocol completion consisted of participants who completed the Time 1 survey and the Time 2 and/or the Time 3 survey/s. For individuals assigned to the intervention condition they also needed to have completed the first care coaching session which was set as the minimum dose for participation. For participants who had missing data (i.e., Time 2 or Time 3 survey data), the overall sample mean was used to replace their respective missing data for each outcome. This resulted in a final sample of N=329, with n=137 intervention participants and n=192 waitlist control participants.

Participants on average were 55.75 years old (SD=13.04) and the majority were female (76.9%), Caucasian (70.8%), married (67.2%), and heterosexual (89.7%). Most participants worked part- or full-time (62%), had a bachelor's or post/professional degree (70.2%), and had yearly incomes of \$75,000 or more (53.5%). Participants primarily provided care to a parent/in-law (57.4%) or a spouse/partner (26.4%) with the majority of individuals with dementia residing in their own home (57.1%). Most caregivers were providing care between 2 and 5 years (40.4%) and were providing 40 or more hours a week in care (35.9%). Most participants were caring for an individual with Alzheimer's disease (56.8%)

Table 2 – Time 1 Demographics, Sample for Analyses, Intervention, Control

| Variable | Full Sample N = 329 | Intervention N = 137 | Waitlist Control N = 192 |
|-----------------------------------|------------------------|-------------------------|-----------------------------|
| | % or M(SD) | N(%) or M (SD) | N (%) or M (SD) |
| Age | 55.75(13.04) | 58.57 (12.27) | 53.91 (13.24) |
| Gender | | | |
| Male | 21 | 17.5 | 23.4 |
| Female | 76.9 | 81 | 74 |
| Other/Missing | 2.1 | 1.5 | 2.6 |
| Orientation | | | |
| Straight/Heterosexual | 89.7 | 87.6 | 91.1 |
| Bisexual | 1.5 | 2.9 | 0.5 |
| Gay or Lesbian | 4.3 | 4.4 | 4.2 |
| Self Describe | 0.3 | 0.7 | 0 |
| Prefer not to answer/Missing | 4.3 | 4.4 | 4.1 |
| Race | | | |
| White | 70.8 | 69.3 | 71.9 |
| Black/African-American | 17.9 | 16.1 | 19.3 |
| Asian | 3.3 | 4.4 | 2.6 |
| American Indian/Alaskan native | 0.9 | 1.5 | 0.5 |
| Native Hawaiian | 0.3 | 0 | 0.5 |
| More than one race | 2.7 | 4.4 | 1.6 |
| Some other race | 2.7 | 3.6 | 2.1 |
| Prefer not to answer | 0.9 | 0.7 | 1.0 |
| Missing | 0.3 | 0 | 0.5 |
| Hispanic* | 13.4 | 11.7 | 14.6 |

Spanish Speaker

| | | | |
|-----|------|------|------|
| Yes | 11.9 | 10.9 | 12.5 |
| No | 88.1 | 89.1 | 87.5 |

Choose to Speak Spanish with Coach

| | | | |
|-----|-----|-----|-----|
| Yes | 1.5 | 0.7 | 2.1 |
|-----|-----|-----|-----|

Income

| | | | |
|----------------------|------|------|------|
| Less than \$25,000 | 4.9 | 5.1 | 4.7 |
| \$25,000-\$49,999 | 10.6 | 7.3 | 13.0 |
| \$50,000-\$74,999 | 23.7 | 26.2 | 21.9 |
| \$75,000-\$99,999 | 17.6 | 13.1 | 20.8 |
| \$100,000-\$250,000 | 30.1 | 32.8 | 28.1 |
| \$250,000 or more | 5.8 | 4.4 | 6.8 |
| Prefer not to answer | 7.3 | 10.9 | 4.7 |

Level of Education

| | | | |
|---------------------------------|------|------|------|
| High School, GED, or equivalent | 5.8 | 4.4 | 6.8 |
| Some college | 23.7 | 19.7 | 26.6 |
| Bachelor's degree | 40.7 | 39.4 | 41.7 |
| Post/professional degree | 29.5 | 35.8 | 25 |
| Missing | 0.3 | 0.7 | 0 |

Marital Status

| | | | |
|----------|------|------|------|
| Married | 67.2 | 67.9 | 66.7 |
| Single | 21.3 | 19.7 | 22.4 |
| Widowed | 2.4 | 3.6 | 1.6 |
| Divorced | 7.3 | 7.3 | 7.3 |
| Other | 1.5 | 1.5 | 1.6 |
| Missing | 0.3 | 0 | 0.5 |

Work Status

| | | | |
|-------------------------------------|------|------|------|
| Employed Full Time | 48.6 | 43.8 | 52.1 |
| Employed Part Time | 13.4 | 10.2 | 15.6 |
| Retired | 22.8 | 29.2 | 18.2 |
| Unemployed | 9.4 | 10.2 | 8.9 |
| Other | 5.8 | 6.6 | 5.2 |
| Relationship to Care Receiver | | | |
| Parent/in-law | 57.4 | 55.5 | 58.9 |
| Spouse/Partner | 26.4 | 31.4 | 22.9 |
| Grandparent | 3.3 | 3.6 | 3.1 |
| Other family relative | 4.6 | 3.6 | 5.2 |
| Friend or neighbor | 1.8 | 0 | 3.1 |
| Sibling | 2.1 | 2.2 | 2.1 |
| Other | 4.3 | 3.6 | 4.7 |
| How Long Caring | | | |
| Less than 1 year | 7 | 10.9 | 4.2 |
| Between 1 and 2 years | 27.3 | 24.8 | 29.2 |
| Between 2 and 5 years | 40.4 | 38.7 | 41.7 |
| 5 years or more | 25.2 | 25.5 | 25 |
| Time Spent Caring Per Week | | | |
| Less than 9 hours | 5.8 | 5.1 | 6.3 |
| Between 10 and 14 hours | 14.9 | 12.4 | 16.7 |
| Between 15 and 19 hours | 10.9 | 13.1 | 9.4 |
| Between 20 and 29 hours | 18.8 | 19 | 18.8 |
| Between 30 and 39 hours | 13.1 | 8 | 16.7 |
| 40 or more hours | 35.9 | 41.6 | 31.8 |
| Missing/Not provided | 0.6 | 0.7 | 0.5 |
| Currently Attending a Support Group | | | |

| | | | |
|--|------|------|------|
| Yes | 12.8 | 14.6 | 11.5 |
| No | 86.9 | 85.4 | 88.0 |
| Missing | 0.3 | 0 | 0.5 |
| Where PLWD Lives | | | |
| In their own residence | 57.1 | 59.9 | 55.2 |
| In their own residence (alone) | 7 | 8 | 6.3 |
| Living with family or friends | 16.1 | 12.4 | 18.8 |
| Assisted Living/Residential Care | 5.2 | 5.1 | 5.2 |
| Independent senior housing (alone) | 2.1 | 1.5 | 2.6 |
| Skilled nursing home | 2.1 | 1.5 | 2.6 |
| Continuing care retirement community | 0.6 | 0.7 | 0.5 |
| No fixed residence | 0.3 | 0 | 0.5 |
| Other | 9.4 | 10.9 | 8.3 |
| Diagnosis Type | | | |
| Alzheimer's Disease/other related dementia | 56.8 | 53.3 | 59.4 |
| Frontotemporal Dementia | 6.7 | 5.1 | 7.8 |
| Lewy Body Dementia | 3.3 | 2.9 | 3.6 |
| Memory loss | 35.3 | 36.5 | 34.4 |
| Mild cognitive impairment | 18.2 | 19 | 17.7 |
| Mixed Dementia | 10 | 9.5 | 10.4 |
| Parkinson's Disease Dementia | 3.3 | 2.9 | 3.6 |
| Unspecified Dementia | 19.8 | 17.5 | 21.4 |
| Vascular Dementia | 6.1 | 7.3 | 5.2 |
| I'm not sure | 6.7 | 10.2 | 4.2 |
| Other (specify) | 5.5 | 6.6 | 4.7 |

*Note. Hispanic ethnicity was asked as a separate question

c) ATTRITION ANALYSIS

For longitudinal studies, attrition rates vary but can be anticipated to be approximately 10%-15% drop out across each data collection period. Additionally, it is not uncommon with intervention studies to see a greater proportion of participants drop out of the intervention condition, typically due to time constraints and/or the associated stress/strains that may be brought on by the program activities, especially for lengthier, multi-session programs.

After participants (n=495) completed the Time 1 baseline survey, 64% of the sample completed the Time 2 survey, with n=137 participants in the intervention condition and n=179 participants in the waitlist control condition. Overall this is a 36% attrition rate from Time 1 to Time 2 across the study sample, with 45% attrition rate within the intervention condition and 27% attrition rate within the waitlist control condition. Overall this was the most significant attrition for participants in the study and fell outside the 10%-15% mark. Attrition from Time 2 to Time 3 for the overall study sample was 3%, with 1% attrition within the intervention condition and 4% attrition within the waitlist control condition, resulting in n=135 participants in the intervention condition and n=171 in the waitlist control condition that completed the Time 3 survey.

Several analyses using independent t-tests, one-way ANOVAs, and chi-square tests were used to examine if there were any significant differences on select demographic and caregiving characteristics and the Time 1 scale scores for each outcome between participants who completed the study protocol and those who did not. No significant differences were found for any of the following demographic and caregiving characteristics: age, gender, orientation, race, income, education level, marital status, employment status, years providing care, number of weekly hours providing care, and living arrangement of individual with dementia.

For the dichotomous variable relationship to the person living with dementia, the difference between the 2 groups was approaching significance at $p=.052$. Specifically, for participants who did not complete the study protocol, 34.6% were the spouse(in-law) or parent(in-law) and 65.4% were a grandparent, family relative, friend/neighbor, sibling, or other. This was in comparison to participants who completed the study protocol that indicated 26.1% were the spouse(in-law) or parent(in-law) and 75.9% were a grandparent, family relative, friend/neighbor, sibling, or other. For the Time 1 measure of each outcome, a significant difference was found for Depression, with participants who did not complete the study protocol reporting more depressive symptoms ($M=1.80$, $SD=.43$) than participants who did complete the study protocol ($M=1.71$, $SD=.44$). No other significant differences were found for the other Time 1 measures.

d) MEASURES

Demographic and caregiving characteristics were collected along with measuring the following constructs: Unmet Needs, Unmet Needs Distress, Financial Self-Efficacy, Dyadic Relationship Strain and Role Captivity, Emotional Health Strain, Caregiver Mastery, Personal Gain, Loneliness, Caregiver Burden, Anxiety Symptoms, Depressive Symptoms, IADL/PADL Difficulty, IADL/PADL Distress, Cognitive Difficulty, Cognitive distress, Behavioral Frequency, and Behavioral Distress. Table 3 lists each measure along with the number of items and scoring, description and example item, Time 1 scale reliability, and Time 1 mean and standard deviation for the full sample (N=495).

Table 3 - Overview of Measures

| Outcome Measure | Number of items & Scoring | Description of Measure & Example Item | Time 1 Scale Reliability | Time 1 Mean and Standard Deviation |
|--|--|--|--------------------------|------------------------------------|
| Unmet Needs | 20 items No (1)/Yes (2) | Measures whether individuals need more help or information with specific caregiving information and tasks. Example item: <i>Getting family members or friends to provide the help that you need?</i> | .87 | M=1.68 SD=.24 |
| Unmet Needs Distress | 20 items Not distressing (1) – Very distressing (4) | Measures how distressing/stressful caregiving unmet needs are for individuals. Example item: <i>Getting family members or friends to provide the help that you need?</i> | .94 | M=2.41 SD=.68 |
| Financial Self-Efficacy | 10 items Not at all (1) – A great deal (4) | Measures confidence in addressing and managing the financial aspects of caregiving. Example item: <i>I know how to find financial resources for the person I care for.</i> | .90 | M=2.79 SD=.68 |
| Dyadic Relationship and Role Captivity | 10 items Strongly disagree (1) – Strongly agree (4) | Measures caregivers' feelings of strain with the person they care for along with feelings of being trapped in their role. Example item: <i>I felt angry towards him/her.</i> | .90 | M=2.27 SD=.69 |
| Emotional Health Strain | 4 items Strongly disagree (1)– Strongly agree (4) | Measures the emotional health strain/stress that is related to an individual's role as a caregiver. Example item: <i>Because of the person I am caring for, I felt irritable more often.</i> | .90 | M=2.90 SD=.80 |
| Caregiver Mastery | 9 items Strongly disagree (1) – Strongly agree (4) | Measures whether caregiver feels they can successfully perform their role as a caregiver. Example item: <i>I felt uncertain about how to best care for him/her.</i> | .80 | M=2.80 SD=.47 |
| Personal Gain | 4 items Not at all (1) – A great deal (4) | Measures whether individuals feel like they have grown as a person in learning and/or doing new things. Example item: <i>Become more aware of your inner strengths.</i> | .88 | M=2.55 SD=.83 |

| | | | | |
|------------------------|--|---|-----|------------------|
| Loneliness | 11 items Strongly disagree (1) – strongly agree (4) | Measures how isolated and lonely individuals' feels. Example item: <i>There are people who really understand me.</i> | .85 | M=2.84 SD=.53 |
| Caregiver Burden | 4 items Never (1) – Nearly always (5) | Measures how much difficulty caregivers experience in their role. Example item: <i>Do you feel strained when you are around the person you care for?</i> | .81 | M=3.21 SD=.86 |
| Symptoms of Anxiety | 7 items Not at all (1) – Nearly every day (4) | Measures overall symptoms of anxiety. Example item: <i>Feeling nervous, anxious, or on edge?</i> | .92 | M=2.19 SD=.82 |
| Symptoms of Depression | 11 items Hardly ever or never (1) – Often (3) | Measures overall symptoms of depression. Example item: <i>Feeling down, depressed, or hopeless?</i> | .86 | M=1.74 SD=.44 |
| IADL/PADL Difficulty | 16 items Not difficult (1) – Very Difficult (4) | Measures the amount of difficulty the person with dementia has in completing instrumental and personal activities of daily living. Example item: <i>Preparing a balanced meal?</i> | .94 | M=2.46 SD=.83 |
| IADL/PADL Distress | 16 items Not distressing (1) – Very distressing (4) | Measures the amount of distress the caregiver experiences due to the IADL/PADL difficulties. Example item: <i>Preparing a balanced meal?</i> | .94 | M=2.09 SD=.79 |
| Cognition Difficulty | 8 items Not difficult (1) – Very Difficult (4) | Measures the amount of cognitive difficulty the person with dementia experiences. Example item: <i>Remembering recent events?</i> | .88 | M=2.61 SD=.74 |
| Cognition Distress | 8 items Not distressing (1) – Very distressing (4) | Measures the amount of distress the caregiver experiences due to the cognitive difficulty. Example item: <i>Remembering recent events?</i> | .93 | M=2.03 SD=.83 |
| Behavioral Frequency | 14 items None of the time (1) – Most or all of the time (4) | Measures the frequency of behaviors experienced by the person with dementia. Example item: <i>Repeat the same thing over and over?</i> | .88 | M=2.11 SD=.58 |
| Behavioral Distress | 14 items | Measures the amount of distress the caregiver experiences due to the behaviors. | .91 | M=2.00 SD=.69 |

| | | | | |
|--|--|---|--|--|
| | Not distressing (1) – Very distressing (4) | Example item: <i>Repeat the same thing over and over?</i> | | |
|--|--|---|--|--|

5. RESULTS

a) PRELIMINARY ANALYSIS

Before conducting the primary analyses, data were cleaned including examining missing data and addressing any out-of-range values. All measures were tested for reliability using Cronbach's alpha. All scales demonstrated good reliability with alphas greater than .70 at Time 1 for the sample.

b) ANALYTIC STRATEGY

Separate 2 (condition: intervention, waitlist control) x 3 (time: Time 1, Time 2, Time3) repeated measures general linear models were used to examine mean group differences across time between the intervention and waitlist control groups for each outcome measure. The repeated measures analyses indicated whether there was any significant change across time for each outcome measure based on whether participants received the intervention or had not received the intervention. Employment status was included as a covariate in all analyses to control for the significant difference found at baseline between the two conditions. For significant outcomes that did not meet the Sphericity assumption, the Greenhouse-Geisser correction was used and reported for degrees of freedom.

For outcome measures that were found to be significant, additional post-hoc pairwise comparison analyses were conducted to examine where the change occurred across the different data collection periods (i.e., Time 2, Time 3). Guided by the study hypotheses, significant changes across time were conceptualized as either short-term or long-term impacts. Short-term impacts were defined as significant change from Time 1 to Time 2 and long-term impacts were defined as significant change from Time 2 to Time 3. The total sample size for analyses was N=329, with n=192 in the waitlist control condition and n=137 in the intervention condition. These analyses included participants who completed the Time 1 survey and the Time 2 and/or Time 3 survey/s and for intervention participants completed the first care coaching session.

c) PRIMARY ANALYSES – EFFICACY

Overall significant group differences between the intervention and the waitlist control conditions across time were found for each of the hypothesized outcomes and two of the exploratory outcomes:

- Decreased Unmet Needs ($F_{(1, 328)} = 19.60, p = .001, np2=.057$)
- Decreased Unmet Needs Distress ($F_{(.92, 328)} = 19.77, p = .001, np2=.057$)
- Increased Financial Self-Efficacy ($F_{(1, 328)} = 3.58, p = .028, np2=.011$)
- Decreased Dyadic Relationship Strain and Role Captivity ($F_{(.90, 328)} = 4.87, p = .009, np2=.015$)
- Decreased Emotional Health Strain ($F_{(1, 328)} = 7.58, p = .001, np2=.023$)
- Improved Caregiver Mastery ($F_{(1, 328)} = 5.83, p = .003, np2=.018$)
- Decreased Caregiver Burden ($F_{(.93, 328)} = 3.35, p = .037, np2=.010$)
- Decreased Symptoms of Anxiety ($F_{(.96, 328)} = 3.25, p = .040, np2=.010$)
- Decreased Behavioral Frequency ($F_{(.95, 328)} = 5.37, p = .005, np2=.016$)
- Decreased Behavioral Distress ($F_{(1, 328)} = 3.78, p = .023, np2=.011$)

Partial eta squared (np2) provides the magnitude or effect size for the interaction term (group by time) for each outcome. The partial eta squared values ranged from .010 to .057, indicating small effect sizes for each of the significant outcomes.

The following outcomes were not found to be statistically significant between the intervention and waitlist control conditions: Personal Gain, Loneliness, Symptoms of Depression, Difficulty with IADLs/PADLS, Distress with IADLs/PADLs, Difficulty with Cognition, or Distress with Cognition.

To understand where specific changes occurred across time, post-hoc pairwise comparisons with a Bonferroni correction were conducted. These analyses examined whether the changes occurred between Time 1 and Time 2 and/or Time 2 and Time 3. Short-term effects were defined by a significant difference between the 2 groups from Time 1 to Time 2 and long-term effects were defined by a significant difference between the 2 groups from Time 2 to Time 3. As indicated in Table 4, short-term effects (Time 1 to Time 2) were found for each of the significant outcomes, with caregivers in the intervention condition reporting improvement for each outcome as compared to participants in the waitlist control condition. Three of the outcomes, Unmet Needs, Unmet Needs Distress, and Financial Self-Efficacy had additional significant improvements from Time 2 to Time 3.

Table 4 - Overview of Study Results

| Outcome Measure | Overall significant group difference b/w conditions across time | Significant short-term effects T1 to T2 | Significant long-term effects T2 to T3 |
|--------------------------------------|--|--|---|
| Unmet Needs | ✓ | ✓ | ✓ |
| Unmet Needs Distress | ✓ | ✓ | ✓ |
| Financial Self-Efficacy | ✓ | ✓ | ✓ |
| Dyadic Relationship & Role Captivity | ✓ | ✓ | NS |
| Emotional Health Strain | ✓ | ✓ | NS |
| Caregiver Mastery | ✓ | ✓ | NS |
| Caregiver Burden | ✓ | ✓ | NS |
| Anxiety | ✓ | ✓ | NS |
| Behavioral Frequency | ✓ | ✓ | NS |
| Behavioral Distress | ✓ | ✓ | NS |

NS = Not Significant

Table 5 provides additional information about the means, standard deviation, magnitude of the differences between the conditions, and whether the conditional means were statistically significant at each of the specific timeframes that represented Time 1 to Time 2 and Time 2 to Time 3. Difference scores between the intervention condition mean and the waitlist condition mean indicated the magnitude of the improvement for each outcome across time. Difference scores were calculated by subtracting the control condition mean from the intervention condition mean and represented the difference or magnitude of change between the conditions at each data collection timepoint. Improvements in each outcome were designated by either a positive difference score indicating an increase in the outcome or with a negative difference score indicating a reduction in the outcome.

As highlighted by the pattern of means across each outcome, program participants reported significant improvements in each of the outcomes from Time 1 to Time 2. Long-term effects as evidenced by significant differences from Time 2 to Time 3 were found for the following outcomes: Unmet Needs, Unmet Needs Distress, and Financial Self-Efficacy. Examining the respective pattern of means indicated continued improvement for each outcome across time. For the outcomes that were not significantly

different from Time 2 to Time 3, the pattern of means suggested maintained improvement across time with the mean score for each outcome staying relatively stable from Time 2 to Time 3 for participants in each condition.

Table 5 - Descriptive Data and Difference Scores for Significant Outcome Measures

Unmet Needs

| | <u>Intervention Condition</u> | <u>Waitlist Control Condition</u> | <u>Difference</u> | <u>Significant</u> |
|------|-------------------------------|-----------------------------------|-------------------|--------------------|
| | <i>M/(S.D.)</i> | <i>M/(S.D.)</i> | | |
| Time | | | | |
| T1 | 1.67 (.21) | 1.70 (.25) | -.03 | --- |
| T2 | 1.36 (.26) | 1.56 (.26) | -.20 | S |
| T3 | 1.33 (.27) | 1.52 (.27) | -.19 | S |

Note: S = significant; NS = Not significant

Unmet Needs Distress

| | <u>Intervention Condition</u> | <u>Waitlist Control Condition</u> | <u>Difference</u> | <u>Significant</u> |
|------|-------------------------------|-----------------------------------|-------------------|--------------------|
| | <i>M/(S.D.)</i> | <i>M/(S.D.)</i> | | |
| Time | | | | |
| T1 | 2.39 (.59) | 2.45 (.68) | -.06 | --- |
| T2 | 1.86 (.57) | 2.29 (.69) | -.43 | S |
| T3 | 1.79 (.58) | 2.18 (.67) | -.39 | S |

Note: S = significant; NS = Not significant

Financial Self-Efficacy

| | <u>Intervention Condition</u> | <u>Waitlist Control Condition</u> | <u>Difference</u> | <u>Significant</u> |
|------|-------------------------------|-----------------------------------|-------------------|--------------------|
| | <i>M/(S.D.)</i> | <i>M/(S.D.)</i> | | |
| Time | | | | |
| T1 | 2.81(.60) | 2.77 (.68) | .04 | --- |
| T2 | 3.08 (.63) | 2.87 (.69) | .21 | S |
| T3 | 3.14 (.64) | 2.97 (.63) | .17 | S |

Note: S = significant; NS = Not significant

Dyadic Relationship Strain and Role Captivity

| | <u>Intervention Condition</u> | <u>Waitlist Control Condition</u> | <u>Difference</u> | <u>Significant</u> |
|------|-------------------------------|-----------------------------------|-------------------|--------------------|
| | <i>M/(S.D.)</i> | <i>M/(S.D.)</i> | | |
| Time | | | | |
| T1 | 2.29 (.70) | 2.27 (.67) | .02 | --- |
| T2 | 2.06 (.70) | 2.17 (.66) | -.11 | S |
| T3 | 2.05 (.70) | 2.21 (.70) | -.16 | NS |

Note: S = significant; NS = Not significant

Emotional Health Strain

| | <u>Intervention Condition</u> | <u>Waitlist Control Condition</u> | <u>Difference</u> | <u>Significant</u> |
|------|-------------------------------|-----------------------------------|-------------------|--------------------|
| | <i>M/(S.D.)</i> | <i>M/(S.D.)</i> | | |
| Time | | | | |
| T1 | 2.95 (.78) | 2.86 (.82) | .09 | --- |
| T2 | 2.46 (.85) | 2.64 (.81) | -.18 | S |
| T3 | 2.47 (.87) | 2.67 (.76) | -.20 | NS |

Note: S = significant; NS = Not significant

Caregiver Mastery

| | <u>Intervention Condition</u> | <u>Waitlist Control Condition</u> | <u>Difference</u> | <u>Significant</u> |
|------|-------------------------------|-----------------------------------|-------------------|--------------------|
| | <i>M/(S.D.)</i> | <i>M/(S.D.)</i> | | |
| Time | | | | |
| T1 | 2.80 (.43) | 2.80 (.47) | .00 | --- |
| T2 | 3.04 (.41) | 2.90 (.45) | .14 | S |
| T3 | 3.07 (.45) | 2.92 (.43) | .15 | NS |

Note: S = significant; NS = Not significant

Caregiver Burden

| | <u>Intervention Condition</u> | <u>Waitlist Control Condition</u> | <u>Difference</u> | <u>Significant</u> |
|------|-------------------------------|-----------------------------------|-------------------|--------------------|
| | <i>M/(S.D.)</i> | <i>M/(S.D.)</i> | | |
| Time | | | | |
| T1 | 3.16 (.79) | 3.23 (.87) | -.07 | --- |
| T2 | 2.87 (.85) | 3.05 (.83) | -.18 | S |

| | | | | |
|----|------------|------------|------|----|
| T3 | 2.82 (.86) | 3.10 (.90) | -.28 | NS |
|----|------------|------------|------|----|

Note: S = significant; NS = Not significant

Symptoms of Anxiety

| | <u>Intervention Condition</u> | <u>Waitlist Control Condition</u> | <u>Difference</u> | <u>Significant</u> |
|------|-------------------------------|-----------------------------------|-------------------|--------------------|
| | <i>M/(S.D.)</i> | <i>M/(S.D.)</i> | | |
| Time | | | | |
| T1 | 2.17 (.82) | 2.18 (.81) | -.01 | --- |
| T2 | 1.92 (.85) | 2.06 (.79) | -.14 | S |
| T3 | 1.92 (.80) | 2.09 (.78) | -.17 | NS |

Note: S = significant; NS = Not significant

Behavioral Frequency

| | <u>Intervention Condition</u> | <u>Waitlist Control Condition</u> | <u>Difference</u> | <u>Significant</u> |
|------|-------------------------------|-----------------------------------|-------------------|--------------------|
| | <i>M/(S.D.)</i> | <i>M/(S.D.)</i> | | |
| Time | | | | |
| T1 | 2.13 (.56) | 2.08 (.60) | .05 | --- |
| T2 | 1.95 (.50) | 2.06 (.55) | -.11 | S |
| T3 | 2.03 (.52) | 2.07 (.50) | -.04 | NS |

Note: S = significant; NS = Not significant

Behavioral Distress

| | <u>Intervention Condition</u> | <u>Waitlist Control Condition</u> | <u>Difference</u> | <u>Significant</u> |
|------|-------------------------------|-----------------------------------|-------------------|--------------------|
| | <i>M/(S.D.)</i> | <i>M/(S.D.)</i> | | |
| Time | | | | |
| T1 | 1.98 (.65) | 1.98 (.72) | .00 | --- |
| T2 | 1.73 (.57) | 1.92 (.62) | -.19 | S |
| T3 | 1.84 (.58) | 1.92 (.62) | -.08 | NS |

Note: S = significant; NS = Not significant

d. INTERVENTION DESCRIPTION INFORMATION

Table 6 provides an overview of the engagement across select components of the intervention protocol. The minimum intervention dose included completion of the 1st care coaching session. Additionally, caregivers had to complete this session in order to participate in the other program components. A total of n=148 caregivers attended the first session, n=51 participants participated in a 2nd session, and n=35 participants attended a 3rd session. In terms of participation in the six focus groups, 31% to 40% of the sample participated, with the first and fourth support group receiving the highest caregiver attendance. On average, M=3.78 (SD=2.00) action steps were created and M=.82 (SD=1.44) were completed. Caregivers completed, on average, M=4.66 (SD=5.15) assignments and M=17.79 (SD=13.07) capsules.

Table 6 – Description of Intervention Engagement

| Intervention Component Engagement | Number of participants; M(SD) |
|--|-------------------------------|
| 1 st care coaching session attendance | n=148 |
| 2 nd care coaching session attendance | n=51 (34%) |
| 3 rd care coaching session attendance | n=34 (23%) |
| Support group #1 attendance | n=59 (40%) |
| Support group #2 attendance | n=51 (34%) |
| Support group #3 attendance | n=46 (31%) |
| Support group #4 attendance | n=59 (40%) |
| Support group #5 attendance | n=48 (32%) |
| Support group #6 attendance | n=48 (32%) |
| Number of action steps created | M=3.78, SD=2.00 |
| Number of action steps completed | M=.82, SD=1.44 |
| Number of completed assignments | M=4.66, SD=5.15 |
| Number of capsules completed | M=17.79, SD=13.07 |

6. KEY TAKEAWAYS AND IMPLICATIONS

The *Kinto Care Coaching* program was found efficacious across multiple key outcomes for family/friend caregivers, including improved Financial Self-Efficacy and Caregiver Mastery and decreased Unmet Needs, Unmet Needs Distress, Dyadic Relationship Strain and Role Captivity, Emotional Health Strain, Caregiver Burden, Symptoms of Anxiety, Behavioral Frequency, and Behavioral Distress. For the majority of outcomes, significant change occurred from Time 1 to Time 2 with maintenance (or no change) from Time 2 to Time 3. For Unmet Needs, Unmet Needs Distress, and Financial Self-Efficacy, significant change occurred from Time 1 to Time 2 and from Time 2 to Time 3 indicating continued improvements. The following components of the program were thought to contribute to the success of the intervention and included: 1) program content that specifically addressed financial aspects of caregiving along with overall caregiving concerns and issues; 2) on-going interactive features that facilitated caregiver engagement and provided support; and 3) the use of technology for program implementation. Overall, *Kinto Care Coaching* was found to be an evidence-based program that represents a scalable and low-cost approach for improving the lives of informal caregivers.