Applying RE-AIM Framework to the Evaluation of a Translational Study of RDAD-NW in AAA Communities

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Abstract

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Review:

The current review is aimed at gaining a better understanding of the RE-AIM framework and its applications in the health science field as well as in dementia-related translational studies. The current review also looked at the program fidelity monitoring progress in existing translational studies. Literature searches were performed in PubMed, CINAHL-Complete, and PsycINFO using the following keywords: RE-AIM, behavioral intervention, psychoeducation, translation, dementia, caregiving, caregiver, behavioral intervention, and implementation. As an additional searching strategy, the author also reviewed the Administration on Aging (AoA) 2014 report. In the end, seven dementia-related translational programs were identified and are reviewed in the current paper: SCP, NYUCI, Skills2Care, RDAD, STAR, COPE, and REACH. In the health science field, translational studies on topics such as diabetes and fall prevention have applied the

RE-AIM framework to report their findings. As for those seven dementia-related translational programs, in some cases, modifications were made to the length of the program and/or the length of the intervention sessions. Also, the characteristics of non-participants, non-adoption sites, and the cost of program implementation were least reported in those seven programs. The frequently reported fidelity monitoring methods include using a training protocol, using a training and certification process for interventionists, and ongoing supervision. Further research is needed to develop a universal fidelity monitoring measure and to address the sustainability of a program from a financial perspective.

KEYWORDS: RE-AIM, psychoeducation, dementia caregiving, behavioral intervention, translation and implementation

Study:

The purpose of the current study is to evaluate the RDAD-NW translational program by Area Agencies on Aging community-based services via using the RE-AIM framework. The current study was a secondary data analysis using the data set that was collected from the original RDAD-NW translational study between 2012 and 2016. IBM SPSS Statistics 19.0 and the qualitative description strategies were used to analyze the data. The RDAD-NW program was conducted with 255 dyads in six rural and four urban communities, with an overall participation rate of 68.9% and a 58.8% adoption rate. There was a total of 140 dyads (54.9%) still remaining in the program at the 13th month of the study period. After the study period ended, four AAAs indicated in their area plans that they continued to offer the RDAD program. Fidelity-monitoring strategies included interventionist training and certification, session audits, program checklists for the session monitoring, ongoing supervision, and periodic newsletters. The study found that the RDAD-NW intervention is an implementable multicomponent program that has the potential to help community-dwelling residents with Alzheimer’s disease and other types of dementia as well as their caregivers. Future research is needed to address the issue of inconsistency in reporting content across the five RE-AIM categories and to develop a universal fidelity-monitoring measurement which can be utilized in the translational studies.

KEYWORDS: RE-AIM, dementia caregiving, behavioral intervention, translational

CHAPTER I

Literature Review

Applying the RE-AIM Framework in Translational Research and the Considering Program Fidelity

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Abstract

Purpose of the study: The current review is aimed at gaining a better understanding of the RE-AIM framework and its applications in the health science field as well as in dementia-related translational studies. The current review also looked at the program fidelity monitoring progress in existing translational studies.

Design and Methods: Literature searches were performed in PubMed, CINAHL-Complete, and PsycINFO using the following keywords: RE-AIM, behavioral intervention, psychoeducation, translation, dementia, caregiving, caregiver, behavioral intervention, and implementation. As an additional searching strategy, the author also reviewed the Administration on Aging (AoA) 2014 report. In the end, seven dementia-related translational programs were identified and are reviewed in the current paper: SCP, NYUCI, Skills2Care, RDAD, STAR, COPE, and REACH.

Results: In the health science field, translational studies on topics such as diabetes and fall prevention have applied the RE-AIM framework to report their findings. As for those seven dementia-related translational programs, in some cases, modifications were made to the length of the program and/or the length of the intervention sessions. Also, the characteristics of non-participants, non-adoption sites, and the cost of program implementation were least reported in those seven programs. The frequently reported fidelity monitoring methods include using a training protocol, using a training and certification process for interventionists, and ongoing supervision.

Implications: Further research is needed to develop a universal fidelity monitoring measure and to address the sustainability of a program from a financial perspective.

KEYWORDS: RE-AIM, psychoeducation, dementia caregiving, behavioral intervention, translation and implementation

Introduction

Over the years, there has been a tendency to disseminate evidence-based programs or interventions from highly controlled conditions to “real world” settings, aiming to make them both available and beneficial to a much broader community.

To facilitate translational research, the RE-AIM framework developed in 1999 by Dr. Glasgow and his colleagues, and has been utilized by many study investigators to plan program implementation, evaluate translational research, assess a program’s public health impact, and estimate an intervention’s suitability for potential dissemination (R. E. Glasgow, 2010; R. E. Glasgow, Vogt, & Boles, 1999; Harden et al., 2015; Koorts & Gillison, 2015; Yank, Stafford, Rosas, & Ma, 2013). The framework allows investigators to evaluate a translational program from five perspectives including *Reach, Effectiveness, Adoption, Implementation,* and *Maintenance* (R. E.Glasgow et al., 1999). *Reach* (individual level) refers to participant recruitment, how the targeted population was identified, the representativeness of the participants, and the characteristics of both participants and non-participants. *Effectiveness* (individual level) refers to the proposed outcomes, including the changes in targeted mental and behavioral outcomes and the program’s impact on quality of life. *Adoption* (organizational level) focuses on the characteristics of implementation sites and interventionists’ expertise. *Implementation* (organizational level) focuses on program adaption, fidelity, the extent to which the program was delivered, and the cost related to program implementation. *Maintenance* (both individual and organizational levels) refers to the extent to which the program has become the community agency’s routine practice or culture (Gaglio, Shoup, & Glasgow, 2013; R. E. Glasgow et al., 1999; Harden et al., 2015). Over the years, many clinical investigators have used the RE-AIM framework when reporting their translational studies, including studies focused on obesity management, tobacco cessation, weight control, physical activity and health promotion, and dementia-related fields (Akers, Estabrooks, & Davy, 2010; Gaglio et al., 2013; Matthews, Kirk, MacMillan, & Mutrie, 2014). Along with the emerging translational studies, associated questions arise from the RE-AIM framework's widespread utilization: How was the RE-AIM framework applied in those translational studies? How can there be an assurance of both program/intervention fidelity during implementation and enough flexibility to accommodate the needs of different implementation sites? Would the program have the same effects on the targeted population (after the modification)? The current review was conducted to answer those questions.

- **The current review has three aims**:

Aim#1 is to look at the utilization of the RE-AIM framework in the health science field, and how the components of the framework were reported.

Aim#2 is to look at the utilization of the RE-AIM framework in dementia-related research.

Subject 1: the development of the programs—from randomized controlled trial (RCT) to translational study

Subject 2: the utilization and reporting of the RE-AIM framework across the programs

Aim#3 is to look at the fidelity monitoring process across the programs in dementia-related research.

Literature Review

- **RE-AIM framework and its application in health science–related fields**

Literature searching strategy: Literature searches were performed in PubMed, CINAHL Complete, and PsycINFO using the following keywords: RE-AIM, behavioral intervention, psychoeducation, translation. A total of 129 articles were found during the search. The inclusion criteria were as follows: article or abstract includes *RE-AIM*, articles were peer-reviewed, programs/interventions were related to health science fields and not dementia, study was conducted within the United States, the translation study was original, and the article was published between 2008 and 2017. After applying the criteria, 37 articles were left for further review. Of the 37 articles, 19 reported on other extraneous aspects of the RE-AIM framework, such as the narrative of the program/intervention, descriptions of protocol, and methodology-related or policy-related matters, and they were excluded for that reason. Of the 18 remaining articles, four were excluded due to their partial reporting of the RE-AIM framework (that is, they did not report on all five categories), leaving a final total of 14 articles. Additional systematic review papers were used for the review.

To lessen the concern about potential inconsistency of reported content across the five components of the RE-AIM framework, a list of indicators was developed for the RE-AIM framework's five categories based on the original 1999 RE-AIM paper and three systematic reviews (see Table 1) (Gaglio et al., 2013; R. E.Glasgow et al., 1999; Harden et al., 2015; McGoey, Root, Bruner, & Law, 2016). Table 1 serves as a guide for reviewing the translational studies in this review chapter.

Findings: The translational programs reviewed in this part covered a wide range of topics including diabetes prevention, fall prevention, asthma prevention, smoking cessation, promotion of policy change, and environmental changes at the system level (Brace et al., 2015; Mielenz et al., 2014; Resnick, Galik, & Vigne, 2014; Saw, Kim, Lim, Powell, & Tong, 2013; Viswanathan et al., 2011). Compared to the highly restrictive inclusion and exclusion criteria in randomized controlled trials, translational studies tend to have less-restrictive inclusion criteria, and may or may not include exclusion criteria. This approach serves the purpose of a translational study, which is to disseminate evidence-based programs to a broad variety of community setting. In addition, many studies have put effort into reaching out to ethnic minorities, people with low socioeconomic status, those with limited health literacy, older adults with mental illness, and those in rural areas (Conlon et al., 2015; Folta et al., 2015; R. E. Glasgow, 2010; Lopez-Patton, Weiss, Tobin, Jones, & Diaz-Gloster, 2015; Saw et al., 2013).

Clinical investigators purposely chose the implementation site for recruiting the targeted population, and there was limited information about how the representativeness of the study sample was determined. Research investigators reported a variety of methods for monitoring program fidelity, such as a 5-point intervention dose measuring system, direct observation, biweekly review of the audiotaped sessions, a research team's weekly emails or site visits, and a performance checklist that was utilized by one program (Brace et al., 2015; Folta et al., 2015; Lopez-Patton et al., 2015; Mielenz et al., 2014; Resnick et al., 2014; Shubert, Altpeter, & Busby-Whitehead, 2011; Viswanathan et al., 2011). The reviewing results also indicated that the characteristics of non-participants, non-adoption sites, and the cost of program implementation were least reported among the studies. In addition, even though all studies applied the RE-AIM framework to report their findings and also provided similar definitions for each RE-AIM category, different researchers interpreted the definitions differently and reported their findings from different perspectives. For instance, one study reported the barriers to improving quality of care for children with asthma and the barriers to children's behavior changes, while other studies commonly reported on session completion rate, program modifications, and fidelity (Brace et al., 2015; Lopez-Patton et al., 2015; Mielenz et al., 2014; Viswanathan et al., 2011). In addition, one study reported the adoption rate of agencies as the indicator of participation rate, while the participation rate actually relates to the targeted population and is calculated using: (number of participants who were randomized) divided by (number of participants for whom contact was attempted and eligibility was assumed or confirmed) (R. E. Glasgow et al., 2010; Lopez-Patton et al., 2015; Saw et al., 2013).

- **The RE-AIM framework and its application in dementia-related fields**

Literature searching strategy: Literature searches were performed in PubMed, CINAHL Complete, and PsycINFO using these keywords: dementia, caregiving, caregiver, behavioral intervention, intervention, translation, and implementation. A total of 60 articles were found initially. Inclusion criteria were as follows: peer-reviewed article, direct report of a translational study, dementia, caregiving related, involved behavioral intervention, published between 2005 and 2017, and published in English. Of the 60 articles, 23 met the criteria. The published 23 articles discussed 11 behavioral-related programs/interventions: Savvy Caregiver Program (SCP), the New York University Caregiver Intervention (NYUCI), the Environmental Skill-Building Program (ESP) and its translational program (Skills2Care), Reducing Disability in Alzheimer's Disease (RDAD), STAR-Community Consultants program (STAR-C), Care of Persons with Dementia in their Environments (COPE), Resources for Enhancing Alzheimer's Caregiver Health (REACH), Coping with Caregiving (CWC), Individualized Music for Persons with Dementia (IM), Language-Enriched Exercise plus Socialization (LEEPS) for Older Adults with Dementia and the Skill-Building Through Task-Oriented Motor Practice (STOMP). In addition, as a second searching strategy, I also reviewed the Administration on Aging (AoA) 2014 report, in which seven funded translational programs were identified, including SCP, CWC, RDAD, STAR-C, NYUCI, REACH, Skills2Care (Administration on Aging, 2014). Using two searching strategies enhanced the likelihood of identifying and including most (if not all) of the existing translational programs related to dementia caregiving. After reviewing all 23 articles, three programs were excluded from the current review: The LEEPS and STOMP programs were excluded due to the lack of randomized controlled trials when testing the program's efficacy, and the CWC program was excluded due to the lack of published articles on the program at the time the current review was conducted. In addition, the IM program, even though it was worth studying, has only one component (an individualized music list), which meant that it was not comparable to other studies that were multicomponent by design. The IM program was also excluded because one-component interventions were not relevant to the current review. As a result, the following seven dementia-related translational programs were reviewed: SCP, NYUCI, Skills2Care, RDAD, STAR, COPE, and REACH.

Development of the seven dementia-related programs—from RCT to translational study:

The program development history is illustrated using Venn diagrams

Venn diagram I: REACH & Skills2Care

Venn diagram II: SCP

Venn diagram III: RDAD & STAR-C

Venn diagram IV: NYUCI

Venn diagram V: COPE

Findings: Table 1 lays out the RE-AIM framework and its indicators. Table 2 represents how the seven programs reported the indicators of the RE-AIM framework. For each translational program, there was a large number of published articles reporting the findings. The following articles in parentheses are included in Table 2 as representative of the programs listed next to the articles here: SCP-Maine study (Samia, Aboueissa, Halloran, & Hepburn, 2014), NYUCI-Minnesota (Paone, 2014), Skills2Care (L. N. Gitlin, Jacobs, & Earland, 2010), RDAD-OH (Menne et al., 2014), STAR-C-OR (McCurry et al., 2015), COPE (Fortinsky et al., 2016), and REACH-II-VA (L. O. Nichols et al., 2011). For the articles not listed in Table 2, findings of those studies were also reviewed and summarized under the appropriate category of the RE-AIM framework in the result session.

Reach

In the seven translational studies, participants were either clients currently receiving services at the implementation sites or were people participating in service programs at local Alzheimer's Association chapters, Area Agencies on Aging, or other types of community agencies (Fortinsky et al., 2016; L. N. Gitlin, Jacobs et al., 2010; McCurry et al., 2015; Menne et al., 2014; L. O. Nichols et al., 2011). For example, in the REACH-II-VA translational program, the potential participants were selected from Home-Based Primary Care (HBPC) programs, which provide primary and specialized care to homebound veterans in the VA system (L. O. Nichols et al., 2011). In the NYUCI-Minnesota translational study, investigators first identified implementation sites and then set a 1-hour driving time radius around each site to define the general geographic target region (Paone, 2014).

Seven programs shared similar inclusion criteria, which were as follows: participants were local residents, had no plan to move during the study period, self-identified as a primary caregiver, were family caregivers (spouse or adult child) of individuals with Alzheimer's disease or dementia, were at least 21 years old, were providing at least 4 hours of care per day per care recipient (CR), lived with the CR or were responsible for daily meal preparation, had been the caregiver for at least 6 months, acknowledged experiencing caregiving stress or rated themselves as having stress at a level of 5 or greater on a scale of 1 to 10, and were not actively enrolled in other non-pharmacological programs (Fortinsky et al., 2016; L. N. Gitlin, Jacobs et al., 2010; McCurry et al., 2015; Menne et al., 2014; L. O. Nichols et al., 2011; Paone, 2014; Samia et al., 2014). The CR needed to have a medical diagnosis of Alzheimer's disease or dementia, or a suspected diagnosis of dementia, and have no plans to move into a nursing home (Fortinsky et al., 2016; L. N. Gitlin, Jacobs et al., 2010; McCurry et al., 2015; Menne et al., 2014; L. O. Nichols et al., 2011; Paone, 2014; Samia et al., 2014). If the translational program or intervention was designed to have in-home sessions, then the CR needed to be community dwelling, to reside outside of a nursing home, to be ambulatory, and to have the ability to do simple exercise to be eligible to participate (Menne et al., 2014). Caregivers (CGs) were excluded from the study if the CR resided in or planned to move into a long-term care facility such as a nursing home or assisted living facility, had another neurological or major psychiatric diagnosis, was too ill, had three or more hospitalizations in the previous year, or had plans for institutionalization (Cheung et al., 2015; Easom, Alston, & Coleman, 2013; Fortinsky et al., 2016; McCurry et al., 2015; L. O. Nichols et al., 2011; Samia et al., 2014). Since language barriers could have been an issue, the REACH-HK study excluded any individual who couldn't speak Chinese or

Cantonese, and it also excluded CRs who had more than three psychiatric-unrelated or dementia-unrelated hospitalizations over 21 days in total during the previous year. REACH-GA excluded individuals who did not speak English (Cheung et al., 2015; Easom et al., 2013). In the COPE study, potential participants were excluded if their home environment was deemed unsafe or unsanitary (Fortinsky et al., 2016).

Participation rate and representativeness are the two indicators in the REACH category that were least reported by the programs. The participation rate ranged from 36% to 96%, with an average of 70% across seven programs. STAR-C-OR had an approximately 96% participation rate (enrolled/eligible),which was the highest, and REACH-II-North Texas had a 36% participation rate, which was the lowest (L. N. Gitlin, Jacobs et al., 2010; Lykens, Moayad, Biswas, Reyes-Ortiz, & Singh, 2014; McCurry et al., 2015; Menne et al., 2014; Samia et al., 2014). Representativeness of the study participants was only reported in the SCP-Maine study, as the study sample reflected 61.34% of Maine's population residing in rural areas (Samia et al., 2014). Regarding the characteristics of participants, unless the study intentionally targeted Hispanic, African American, and/or Asian communities (SCP-California, SCP-Texas, REACH-HK, respectively), the programs reported similar characteristics of study participants: primarily Caucasian (60%-97.5%), female (69%-93.7%), and spousal caregiver (50%-70%), with an average age of 61-72 years (Altpeter, Gwyther, Kennedy, Patterson, & Derence, 2015; Bell, 2005; Burgio et al., 2009; Cheung et al., 2015; Gaugler, Reese, & Mittelman, 2013; Hepburn, Lewis, Tornatore, Sherman, & Bremer, 2007; Lykens et al., 2014; McCurry et al., 2015; Menne et al., 2014; L. O. Nichols et al., 2011; Oakes, Hepburn, Ross, Talamanters, & Espino, 2006; Samia et al., 2014; Stevens, Smith, Trickett, & McGhee, 2012). The characteristics of non-participants were not commonly reported in studies; however, researchers reported reasons for not participating including the following: "not interested at the time," "live too far away," "believed that they have things under control," "believed that the intervention had come too late," "too tired to participate or has too much to handle already," and "migration related to Hurricane Katrina in 2005" (Burgio et al., 2009; L. N. Gitlin, Jacobs et al., 2010; Paone, 2014).

Effectiveness

All seven programs reported "results for at least one follow-up," "measures and results," and the "presence of psychosocial measures." None of the studies reported findings from the seven programs indicating the program's potential negative outcomes or the utilization of intent-to-treat analysis.

The most commonly used outcome measures included the Center for Epidemiologic Studies Depression Scale (CES-D), the Revised Memory and Behavior Problems Checklist (RMBPC), and the Global Deterioration Scale (Fortinsky et al., 2016; L. N. Gitlin, Jacobs et al., 2010; McCurry et al., 2015; Menne et al., 2014; L. O. Nichols et al., 2011; Paone, 2014; Samia et al., 2014). The Caregiver Competence Scale and Caregiver Reduction in Expectation scale were used in the SCP translational study and the Older Americans Resources and Services questionnaire. Stokes's social network questionnaires, and a 3-item scale to assess the involuntary aspects of the caregiving role were used in the NYUCI translational studies (Gaugler et al., 2013; Klug, Halaas, & Peterson, 2014; Paone, 2014; Samia et al., 2014). RDAD-Ohio, STAR-C-OR, and COPE used most of the psychometrically sound measures in their studies, including the Short Blessed Test; the SF-36 Subscales; the persons with dementia (PWD) activity days, falls, and exercise frequency scale; and the Screen for Caregiver Burden–Subjective Burden subscale (SCB-SB). Neuropsychiatric symptoms were measured using the psychometrically sound Neuropsychiatric Inventory (NPI), a 5-item scale for measuring activity engagement (L. N. Gitlin, Jacobs et al., 2010; McCurry et al., 2015; Menne et al., 2014). All seven REACH studies shared the same outcome measures: the 12-item Zarit Burden Scale, the REACH OUT caregiver questionnaire, the 21-item REACH VA risk appraisal assessment, the Caregiver Vigilance Scale, the 25-item problem behavioral scale, the CES-D, the Positive Aspects of Caregiving (PAC) measure, the RMBPC, and the

Risk Appraisal Measure (RAM) (Altpeter et al., 2015; Burgio et al., 2009; Cheung et al., 2015; Easom et al., 2013; Lykens et al., 2014; L. O. Nichols et al., 2011; Stevens et al., 2012).

The results of the post-intervention assessments indicated that six out of seven programs enhanced caregivers' skills in effective communication and promoted caregivers' confidence in managing care recipients' behavioral problems, including disruptive behaviors (Cheung et al., 2015; Easom et al., 2013; Gaugler et al., 2013; L. N. Gitlin, Jacobs et al., 2010; Klug et al., 2014; McCurry et al., 2015; Menne et al., 2014; L. O. Nichols et al., 2011; Oakes et al., 2006; Paone, 2014; Samia et al., 2014). One exception was the COPE study, in which no significant reduction in the frequency of agitated behaviors was reported (Fortinsky et al., 2016). For those translational studies that targeted rural communities, the results showed that rural groups had a significant improvement in their depression scores (Bell, 2005). Findings from the NYUCI-Minnesota, Adult Child, and North Dakota studies showed an increase in caregivers' competence and a delayed nursing home placement rate, as well as a potentially reduced use of avoidable medical services (Gaugler et al., 2013; Klug et al., 2014; Paone, 2014). The RDAD translational study also found that having more exercise sessions was related to decreased CG-CR relationship strain and physical health strain for CGs (Menne et al., 2014; Teri et al., 2012). In contrast to the other six programs, the NYUCI translational study measured nursing home placement, where the likelihood of CRs being placed in a long-term care facility was measured on a scale of 1 (*not at all*) to 6 (*already placed*). Post-intervention evaluation indicated that among 106 people with dementia, 65% (*n* = 69) decreased one point on the scale, 17% (*n* = 18) decreased 2 points, and about 18% (*n* = 19) decreased 3 to 5 points (Klug et al., 2014). The reduced likelihood points on the scale projected an approximate savings of 179,580 days in long-term care for the 106 individuals with dementia (Klug et al., 2014).

Theories used to develop these programs include the Stress and Coping Theory (SCP); Pearlin's Stress Process Model (NYUCI); the competence-environmental press framework and personal control theory (ESP, Skills2Care); Bandura's Social Learning Theory, and gerontology theories (RDAD, STAR-C); the competence-environmental press framework and a triangular model (individual with Dementia, caregiver, and physical environment) (COPE); Cognitive Behavioral theory; the Stress Process Model of family caregiving; Innovation–Diffusion theory; and the action-oriented, individual-environment model of stress and coping (REACH- RCTs in 6 sites) (Bell, 2005; Belle et al., 2006; Fortinsky et al., 2016; L. N. Gitlin, Hauck, Dennis, & Winter, 2005; L. N. Gitlin, Jacobs et al., 2010; Kales, Gitlin, & Lyketsos, 2014; Menne et al., 2014; Samia et al., 2014; Teri, Logsdon, & McCurry, 2008). A lack of information regarding the quality of life for both caregivers and care receivers suggests the difficulty and complexity of measuring improvements in quality of life. Two programs utilized specific measures and reported findings on quality of life (QoL): RDAD and COPE both used the Quality of Life–Alzheimer's Disease measure to assess CRs' quality of life. While the COPE study results showed no significant QoL benefits, findings from STAR-C indicated that caregivers experienced a significant improvement of QoL post-intervention (STAR-C, COPE). Due to the substantial drop-off in follow-up assessment over time, only five out of seven programs tracked the completion rate of the post-intervention assessment. From baseline to post-intervention, the completion rate of the assessment ranged from 40% to 88%, and the survey completion rate decreased from 16.7% to 31% at the 12-month follow-up (Burgio et al., 2009; Cheung et al., 2015; Easom et al., 2013; Fortinsky et al., 2016; L. N. Gitlin, Jacobs et al., 2010; Lykens et al., 2014; McCurry et al., 2015; Menne et al., 2014; Paone, 2014; Samia et al., 2014). The longer the study duration, the lower the retention rate of participants. For instance, the NYUCI-Minnesota study reported that 43.4% of the participants completed the 4-month post-intervention survey, while 39% completed it at 8 months, and only 16.7% completed it at 12 months (Paone, 2014).

Adoption

Seven programs were implemented at a variety of agencies and sites, including a local rehab center, a hospital, ADRC/AAA agencies, local chapters of the Alzheimer's Association, an adult care center, a care management organization, and senior housing locations (Burgio et al., 2009; Fortinsky et al., 2016; L. N. Gitlin, Jacobs et al., 2010; McCurry et al., 2015; Menne et al., 2014; Paone, 2014; Samia et al., 2014). Inclusion criteria for delivery sites were not reported commonly in the studies, but the agencies that tended to adopt the program were the ones that had similar care planning services, knew the targeted community and population, and had major stakeholder buy-in. In the translational studies, the criteria for qualified interventionists were not as restrictive as in the original RCT. All seven programs recruited potential interventionists from their existing staff and provided training for them. Most of the trainees were social workers, nurses, care managers, or occupational therapists, all of whom had knowledge of dementia and at least 1 year of experience working with older adults and their caregivers (Burgio et al., 2009; Fortinsky et al., 2016; L. N. Gitlin, Jacobs et al., 2010; McCurry et al., 2015; Menne et al., 2014; Paone, 2014; Samia et al., 2014). The start-up activities included training the interventionists, refining and preparing the implementation protocols, developing recruitment and marketing strategies, and discussing session schedules, program fidelity monitoring, and other issues related to program delivery (Burgio et al., 2009; Fortinsky et al., 2016; L. N. Gitlin, Jacobs et al., 2010; McCurry et al., 2015; Menne et al., 2014; Paone, 2014; Samia et al., 2014). Findings from four of seven programs indicated that the following characteristics were shared among agencies and interventionists that successfully delivered the translational programs/interventions: (a) the program/intervention was in alignment with the agency's mission and suitable for their targeted population and/or the focus of the services being offered, (b) the agency had staff and resources available for planning the program's implementation and delivery, (c) the agency had a longstanding market presence regarding providing caregiver support service or memory-related care within the targeted region, and (d) the interventionists were passionate about the program and committed to implementing it (Belle et al., 2006; Menne et al., 2014; L. O. Nichols et al., 2011; Paone, 2014; Samia et al., 2014; Teri et al., 2012).

Implementation

All seven programs were multicomponent, psychosocial interventions. The Skills2Care and COPE programs have additional features of home environment modification that aims to accommodate the care receiver's physical function and safety concerns. The length of the active treatment phase in the seven programs ranged from 6 weeks (SCP and STAR-C) to 24 weeks (REACH-II), and the intervention lasted for 16 weeks for NYUCI, Skills2Care, and COPE. As for program intensity, the SCP had the most intensive program (weekly sessions at 2 hours per session), followed by RDAD, which had weekly 1-hour sessions. NYUCI was the least intensive program, with six counseling sessions planned to be conducted over 16 weeks. The "extent to which the protocol was delivered", as one of the indicators in the *Implementation* aspect of the RE-AIM framework, it was reviewed by examining the extent to which program manuals and materials were used by staff/interventionists and participants, and whether the material was user-friendly (R. E.Glasgow et al., 1999; Menne et al., 2014). Findings were reported as: 90% of Skills2Care program participants reported that the intervention did not require too much effort, and 78% participants indicated that it was just the right number of sessions. Over a third (38%) reported using Skills2Care strategies "most to all of the time" and 57% reported "sometimes" using the strategies (L. N. Gitlin, Jacobs et al., 2010). Similarly, at a 6-month follow-up phone call with STAR-C regarding program satisfaction, 92% of participants who completed the assessment indicated that the program had been "very" or "somewhat helpful," and 80% said they would definitely or probably continue to use the skills they had learned (McCurry et al., 2015). The RDAD translational study found that the exercise component was the most frequently used, while behavioral management was the next most frequently included in sessions;

dementia education topics occurred least frequently (Menne et al., 2014; Primetica, Menne, Bollin, Teri, & Molea, 2015). Program modification and fidelity monitoring will be discussed in a later section.

Of the programs returned in the initial literature search, only the NYUCI-Minnesota translational study reported the costs related to program implementation. None of the other programs specifically mentioned or reported such data; therefore, another specific literature search was conducted on PubMed using the keywords "cost analysis," "caregiver program," and "dementia." A total of 136 articles were found, and the author read abstracts for all of them. Four articles related to psychoeducation orbehavioral interventions, of which three discussed the translational programs included in the current review. One of the articles examined the cost-effectiveness of non-pharmacologic interventions for individuals with dementia and their family members; another, the NYUCI program, discussed population-level potential cost savings that could be realized by delaying long-term care placement (savings on ER visits, ambulance use, 911 calls) (L. Gitlin, Hodgson, Jutkowitz, & Pizzi, 2010; Klug et al., 2014). Since the focus of the cost analysis in the Implementation category of the RE-AIM framework is on the operational cost of implementing the program/intervention, we did not include those articles in the review. However, it is worth noting that the 2-year costs of delivering the NYUCI program were $1.2 million (Klug et al., 2014). Also, the NYUCI-Minnesota study reported that, for its 3-year program, the cost of implementation was $3,488 per caregiver at Year 1, $3,722 per caregiver at Year 2, and $4,500 per caregiver at Year 3 (Paone, 2014). The cost for the REACH-VA program was reported as $5.00 per day per caregiver with travel to the caregiver home limited to 50 miles one-way, while the cost for REACH-GA was about $7.00 per day (Easom et al., 2013; L. O. Nichols et al., 2011). The third article was a report conducted by Nichols and colleagues (2008). It discussed the cost-effectiveness of the REACH II program in general. The REACH-II intervention cost was calculated as a combination of staff training time for interventions, staff time spent in preparation and wrap-up, staff time spent performing interventions and control group protocols, caregiver time, supervisor and staff supervision time, travel time and mileage, and materials. Findings of the analysis were as follows: The staff salary cost was $21.11/hour; the training cost was $101 per caregiver; the supervision cost was $105 per caregiver; and the travel cost was $172 per caregiver (L. O. Nichols et al., 2008). Overall, staff salary, travel expense, intervention materials preparation, marketing, and cost of supervision were the main elements considered when reporting the total cost of program delivery.

Maintenance

When assessing program maintenance at the individual level, four out of seven programs reported their findings. Three programs (SCP, NYUCI, and STAR-C) indicated that significant reductions in caregiver depression and improvement in caregiver reactions to disruptive behaviors were maintained at 6 months post-intervention (McCurry et al., 2015; Menne et al., 2014; Primetica et al., 2015; Samia et al., 2014). An exception was made for the COPE program, due to the study findings indicating there were no significant results at the 9-month follow-up assessment. Surveys, phone calls, and focus groups were used to collect qualitative data about the participants' satisfaction with the program during the follow-up assessment (Fortinsky et al., 2016; McCurry et al., 2015; Paone, 2014; Samia et al., 2014). Participants and interventionists reported on the helpfulness of the program, and their ongoing use of the learned strategies and related information is listed in Table 2. (McCurry et al., 2015; Paone, 2014; Samia et al., 2014). NYUCI reported that the program cost was not affordable for their clients (Paone, 2014).

At the organizational level, several factors were identified that could affect program maintenance. First, funding was important. Second, the purpose of the translational program had to match with the implementing agency's mission. The level of community demand for services was another indicator of the potential for program maintenance (McCurry et al., 2015; L. O. Nichols et al., 2011; Paone, 2014; Samia et al., 2014). Four out of seven translational studies reported the current status of the program, with results as follows: RDAD was being offered throughout the state of Ohio, REACH-II-VA was seeking policy change in order to have a nationwide implementation, COPE was working to have the program meet the Medicare requirement with the potential to be implemented nationwide, the SCP sustainability within the Alzheimer's Association was still pending, and 11 sites in Minnesota had discontinued the NYUCI program due to financial difficulty (Fortinsky et al., 2016; Menne et al., 2014; L. O. Nichols et al., 2011; Paone, 2014; Primetica et al., 2015; Samia et al., 2014; Teri et al., 2012).

- **Program modification and fidelity monitoring during the dissemination:**

Program modifications:

One of the common modifications was to the length of the program and/or the length of the intervention sessions. Some implementation sites requested a reduction in the length of the intervention because of their limited staffing time and concerns about the cost of service (Belle et al., 2006; Burgio et al., 2009). For instance, due to delivery costs, and upon request of the site, the original STAR-C program (eight weekly in-home sessions, followed by four monthly phone calls) was modified into STAR-C2, which is a 6-week program including four in-person sessions during weeks 1, 2, 4, and 6 and two phone sessions at weeks 3 and 5 (McCurry et al., 2015; Teri, McCurry, Logsdon, & Gibbons, 2005). By contrast, compared with the original RCTs, which included six counseling sessions over 4 months, plus an ad hoc counseling and support group, the NYUCI-ND adapted its program to have a targeted goal of three in-person individual family sessions, phone consultations readily available for any reason, and a support group available but not required over a 2-year period of time. In other words, the state's funded Dementia Care Services Program allowed unlimited therapy sessions for program participants to meet their individual needs over a 48-month period of time (Klug et al., 2014). In the Skills2Care translational study, the intervention got shortened from a 12-month program to a 4-month one, with eight in-home sessions and 4 hours of study on dementia and caregiving, an 8-hour online asynchronous training session, and 1.5

days of face-to-face training on service delivery and documentation (L. N. Gitlin, Jacobs et al., 2010). Those modifications were made to accommodate limited therapist time, training needs, and the Medicare Part B requirements (L. N. Gitlin, Jacobs et al., 2010).

Modifications were also made when the program was being delivered to ethnic minority communities. In the REACH-II-HK translational study, the intervention protocol was translated into Chinese, and in the Savvy Caregiver Program–Texas (also called *Cuidando con Respeto*) study, the manual was translated and revised to reflect a sixth-grade reading level to make the content more accessible and engaging for Hispanic learners (Cheung et al., 2015; Oakes et al., 2006). In the translated version, jargon was replaced by culturally sensitive words and sentences to accommodate the needs of the communities (Oakes et al., 2006). Due to limited human resources, the support group component of REACH-II was not adopted in Hong Kong, and except for the first two sessions, which were conducted in participants' homes, the remaining treatment sessions were held at the implementation site (Cheung et al., 2015).

Finally, some modifications were needed when incorporating the program into an enclosed system, translating it to a different targeted population, or changing the focus of the intervention. Skills2Care, for example, underwent some modification in the process of being integrated into the existing patient treatment plan and being implemented at the FOX Rehabilitation site in New Jersey (L. N. Gitlin, Jacobs et al., 2010). The original NYUCI program focused on helping caregivers who were the spouse of the care recipient, but the NYUCI-AC translational study was geared to caregivers who were adult children of the care recipient, which affected the types of sessions the caregivers were comfortable with. Due to the resistance of caregivers in the NYUCI-AC study to include other family members in the counseling sessions, the protocol for the number and order of individual and family sessions was modified to include two sessions with the adult child caregiver only, followed by three with the adult caregiver and one or more family members, and concluding with another session with the caregiver alone. (Gaugler et al., 2013; M. S. Mittelman, Haley, Clay, & Roth, 2006; M. S. Mittelman, Roth, Coon, & Haley, 2004). In the translation from ESP to Project Act shared features were kept, such as disease education, home environment modifications, and communication skills, but Project Act focused more on problem behaviors identified by CGs as most troublesome and provided strategies to effectively manage them (L. N. Gitlin et al., 2005; L. N. Gitlin, Winter, Dennis, Hodgson, & Hauck, 2010). Two studies didn't undergo any modifications: the REACH-II-VA (a translational study of 24 VA sites in 15 states) and the REACH-II-FCP study, in which the program was delivered in a hospital and ambulatory internal medicine primary care clinic. In those studies, the frequency of the sessions and the core components were carried out the same as they had been designed and tested in the original RCT (Belle et al., 2006; L. O. Nichols et al., 2011; Stevens et al., 2012).

Program fidelity monitoring:

A total of 18 studies reported the methods they used in their translational studies to monitor the program/intervention fidelity. The methods were summarized as follows: (a) original program/intervention investigators provided protocol training for potential interventionists, (b) certification was required for the interventionists, (c) the core components of the program were kept the same, (d) all programs had a well-developed protocol available to use and all the studies indicated that they adhered to the intervention protocol when delivering the intervention, and (e) all 18 studies reported that implementation of an evidence-based intervention was closely monitored by either the original developers of the program or designated supervisors. As regards monitoring, the NYUCI team supervised the implementation process by conducting biweekly group-based telephone calls and periodic visits with an interventionist (Klug et al., 2014; M. Mittelman & Bartels, 2014; Paone, 2014). For REACH-II translation studies, procedures to monitor program fidelity included the involvement of key stakeholders in revising and pilot testing the protocol prior to delivering the program, intensive training for interventionists, the use of the Treatment Fidelity Form, the involvement of an independent reviewer to evaluate delivery adherence, and regular supervisory meetings or phone calls with program investigators (Altpeter et al., 2015; Burgio et al., 2009; Cheung et al., 2015; Easom et al., 2013; L. O. Nichols et al., 2011; Stevens et al., 2012). In the RDAD, STAR, REACH, and COPE translation studies, investigators monitored the intervention sessions by reviewing the audio recordings of the sessions and establishing clear guidelines for both mutable and immutable components of the intervention (McCurry et al., 2015; Menne et al., 2014; Primetica et al., 2015). In REACH translational studies, in addition, when delivering the programs to ethnic minority communities, bilingual interventionists were recruited from local communities, ensuring that interventionists would be familiar with the local culture (Cheung et al., 2015; Oakes et al., 2006). Finally, community volunteers and professionals worked with the research team to review the translation of the program protocol to ensure the core content was consistent with the original manual and to ensure that the program/intervention fit into the site’s structure (Cheung et al., 2015; Oakes et al., 2006).

Methods reported in those programs varied among different investigators, different programs, and different implementation sites. The lack of a comprehensive fidelity monitoring mechanism and universal fidelity measures caused barriers to comparing multiple intervention programs. Therefore, it is impossible to draw the conclusion that program fidelity was secured for any of the seven programs, nor could we say that one program utilized a better monitoring method than the others.

In summary, when translating an evidence-based program into the “real world,” investigators need to find a balance between maintaining program fidelity and making the modifications and adaptations necessary for different communities and populations. Further research is needed to address the need for a universal fidelity monitoring measure.

Table 1

The RE-AIM Framework

RE-AIM Framework Categories					
REACH	*EFFECTIVENESS*	*ADOPTION*	*IMPLEMENTATION* (Fidelity check)	*MAINTENANCE*-individual	*MAINTENANCE*-organizational
Method to identify target population	Results for at least one follow-up	Description of intervention location	Intervention type, frequency, duration, intensity	Assessed outcome≥ 6 months post intervention	Indicators of program-level maintenance
Inclusion criteria	Intent-to-treat analysis utilized	Description of staff, expertise of staff	Extent to which protocol was delivered	Qualitative measure of individual-level maintenance	Alignment with organizational mission
Exclusion criteria	Quality-of-life or potential negative outcomes	Method to identify staff who delivered intervention	Measures of cost of implementation	Measures of cost of maintenance	Measures of cost of maintenance
Participation rate	Participant attrition	Inclusion/exclusion criteria of delivery agent/setting	*Cost of delivery	*Current status of program/intervention	*Current status of program/intervention
Representativeness	*Measures and results	Adoption rate			

*Characteristics of participants	*Presence of psychosocial measures	*Characteristics of adoption/non-adoption			
*Characteristics of non-participants	*Baseline activity reported	*Start-up costs			
	*Theory-based				

Table 2

RE-AIM Framework and Dementia-Related Translational Programs

Intervention Name	SCP-Maine (MSCP)	NYUCI (Minnesota)	Skills2Care (New Jersey)	RDAD	STAR-C (Oregon)	COPE (Connecticut)	REACH II-VA
	(Samia et al., 2014)	(Paone, 2014)	(L. N. Gitlin, Jacobs et al., 2010)	(Menne et al., 2014)	(McCurry et al., 2015)	(Fortinsky et al., 2016)	(Nichols, et al., 2011)
RE-AIM Framework							
REACH							
Method to identify target population	16 counties in rural Maine; participant's zip code as reference	Choose the site first, and then set a 1-hr driving time radius around sites	Client pool at the Fox Rehab center, NJ	Client pool from Alzheimer's association chapters in Ohio and Area Agencies on Aging	Existing AAA case-managed clients. Targeted population: community-dwelling persons with dementia and their family caregivers	Older adults (65 years or older) with dementia and their caregivers who receive services from the Connecticut Home Care Program for Elders CHCPE	REACH VA was based in Home-Based Primary Care (HBPC) programs,
Inclusion criteria	English speaking, at least 18 yrs old, a resident of Maine	Spousal CG, CR has a medical diagnosis of	CG lived with or in close proximity to CR,	CR has a dementia diagnosis or	CRs had at least 6 months duration of	Being an active client of CHCPE	CGs providing 4 hours or more of care per day

	(or the care receiver was a resident)	dementia	was overwhelmed or burdened, or needed disease management skills	memory problems, reside outside of a nursing home, is ambulatory, has the physical ability to do simple exercises, and has an actively involved family or friend CG. Caregivers also had to agree to participate in the scheduled RDAD sessions.	symptoms consistent with AD or related dementia. CRs lived with or provides ≥4 hours of caregiving for CR per day.		for at least 6 months, and endorsing at least 2 caregiving stress behaviors
Exclusion criteria	CR resided in a LTC facility such as a nursing home or assisted living facility.	N/A	N/A	N/A	CR with other neurological or major psychiatric diagnosis	CR has a diagnosis of schizophrenia or bipolar disorder; is bedbound and unresponsive; participation in other	Patients who were too ill were excluded.

						experimental drug study designed to treat agitation; home environment unsafe. CG: Terminal illness; plan to admit CR to a nursing home within 6 months.	
Participation rate	770 CGs accessed the MSCP and 88.8% (*n* = 676) agreed.	N/A	N/A	455 potential families were referred, 72% enrolled.	158 were eligible to participate, 151 (95.5%) chose to enter treatment.	N/A	N/A
Representativeness	Reached caregivers in each of Maine's counties, CGs were reflective of 61.34 % of Maine's population residing in rural areas.	N/A	N/A	N/A	N/A	N/A	N/A
*Characteristics of	82.6% female, 97.5 Caucasian; 27.7%	Age ranged from 45-89 years old.	N/A	CGs: 91% Caucasian,	CGs: 66% spousal CGs,	N/A	CGs: 78% Caucasian,

participants	spousal CGs, while 37% were daughters/daughters-in-law. Mean age: 62 years old, 74.3% with at least some college education.	95% white.		69% were female, 70% of caregivers were spouses of IWDs, and the average age was 67.8 years. IWDs: 92% Caucasian, 50% female, average age of 79.5 years.	31% adult children of CRs, 74% female, 66% were white, age ranged from 40-102 years. 59% from urban areas, and 41% from rural areas.		93.7% female, 80.3% spousal CGs. Mean age: 71.6 years old.
*Characteristics of non-participants	N/A	N/A Only reported the reasons for nonparticipation.	N/A Only reported the reasons for nonparticipation.	N/A	N/A	N/A	N/A
EFFECTIVENESS							
Results for at least one follow-up	CGs' overall reaction to disruptive behaviors improved significantly with reduced depressive symptoms.	At 4-month follow-up: decrease in the number of symptoms of depression and in the severity of their reaction to disruptive behaviors CRs;	Of 20 caregivers surveyed, more than 80.0% reported to have enhanced knowledge of dementia, home safety, and communication.	Program had positive benefits for family caregivers. Exercise sessions decreased caregiver strain	Post-treatment visits (at 2 and 6 months). CGs had significant reduction in self-reported depression, subjective burden; CRs	At 4-month follow-up, significant improvements in functional dependence patients CGs' well-being and confidence using	At 6-month follow-up: CGs reported significantly decreased burden and level of depression. Significantly

		delayed nursing home placement.	Improved CGs' self-care.	and behavior management sessions decreased unmet needs of caregiving after 3 months.	reported to have reduced level of depression and improved QoL.	activities were improved.	improved QoL.
Intent-to-treat analysis utilized	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Quality-of-life or potential negative outcomes	N/A	N/A	N/A	N/A	The Quality of Life-Alzheimer's Disease (QOL-AD) assessed CR quality of life.	12-item QoL-AD measure	QoL measure
Participant attrition	(T1, *n* = 594), 5 (T2, *n* = 370), and 12 months (T3, *n* = 250) post-intervention.	At 4-month follow-up: 43.4% of the participants remained; at 8-month: 39% remained; at 12-month: 16.7% remained.	N/A	Of the 326 families who enrolled, 67% (*n* = 219) completed both baseline and survey at 3 months.	At 6-month follow-up assessment, 40% (*n* = 60) of CGs returned the packages.	28 dyads (11.8%) were lost by 4 months. An additional 36 dyads (17.2% from 4 months) were lost to follow-up.	N/A

*Measures and results	Caregiver Competence Scale, Caregiver Reduction in Expectation scale, CES-D, and RMBPC scale	Global Deterioration Scale, the Center for Epidemiologic Studies Depression Scale (CES-D), the Revised Memory and Behavior Problems Checklist (RMBPC), the Montgomery Borgatta Burden Scale	7-item, self-administered survey regarding “satisfaction with ESP/intervention, whether number of sessions was appropriate; strategies that were being used; and perceived benefits.	CG: complete 2 structured self-administered surveys (baseline & post-12 sessions). Caregiver-reported strain, relationship strain, unmet need outcome (CG’s perceptions of unmet illness- and care-related needs, and a higher value meant more unmet need).	Center for Epidemiologic Studies Depression Scale (CES-D), the Screen for Caregiver Burden-Subjective Burden subscale (SCB-SB), RMBPC	CR’s outcomes:15-item Caregiver Assessment of Function and Upset (CAFU) modeled after the Functional Independence Measure. Secondary outcomes: A 12-item QoL-Alzheimer’s disease scale. Neuropsychiatric symptoms will be measured using the psychometrically sound Neuropsychiatric Inventory (NPI). Activity engagement was measured using a validated 5-	12-item Zarit Burden Scale, 21-item REACH VA risk appraisal assessment, the Caregiver Vigilance Scale, 25-item problem behavioral scale.

						item scale (the higher the score, the greater the engagement). CG outcomes: perceived well-being, 13-item scale.	
*Presence of psychosocial measures	See above	See above	See above	See above	See above	See above	See above
*Baseline activity reported	Creation of protocols, evaluation tools, schedules, and marketing strategies to accomplish the goals and objectives of the AoA grant.	N/A	Educating staff, establishing tracking mechanisms for sessions and reimbursement, refining the treatment manual, and establishing monitoring procedures to fit within agency's structure.	Implementation agency set up goals and plans for ongoing communication. Trainer training, development of the database (Primetica et al., 2015)	1.5 days training for potential STAR-C consultants. Preparation for program implementation	Prepare for the program implementation, prepare material and manual, training (strategies for recruiting, fidelity monitoring)	Modify, refine the program manual, identify interventionists, training

*Theory-based (Theory intervention was based in)	Stress Model	Stress Model	Competence-environmental press framework and personal control theory	Social Learning Theory and gerontology theories	Social Learning Theory and gerontology theories	Competence-environmental press framework and Triangular model (individual with dementia, caregiver, and physical environment)	CBT, Stress Model, competence-environmental press framework and personal control theory, action-oriented, individual-environment model of stress and coping
ADOPTION							
Description of intervention location	ADRC/AAAs Had satellite offices and senior and community centers.	4 sites began implementing FMC in 2007, another 5 sites began in 2008, and an additional 5 sites began in 2010. Type: located in senior housing; nursing-facility based caregiver support services; adult day center,	One FOX Rehabilitation location. Offering PT program/services .	7 Alzheimer's Association chapters	Two Area Agencies on Aging (AAA): one site serves a rural two-county area. Another site serves an urban county with a relatively diverse racial and ethnic	Connecticut Community Care, Inc. (CCCI), a care management organization for older adults providing services to more than 8,000 CHCPE clients daily.	VA system has ongoing relationship between patient, family, and provider. REACH-II fits the system caring model

		county health dept., etc. Location: Rural, urban, semi-rural, twin city. 12/14 sites didn't have Alzheimer's disease as a specific Service Focus Area, but had existing caregiver support service.			population.		
Start-up activity	Stakeholders' agreement on program implementation. Create protocols, procedures, and material revisions. Developing a recruitment strategy and scheduling.	Preparing for the program implementation. All sites had basic tools and resources.	Intervention refinement, preparing agency for implementation; training and certifying interventionists.	Implementation agency set up goals and plans for ongoing communication, decision on program setting. Training and development of the database.	1.5 days training for potential STAR-C consultants. Preparation of the program manual.	Preparation for program implementation: manual, staff training, training care manager about the fidelity monitoring; set plans and goals.	Staff training and certification, modification of REACH-II materials.
Description of staff,	All trainers had a minimum of a		Of 23 FOX OTs who volunteered	Staff members of Alzheimer's	Site I: 11 case managers from	Case manager at	VA staff members

expertise of staff,	bachelor's degree and were employed as a family caregiver program coordinator, specialist, or trainer within their organization. Many were social workers.		for and completed ESP training, 7 had more than 10 years clinical experience; 9 had 3–10 years clinical experience and 7 had less than 3 years of clinical experience.	Association chapters across the State of Ohio. Those staff members have a range of training backgrounds.	five districts to be trained as STAR-C consultants. Site II: 4 AAA staff case managers and 2 private geriatric care managers to be trained as STAR-C consultants. Educational backgrounds: 1% high school graduate, 69% BA level college, 29% MS level college, 1% PhD. Consultants were required to have experience working with persons with dementia and	CCCI.	trained and certified by Memphis VA Medical Center. Education levels of the interventionists: ranged from associate to doctoral degrees. Most were social workers, psychologists, or nurses.

					family caregivers.		
Method to identify staff who delivered intervention	Existing employees from implementation sites.	5/18 consultants were newly hired. Reassigned an existing staff member to provide the intervention.	Existing staff	Existing staff at Alzheimer's Association	Existing staff members at the participating sites	Existing care manager at CCCI	The existing staff members at VA sites
Inclusion/exclusion criteria of delivery agent/setting	N/A	N/A	N/A	Agency's knowing about the community, and stakeholder buy-in	N/A	Agency has existing care planning service for older adult	The REACH model fits HVA's system
Adoption rate	N/A	One home-care/clinic organization dropped out.	N/A	N/A	N/A	N/A	N/A
*Characteristics of adoption/non-adoption	Adoption:Had a decentralized infrastructure for program delivery within their service area. Agencies had experienced previous success	Adoption: Program fit the organization's focus; agencies had a longstanding presence around caregiver support service,	The existing client pool and service (were able to integrating ESP into patient treatment	There was a match between RDAD program and chapter's focus. RDAD was selected because it fit	Participating AAAs and coaches were enthusiastic about offering STAR-C to their clients.	N/A	N/A

	with adoption of other EBPs. Non-adoption: Had staff turnover, financial difficulties	interventionists had understanding of the norms and cultural preferences, strong existing relationships within the communities. Non-adoption: Hard to designate time of a key staff person to conduct the program	session)	with other existing programs and was designed for both CR and CG.			
*Start-up costs	N/A	N/A	N/A	N/A	N/A	N/A	N/A
IMPLEMENTATION							
Intervention type, frequency, duration, intensity	A 6-week program with a total of 12 hours training (2hrs/session). Week 1:dementia information, week 2: caregiver self-care, week 3: contented	6 counseling sessions within 4 months, and then 6 counseling sessions + support group	8 home sessions over 4 months. Refining ESP: Training consisted of three components: readings on dementia, caregiving, and ESP (4 hrs);	In-home. 12 1-hr sessions over 3 months, and then monthly follow-ups over a 3-month period. 12 in-home sessions: twice	STAR-C2: 6-week program with 4 in-person sessions (week 1, 2, 4, and 6) + 2 phone sessions (weeks 3 and 5). Family members are	10 sessions over 4 months with OT, 1 face-to-face session and 1 telephone session w/ an advanced practice nurse. Program focus: disease	The 6-month REACH VA intervention included nine 1-hour individual home sessions, three 0.5-hour individual telephone

	involvement, week 4: managing care and behaviors, week 5: decision-making, and week 6: resources. Weeks 1-6: caregiver mastery (weekly practice exercises for caregivers to apply to their specific situation with 20-30 mins of group debriefing		online asynchronous training involving lectures and active learning exercises on intervention components (8 hrs); and 1.5 days of face-to-face training to practice delivery and documentation completion. Focus on: disease education, problem-solving, technical skills (task simplification, communication), and home modification.	per week for the first 3 weeks, once per week for the next 4 weeks; and biweekly for the remaining 4 weeks. RDAD: provide CG with skills to help manage behavior problems of persons with dementia (PWDs); improve the physical functioning of PWDs, which may reduce CG burden.	taught a set of core behavioral strategies that include dementia education, effective communication, ABC (activator–behavior-consequence) problem-solving strategies, and implementation of pleasant events to reduce mood and behavioral problems.	education, caregiver communication skills, home environment (OTs train CGs how to modify home environments, simplify daily activities, and communicate effectively to support client capabilities, use problem-solving to identify solutions for CG-identified concerns).	sessions, and five 1-hour monthly telephone support group sessions. The intervention content includes: education, support, and skills training to address 5 caregiving risk areas: safety, social support, problem behaviors, depression, and caregiver health.
Extent to which	Full adoption of the	N/A	Of 20 caregivers	Program	After the final	N/A	Followed the

protocol was delivered * To what extent program manuals and materials are (a) used by the staff beyond initial training, (b) user-friendly during and after training, and (c) in a format that is most preferred for manuals and materials	updated SCP with revision based on each site's need and region's culture.		with surveys, close to 90% believed that ESP did not require too much effort; 78% indicated just right number of sessions; 17% indicated that it was too much; and 5% too little.	Utilization: Exercise was most frequently used, behavioral management was next most frequently included in sessions. Dementia education topics occurred less frequently.	follow-up call (at 6 months) participants' program satisfaction was reported: 92% (*n* = 79) who returned package indicated that the program had been "very" or "somewhat" helpful, and 80% said they would definitely or probably continue to use STAR-C skills.		protocol. The intervention is designed to be user friendly for staff, with scripts, talking points, and all caregiver materials collected in one place.
Measures of cost of implementation	N/A	Cost of implementation was calculated based on the following indicators:	N/A	N/A	N/A	Intervention and supervisory costs will be calculated using wage rates for COPE	N/A

		consultant's caseload, training, marketing/outreach, travel expenses. Time spent in recruitment, intake, assessment, and counseling of caregivers who started but did not complete the program remained in the cost analysis as well.				intervention personnel multiplied by reported time in preparation, documentation, training and supervision, and fringe benefit costs. Direct cost measured by: COPE interventionist home and telephone sessions, training time, intervention materials, interventionist travel, care planning, and supervision.	
*Cost of delivery	N/A	Primarily the salary expenses of the FMC consultants. Travel expense to	N/A	N/A	N/A	N/A	$5.00 per day/caregiver with travel to the caregiver

		go to participants' homes, attend trainings, and conduct marketing efforts: Year I: \$3,488; Year II: \$3,722; Year III: \$4,500. Average: \$3,903 per caregiver					home limited to 50 miles, one-way.
MAINTENANCE-individual							
Assessed outcome ≥ 6 months post intervention	At 12-month follow-up: CG has more reasonable expectations.. CGs have improved reactions to the behavioral concerns and decreased level of depression.	Greater satisfaction with social support from family and friends, decreased number of depressive symptoms, and have improved reactions to the behavioral concerns at both 8-month and 12-month follow-up.	N/A	N/A	At 6-month follow-up assessment: significant reduction in CGs' reactivity to behavioral issues and CRs' level of depression were maintained.	Follow-up assessment at 9 months showed nothing significant.	REACH-II is a 6-month program, thus, the primary outcome was reported in the "Effectiveness" category.

Qualitative measure of individual-level maintenance	90% CG agreed that SCP strategies continued to help them. CGs' relationship with CRs were able to reestablished and improved overtime. CGs had more confidence.	81% of the CGs said that participating in the program was very helpful to them. Another 16% of CGs said that it was somewhat helpful, and only 2 caregivers were neutral as to the helpfulness of the program. FMC Consultants (FMCC) expressed support for the program.	N/A	N/A	After the final follow-up call (at 6 months) participants' program satisfaction was reported: 92% of the participants who returned package indicated that the program had been "very" or "somewhat" helpful, and 80% of the participants said they would continue to use STAR-C skills.	Focus group interviews with CGs and care managers. Results were not reported.	N/A
Measures of cost of maintenance	N/A	Cost is high, unlikely could be paid for out-of-pocket by consumers. The	N/A	N/A	N/A	N/A	N/A

		program cost was considered high in relation to the costs of other caregiver services provided by these organizations.					
*Current status of program/intervention	N/A	N/A	N/A	N/A	N/A	N/A	N/A
MAINTENANCE-organizational							
Indicators of program-level maintenance	Program sustainability, statewide structure	Dependent on Organization/site's market presence staff understands of the cultural norms of the communities. And good relationships with communities providers.	Sustainable program: Adapting ESP to conform to Medicare Part B	Dependent on community's interests, agencies' willingness to maintain the program, continuous funding.	Dependent on funding, the length of the intervention	Dependent on public funding, Medicare reimbursement	Program currently being implemented in community settings by hospitals, universities, AAA and other organizations. The intervention is also being developed for use in a facility or office

							setting, and for delivering all sessions over the phone.
Alignment with organizational mission	All MSCP lead partners reported a match between agency's mission and the program.	The program fit the organization's focus, operational norms	N/A	The program match implementation site's mission.	N/A	N/A	Matched the services provided for veterans.
Measures of cost of maintenance	Continues funding resources, private donors, and small grants. Work with other partner in the communities.	N/A	N/A	N/A	N/A	N/A	N/A
*Current status of program/intervention	Sustainability within Alzheimer's Association is pending	As of June 2012, 11 sites discontinued FMC (for reasons such as staffing issues and financial difficulty)	N/A	Current being offered throughout the state of Ohio.	N/A	N/A	On a local level, several VAMCs that have not previously implemented REACH VA have requested training. This model of structured and

							individualized CG support can inform public policy. Potential for nationwide implementation.
Cost-analysis (if applicable for the program)	N/A	The NYUCI-North Dakota reported the potential medical cost saving for hospitalization, ambulance,ER, and 911 calls. Using median costs for these potentially avoidable health care services, the total estimated savings was $833,516 ($731,743 for hospital, $43,645 for ambulance, $51,658 for	N/A	N/A	N/A	N/A	A report was conducted by Nichols and her colleagues (2008) that discussed the cost-effectiveness of REACH II (Nichols, Chang, Lummus, Burns et al., 2008). REACH-II intervention cost was calculated for staff training

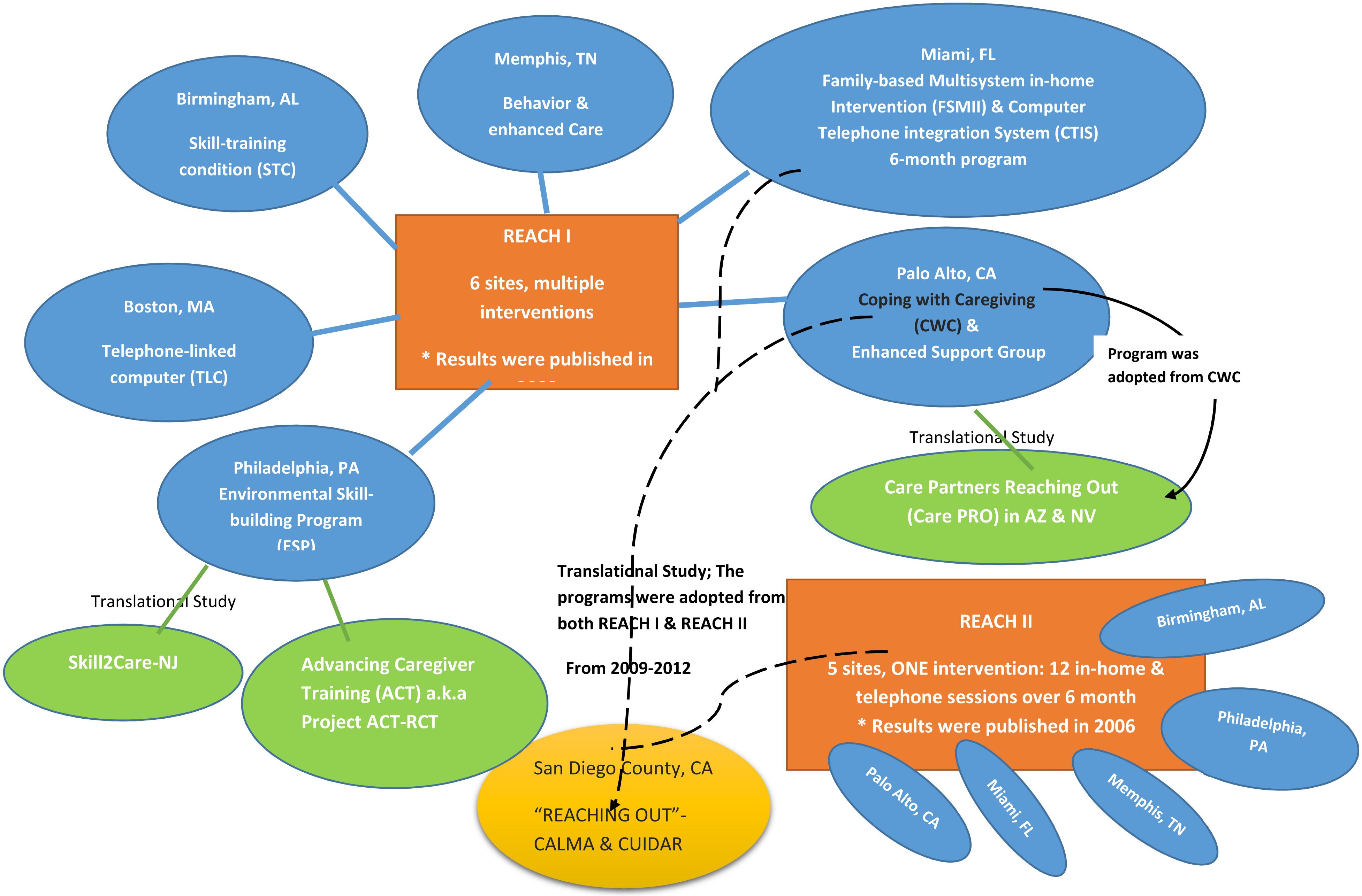
		emergency department, and $6,470 for 911).					time for intervention, staff time in preparation and wrap-up, travel time and mileage, and supervision. Staff salary cost: $21.11/hour; training cost: $101 per caregiver; supervision cost: $105 per caregiver; travel cost: $172 per caregiver.

N/A: not reported in the available literatures

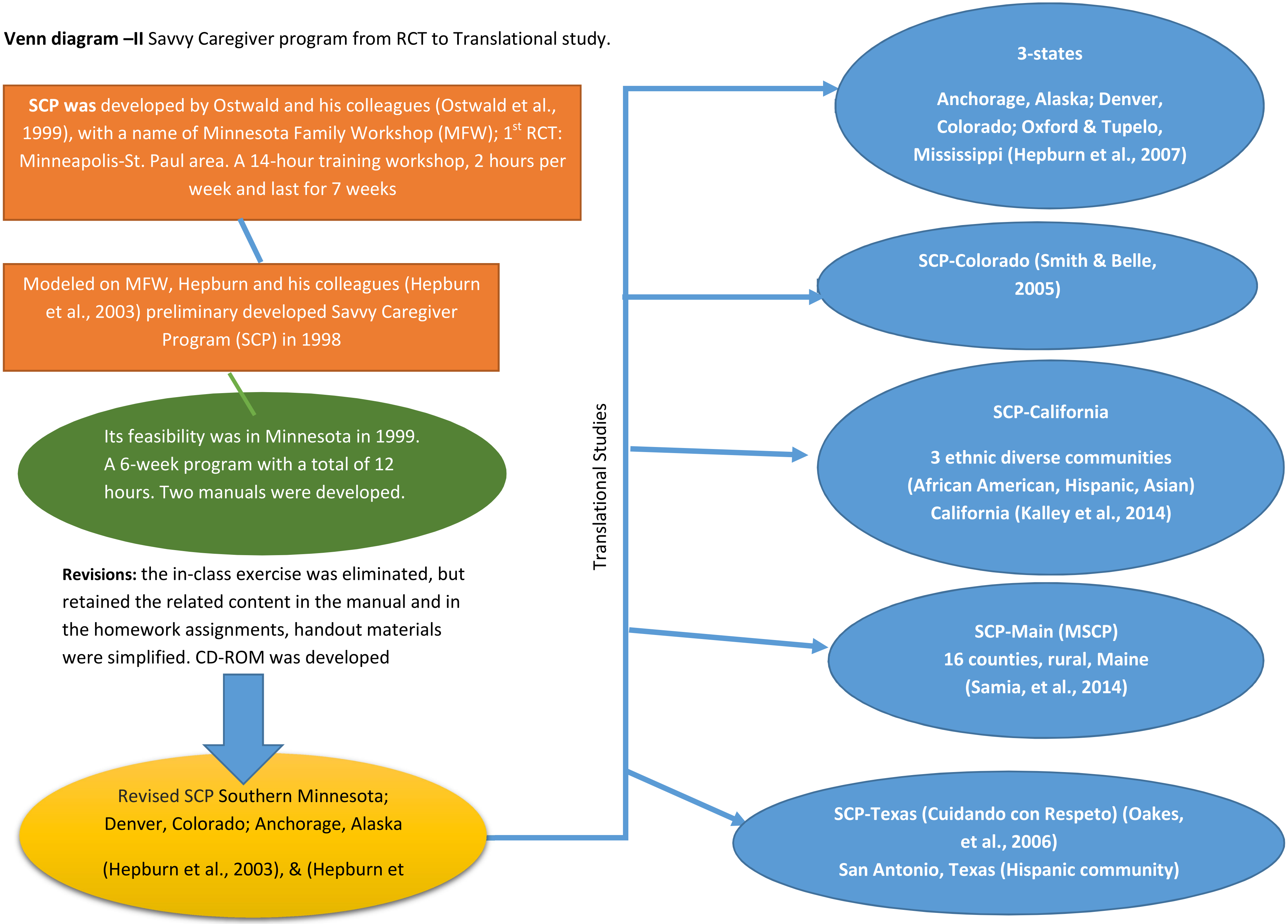
LIST OF VENN DIAGRAMS

Venn diagram I: REACH & Skills2Care

Resources for Enhancing Alzheimer's Caregiver Health (REACH)-Founded by NIA & NINR, including Phase I & Phase II.



Venn diagram –II Savvy Caregiver program from RCT to Translational study.



SCP was developed by Ostwald and his colleagues (Ostwald et al., 1999), with a name of Minnesota Family Workshop (MFW); 1st RCT: Minneapolis-St. Paul area. A 14-hour training workshop, 2 hours per week and last for 7 weeks

Modeled on MFW, Hepburn and his colleagues (Hepburn et al., 2003) preliminary developed Savvy Caregiver Program (SCP) in 1998

Its feasibility was in Minnesota in 1999. A 6-week program with a total of 12 hours. Two manuals were developed.

Revisions: the in-class exercise was eliminated, but retained the related content in the manual and in the homework assignments, handout materials were simplified. CD-ROM was developed

Revised SCP Southern Minnesota; Denver, Colorado; Anchorage, Alaska

(Hepburn et al., 2003), & (Hepburn et

Translational Studies

3-states

Anchorage, Alaska; Denver, Colorado; Oxford & Tupelo, Mississippi (Hepburn et al., 2007)

SCP-Colorado (Smith & Belle, 2005)

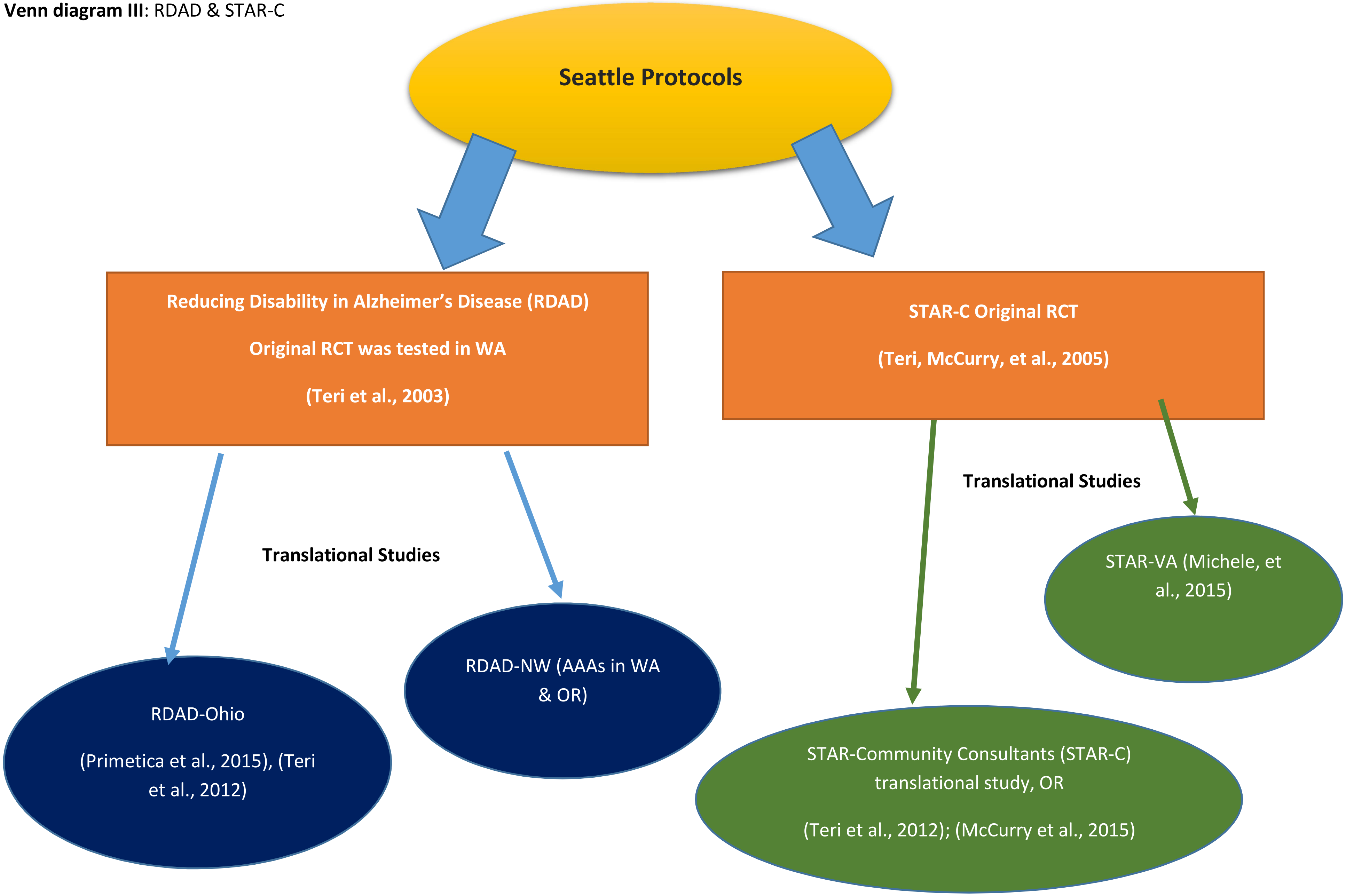
SCP-California

3 ethnic diverse communities (African American, Hispanic, Asian) California (Kalley et al., 2014)

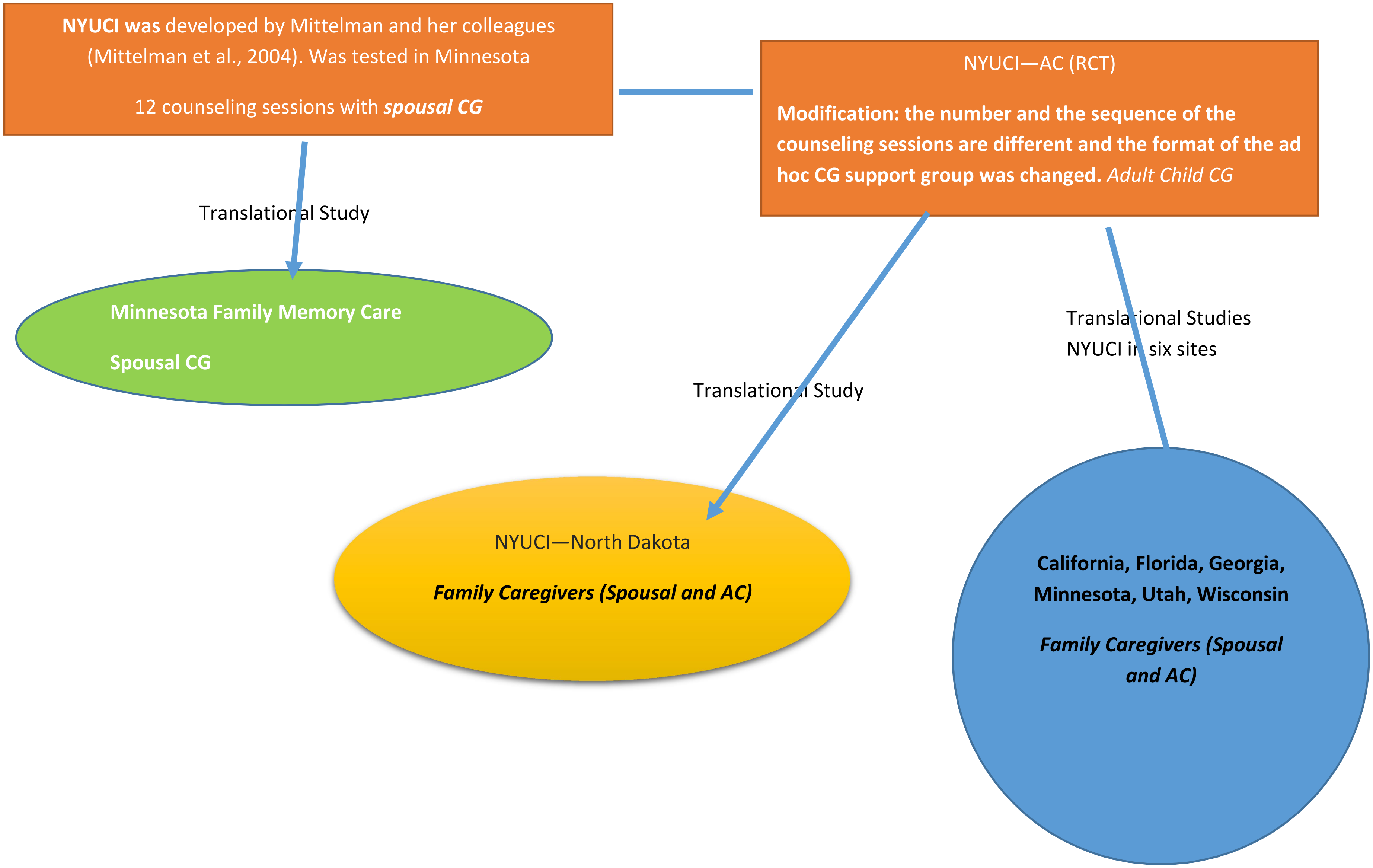
SCP-Main (MSCP)
16 counties, rural, Maine
(Samia, et al., 2014)

SCP-Texas (Cuidando con Respeto) (Oakes, et al., 2006)
San Antonio, Texas (Hispanic community)

Venn diagram III: RDAD & STAR-C



Venn Diagram IV--New York University Caregiver Intervention (NYUCI) from RCT to Translational study.



NYUCI was developed by Mittelman and her colleagues (Mittelman et al., 2004). Was tested in Minnesota

12 counseling sessions with ***spousal CG***

NYUCI—AC (RCT)

Modification: the number and the sequence of the counseling sessions are different and the format of the ad hoc CG support group was changed. *Adult Child CG*

Minnesota Family Memory Care

Spousal CG

NYUCI—North Dakota

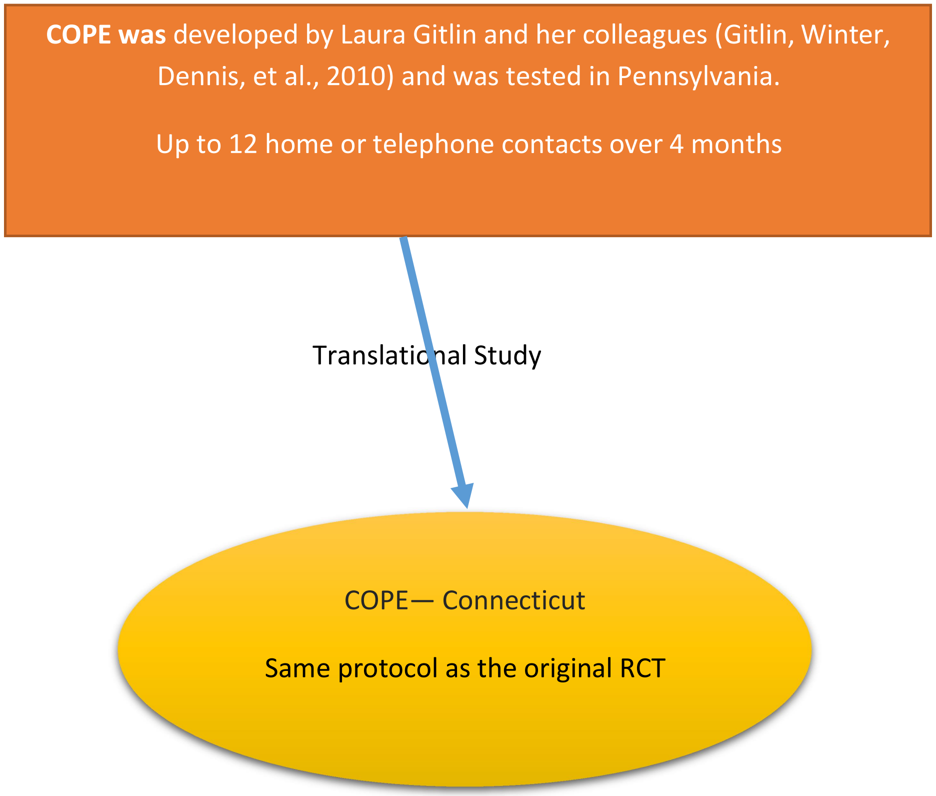
Family Caregivers (Spousal and AC)

California, Florida, Georgia, Minnesota, Utah, Wisconsin

Family Caregivers (Spousal and AC)

Venn diagram V: COPE

Care of Persons with Dementia in their Environments (COPE)



COPE was developed by Laura Gitlin and her colleagues (Gitlin, Winter, Dennis, et al., 2010) and was tested in Pennsylvania.

Up to 12 home or telephone contacts over 4 months

COPE— Connecticut

Same protocol as the original RCT

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CHAPTER II

Applying RE-AIM Framework to the Evaluation of a Translational Study of RDAD-NW in AAA Communities

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Abstract

Purpose of the study: The purpose of the current study is to evaluate the RDAD-NW translational program by Area Agencies on Aging community-based services via using the RE-AIM framework.

Design and Methods: The current study was a secondary data analysis using the data set that was collected from the original RDAD-NW translational study between 2012 and 2016. IBM SPSS Statistics 19.0 and the qualitative description strategies were used to analyze the data.

Results: The RDAD-NW program was conducted with 255 dyads in six rural and four urban communities, with an overall participation rate of 68.9% and a 58.8% adoption rate. There was a total of 140 dyads (54.9%) still remaining in the program at the 13th month of the study period. After the study period ended, four AAAs indicated in their area plans that they continued to offer the RDAD program. Fidelity-monitoring strategies included interventionist training and certification, session audits, program checklists for the session monitoring, ongoing supervision, and periodic newsletters.

Implications: The study found that the RDAD-NW intervention is an implementable multicomponent program that has the potential to help community-dwelling residents with Alzheimer’s disease and other types of dementia as well as their caregivers. Future research is needed to address the issue of inconsistency in reporting content across the five RE-AIM categories and to develop a universal fidelity-monitoring measurement which can be utilized in the translational studies.

KEYWORDS: RE-AIM, dementia caregiving, behavioral intervention, translational

Introduction

- **RE-AIM framework:**

Over the years, there has been a tendency to disseminate evidence-based programs or interventions from highly controlled conditions to “real world” settings with the aim of making them both available and beneficial to a much broader community. To facilitate translational research, Dr. Glasgow and his colleagues developed the RE-AIM framework. The framework has been utilized by many study investigators to estimate a program’s suitability for potential dissemination, plan program implementation, evaluate translational research, and assess the program’s public health impact (R. E. Glasgow, 2010; R. E. Glasgow, Vogt, & Boles, 1999; Harden et al., 2015; Koorts & Gillison, 2015; Yank, Stafford, Rosas, & Ma, 2013).

The RE-AIM framework allows clinical investigators to evaluate a translational program from five perspectives, including *Reach*, *Effectiveness*, *Adoption*, *Implementation*, and *Maintenance* (R. E. Glasgow et al., 1999). *Reach* (individual level) refers to participant recruitment, how the targeted population was identified, the representativeness of the participants, and the characteristics of both participants and non-participants. *Effectiveness* (individual level) refers to the proposed outcomes, including the changes in targeted mental and behavioral outcomes and the program’s impact on participants’ quality of life. *Adoption* (organizational level) focuses on the characteristics of implementation sites and interventionist expertise. *Implementation* (organizational level) focuses on program adaption, fidelity, and the extent to which the program was delivered, as well as the cost of program implementation. *Maintenance* (both individual and organizational levels) refers to the extent to which the program has become the community agency’s routine practice or culture (Gaglio, Shoup, & Glasgow, 2013; R. E. Glasgow et al., 1999; Harden et al., 2015).

The indicators for *Reach* include the following: the method used to identify target population, inclusion and exclusion criteria, participation rate, representativeness, and characteristics of participants and non-participants. Indicators for *Effectiveness* include the results for at least one follow-up, “intent-to-treat” analysis method utilization, quality of life or potential negative outcomes, participant attrition, measures and results, the presence of psychosocial measures, the reporting of baseline activity, and the theory used to develop the intervention. Indicators for *Adoption* include the description of the intervention location, staff and staff expertise, the method used to identify interventionists, inclusion/exclusion criteria for delivery agency and setting, adoption rate, characteristics of adoption/non-adoption settings, and start-up costs. Indicators for *Implementation* include intervention type, frequency, duration and intensity, extent to which protocol was delivered, and cost of program implementation. The indicators for program *Maintenance* were divided into two parts: individual and organizational. Individual-level indicators include assessed outcomes at ≥ 6 months post-intervention, qualitative measures, cost of maintenance, and current status of program. Organizational-level indicators include alignment with organizational mission, cost of maintenance, and current program status.

Applying RE-AIM in health science–related translational research:

Since the RE-AIM framework became available, clinical investigators have used it to report on a wide variety of translational programs, including studies focused on diabetes prevention, fall prevention, asthma prevention, smoking cessation, and policy promotion and environmental changes at the system level (Brace et al., 2015; Mielenz et al., 2014; Resnick, Galik, & Vigne, 2014; Saw, Kim, Lim, Powell, & Tong, 2013; Viswanathan et al., 2011). Among the elements of the RE-AIM framework, cost-effect analysis, individual-level maintenance, and program sustainability were least often reported. For the few studies that reported their program cost, the emphasis was on “interventionist salary and duration of the session,” “fee for renting space and equipment,” “cost of materials and supplies,” and “supervision time and cost” (Folta et al., 2015; Lopez-Patton, Weiss, Tobin, Jones, & Diaz-Gloster, 2015; Saw et al., 2013; Shubert, Altpeter, & Busby-Whitehead, 2011). When using the RE-AIM framework to report their findings, even though all the researchers referred to similar definitions for each category, different researchers interpreted those definitions differently and therefore reported the findings from differing perspectives. For instance, one study analyzed program implementation on the barriers to improved quality of care for children with asthma and the barriers to children’s) behavior changes versus the session completion rate, whereas the program modifications and fidelity were the factors most commonly reported in other studies (Brace et al., 2015; Lopez-Patton et al., 2015; Mielenz et al., 2014; Viswanathan et al., 2011). In addition, one study reported the adoption rate as an indicator of participation rate (*Reach* element), when the participation rate was actually supposed to relate to the target population and should have been calculated by dividing the number of participants who were randomized by the number of participants for whom contact was attempted and eligibility was assumed or confirmed (R. E. Glasgow et al., 2010; Lopez-Patton et al., 2015; Saw et al., 2013). Future research is needed to address the issue of inconsistency in reporting content across the five RE-AIM categories.

- **Applying RE-AIM in disseminating dementia-related programs and fidelity-monitoring considerations:**

By 2050, the number of people age 65 and older with Alzheimer's dementia is projected to reach 13.8 million—almost triple the number in 2017, which was 5.3 million (Alzheimer's Association, 2017; Hebert, Weuve, Scherr, & Evans, 2013). A majority of Alzheimer's patients live in the community and receive care from family caregivers (Institute of Medicine of the National Academies, 2008). An effective community-based program does not just fulfill the needs of individuals with dementia, it goes further, to promote their independence and quality of life while having positive impacts on the family caregivers' health and well-being. In the long run, care recipients may see reduced hospitalization and emergency room visits if they can maintain their health within their community (Feng, Coots, Kaganova, & Wiener, 2014). In recent years, clinical scientists have been disseminating evidence-based programs into community settings. Such efforts include translational studies of Resources for Enhancing Alzheimer's Caregiver Health (REACH), Care of Persons with Dementia in their Environments (COPE), and Reducing Disability in Alzheimer's Disease (RDAD). Those programs have been disseminated to many community settings to provide dementia caregivers with disease-related knowledge, improve communication skills and behavior management, and promote care receivers' physical functioning (Fortinsky et al., 2016; Menne et al., 2014; L. O. Nichols et al., 2011; Primetica, Menne, Bollin, Teri, & Molea, 2015). REACH is a multisite research program designed to develop and test effective caregiver interventions (Belle et al., 2006). The intervention was cofounded by the National Institute on Aging and the National Institute of Nursing Research. Interventions that have been tested by REACH include the Environmental Skill-Building Program (ESP), Coping with Caregiving (CWC) and Enhanced Support Group, the Family-Based Structural Multisystem In-Home Intervention (FSMII), and the Computer Telephone Integration System (CTIS) (Belle et al., 2006; Lykens, Moayad, Biswas, Reyes-Ortiz,

& Singh, 2014). COPE is a biobehavioral home-based intervention that focuses on the well-being of patients with dementia and their caregivers. COPE aims to improve home safety, simplify tasks, and reduce caregiving-related stress (L. Gitlin, Winter, Dennis, Hodgson, & Hauck, 2010).

These interventions and programs are evidence-based and complex, and have been tested for efficacy (Belle et al., 2006; L. Gitlin et al., 2010; Hepburn, Lewis, Tornatore, Sherman, & Bremer, 2007; Teri, McCurry, Logsdon, & Gibbons, 2005). In the field of dementia-related translational studies, investigators have utilized the RE-AIM framework to evaluate the Savvy Caregiver Program and the Skills2Care dissemination research (L. N. Gitlin, Jacobs, & Earland, 2010; Samia, Aboueissa, Halloran, & Hepburn, 2014). It is worth noting that not all researchers in this field have reported their translational studies using the RE-AIM framework, even though the framework has been well recognized. For instance, the STAR-C translational study did not use the RE-AIM framework. Interestingly, though, it reported participant recruitment, identification of implementation sites, effectiveness of the intervention, treatment fidelity, and sustainability of the program/intervention, all of which would have fit into the five categories of the framework (McCurry et al., 2015; Teri et al., 2012). Among those studies that did apply the RE-AIM framework, the findings were reported very differently: There was inconsistency on what and how to report on the study findings across the RE-AIM categories (Gaglio et al., 2013).

Unlike the highly controlled situations in the programs' efficacy studies, each real-world setting has unique features, needs, and organizational structures. During the implementation of an evidence-based program, the program needs to be flexible enough to be adapted to each implementation site. Due to limited staffing, distant location of the sites, and cost of delivery, the program often needs to be refined and modified (for example, to shorten the length of the treatment sessions and communicate by phone instead of in-home visits) before it can be adopted by the implementation site (Lykens et al., 2014; McCurry et al., 2015; L. O. Nichols et al., 2011). Additional modifications are commonly made to accommodate the needs of the served population. With the adaptation process, a new challenge: After the modification, what happens to program fidelity? Will the program still have the same effect and the same value for the targeted population?

The term *fidelity* is defined as “the extent to which delivery of an intervention adheres to the protocol or program model originally developed” (Mowbray, Holter, Gregory, & Bybee, 2003, p. 315). *Fidelity* is important for implementing an evidence-based intervention because it ensures adherence to the core elements of the original intervention and the power of a hypothesis testing (Frank, Coviak, Healy, Belza, & Casado, 2008; Onken, Carroll, Shoham, Cuthbert, & Riddle, 2014). In other words, the likelihood of finding significant evidence for a study’s effectiveness is also weakened with compromised fidelity (Frank et al., 2008). Monitoring program fidelity is an important component of dissemination research. The purpose of “fidelity monitoring” is to “identify procedures that document key components of program implementation” (Frank et al., 2008, p. 6). Fidelity monitoring, therefore, is a method to assess the degree of treatment fidelity that was achieved in the translation of an evidence-based program or intervention. Many strategies have been utilized to monitor program fidelity, including having regular supervision meetings, using process measures (e.g., fidelity checklists), and reviewing audiotaped intervention sessions (Fortinsky et al., 2016; L. Gitlin et al., 2010).

Undoubtedly, both program fidelity and program/intervention modification play an important role in implementation of an evidence-based program. Several questions arise, however. For example, during the implementation process, how can researchers ensure fidelity while keeping the program/intervention flexible enough to accommodate the needs of different implementation sites? We looked at seven translational programs (Savvy Caregiver Program, New York University Caregiver Intervention (NYUCI), COPE, Skills2Care, RDAD, REACH, STAR-C) that conducted program fidelity monitoring and found that the following methods were used to ensure fidelity: (a) interventionists for translated programs were trained by the original program/intervention investigators on core components, the manual, protocol, recruiting and screening methods, and outcome measures, and most of the programs required interventionists to be certified prior to program implementation; (b) core components of the program/intervention were kept, with some modifications made to the length and schedule of the sessions; (c) a well-developed protocol or manual was available to use in a language that was appropriate; and (d) either the original developers of the program or designated supervisors were available to monitor the delivery process (Fortinsky et al., 2016; L. N. Gitlin et al., 2010; McCurry et al., 2015; Menne et al., 2014; L. O. Nichols et al., 2011; Paone, 2014; Samia et al., 2014). The methods reported varied by program, investigator, and implementation site. The lack of a comprehensive fidelity monitoring mechanism and universal fidelity measures prevented us from comparing multiple intervention programs at one time, making it is impossible to conclude that program fidelity was assured for any of the seven programs. Nor could we say that one program utilized a better monitoring method than the others.

Again, when translating an evidence-based program into the real world, investigators need to find a balance between maintaining program fidelity and modifying the program for different communities and populations. Modifications will suggest themselves naturally, based on the implementation site, funding requirements, and advisory committee input. As this happens, the need for a universal fidelity measure and analysis mechanism becomes more apparent. Future research is needed to respond to this need.

- **Reducing Disability in Alzheimer's Disease (RDAD) and RDAD-NW:**

Grounded in behavioral and gerontological theories, RDAD is an evidence-based intervention that has been tested in a randomized controlled trial study and has produced the expected outcome, which is that participants with dementia had improved levels of physical exercise and decreased depression levels (Teri et al., 2003). RDAD has two major components, exercise and behavioral management, and is comprised of 12 one-hour in-home sessions conducted over 3 months (Teri et al., 2003). For the exercise component, the caregivers are trained to guide care recipients with dementia in getting regular exercise (strength, balance, aerobic activities, etc.) and to help them identify and engage in pleasurable activities that promote their physical health and social engagement (Teri et al., 2003, 2012). For the behavioral management component, caregivers learn an ABC approach to deal with care recipients' behavioral symptoms (Teri et al., 2003, 2012). Finally, in the educational sessions of the program, individuals with dementia and their caregivers learn specific information about the disease and are taught safety-related environmental modifications (Teri et al., 2003). In 2014, Menne and colleagues published their work related to disseminating RDAD in the state of Ohio (Menne et al., 2014). The project was a collaboration between seven Alzheimer's Association chapters, the Ohio Department of Aging, the Benjamin Rose Institute on Aging, and the RDAD research team at the University of Washington (Menne et al., 2014). The original RDAD protocol (12 one-hour in-home sessions over 3 months) was utilized in the translational study. The findings from the study indicated an increase in participants' understanding of dementia-related behavioral concerns and in caregiving efficacy (Menne et al., 2014).

The most recent translational effort of RDAD (RDAD-NW) was conducted in both Washington and Oregon in collaboration among 10 Area Agencies on Aging, the Washington Department of Aging and Disability Services, the Oregon Department of Health, and the University of Washington RDAD research team. RDAD-NW was funded by a 5-year National Institute on Aging (NIA) grant started in 2012.

Significance of the current study:

The purpose of the current study is to evaluate translation and implementation of RDAD-NW by Area Agency on Aging community-based services using the RE-AIM framework. The project has the potential to significantly improve understanding of the utilization of the RE-AIM framework in reporting translational studies. It will also shed light on factors needed to successfully translate and implement an evidence-based program to a real-world setting while maintaining fidelity to the original program. This goal will be achieved by addressing the following aims:

Aim 1: Examine RDAD-NW data related to the *Reach* element of the RE-AIM framework, including participant characteristics and participation rate, to evaluate and describe RDAD's public health impact, generalizability, and relevance to community providers.

Aim 2: Examine RDAD-NW data related to the *Adoption* and *Maintenance* elements of the RE-AIM framework, including the adoption rate, the method used to identify potential sites, and characteristics of the sites, to identify factors associated with RDAD-NW's translational project.

Aim 3: Examine RDAD-NW data related to the *Implementation* element of the RE-AIM framework, including interventionist training, certification process, and checklists for session completion to (a) identify procedures that document "key components" of the RDAD-NW program implementation and (b) determine the elements and logical steps relating to program fidelity monitoring during the implementation process. We hypothesize that there are identifiable elements in the program protocol and logical steps to follow in the implementation process to monitor and maintain program fidelity.

Method

- Method and Analysis:
    - Design

The current study is a secondary analysis that uses the RE-AIM framework to evaluate the translation and implementation of the RDAD-NW program by AAA community-based services (R. E. Glasgow et al., 1999). The data set used in this paper was collected from the original RDAD-NW translational study between 2012 and 2016. Qualitative and quantitative process measures were used to assess four of the five key domains of the RE-AIM model: *Reach*, *Adoption*, *Maintenance*, and *Implementation*. The RDAD-NW translational study was conducted in 10 Area Agencies on Aging (AAA) in both Washington and Oregon states representing a mixture of urban ($n = 4$) and rural ($n = 6$) locations. Two hundred and fifty-five older adults—all community dwelling, aged 60 years and over, with dementia—and their family caregivers were recruited from the existing AAA caseload, and a staged multiple baseline design was used in the RDAD-NW translational study.

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    - Measures

To evaluate and describe RDAD's public health impact and its generalizability and relevance to community providers, data from RDAD-NW related to the *Reach* element of the RE-AIM were analyzed (Aim 1). Table 1 lists the variables of *Reach* and their measurement.

Table 1
Reach and Its Measurement

RE-AIM: *Reach*	
Characteristics of the	Information regarding the overall population in the agency's service

overall population served by AAA	region, the age (60 and over), gender, ethnicity, and the number of people with dementia will be retrieved from the available data from AAA area plans and their websites.
Participants-Inclusion Criteria	The data will be retrieved from the existing RDAD-NW documents.
Participants-Exclusion Criteria	The data will be retrieved from the existing RDAD-NW documents.
Participation rate	The number of eligible participants who participated divided by the number of people screened. Participation rate per site compared with the targeted enrollment number.
Representativeness	Compares the number of those aged 60 and over for the overall population in the United States, WA, OR, and that of the participants in the RDAD-NW study. Compares care recipients over 65 years old who have Alzheimer's disease in WA, OR, and nationwide, based on the report from the Alzheimer's Association (2013). Compares caregiver ethnicity and gender between RDAD-NW and nationwide data from the report of the Alzheimer's Association (2013)
Characteristics of participants	Descriptive measures (collected at baseline only). Demographics: CR and CG age, gender, education, ethnic group, and relationship. The Mini-Mental State Examination (MMSE) (Folstein, Folstein, & McHugh, 1975) was used to assess level of cognitive impairment in the care recipient. Revised Memory and Behavior Problem Checklist (RMBPC) (Teri et al., 1992) was used to assess memory, depression, and disruptive behaviors. It was developed by the same UW research team that conducted the RDAD-NW and has been used in many clinical trials (Lykens et al., 2014; Linda O Nichols et al., 2008). Resource Utilization in Dementia (RUD) (Neubauer, Holle, Menn, Grossfeld-Schmitz, & Graesel, 2008) was used to determine services CRs utilized associated with caregiving, including registered nurse home visits, home health aide visits, food delivery, and adult day program. The Quality of Life-AD (QOL-AD) is a 13-item measure used to assess the CR QoL at baseline.
Characteristics of non-participants	Reasons for refusal to participate in RDAD-NW. The reasons that dyads that are ineligible to participate.

To identify factors associated with RDAD-NW's translational project, including factors relating to the implementation site's physical environment, its workforce, and financial capacity that may contribute to the maximized impact of the program, we have summarized RDAD-NW data on the *Adoption* and *Maintenance* elements of the RE-AIM model in Table 2 (Aim 2).

Table 2

Adoption* and *Maintenance and Their Measurement

RE-AIM: *Adoption* and *Maintenance*	
Adoption	
AAA agencies	Information regarding the 10 AAAs contracted for RDAD-NW in Washington and Oregon state
Adoption rate	Number of sites participated divided by the number of sites contacted
Characteristics of the AAA agencies	Information regarding the locations (urban vs. rural, services relating to dementia caregiving, etc.); year/date for first & last participant enrollment; total months for recruitment; total number of participants & interventionists per location. The data will be generated from AAA websites, area plan reports, interviews with research team members, and available RDAD-NW documents.
Method used to identify potential interventionists	Method by which the interventionists were recruited. The data will be generated from the interviews with research team members and available RDAD-NW documents.
Characteristics of interventionist	Number of total interventionists per location; their position title
Interventionist certification process	Will be discussed in Aim 3.
Start-up cost	Program delivery cost: Part 1. Master Trainers: Estimated labor expenses, preparation cost (e.g., training materials, transportation, actual training cost, certification process). Part 2. Cost of potential interventionist from each AAA site: Estimated labor expenses (e.g., for attending the training and getting certified and program delivery)
Maintenance:	
Participation rate	The program participation rate over the study period (baseline, at post-test 1, post-test 2, and at the 13th month of the study).
Funding resources	The initial funding for RDAD-NW implementation (program cost). (Data will be retrieved from the available RDAD-NW documents.) The identified potential funding for continuing the program. (Data will be retrieved from the site's area plan.)
Alignment with organizational mission and vision	AAA organizational mission and vision
Community demands	Information regarding the existing demands in the AAA service region and potential needs and demands of the communities. Information will be retrieved from AAA area plans and websites.
Current status of the RDAD program	Number of sites currently using the program; the number of sites indicating their interest in utilizing the program in the future.

RDAD-NW data on the *Implementation* element of RE-AIM were analyzed (Aim 3) to (a) identify procedures that document key components of the RDAD-NW program implementation and (b) determine the elements and logical steps relating to program fidelity monitoring during the implementation process. Table 3 lists the variables and their measurement.

Table 3
Implementation and Its Measurement

RE-AIM: IMPLEMENTATION	
RDAD-interventionist training and certification	Training: Information regarding the number of hours and days for training, the training sessions and focus per day. The master trainers. Manual used. Certification: the process (e.g., the pilot training cases needing to be finished for certification). The number of potential interventionists candidates who passed the certification test on the first try; the number who passed on the second try, and the number who attended the training but never passed. The overall score of the interventionists who passed the pilot cases (for certification).
RDAD program protocol	Initial protocol of the RDAD (number of sessions, the length of each session, number of follow-up calls).
Modification of the RDAD protocol	Reasons for modification, the RDAD-NW protocol (number of sessions, the length of each session, follow-up calls)
Intervention	The RDAD session length tracking sheet was used to track the length of each session. A checklist was used in previous study (Burgio et al., 2009) to rate interventionists' perceived opinion on helping participants achieve RDAD treatment goals relating to exercise, communication, behavior management, pleasant events, and coping with caregiving. Intervention components (exercise and psychosocial problem-solving), frequency, duration, intensity. Interventionist opinions on which session (out of nine sessions) was the most/least helpful and most difficult for participants to follow.
Fidelity monitoring	Audio-recording of sessions (review and

	feedback process), intervention process forms/checklist, RDAD case evaluation, progress note summaries used to track participant session attendance, and homework completion. The availability of the program manual and handout for participants. Evaluation of whether the protocol is user friendly.
RDAD cost of delivery	Discussed in Aim 2.

- Statistical Analysis

All analysis was based on intent-to-treat principles using the baseline data from the RDAD-NW translational study (*n* = 255). Both qualitative and quantitative data will be generated and collected from the AAA area plans, interventionist surveys, field notes, observation notes, and oral summaries or interviews from research team members. The quantitative data (e.g., age, gender, years of education, ethnicity, MMSE and intervention process forms/checklist) were summarized and analyzed using descriptive statistical functions such as measures of central tendency, standard deviation, and frequencies. IBM SPSS Statistics 19.0 was used for the analysis. The qualitative data (e.g., RDAD manuals, field notes, oral summaries, and interviews) will be summarized and analyzed using qualitative description strategies.

Results

Aim 1

There was a big variation in reporting the characteristics of the overall population across the 10 AAA. The estimated percentage of people aged 60 years and over in 2010 at each AAA site ranged from 15.5% to 30.09% of the total population in their service areas, with an average of 20.03%. The data on characteristics of caregivers was not available in most of the AAA area plans, with only one site reporting that the mean age of caregivers in their catchment area was 70 years old, with 52% of caregivers providing care for people with Alzheimer's disease or dementia (Oregon Cascades West Council of Governments, 2012). Across 10 implementation sites, the percentage of the total population that was categorized as minority ranged from 2% to 19%. Hispanic/Latino, Asian, and African American were the top three minority groups identified. Finally, very limited data were available on the number of people with Alzheimer's disease or dementia in each site's catchment area; only two sites reported such data in their area plans. One site reported in its area plan that there were 8,760 people aged 60 or over with cognitive impairment, which accounted for 43.6% of the total population in that age group who were disabled. Another reported a similar statistic where there was a total of 9,879 people who were 60 or over with cognitive impairment, which accounted for 43.8% of the 60+ and disabled population (Southwest Washington Agency on Aging and Disabilities, 2011; Snohomish County Council on Aging, n.d.)

Based on RDAD-NW protocol, the inclusion criteria for care recipients (CRs) were as follows: diagnosis of dementia, physical activity engagement less than 150 minutes per week, and the ability to walk across the room with an assistive device. Caregivers (CGs) were required to live in the community and provide daily care to the participating CR, with both CG and CR planning to remain in the community for at least 6 months after enrollment. The exclusion criteria were as follows: CR or CG had plans to move within 4 months of enrollment; the CR was already participating in a formal exercise program or doing at least 150 minutes per week of moderate-intensity physical activity; CR or CG had a medical or psychiatric condition that could limit participation in, or the outcome of, the exercise program (e.g., Parkinson's disease; Huntington's disease; traumatic brain injury or stroke with persistent muscle weakness; recent psychiatric hospitalization, active suicidal thoughts, hallucinations, or delusions; or uncorrected severe visual or hearing impairments).

There was a total of 370 dyads screened, and 255 of them were eligible and participated; thus, the participation rate was: 255/370, or 68.9%. The recruitment goal for each AAA was 26 dyads. When comparing the goal to the actual number of dyads recruited from each implementation site, results showed that among all ten AAA sites, the number of dyads recruited ranged from 8 to 31, and the percentage of recruitment ranged from 30.8% to 119%. One site achieved exactly 100% of the recruitment goal, with three sites exceeding the goal by 4%, 12%, and 19% (see Table 4). For the purpose of comparing the recruitment performance of each implementation site, the dyads (*n* = 61) that were recruited by the master trainers were excluded from Table 4.

Table 4
Participation Rate per Site (n = 10)

Site	Actual # of cases recruited	% achieved (actual # of cases / 26)
Site 1	26	100%
Site 2	23	88.5%
Site 3	18	69.2%
Site 4	13	50%
Site 5	10	38.5%
Site 6	9	34.6%
Site 7	29	112%
Site 8	27	104%
Site 9	8	30.8%
Site 10	31	119%
Total	194	

Representativeness: For the 10 AAA sites, on average, 20.03% of their population was 60 years of age or older, compared to 18% in Washington State and 18.5% in the United States as a whole. Therefore, the RDAD-NW program was able to reach representative communities where the residents are 60 years old and over. More specifically, when we compare the number of care recipients who are 65 years old and above and have Alzheimer's disease in Oregon and Washington (7.6% and 11%, respectively) to the number nationwide (11%, according to the Alzheimer's Association [2013]) we see that the two states in the RDAD-NW program (Oregon and Washington) have a representative number of these individuals. As for the caregivers of people with Alzheimer's, nationwide caregivers are about 71% female (Alzheimer's Association, 2013). Similar to national figures, in the RDAD-NW study, caregivers were predominately female (74.5%). More detailed information is listed in Table 5.

Table 5

Category	**RDAD-NW participants (average %)**	**WA**	**OR**	**United States**
Population aged 60+ (2010)	20.03%**	18%**	n/a	18.5%**
People (65+) with Alzheimer's	100% (mean= 81.5 years, ranging from 76—87 years)*	11%***	7.6%***	11%***
Caregivers of people with Alzheimer's				
Female	74.5%*	n/a	n/a	71%***
White	87.8%*	n/a	n/a	54%***

Note: *Data retrieved from RDAD-NW data
**Data retrieved from Area Plan of AAA agencies
*** Data retrieved from Alzheimer's Association report (2013)

Characteristics of participants, including demographic information of the RDAD-NW participants, CR MMSE at baseline, CR QoL, and resource utilization at baseline are listed in Tables 6 through 9.

Table 6

Demographic Information for RDAD-NW Participants

	Mean (SD)	Mean (SD)
Characteristic	Care recipients (n=255)	Caregivers (n=255)
Age, y		
Mean (SD)	81.3 (7.7)	68.7 (12.4)
Median (IQR)	81.5 (75.7-87.0)	70.3 (60.0-77.7)
Range	(60-97)	(29-94)
Female, No. (%)	125 (49.0)	190 (74.5)

White, No. (%)	228 (89.4)	224 (87.8)
Educational status (≥ high school), No. (%)	167 (65.5)	193 (75.7)
Caregiving relationship, No. (%)		
Spouse		161 (63.1)
Adult child		74 (29.0)

Table 7

RDAD Participants' Ethnicity Information

Ethnicity	# of participants in RDAD-NW (%)
White	228 （89.4%）
African American/Black	9 (3.5%)
Asian	9 (3.5%)
Native Hawaiian/Pacific Islander	2 (0.8%)
American Indian/Alaska native	3 (1.2%)
Other	4 (1.6%)
Total	255

Table 8

RDAD Participants' MMSE, CR-QoL, and Length of RDAD Sessions (Urban vs. Rural)

		Urban (n=4)		Rural (n=6)				
Variables	Total Sample	*M*	*(SD)*	*M*	*(SD)*	*t*	*(df)*	*p*
MMSE	n=255	15.80	7.15	15.29	6.96	-0.57	253	0.57
CR-QoL	n=254	32.19	5.91	30.75	5.93	-1.92	252	0.06
An average length of RDAD sessions	n=224	54.80	13.22	50.96	12.63	-2.20	222	0.029*

Note: P < 0.05 *

Overall, there was a significant difference between the urban (*n* = 4) and rural (*n* = 6) groups on the average length of intervention sessions. The average length of intervention sessions for participants from urban communities (*M* = 54.80, *SD* = 13.22) was longer than the average length of sessions for participants from rural communities (*M* = 50.96, *SD* = 12.63), *t*(222) = -2.20, *p* = 0.029, *d* = 0.30.

Results of the RMBPC-baseline data indicate that for participants from urban areas and participants from rural areas, the behavioral issues of "forgetting what day it is" (*n* = 254), "trouble remembering recent events such as items in the newspaper or on TV" (*n* = 252), and "asking the same question over and over" (*n* = 254) were the top three that occurred at least once a day. The least commonly occurring behavioral issues were as follows: "threatening to hurt others" (*n* = 1) "destroying property" (*n* = 3), and "communicating about death of self or others, such as life isn't worth living" (*n* = 1). Participants from urban communities were more likely to experience arguing, irritability, and/or complaining than participants from rural communities.

Among the 142 participants who lived in urban communities, 56.3% (*n* = 80) utilized community resources including registered nurse home visits and food delivery, and the most utilized outside services were adult day programs (*n* = 23, 16.3%) and public transportation (*n* = 20, 14.1%). By contrast, there were 112 participants who lived in rural communities, and 52.7% of them utilized community resources: The most utilized of the resources were home health aides (*n* = 19, 16.8%) and adult day programs (*n* = 14, 12.4%). More detailed information can be found in Table 9.

Table 9
Resource Utilization for Urban vs. Rural Dyads at Baseline

	Urban (n=142)		Rural (n=112)		Chi-square	
Variables	*Frequency*	*(%)*	*Frequency*	*(%)*	*(df)*	*p*
RN home visit	6	4.2	5	4.4	1	0.93
Home health aide	16	11.3	19	16.8	1	0.19
Food delivery	15	10.6	10	8.8	1	0.66
Adult day program	23	16.2	14	12.4	1	0.41
Public transportation	20	14.1	11	9.7	1	0.30

Note: One dyad at a rural site did not provide data on the RUD questionnaire.

Characteristics of non-participants, including reasons for nonparticipation in RDAD-NW, were not obtained. A total of 71 potential participants were not eligible to participate, and the main four reasons for ineligibility were a CR not physically able to exercise or walk; a CR with Parkinson's disease, Huntington's disease, or traumatic brain injury (TBI); and a CR without a dementia diagnosis.

- **Aim 2**

There are 13 Area Agencies on Aging (AAA) in the State of Washington. The RDAD-NW research team contacted them all, and six agreed to participate in the study. In Oregon, there are 17 Area Agencies on Aging that administer and support community-based care services. The RDAD-NW team worked with all four AAAs that the team was able to reach. The adoption rate of the RDAD-NW was (6+4)/ (13+4) = 58.8%.

Of the 10 sites, four serve mainly communities in urban areas, and the other six sites serve mainly rural ones. The number of dyads recruited from each site ranged from 8 to 31, with a recruitment period ranging from 6 to 24 months. On average, there were two to four interventionists recruited per site. There were a variety of services provided for residents with dementia and their caregivers across all 10 sites, including the STAR-C program, Family Caregiver Support Program (FCSP), and Skill2Care. Interventionists were mainly the case managers who work at implementation sites. They were selected and nominated by the site to attend the RDAD training and certification process. Information regarding the number of years of experience or the educational background of the interventionists was not available.

The start-up cost of implementing the program can be divided into two parts: Part 1: master trainers. The estimated expense includes the cost of training preparation, transportation, training, and the certification process. At $50/hour/trainer × (4 hours for preparation + 16 hours for training) the total cost for each master trainer was $1,000. For the interventionist certification process, one master trainer was estimated to spend 56.1 minutes/session × 9 sessions + 15 minutes for feedback, for a total of 519.9 minutes to certify one interventionist. At $50/hour/trainer × (519.9/60 minutes) the cost to train one interventionist for certification was $433.25. Part 2: interventionist candidates from each AAA site. The estimated labor expense includes the following: For a full-time case manager, the average income is $50,000 to $65,000/year (for urban areas); $40,000 to $55,000/year (for rural areas), with an hourly rate of $26–$34/hour (urban) and $21–$26/hour (rural). Delivery of the program requires a total time of 18 hours, which breaks down as follows: nine hours (for 9 one-hour sessions) + 3 hours travel time + 3×30 mins (for three monthly phone calls) + 4.5 hours for paper work = 18 hours total. Applying the hourly rate to the time spent, we have a potential expense per case for urban sites of $468–$612, which is $26–$34/hour × 18 hours. For rural sites, the total is $378–$468, which is $21–$26/hour ×18 hours. The information regarding initial funding for RDAD-NW implementation was not available at the time the study was conducted. After the completion of the program, no information was identified to indicate any potential funding to continue the program.

Regarding program maintenance, the participation rate stayed relatively high over the study period. There was a total of 255 dyads participating in the study at baseline. At Post Test 1, 207 dyads remained in the study, or 81.2% of the total number of dyads at baseline. At Post Test 2, 171 dyads (67.1%) remained in the study, and at the 13th month of the study period, 140 dyads (54.9%) remained.

Commonly mentioned items in the mission statements of the 10 AAAs are as follows: “Promote independence, dignity, and choice in the lives of older adults, people with disabilities, and veterans” (Multnomah County Aging, Disability, & Veterans Services Division, 2016, p.4); “a comprehensive, coordinated system of home and community-based services” (Olympic Area Agency on Aging Area Plan 2012-2015, 2011, p.1). The purpose and the session contents of the RDAD-NW are in alignment with those mission statements. Also, RDAD-NW met the caregiving support needs for those caring for community-dwelling older adults with dementia.

On their websites and in their area plans, the AAAs report that there is an increasing demand for dementia-related education and family caregiver support in their communities due to large numbers of baby boomers reaching the age of 60, when people have a higher risk of suffering from dementia. For example, estimated data from one site's area plan indicated that there were 8,760 people who were 60+ with cognitive impairment, which accounted for 43.6% of the total population that was 60+ and disabled (Southwest Washington Agency on Aging and Disabilities, 2011). Similarly, in another site's service area, there was a total of 9,879 people who were 60+ with cognitive impairment, which accounted for 43.8% of their total population that was 60+ and disabled (Snohomish County Council on Aging Area Plan 2012-2015 2, n.d.).

As for the current status of the RDAD program, the University of Washington research team collected the data via a 5-item questionnaire entitled "Responses from AAA's for Sustaining RDAD Compliance." A total of ten interventionists from seven out of nine agencies responded to the questionnaire. One responder said that one staff person from the site had used the program once or twice since it ended. Four out of eight responders mentioned that staff had incorporated RDAD program elements or strategies into their routine work or used "pieces" (e.g., the ABC cards and Communication with a person with dementia; pleasant events; signs of depression and ways to prevent or combat it) as appropriate with specific clients. One reason caregivers did not incorporate parts of the RDAD program in their ongoing work was having "only one case manager trained in the RDAD protocol. She stopped accepting referrals when funding to support this activity ended." Another reason given was "that wasn't the expectation. There is only one RDAD coach who currently does not have a caseload. Ongoing case management does not include teaching exercises or specific behavior-solving techniques." The main barriers for continuing the program included the following: "hard to get referrals," "the program is very time intensive," and "money is an issue." Suggestions that may help with future program sustainability include providing a train-the-trainer model to promote capacity to manage growth and staff transition, rethinking the ABC Plan when CGs report no apparent problem behaviors, allowing more session time (90 minutes, suggested by interventionists), and helping CGs find resources in the community for respite care, community activities, and pleasant events. Also, one agency identified funding through the Older Americans Act of 2017 as a way to continue implementing the program. More detailed information is listed in Appendix A. So far, four AAAs indicated in their area plans that they continued to offer the RDAD program after the study period ended.

Aim 3

As part of the fidelity-monitoring process in the Implementation Phase of the RE-AIM framework, the following information was collected via the available RDAD-NW documents and interviews with a research team member. The material relates to the RDAD-NW interventionist training and certification process:

Training

The interventionist candidates from each site were trained by the Master Training Team from the University of Washington. A 16-hour training was conducted over 3 days. There was a total of four trainings offered and completed, and all of them were conducted at the RDAD-NW training center.

1. Day One (afternoon session): All attendees received the RDAD manual.
    a. A pre-training knowledge test was administered.
    b. The background of RDAD was explained.

    c. Attendees received the RDAD interventionist training manual, including protocol and handouts.
    d. The Exercise Component of RDAD was introduced. All attendees observed and practiced doing exercises with the master trainers.
    e. The potential interventionists received training on the Exercise Component according to the RDAD protocol.
2. Day Two (full day)
    a. The Behavioral Management Component was introduced to the attendees.
    b. Content of the nine in-person sessions of the protocol and four monthly follow-up phone calls was discussed.
    c. Training focused on the key components including dementia education, communication, the ABC approach, pleasant event, and caregiver self-care.
    d. All attendees practiced a sample ABC approach using video vignettes.
    e. Trainers gave tips for enhancing care recipient participation in the exercise component.
    f. All attendees practiced the exercise component during the break.
3. Day Three (morning session)
    a. Trainers reviewed the training, including a group of ABC problem-solving role-play exercises.
    b. Trainers discussed research logistics: what interventionists needed to do for the study and how to record and upload the sessions, as well as what would be expected for the certification process and what it means to become certified as an RDAD coach (interventionist).

c. The post-treatment knowledge test was administered.

d. Trainers asked attendees for feedback.

- **Certification process**

After finishing the training, the potential interventionists completed from one to three pilot-training cases which involved nine sessions over 6 weeks. Master trainers reviewed the recordings from all nine training case sessions and all potential interventionists. Potential interventionists had up to three training cases to get certified. The certification process is meant to make sure that interventionists are competent at conducting the RDAD program. Findings of the study showed that, not counting the two master trainers and the three people who dropped out, there was a total of 20 potential interventionists who attended training. To get certified, potential interventionists need to get a total rating of 80% or higher (≥ 48/60 points) on a pilot case and submit all the processing forms. In this group, 14 out of 20 passed their certification test after the first try, with an average passing score of 54.86/60 points. Three passed the certification test after the second try, and two were certified after the third try. One did not pass the certification test after trying three times and achieving a final score of 29/60 points. In total, 19 interventionists got their certifications.

The initial RDAD protocol included 12 sessions over 9 weeks with three monthly follow-up calls. Due to the needs of the AAAs in the RDAD-NW translational study, the protocol was reduced to nine sessions over 6 weeks with three monthly follow-up calls prior to the implementation. Compared with the original RDAD protocol, the RDAD-NW protocol was shorter. We eliminated two follow-up sessions (Exercise program: Follow up and review; Behavioral program: Follow up and review) and two maintenance sessions (Exercise Program: maintenance; Behavior Program: maintenance.) However, the core components were the same as in the original protocol, and there were no other changes made during the study period. The key components include: communication, the ABC approach, and pleasant event. Table 10 lists the RDAD-NW program sessions.

Table 10

RDAD- Core Elements and Session Description

RDAD Core Elements	RDAD-NW Session	Description	RDAD-RCT session	Description
	Session I	Introduction and Rationale for Training Program	Session I	Introduction & Rationale for Treatment Program
	Session II	Exercise Program: warm-up/Cool-Down and Balance Exercises; Behavior Program: Realistic Expectations	Session II	Exercise program: Strengthening Exercises; Behavioral program: Realistic Expectations
ABC approach	Session III	Exercise Program: Strengthening Exercises; Behavior Program: Introduction to the ABCs	Session III	Exercise Program: Balance Exercises; Behavior Program: Introduction to the ABCs
Communication & ABC approach	Session IV	Exercise program: Endurance Exercises; Behavior Program: Applying the ABCs	Session IV	Exercise program: Endurance Exercises; Behavior Program: Applying the ABCs
	Session V	Exercise program: overview and practice; Behavioral program: developing a behavior plan	Session V	Exercise program: overview and practice; Behavioral program: developing a behavior plan
	Session VI	Exercise program: Monitoring and safety; Behavior program: Pleasant events	Session VI	Exercise program: Follow up & review; Behavioral program: follow up & review
Pleasant event	Session VII	Exercise program: Monitoring; Behavior program: Nutrition &	Session VII	Exercise program: Monitoring and safety; Behavior program:

		Pleasant events		Pleasant events
Pleasant event	Session VIII	Exercise program: Monitoring; Behavior program: coping with caregiving	Session VIII	Exercise program: Monitoring; Behavior program: Nutrition and Pleasant event
	Session IX	Exercise program: Review; Behavior Program: Maintaining Skills	Session IX	Exercise program: Monitoring; Behavior program: coping with caregiving
			Session X	Exercise program: Review; Behavior program: Maintaining Skills
			Session XI	Exercise program: Follow up & review; Behavioral program: follow up & review
			Session XII	Exercise program: Maintenance; Behavioral program: Maintenance

The average length of the RDAD-NW treatment session was 58.8 minutes. Two AAAs had sessions that were significantly shorter on average, with means of 39.8 mins and 47.8 mins.

Data from the RDAD Session Content Checklist indicated that the most helpful session content was as follows: (1) strength training, (2) realistic expectations, and (3) the caregiver support, in that order. The least helpful session contents were as follows: (1) nutrition and home safety, (2) using ABC cards, and (3) walking, also in that order. From interventionists' perspectives, using ABC cards and learning the ABC strategy was the first and second most difficult session content for participants, respectively, followed by strength training. Despite being the most difficult approach for participants, the number of times that the ABC approach was attempted increased significantly after its introduction at Session III. The ABC approach was attempted 112 times in Session IV and then reached the highest number of times attempted in Session VI (143 times). The number decreased in the later sessions: 129 times in Session VII, 123 times in Session VIII, and 114 times in Session IX respectively.

The RDAD-NW program fidelity monitoring process included (a) the training and certification process and (b) trainer audits of interventionists, where master trainers randomly listened to two audio recordings of the nine sessions and then gave feedback to interventionist candidates. Master trainers also used a checklist for each audio recording to measure whether the session content was adequately covered, as specified by the treatment protocol. The trained interventionist received the RDAD-NW program manual during the training. Materials were user friendly for both interventionists and participants. Even though no follow-up in-person trainings were conducted by the master training team, periodic newsletters were sent out to everyone as needed. Trainers were available by phone, e-mail, or for in-person consultation as needed.

As previously mentioned, a checklist (see Appendix B) was used by master trainers to rate the sessions that were audited. For each session, there were a number of items available for master trainers to check as they assessed the session’s completeness. For instance, Session I, II, V, VI, VII, VIII, and IX had a total possible score of 5 because there were 5 items being rated, and an interventionist could possibly complete and meet the standards for all five. Following the same logic, the total possible score was 6 for Session III, and 7 for Session IV. The higher the score earned, the better the completion level, and the closer to meeting the standard the interventionist candidate was. Results showed that the total scores earned from all session ranged from 4.12 to 6.28. On average, 87.8% of the session content met the standards as specified by the treatment protocol, with a range from 80% to 92%.

Using the same checklist, all the 19 newly certified interventionists were audited for their session completion. For each audited case, master trainers randomly listened to two audio recordings of the nine sessions. Eighteen out of 19 interventionists' audit results were recorded. One case was missing a session. Two audited cases recorded three sessions, while three audited cases recorded only one session. In eleven of the cases that were audited, the care recipient in the dyad either dropped out of the study or passed away during the time period for which the case was audited. For the 18 audited interventionists, the number of dyads that they worked with ranged from 3 to 26, and the number of cases that were audited ranged from 1 to 25. Based on the available data, about 74% of the cases were audited. The data for audited cases is summarized in Table 11.

Table 11
Interventionist Session Audit Data (n=18)

Interventionist ID	Number of cases seen by each interventionist	Number of cases audited	Number of cases eliminated from analysis due to participants dropping out or dying, or missing data	Number of cases analyzed
180	19	13	0	13
181	7	3	0	3
280	4	2	0	2
281	19	15	0	15
380	10	8	2	6
381	8	4	0	4
480	8	5	1	4
481	5	4	1	3
580	6	5	1	4
581	4	2	1	1
680	5	4	2	2
782	26	25	3	22
880	22	17	4	13
881	5	2	1	1
981	4	1	0	1
982	3	3	0	3
983	12	9	1	8
984	19	15	0	15
Total	186	137	17	120

Discussion & future indications

The study applied RE-AIM framework to evaluate the RDAD-NW translational study from the *Reach*, *Adoption*, *Implementation*, and *Maintenance* aspects. In the RDAD-NW translational study, the program was conducted with 255 dyads in six rural and four urban communities, with an overall 68.9% participation rate and a 58.8% adoption rate. For program maintenance, the participation rate stayed relatively high over the study period, and 54.9% (*n* = 140) of the initial participants remained in the program at the 13th month of the study period. After the study period ended, four AAAs indicated in their area plans that they continued to offer the RDAD program. The fidelity-monitoring process for the program included the following: (a) interventionist candidate training and certification by master trainers, (b) master trainer therapy session audits, (c) program checklists for monitoring content completion, (d) ongoing supervision of the master trainers via phone or e-mails, and (e) periodic newsletters.

In response to Aim 1, the RDAD-NW translational study was conducted in 10 Area Agencies on Aging across Washington and Oregon to assess RDAD-NW's public impact and its generalizability. Findings indicate that there was a representative sample of participants from various ethnic groups and ages in the RDAD-NW translational study. In addition, the RDAD-NW study reached states and communities where there is a demonstrated need of dementia-related education and caregiver support. A report from the Alzheimer's Association showed that caregivers of people with Alzheimer's disease are predominately female and Caucasian (Alzheimer's Association, 2013). Based on the study results, a representative segment of caregivers from each site's service area participated in the RDAD-NW study. By using broader inclusion criteria, the RDAD-NW intervention reached and served both urban and rural communities, which is an indication of the broader impact of the program.

The following discussion focuses on implementation sites, interventionists, and financial implications of the RDAD-NW dissemination process, which corresponds to Aim 2 (*Adoption* and *Maintenance*).

The adoption rate for the RDAD-NW translational study was 58.8%, showing that community interventionists demonstrated a high level of commitment to program delivery. This can be explained by the high level of involvement of AAA site managers in refining and modifying the program prior to delivery, and by the good communication between the RDAD-NW research team, the AAA site managers, and the interventionists during the various phases of program delivery (recruitment, intervention session management, data collection, etc.) The participating interventionists were case managers selected from each site. Since we did not collect data on the interventionists' educational level and years of experience, we cannot suggest minimum qualifications that potential interventionists would need to bring to the program. However, it is still important for implementation sites to assess general staff qualifications before committing to deliver a program.

When evaluating the RDAD-NW's translation effort, many lessons were learned on the program's maintenance and sustainability.

Lesson 1: It is important to align the program's purpose with the implementation site's vision and mission. The RDAD-NW program met this criterion for each of the sites and was therefore easily integrated into the sites' existing services. Low attrition and high adoption rates indicate a good match between the program and the communities' needs.

Lesson 2: Good communication between the research team and major stakeholders is another important factor. This process requires collaboration between researchers and clinical interventionists so that researchers can discuss how the intervention works, its effectiveness, and its potential for adoption (Lilienfeld et al., 2013; Onken et al., 2014). The RDAD-NW research team was able to achieve this collaboration prior to delivering the sessions.

Lesson 3: Clinical interventions may benefit from setting expectations for program delivery and program fidelity (Onken et al., 2014). Knowing what the expectations are, clinical interventionists will be more likely to deliver the sessions in a more conscious way.

Funding issues were identified as a challenge for program maintenance. In the RDAD-NW translational study, the start-up cost was about $2,073.40–$2,270.60 for urban communities and about $1,950–$2,073 for rural communities, including personal expenses for hiring master trainers and case managers and covering training, certification, and materials expenses. As for the cost for the RDAD-NW intervention, which comprised nine in-home sessions and three monthly phone calls, the cost was estimated to be between $336 and $544 per case. Since the RDAD-NW was designed to have the sessions take place in the participant’s home, the per-case expense included mileage reimbursement for the interventionists. The 10 sites that participated in the study may need to consider obtaining funding for the per-case expense if they want to continuously offer the program by their trained interventionists. As for new sites that are interested in implementing the program, they need to consider both the start-up cost and the program (per-case) cost. To date, four of the 10 AAA sites that participated in the study indicated in their area plans that the RDAD is one of their dementia-related programs. In the RDAD-NW study, master trainers from the RDAD-NW research team monitored the program fidelity. In total, master trainers spent 275 hours auditing the 137 cases and providing feedback. It could potentially be a huge expense for agencies to hire master trainers to conduct the monitoring; therefore, agencies implementing the program may wish to consider alternatives to using master trainers for this task.

For program maintenance, the RE-AIM framework also looks at whether the program has been integrated into interventionists' routine practice after the initial funding ends. Interventionists in the RDAD-NW study had a high level of commitment, and some of them are still utilizing the intervention in their practice. This shows that interventionists' buy-in and motivation can play an important role in sustaining the program. Therefore, in addition to communicating with interventionists about the mechanism of action of the intervention, agencies should develop incentives for community interventionists who would like to deliver the program. For example, the RDAD-NW research team could seek opportunities to have the RDAD certificate be accredited by professional organizations. Finally, in the RDAD-NW translational study, the sessions were delivered in participants' homes, and the format was the same as designed in the original RDAD study. However, if agencies want to change the delivery format from in-home to group sessions to continue the program within their existing services, they would need to consider whether there is a physical building and basic office supplies for delivering the sessions. Most importantly, the RDAD's effectiveness in a group setting will need to be tested in future studies prior to implementation.

For Aim 3, the author evaluated the RDAD-NW translational study's implementation of the RE-AIM framework. The findings indicate that the current study made a significant contribution to better understanding how an evidence-based program such as RDAD-NW was implemented via community-based organizations and how the program's fidelity was monitored during the translational process.

As discussed by Onken and colleagues, a program/intervention's adherence to the original program could be at risk during the translational process, and the key components may or may not get retained (Onken et al., 2014). Typical modifications of a program involve shortening sessions and changing the delivery format, among other things (Onken et al., 2014). In the RDAD-NW translational study, the number of sessions was reduced from 12 to 9 over 6 weeks, per the agencies' requests; however, the key components and the delivery format (i.e., in-home sessions) remained the same as in the original protocol. In addition, several steps were taken to monitor program fidelity and to ensure that the RDAD intervention was delivered in a manner consistent with principles established in the protocol. First, all potential interventionists were required to attend the 16-hour training with master trainers who were involved in the development of the initial RDAD protocol. Second, during the training session, a user-friendly hard copy of the RDAD protocol was provided to attendees, and they had the opportunity to practice their skills with master trainers. Third, master trainers communicated frequently with attendees regarding expectations for delivering RDAD sessions as indicated in the protocol, and received a verbal agreement from interventionist candidates that they would follow the RDAD-NW protocol by the end of the training. In addition, potential interventionists needed to be certified to deliver the RDAD session. Moreover, during the study period, master trainers provided ongoing supervision and audited sessions randomly. The results from each audit were discussed between master trainers and the interventionists in a timely fashion. The intervention process checklist and RDAD session length tracking sheet were used as tools for auditing and monitoring. A total of 74% of the cases were audited for two sessions, and master trainers spent almost 274 hours on the auditing, which indicates how closely the cases were monitored. The audit results showed that an average of 87.8% of the session content was covered and met the standards as specified by the treatment protocol, which indicates that the interventionists were highly compliant with the RDAD protocol. Finally, even though there was no follow-up in-person training, RDAD-NW research team members were available via e-mail or phone to answer questions, and periodic newsletters were sent out to every interventionist as needed. Based on the discussions above, the RDAD-NW translational study had an established fidelity monitoring mechanism and achieved moderate program fidelity.

Nevertheless, some challenges were also identified regarding the RDAD session content. The major one was the utilization of the ABC approach for behavior management. As one of the key components, the ABC strategy was retained in the RDAD-NW sessions, but from the interventionists' perspectives, using ABC cards and learning the ABC strategy were two of the most difficult steps. The available data provided information only on how many times the ABC approach was attempted in each session, without offering any reasons why interventionists thought it was difficult. However, it is worth pointing out that care recipients having behavioral issues was not one of the inclusion criteria; therefore, some participants might not have had concerns about CR behavior problems when they entered the study. Consequently, a possible explanation for the feedback that the ABC approach was "difficult for participants to use" may be that there was no need to use the approach because care recipients had no such concerns at the time. The problem could also have been that the interventionists were substituting "difficult for participants to use" for some other concern. Future research is needed to follow up with both the interventionists and the study participants to discuss the ABC approach's mechanism of action and seek their input for refining the current ABC strategies.

In summary, after evaluating the *Reach, Adoption, Implementation,* and *Maintenance* aspects of the RDAD-NW's translational efforts, we found that the RDAD-NW intervention is an implementable, multicomponent program with a rigorous program fidelity-monitoring process. It has potential to have a positive impact on a much broader community and to help community-dwelling residents with Alzheimer's disease and other types of dementia and their caregivers.

Due to the lack of data for non-Caucasian populations, the program's generalizability to other AAA communities beyond the ones studied remains unknown. Therefore, future studies should address that gap. Moreover, despite the fact that RDAD-NW established a series of strategies for program monitoring, those strategies may not be applicable to other translational programs, since each program has a large number of unique variables. Future research is needed to develop a universal fidelity-monitoring measurement.

The above discussion related the challenges, limitations, and future indications of the RDAD-NW translational study. The major limitation of the current dissertation study is the lack of data. At the time the study was conducted, data on some characteristics of the care recipients and caregivers were not available; therefore, evaluation of the program's representativeness and its public impact is very limited. The follow-up survey sent to the interventionists had a very low response rate; thus, the available information might not reflect the total program maintenance at 13 months after program conclusion. Future research is needed to address the following questions: (a) What is the best way to evaluate a translational program's public health impact with limited data? and (b) Using RDAD-NW's established fidelity-monitoring strategies, can a fidelity-monitoring measurement be developed that will be applicable to other translational studies?

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Appendix A. Sustainability of RDAD

Responses from AAA's for Sustaining RDAD Compiled

10 Individual Responses from 7 out of 9 Agencies

1. Is anyone in your agency using the RDAD program presently?

(6) No

a. Has anyone in your agency administered the program since it ended? Or have they done so recently?

(4) No

(1) Yes, one coach has used it once or twice since it ended.

(1) Not in the complete, formal protocol.

2. Are case managers incorporating parts of the RDAD program in their work?

(2) Yes both coaches state that they incorporate this work into their routine work.

(2) Staff may use "pieces" as appropriate with specific clients.

(1) We don't employ case managers

(1) Case managers were not trained in RDAD, our Health Educators were

(1) No / Maybe?

(1) Not at this time

a. If so, which parts?

(2) ABC card and Communication with a person with dementia; Pleasant Events; Signs of depression and ways to prevent or combat it.

(1) Depends upon the client situation

(1) Star C and PEARLS are somewhat similar

b. If not, do you know why not?

(1) Only one case manager trained in the RDAD protocol. She stopped accepting referrals when funding to support this activity ended.

(1) That wasn't the expectation. Only one RDAD coach that currently does not have a caseload. Ongoing case management does not include teaching exercise or specific behavior solving techniques.

3. Is there any interest within your agency to continue to off the RDAD Program?

(2) It was really hard to get referrals, similar to STAR C.

(1) Program was very valuable but time intensive. Wish a trained volunteer or two could implement the program, it could be very rewarding. Agency is committed to offering evidence based programs; money and time are always issues.

(1) We value the program, but it is cost prohibitive in the current design.

(1) Not formally

(1) If our original RDAD coaches were interested, then I would be willing to consider it.

(1) Great program, need a billing source. Currently offered to individuals under Family Caregiver Support Program dollars.

(1) Yes, Pierce County is interested in continuing to offer the RDAD program.

a. What would help you to do that?

(1) We did not come up with any great ideas

(1) We would need funding to support their time.

(1) Pierce County has set aside a small amount of Older American's Act 2017 funding to maintain a limited capacity to continue to utilize Jessica to provide RDAD service to families in our Family Caregiver Support Program. Recommend reducing the number of in-person visits, ready to begin now.

(1) Provide a train the trainer model to promote capacity to manage growth and staff transition.

(1) Evaluate the exercise component. Found that participants struggled to sustain exercise. Could exercise be offered in a group setting? There is an unmet need for exercise opportunities.

4. If you could change something about the RDAD program, what would it be?

(2) Rethinking the push of the ABC Plan after introduction to it when CG's report no apparent behaviors. CG's don't seem to like tracking weekly progress for ABCs, the form is usually not completed. If a CG has a problem with the program, it is usually with this piece.

(2) Allow a little more session time (90 mins. suggested)

(2) Coaches should help the CG's find resources in the community for respite care, community activities, and pleasant events.

(1) Start exercises in first session

(1) Leave out the use of the weights. Too complicated.

(1) Reduce the number of sessions from 9 to 6. Clients beginning to get burnt out by the last several sessions.

(1) Protocol is extremely rigid.

(1) Give the CG less homework and handouts.

5. What suggestions do you have for future implementations of RDAD?

(1) The program could reach far more people if some of these great tools could just be a part of everyday work with those with dementia. Full out RDAD only with trained specialists.

(1) Could exercise component be offered in a group setting? Including CG's who have completed STAR C.

(1) Monthly phone calls feel less relevant by the 3rd and 4th calls

(1) Offering a similar curriculum in a group setting would increase sustainability.

(1) Change monthly phone calls to monthly visits with the CG alone.

(1) Ensure that RDAD is widely publicized in the Alzheimer’s tool box.

(1) Program could be widely implemented in the community, perhaps offered at local Senior Centers as well as through Senior Services.

(1) Offer the program in assisted living communities and skilled nursing facilities.

(1) Difficult to implement in rural communities

(1) None at this time.

Appendix B. RDAD COACH Review form

ID Number: ______________

Supervisor: ______________

Session Content

Meets Standards	Does Not Meet Standards	Description
Session 1. Introduction to RDAD		
☐	☐	Coach introduces self and reviews treatment logistics
☐	☐	Rationale for daily exercise and review of exercise goals, including whether an "exercise buddy" is needed
☐	☐	Dementia is a brain disease affecting mood and behavior
☐	☐	Rationale for behavioral problem-solving
☐	☐	Assign reading homework (*Understanding Alzheimer's* book, pp. 1-10, *Realistic Expectations* and *Your Exercise Program* handouts)
Session 1 Total Score:	***Comments:***	
Session 2. Warm-up/Cool-down Exercises and Realistic Expectations		
☐	☐	Review *all* homework assigned (readings, contacting exercise buddy if appropriate)
☐	☐	Explain rationale for warm-up, cool-down, and balance exercises, and daily monitoring (using the *Weekly Exercise Plan*)
☐	☐	Demonstrate and practice warm-up, cool-down, and balance

		exercises
☐	☐	Dementia changes care-recipient and caregiver roles and what is realistic to expect
☐	☐	Assign homework: *Weekly Exercise Plan* and readings (*Understanding Alzheimer's* book, pp. 10-13, *Home treatment for Muscle Soreness* handouts)

Session 2 Total Score:	***Comments:***

Session Content

Meets Standards	**Does Not Meet Standards**	**Description**
Session 3. Strengthening Exercises and Introduction to ABCs		
☐	☐	Review *all* homework assigned (*Weekly Exercise Plan*, readings, discuss any problems/soreness related to exercise practice)
☐	☐	Observe warm-up/cool-down and balance exercises
☐	☐	Explain rationale for strengthening exercises
☐	☐	Demonstrate and practice strengthening exercises
☐	☐	Introduction to the ABCs (pick behavior, 4Ws, look for activators and consequences)
☐	☐	Assign homework: *Weekly Exercise Plan*, readings (*Understanding Alzheimer's* book, pp. 13-25), and monitoring using *ABC Card*

Session 3 Total Score:	***Comments:***

Session 4. Endurance Exercises and Applying the ABCs		
☐	☐	Review *all* homework assigned (*Weekly Exercise Plan*, readings, discuss any problems/soreness related to exercise practice)
☐	☐	Observe warm-up/cool-down, balance, and strengthening exercises
☐	☐	Explain rationale for endurance exercises and set walking goal
☐	☐	Dementia affects how persons with dementia communicate their needs and wants
☐	☐	Review *Practical Communication* handout
☐	☐	Review *ABC Card* from past week
☐	☐	Assign homework: *Weekly Exercise Plan*, Pick target behavior to monitor this week using *ABC Card*

Session 4 Total Score:	***Comments:***

Session Content

Meets Standards	**Does Not Meet Standards**	**Description**
Session 5. Exercise Practice and Developing a Behavior Plan		

☐	☐	Review *all* homework assigned (*Weekly Exercise Plan*, use of *ABC Card*, discuss any problems/soreness related to exercise practice)
☐	☐	Observe warm-up/cool-down, balance, and strengthening exercises; discuss walking goal and modify as needed
☐	☐	Steps for problem-solving behaviors using the ABCs are described
☐	☐	Coach and caregiver fill out ABC Problem-Solving Plan together for target behavior identified by caregiver
☐	☐	Assign homework: *Weekly Exercise Plan*, readings (*Problem-Solving Example*), and implementing *ABC Problem-Solving Plan*
Session 5 Total Score:	***Comments:***	

Session 6. Exercise Practice, Home Safety, and Introduction to Pleasant Events		
☐	☐	Review *all* homework assigned (*Weekly Exercise Plan*, readings, use of *ABC Problem-Solving Plan*, discuss any problems/soreness related to exercise practice)
☐	☐	Observe warm-up/cool-down, balance, and strengthening exercises; discuss walking goal and modify as needed
☐	☐	Introduce *Home Safety Checklist* and either complete with caregiver in-session or assign as homework
☐	☐	Discuss importance of pleasant events to maintain mood
☐	☐	Assign homework: *Weekly Exercise Plan*, continued use of *ABC Problem-Solving Plan*, complete *PES-AD*
Session 6 Total	***Comments:***	

Score:	

Session Content

Meets Standards	**Does Not Meet Standards**	**Description**
Session 7. Exercise Practice, Nutrition, and Pleasant Events		
☐	☐	Review *all* homework assigned (*Weekly Exercise Plan*, use of *ABC Problem-Solving Plan*, discuss any problems/soreness related to exercise practice, caregiver plans for improving safety in the home).
☐	☐	Observe warm-up/cool-down, balance, and strengthening exercises; discuss walking goal and modify as needed
☐	☐	Discuss how dementia changes food intake and preferences, and the importance of a good diet in dementia care.
☐	☐	Review PES-AD with caregiver and develop plan for caregiver to do 1-2 pleasant events with care-recipient in the next week.
☐	☐	Assign homework: *Weekly Exercise Plan*, readings (*Understanding Alzheimer's* book, pp. 25-33, *Nutrition for Good Health* handout), implementing *ABC Problem-Solving Plan* and pleasant events

Session 7 Total Score:	***Comments:***

Session 8. Exercise Practice and Coping with Caregiving		
☐	☐	Review *all* homework assigned (*Weekly Exercise Plan*, readings, use of *ABC Problem-Solving Plan*, pleasant events plan, discuss

		any problems/soreness related to exercise practice)
☐	☐	Observe warm-up/cool-down, balance, and strengthening exercises; discuss walking goal and modify as needed
☐	☐	Review of stresses associated with caregiving and strategies caregivers can use to manage their stress
☐	☐	Identify pleasant event for caregiver to do for self in next week
☐	☐	Assign homework: *Weekly Exercise Plan*, readings (*Changing Negative or Depressive Thoughts* and *Community Resources* handouts, continued use of *ABC Problem-Solving Plan* and pleasant events

Session 8 Total Score:	***Comments:***

Session Content

Meets Standards	**Does Not Meet Standards**	**Description**
Session 9. Review and Maintaining Skills		
☐	☐	Review *all* homework assigned (*Weekly Exercise Plan*, readings, use of *ABC Problem-Solving Plan*, pleasant events, discuss any problems/ soreness related to exercise practice)
☐	☐	Observe warm-up/cool-down, balance, and strengthening exercises; discuss maintenance walking goals
☐	☐	Review of successes and benefits from RDAD to date, caregiver feedback about the program
☐	☐	Encourage caregiver and care-recipient to continue to exercise

		and to use all the tools and skills learned over past 9 weeks
☐	☐	Schedule 4 monthly phone calls

Session 9 Total Score:	***Comments:***

Overall Ratings

Meets Standards	**Does Not Meet Standards**	**Description**
Maintaining Behavioral Treatment Focus		
☐	☐	Coach guides caregiver to focus on observable behaviors.
☐	☐	Coach avoids making interpretations or inferences.
☐	☐	Coach focuses on current behaviors, not past events.
☐	☐	Coach avoids excessive chit-chat.

Meets Standards	**Does Not Meet Standards**	**Description**
Assisting Caregiver in Brainstorming		
☐	☐	Coach avoids advice-giving.
☐	☐	Coach guides caregiver to brainstorm his/her own ideas.
☐	☐	Coach facilitates development of exercise and behavioral plans.
☐	☐	Coach emphasizes the value of monitoring using exercise log and ABC problem-solving forms.

Responsiveness to Supervisor Feedback		
☐	☐	Coach acknowledges receiving feedback from supervisor.
☐	☐	Coach incorporates suggestions from supervisor into future sessions.
☐	☐	Coach accepts feedback without defensiveness when it is given.
☐	☐	Coach asks questions and requests help from supervisor to ensure protocol is being followed correctly.

Overall Ratings Score:	***Comments:***

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