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Accelerated Resolution Therapy: Randomized Controlled Trial of a Complicated Grief Intervention

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Abstract

Background and Objectives: Complicated grief (CG) is severe, prolonged (>12 months) grieving. Complicated grief disproportionately affects older adults and is associated with negative physical/psychological effects. Although treatment options exist, those which do are time-intensive. We report on a randomized clinical trial (RCT) which examined whether accelerated resolution therapy (ART), a novel mind-body therapy, is effective in treating CG, post-traumatic stress disorder (PTSD), and depression among hospice informal caregivers. **Research Design and Methods:** Prospective 2 group, wait-listed RCT. All participants were scheduled to receive 4 ART sessions. **Inclusion:** ≥60 years, inventory of CG >25, and PTSD checklist for *Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition* >33 or Psychiatric Diagnostic Screen Questionnaire PTSD subscale >5. **Exclusion:** Major psychiatric disorder, other current psychotherapy treatment. Depression was measured by the Center for Epidemiologic Studies Depression. **Results:** Mean (standard deviation [SD]) age of 54 participants was 68.7 (7.2) years, 85% female, and 93% white. Participants assigned to ART reported significantly greater mean (SD) CG reduction (−22.8 [10.3]) versus Wait-list participants (−4.3 [6.0]). Within-participant effect sizes (ESs) for change from baseline to 8-week post-treatment were CG (ES = 1.96 (95% confidence interval [CI]: 1.45-2.47; $P < .0001$), PTSD (ES = 2.40 [95% CI: 1.79-3.00]; $P < .0001$), depression (ES = 1.63 [95% CI: 1.18-2.08; $P < .0001$). Treatment effects did not substantially differ by baseline symptom levels. **Discussion and Implications:** Results suggests that ART presents an effective and less time-intensive intervention for CG in older adults. However, it should undergo further effectiveness testing in a larger, more diverse clinical trial with a focus on determining physiological or behavioral mechanisms of action.

Keywords

bereavement, post-traumatic stress disorder, depression, family, caregiver, randomized clinical trial, complicated grief

Background

Grief and bereavement are normal responses to death with gradual recovery expected. Unfortunately, 10% to 15% of bereaved individuals do not adapt to their loss[1] but instead experience acute grief symptoms well beyond the usual 6 to 12 months' recovery period.[2] This prolonged grieving period with absent adaptation is referred to as complicated grief (CG).[1,3,4] Complicating CG diagnosis and treatment is a lack of consensus on terminology and key symptoms by individual researchers/clinicians and the *Diagnostic and Statistical Manual of Mental Disorders* (*DSM*) and *International Classification of Diseases 11th Revision*.[5-7]

Complicated grief disproportionately affects older adults with more than 25% of bereaved older adults experiencing CG.[2,8] Compounded losses of multiple family members/friends, increased likelihood the deceased is a spouse or partner, and loss related financial burden are factors in this higher incidence.[8,9] Complicated grief is associated with numerous negative psychological effects including loneliness, social isolation, anxiety, clinical depression, and cognitive impairment.[9,10] Individuals presenting with a primary diagnosis of

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CG exhibit elevated rates of comorbid post-traumatic stress disorder (PTSD) −48% current, 52% lifetime.[11] High rates of CG have also been documented in individuals with a primary diagnosis of major depressive disorder.[12,13]

To date, clear CG treatment guidelines do not exist and optimal dose and timing of interventions are not well defined.[6] Although treatment options exist, few are available apart from the grief services that all Medicare-funded hospices are required to provide for 12 months.[14] These services are not billable nor are they clearly defined beyond, "provide emotional, psychological, and spiritual support and services."[14] Therefore, hospices interpret them differently resulting in uneven support for bereaved caregivers.

Accelerated resolution therapy (ART) is an evidence-based therapy for the treatment of trauma, stress-related disorders, and depression[15-18] that is effective in alleviating PTSD in 3 to 4 sessions.[15] Accelerated resolution therapy includes core components of imaging rescripting, memory reconsolidation, guided visualization with use of eye movements, desensitization and processing of distressing memories, and in vitro exposure to future feared triggers.[19] Accelerated resolution therapy focuses on the present experience and story of the individual rather than the symptoms experienced and relies on the use of metaphors and Gestalt underpinnings that focus on themes, relationships, unfinished business, and cognitive dissonance. Given the unique but overlapping symptom pattern shared by PTSD and CG,[20] our team hypothesized that ART might prove equally effective in treating CG.

The purpose of this article is to report on a recent, randomized clinical trial which examined ART's effectiveness for the treatment of CG and associated psychological trauma among older adult hospice informal caregivers. This was addressed in 2 aims which (1) compared pre-to-post ART symptom changes in magnitude of CG, PTSD, and depressive symptoms by comparing results between a post-ART group and a control group; and (2) investigated variation in treatment response by baseline symptom levels of CG and PTSD and depressive symptoms.

Methods

Study Design and Participants

This was a randomized, wait-list controlled trial comprised of informal caregivers (n = 54) recruited from a large hospice in the southeastern United States. Caregivers were included if ≥60 years old, experienced the death of their care recipient at least 12 months prior to enrollment, denied suicidal ideation or intent, and met diagnostic criteria for CG,[7] defined as score ≥25 on the 19-item inventory of CG (ICG), and scored ≥33 on the 20-item PTSD checklist for *Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition* (PCL-5)[21] or scored ≥5 on the Psychiatric Diagnostic Screen Questionnaire PTSD subscale (ie, screening criteria suggestive of PTSD). The rationale for this was 2-fold: Literature supports the efficacy of ART for PTSD and we wanted to look at the effect of ART in situ with a common comorbid condition. Caregivers were excluded if currently engaged in other psychotherapy treatments, gave evidence of psychotic behavior, or had a major psychiatric disorder such as bipolar disorder, substance abuse disorder treatment, or cognitive impairment all of which were deemed likely to interfere with ART. Ethical oversight was provided by a university institutional review board (IRB #Pro00032358). The trial was registered with ClinicalTrials.gov (NCT03484338).

Study Procedures

Hospice grief counselors identified caregivers who remained symptomatic toward the end of the conventional 12-month bereavement benefit period. The counselors provided a brief verbal summary of the study or showed a recruitment video before asking permission to refer the caregivers to the study. Upon verbal permission, caregiver contact information was provided to the investigators. The study coordinator then contacted the caregiver and scheduled an appointment for face-to-face screening which involved obtaining written consent from the caregiver, assessment of study eligibility, and a clinical interview with a trained ART therapist. By protocol, upon successful enrollment, participants were randomly assigned to receive ART either (1) during their first 4 weeks after enrollment or (2) beginning 4 weeks after enrollment. The 4-week delay group served as the formal control condition. Caregivers who screened out were thanked for their time and no further contact was made.

Intervention

The ART sessions were delivered by a trained therapist using a standard manualized protocol. All study therapists (3 in total) had previous experience in ART research. According to the protocol, sessions first oriented the participant to the ART process and then directed them to begin with a loss or some aspect of that loss; this could be the most recent death or a previous death. Therapists used a fidelity checklist that identified essential ART components along with documenting the elicited scene (eg, diagnosis, course of treatment, hospice involvement, care recipient's death, life now alone, unresolved relational aspects, or some other event) and theme (eg, loss, guilt, shame, anger, longing, regret, and identity) to guide the intervention.

Per the ART protocol, each session moved though the stages of exposure/recall, reduction or elimination of somatic-based distress, and rescripting/resolution to visualize a more positive future. Either ART process (scene or theme) was chosen by the therapist and participant to address the desired focus of that session. Participants were guided though imaginal exposure with left to right eye movements while focusing on the story as it emerged. Attention was given to all sensations, emotions, and thoughts experienced in the moment. Participants were not required to verbalize, but rather, visualize events or series of events until they were able to recall the events without distress. In this process, additional themes of pass lost, neglect, or abuse along with feelings of guilt or shame regarding actions taken or not taken and loss of identity often emerged. For many

participants, this involved conflicted feelings regarding loss of the relationship, changing roles from spouse to caregiver, to widow/widower and provoked strong visceral responses that became the focus of attention when triggered. Integration of the traumatic story into one's overall life story was evidenced by increased recall of details of the relationship without visceral responses. This essentially indicated shifting from the loss to the meaning of that relationship.

Outcome Instruments

Complicated grief was measured by the 19-item ICG,[22] which rates current feelings of grief. Participants selected from a 0 (never) to 4 (always) scale on statements common to grief. Scores range from 0 to 76 with a score $\geq$24 indicating presence of CG. Cronbach αs are 0.92 to 0.94 and 6-month test–retest reliability is 0.8; concurrent validity ranges from 0.67 to 0.87 when compared to other grief measures.[22] In the current study, baseline Cronbach α was 0.77 and bivariate correlations with the PCL-5 and Center for Epidemiologic Studies Depression (CESD) supported construct validity for all 3 constructs.

Post-traumatic stress disorder was measured by the 20-item PCL-5,[21] which rates items used to assess PTSD according to *DSM-5* criteria. Participants selected from 0 (not at all) to 4 (extremely) scale. Scores range from 0 to 80 with a score of 33 suggestive of a diagnosis of PTSD.[21] A reduction of 10 points or more indicates statistical and clinically meaningful improvement.[23] Concurrent validity ($r = .93$)[24] and evidence of test–retest reliability ($r = .96$)[25] are reported. In the current study, baseline Cronbach α was 0.86.

Depression was measured by the 20-item CESD[26] Scale, which rates items indicating risk and symptoms of depression. Participants selected from 0 (rarely or none of the time; less than 1 day) to 3 (most or all of the time; 5-7 days). Scores range from 0 to 60 with a score of $\geq$16 indicating risk for depression. The CESD has demonstrated reliability, validity, sensitivity, and specificity.[27,28] In the current study, baseline Cronbach α was 0.85.

Statistical Analysis

Recognizing the greater power afforded with repeated measures testing (>3 outcome measurements), we conservatively estimated an analytic sample size of 40 participants would provide 80% power to detect a medium effect size (ES) of 0.56.[29] Demographic, clinical, and symptom characteristics of participants at study entry ($n = 54$) were compared by random assignment (prespecified allocation) using student *t* tests or Wilcoxon tests (depending on distributional properties) for continuous variables and Fisher exact test of proportions for categorical variables.

For the primary comparison of the ART intervention versus control condition (Aim 1), mean (standard deviation [SD]) differences from pre- to post-assessment (approximately 4 weeks) for CG, PTSD, and depression were calculated. To compare treatment response by random assignment, analysis of covariance was used with the score at the end of the intervention period serving as the dependent variable, adjusted for preintervention score. Corresponding standardized ESs and 95% confidence intervals (CIs) were calculated using the between-group pretest–posttest design described by Morris and DeShon.[30] The intention-to-treat principle was followed using both a complete case analysis (participants with both pre- and postintervention scores) and multiple imputation to fill in values for 4 of 54 participants with missing postassessment outcome data. Given this low amount of incomplete outcome data, the multiple imputation algorithm was derived from the preassessment outcome value and 5 imputations.

As participants who were assigned to the control period could crossover to ART, all participants who ultimately received ART were pooled (Aim 2). Standardized ESs and 95% CIs were calculated using the within-person single group pretest–posttest design.[30] For this analysis, paired *t* tests were used to compare symptom response from pre-ART to post-ART, pre-ART to 8-week follow-up, and post-ART to 8-week follow-up (ie, assessment of sustainability of treatment). Analyses were also stratified by median baseline level of CG, PTSD, and depression. A 2-sided *P* value of <.05 was used to define statistical significance with no adjustment for multiple comparisons.

Results

Study Characteristics

A total of 65 individuals were assessed for study eligibility; 54 (83.1%) were eligible and subsequently enrolled (Figure 1). Of the enrolled participants, 32 (59.3%) were randomly assigned to immediately receive ART and 22 (41.7%) were assigned to the 4-week wait-list control condition. All participants assigned to ART ($n = 32$, 100.0%) and most assigned to the control condition ($n = 18$, 81.9%) received their assigned condition for the primary analysis. Of the 18 participants on the wait-list, all (100.0%) "crossed over" to receive ART after the 4-week wait-list period. Follow-up assessment at 8-week post-treatment was relatively high and similar ($P = .23$) between participants. A total of 187 sessions were delivered, with a mean (SD) of 3.7 (0.8) sessions per participant. There were no reported serious events. The mean (SD) duration of each ART session was 56.6 (19.0) minutes. From clinician notes, the most common themes addressed in the treatment sessions included traumatic events (95.3%), loss (92.3%), mixed grief and trauma (90.0%), simple grief (52.3%), and guilt (23.0%).

Participant Characteristics

Demographics. Mean age (SD) of participants was 68.7 (7.2) years, 85% were female, and 93% were white (see Table 1). Most participants were widowed (70%), nearly all (94%) had received prior in-person hospice grief counseling, and most (70%) had participated in a hospice grief support group. Importantly, baseline demographic characteristics of the trial participants were generally well balanced by random assignment except control participants were more likely to have received another (nonhospice) type of individual grief psychotherapy than the participants assigned to immediate ART (36.4% vs

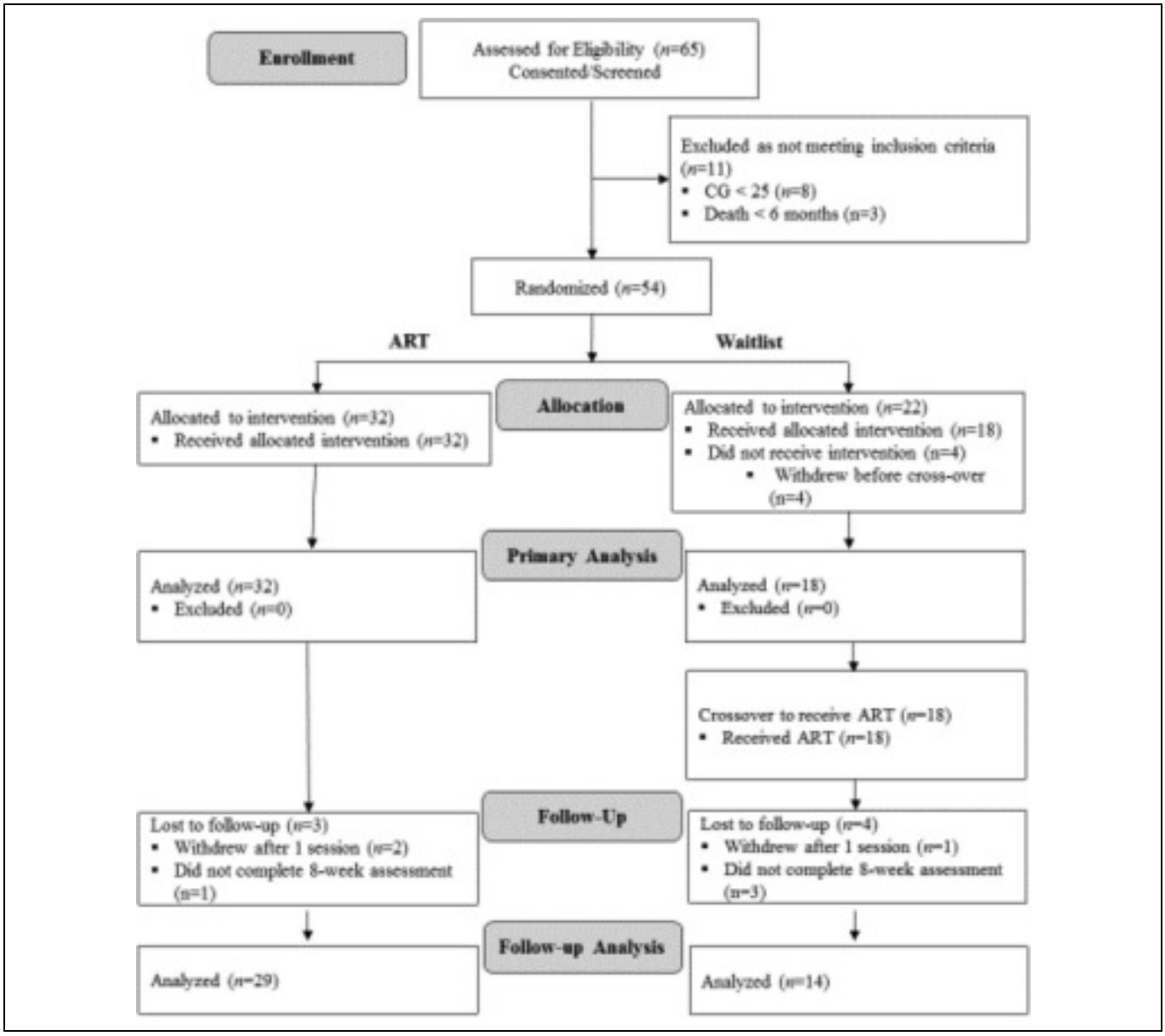

Figure 1. CONSORT diagram of participants screened, enrolled, randomized, analyzed, and followed in the trial.

9.4%, $P = .02$, respectively). From the clinician notes, participants reported on average 2.8 deaths (range 1-4) with over half (57%) reporting the death of a parent or spouse/partner. Other types of death included extended family members (14%), child or friend (10% each), or sibling (8%).

Clinical symptoms. By virtue of the inclusion criteria, mean (SD) scores were high on the ICG (40.2 [9.3]) and PCL-5 (42.0 [13.2]). Similarly, scores on the CESD were high (30.6 [10.6]) due to the known co-occurrences of CG, PTSD, and depression (see Table 2). Over 70% of participants presented with a provisional diagnosis of PTSD, and nearly all (96.2%) scored above the CESD criterion of $\geq$16 indicative of depressive disorder. The most prevalent prescription medications reported by class included antidepressants (47.2%), statin/cholesterol lowering (34.0%), antihypertensive (28.3%), and anti-anxiety medications (26.4%). Similarly, baseline clinical characteristics were generally well balanced by random assignment. Notable exceptions included a higher rating of the mean percentage of time not in good mental health in the past 30 days in the control group compared to immediate ART group (81.7% vs 64.3%, $P = .09$), yet lower reported prevalence of significant reduction in daily functioning in the control group compared to ART group (63.6% vs 87.5%, $P = .04$).

Aim 1: Initial treatment response by random assignment. Participants assigned to ART reported a significantly greater mean (SD) reduction in grief symptoms (−22.8 [10.3]) compared to

Table 1. Baseline Demographic Characteristics of Study Population by Random Assignment.

Characteristic	All Participants (n = 54)	ART (n = 32)	Wait-list (n = 22)	*P* Value
Age in years, mean, SD	68.7, 7.2	68.3, 6.9	69.4, 7.7	.58
Age in years, %				
Less than 65	31.5	34.4	27.3	.70
65 to 74	46.3	43.8	50.0	
75 or older	22.2	21.9	22.7	
Female gender, %	85.2	87.5	81.8	.57
White race, %	92.6	96.9	86.4	.15
Hispanic ethnicity, %	13.0	12.5	13.6	.90
Marital status, %				
Married/partnered	11.3	6.3	19.0	.18
Divorced	13.2	12.5	14.3	
Widowed	69.8	75.0	61.9	
Single/never married	5.7	6.3	4.8	
Formal education completed, %				
Less than high school	18.9	12.5	28.6	.51
Some college/technical	30.2	37.5	19.0	
Associate degree	13.2	9.4	19.0	
Bachelor's degree	15.1	15.6	14.3	
Graduate degree	22.6	25.0	19.0	
Annual household income, %				
Less than $25 000/year	40.8	45.2	33.3	.29
$25 000-$49 000/year	36.7	35.5	38.9	
$50 000- $74 000/year	12.2	12.9	11.1	
More than $75 000/year	10.2	6.5	16.7	
No. of times hospitalized since care recipient passed, %				
None	77.4	81.3	71.4	.53
One time	5.7	3.1	9.5	
Two times	5.7	6.3	4.8	
3 or more times	11.3	9.4	14.3	
No. of times visited PCP since care recipient passed, %				
None	7.4	6.3	9.1	.15
1 time	1.9	0.0	4.5	
2 times	13.0	6.3	22.7	
3 or more times	77.8	87.5	63.6	
Months from death of care recipient, mean, SD	24.3, 22.2	25.0, 26.0	23.3, 18.8	.79
Months from death of care recipient, %				.88
6 months to 1 year	20.4	21.9	18.2	
1 to 2 years	53.7	53.1	54.5	
2 to 3 years	11.1	9.4	13.6	
More than 3 years	14.8	15.6	13.6	
Received in person hospice grief counseling, %	94.4	96.9	90.9	.35
Received hospice grief group support, %	70.4	68.8	72.7	.76
Months hospice grief support group, mean, SD	1.5, 2.6	1.4, 2.7	1.7, 2.6	.74
Less than 3 months hospice support group grief counseling, %	88.9	91.8	81.8	.38
Received other treatment for grief, %	24.1	21.9	27.3	.65
Received other individual grief psychotherapy, %	20.4	9.4	36.4	.02

Abbreviations: ART, accelerated resolution therapy; PCP, primary care physician; SD, standard deviation.

wait-list participants (−4.3 [6.0]; Table 3 and Figure 2). The corresponding ES was 1.79 (95% CI: 1.12-2.46; $P < .0001$). The treatment response was also very strong for symptoms of PTSD (ES = 2.13 (95% CI: 1.42-2.85; $P < .0001$) and depression (ES = 1.10 [95% CI: 0.48-1.72; $P < .0001$).

Within-participant treatment response irrespective of random assignment. Among the 50 participants who received ART, there was consistent evidence for both initial and sustained response at 8-week post-treatment for reductions in symptoms of CG, PTSD, and depression (Figure 3). The corresponding within-participant ESs for symptom change from baseline to 8-week post-treatment with ART were CG (ES = 1.96 [95% CI: 1.45-2.47]; $P < .0001$), PTSD (ES = 2.40 [95% CI: 1.79-3.00]; $P < .0001$), depression (ES = 1.63 [95% CI: 1.18-2.08]; $P < .0001$).

Aim 2: Variation in treatment response by baseline symptom levels of CG, PTSD, and depressive symptoms. As seen in Table 4, within-participant changes in CG, PTSD, and depression from pretreatment with ART to 8-week follow-up were very large and occurred

Table 2. Clinical and Symptom Characteristics of Study Population by Random Assignment.

Characteristic	All Participants (n = 54)	ART (n = 32)	Wait-list (n = 22)	*P* Value
Charlson comorbidity index score, mean, SD	0.7, 1.0	0.9, 1.1	0.4, 0.8	.08
Score inventory of complicated grief, mean, SD	40.2, 9.3	39.8, 9.6	40.9, 9.1	.68
Score-prolonged grief disorder scale, mean, SD	39.4, 7.4	38.5, 7.2	40.6, 7.6	.29
Daily longing/intense pain-grief past 6 months, %	90.7	87.5	95.5	.33
Significant reduction in daily functioning, %	77.8	87.5	63.6	.04
Score-PTSD checklist (PCL-5), mean, SD	42.0, 13.2	44.1, 12.0	39.0, 14.6	.17
PCL total score 33 or higher, %	79.2	83.9	72.7	.33
PCL-5 provisional PTSD diagnosis, %	71.7	77.4	63.6	.28
Score-PTSD subscale of PDSQ, mean, SD	8.3, 4.1	8.7, 3.6	7.8, 4.6	.45
PDSQ PTSD subscale 5 or higher, %	80.0	88.5	68.4	.10
Score-CESD (depression), mean, SD	30.6, 10.6	29.8, 11.1	31.7, 10.0	.52
CESD score 16 or higher (depression), %	96.2	93.3	100.0	.22
Overall rating of general health, %				
Poor	1.9	3.2	0.0	.86
Fair	20.8	19.4	22.7	
Good	37.7	38.7	36.4	
Very good	24.5	19.4	31.8	
Excellent	15.1	19.4	9.1	
Currently limited in any activities because of any impairment or health, %	48.1	50.0	45.5	.75
Percent of time felt very healthy and full of energy in past 30 days, mean, SD	14.1, 23.5	18.0, 24.8	8.4, 21.0	.18
Percent of time mental health not good in past 30 days, mean, SD	71.6, 33.0	64.3, 33.9	81.7, 29.9	.09
Percent of time physical health not good in past 30 days, mean, SD	24.4, 35.8	17.7, 27.6	34.0, 44.0	.16
Percent of time insufficient rest or sleep in past 30 days, mean, SD	60.2, 41.4	56.4, 43.2	66.3, 38.7	.43
Current use of prescription medications, %				
Anti-depressant	47.2	48.4	45.5	.83
Anti-anxiety	26.4	25.8	27.3	.91
Sleep (eg, insomnia)	17.0	9.7	27.3	.10
Diabetes (oral agent/insulin)	17.0	22.6	9.1	.20
Statin/cholesterol lowering	34.0	25.8	45.5	.14
Antihypertensive	28.3	25.8	31.8	.64
Analgesics	18.9	19.4	18.2	.92
Blood thinner/anticlotting	17.0	12.9	22.7	.35
GERD/GI medication	15.1	16.1	13.6	.80
Hypothyroid medication	15.1	12.9	18.2	.60

Abbreviations: ART, accelerated resolution therapy; CESD, Center for Epidemiologic Studies Depression; *DSM-5*, *Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition*; PCL-5, PTSD checklist for *DSM-5*; PDSQ, Psychiatric Diagnostic Screen Questionnaire; PTSD, post-traumatic stress disorder; SD, standard deviation.

Table 3. Symptom Response Scores and Effect Sizes of Outcome Measures by Random Assignment (Intervention Period).[a]

	ART				Wait-list						
Outcome Measure	n	Pre	Post	Δ	n	Pre	Post	Δ	ES[b]	95% CI	*P* Value[c]
Inventory of complicated grief											
Complete case analysis	32	39.9 (9.4)	17.1 (9.1)	−22.8 (10.3)	18	40.3 (9.4)	35.9 (11.7)	−4.3 (6.0)	1.79	1.12, 2.46	<.0001
Imputed analysis	32	39.9 (9.4)	17.1 (9.1)	−22.8 (10.3)	22	40.9 (9.1)	36.3 (10.8)	−4.5 (5.5)	1.82	1.18, 2.46	<.0001
PTSD checklist (PCL-5)											
Complete case analysis	32	44.1 (11.8)	13.2 (9.8)	−30.9 (11.6)	18	38.1 (15.1)	32.2 (13.2)	−5.9 (9.0)	2.13	1.42, 2.85	<.0001
Imputed analysis	32	44.1 (11.8)	13.2 (9.8)	−30.9 (11.6)	22	39.0 (14.6)	32.5 (12.6)	−6.5 (8.4)	2.11	1.44, 2.79	<.0001
CESD—depression											
Complete case analysis	30	29.8 (11.1)	14.9 (10.7)	−14.9 (11.6)	18	31.1 (10.5)	28.4 (11.3)	−2.7 (4.7)	1.10	0.48, 1.72	<.0001
Imputed analysis	32	30.3 (11.3)	15.4 (11.0)	−14.9 (11.2)	22	31.7 (10.0)	28.8 (10.7)	−2.9 (4.4)	1.09	0.51, 1.66	<.0001

Abbreviations: ANCOVA, analysis of covariance; ART, accelerated resolution therapy; CESD, Center for Epidemiologic Studies Depression; CI, confidence interval; *DSM-5*, *Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition*; PCL-5, PTSD checklist for *DSM-5*; ES, effect size; PTSD, post-traumatic stress disorder; SD, standard deviation.

[a] Pre, post, and Δ values are presented as mean (SD).

[b] ES: positive values reflect improvement in the ART group versus wait-list control group.

[c] *P* value is based on ANCOVA adjusting for baseline value of the outcome measure.

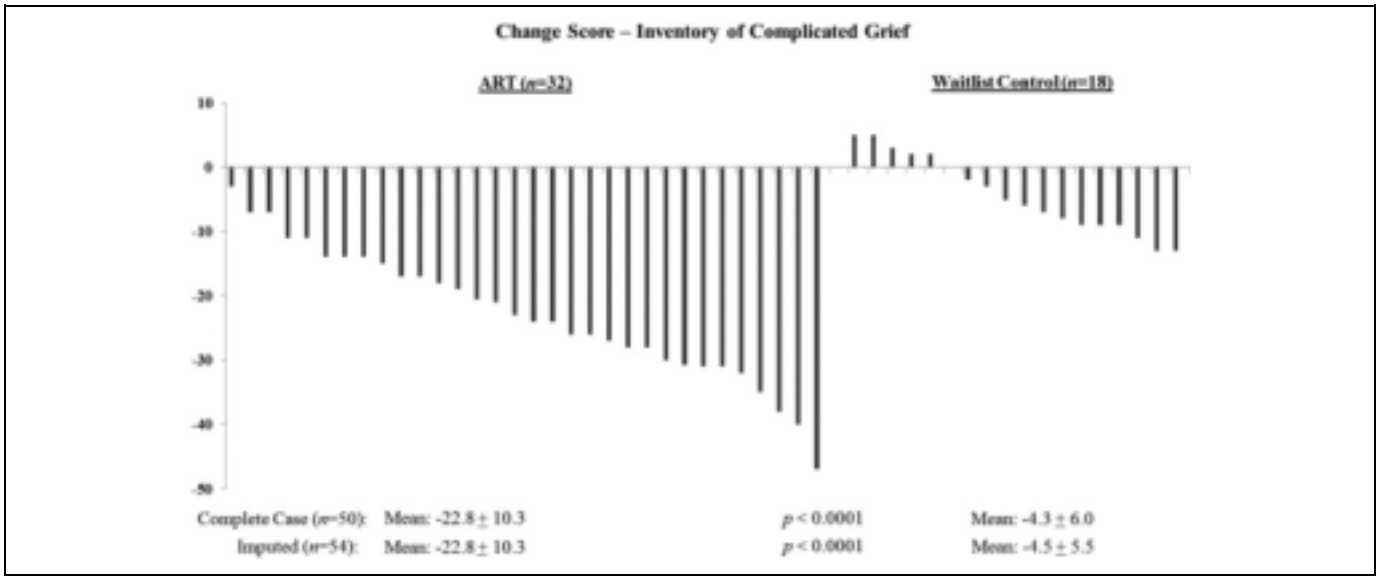

Figure 2. Change in score on the Inventory of Complicated Grief scale by random assignment. Each vertical bar represents the change for a trial participant from baseline to end of the intervention period (completion of treatment with ART or wait-list control period). ART indicates accelerated resolution therapy.

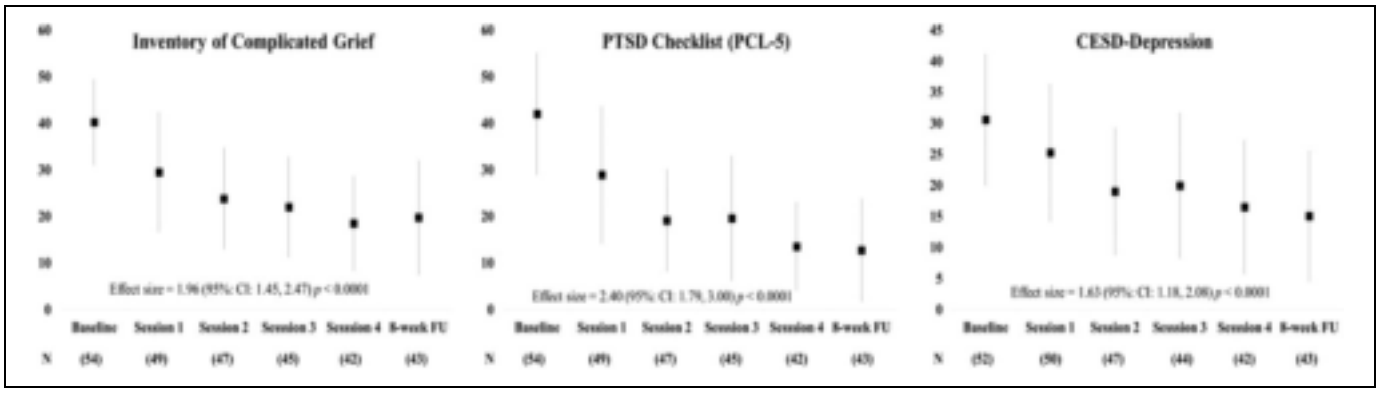

Figure 3. Plot of complicated grief, PTSD, and depression symptom scores over time among all participants who received ART. The filled rectangles depict mean values; upper and lower ends of vertical lines represent + standard deviation, respectively. ART indicates accelerated resolution therapy; PTSD, post-traumatic stress disorder.

irrespective of baseline symptom levels. There was an indication that treatment with ART resulted in a larger reduction (ES) in PTSD scores at 8-week follow-up among participants who presented with baseline PTSD scores above the median versus those with baseline PTSD scores below the median (ES = 3.02 versus 2.34, respectively). This was reflected in a somewhat greater absolute difference in mean PTSD scores from pretreatment to 8-week follow-up among participants who presented with baseline PTSD scores above the median versus those with baseline ICG scores below the median (−36.2 [12.0] vs −23.9 [10.2]) points. Still, in aggregate, treatment effects did not appear to differ substantially by baseline levels of CG, PTSD, and depressive symptoms (recognizing that trial inclusion criteria yield high presenting symptom levels) nor whether they were treated by a single (−21.8 [11.2] points) versus multiple ART interventionists (−17.3 [8.0] points).

Discussion

In this prospective trial, we observed overall better than expected results in hospice caregivers with large ESs across all 3 symptoms (CG, PTSD, and depression) irrespective of baseline symptom levels or whether ART was delivered by one or multiple interventionists. To date, clear treatment guidelines do not exist for CG[6] and there remains a need for further evidence on brief, effective CG treatments. The effects observed with ART in an average of just 4 treatment sessions are extremely promising. The significant changes in CG and common comorbid conditions suggest that ART is an effective and less time-intensive alternative for older adults than currently provided by either CG treatment or traditional hospice bereavement services. Alternatively, ART may augment these traditional approaches. For example, each participant had already received

Table 4. Complicated Grief Symptom Response Scores and Effect Sizes Among Subgroups at 8 Weeks of Follow-up.[a]

		Baseline		8-Week Follow-Up		Δ (Baseline to FU)				
Subgroup—Baseline Status	n	Mean	SD	Mean	SD	Mean	SD	ES	95% CI	*P* Value
ICG score—below median	22	32.9	4.2	9.6	6.6	20.4	9.1	2.24	1.37, 3.11	<.0001
ICG score—above median	21	48.8	5.8	27.3	10.8	21.5	12.3	1.75	0.93, 2.57	<.0001
PCL-5 score—below median	21	32.9	8.8	9.0	8.7	23.9	10.2	2.34	1.46, 3.22	<.0001
PCL-5 score—above median	22	52.6	6.8	16.4	12.1	36.2	12.0	3.02	1.98, 4.06	<.0001
CESD score—below median	21	22.1	6.3	9.8	7.0	12.3	6.5	1.89	1.17, 2.61	<.0001
CESD score—above median	20	39.5	5.8	20.4	11.6	19.1	11.1	1.72	0.98, 2.47	<.0001

Abbreviations: ART, accelerated resolution therapy; CESD, Center for Epidemiologic Studies Depression; CI, confidence interval; *DSM-5*, *Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition*; PCL-5, PTSD checklist for *DSM-5*; ES, effect size; FU, follow-up; ICG, inventory of complicated grief; SD, standard deviation.
[a]ES: positive values reflect improvement from baseline to 8 weeks after treatment with ART.

traditional hospice services and therefore may have been primed to address the most distressing grief in the ART sessions. Grief is a process and may need work over time.

Future testing of ART may also address some of the current disagreement on treatment duration, which is a weakness that has limited previous CG research and treatment.[6] Much of this disagreement arises from an insufficient biologic basis for understanding CG and its treatment.[6] Therefore, ART should undergo further effectiveness testing in a larger clinical trial with a focus on determining physiological or behavioral mechanisms of action before dissemination into clinical practice. Treatment response by baseline symptom level was observed to be favorable in CG, PTSD, and depressive symptoms if not significant. Since treatment response was highest in those with higher symptoms of PTSD, examination of autonomic nervous system imbalance is scientifically warranted from a mechanistic neurophysiological perspective. We postulate that the eye movement and memory reconsolidation elements of ART result in within- and across-session changes in parasympathetic nervous system activity[31-35] as well as improved sleep.[36] We further postulate that reductions in symptoms of CG with ART will result in positive behavioral change, including reduced social isolation,[37-39] known to effect health and mortality similar to smoking and obesity.[40]

Limitations

Strengths of the study include random assignment and a treatment protocol. Limitations include low male representation and limited racial diversity. Thus, estimates of treatment response by gender and race were impossible. In addition, assessments were based on self-report of symptoms as opposed to formal diagnoses. The follow-up results are based on a 2-month post-treatment assessment, consequently, long-term sustainability cannot be concluded from this analysis. Finally, the random assignment of participants (ART vs wait-list control) occurred in a 1:45:1 ratio. However, there is no readily apparent source of bias that occurred with this slightly imbalanced assignment ratio.

Authors' Note

Information on data accessibility can be obtained by contacting Drs Buck and Kip, MPIs.

Declaration of Conflicting Interests

The authors declared the following potential conflicts of interest with respect to the research, authorship, and/or publication of this article: Dr. Kevin Kip is on the Board of Directors for the International Society of Accelerated Resolution Therapy but does not receive payment for this advising position. Dr Diego Hernandez is paid by the International Society of Accelerated Resolution Therapy to train other clinicians on delivering the therapy being tested in this study. The rest of the authors have no conflict of interest to declare.

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Supplemental Material

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References

1. The Center for Complicated Grief Columbia School of Social Work. 2017; https://complicatedgrief.columbia.edu/complicated-grief/prevalence-and-risk/,2019.
2. Shear MK. Complicated grief treatment: the theory, practice and outcomes. *Bereavement Care*. 2010;29(3):10-14.
3. Mason TM, Tofthagen CS. Complicated grief of immediate family caregivers: a concept analysis. *ANS Adv Nurs Sci*. 2019;42(3):255-265.
4. Tofthagen CS, Kip K, Witt A, McMillan SC. Complicated grief: risk factors, interventions, and resources for oncology nurses. *Clin J Oncol Nurs*. 2017;21(3):331-337.
5. Maciejewski PK, Maercker A, Boelen PA, Prigerson HG. "Prolonged grief disorder" and "persistent complex bereavement disorder", but not "complicated grief", are one and the same diagnostic entity: an analysis of data from the Yale bereavement study. *World Psychiatry*. 2016;15(3):266-275.
6. Nakajima S. Complicated grief: recent developments in diagnostic criteria and treatment. *Philos Trans R Soc Lond B Biol Sci*. 2018;373(1754):20170273.

7. Shear MK, Simon N, Wall M, et al. Complicated grief and related bereavement issues for DSM-5. *Dep Anx*. 2011;28(2):103-117.
8. Newson RS, Boelen PA, Hek K, Hofman A, Tiemeier H. The prevalence and characteristics of complicated grief in older adults. *J Affect Disord*. 2011;132(1-2):231-238.
9. Ghesquiere A, Shear MK, Duan N. Outcomes of bereavement care among widowed older adults with complicated grief and depression. *J Prim Care Comm Health*. 2013;4(4):256-264.
10. Shear MK, Ghesquiere A, Glickman K. Bereavement and complicated grief. *Curr Psych Rep*. 2013;15(11):406.
11. Simon NM, Shear KM, Thompson EH, et al. The prevalence and correlates of psychiatric comorbidity in individuals with complicated grief. *Comp Psych*. 2007;48(5):395-399.
12. Kersting A, Kroker K, Horstmann J, et al. Complicated grief in patients with unipolar depression. *J Affect Disord*. 2009;118(1-3): 201-204.
13. Sung SC, Dryman MT, Marks E, et al. Complicated grief among individuals with major depression: prevalence, comorbidity, and associated features. *J Affect Disord*. 2011;134(1-3):453-458.
14. Medicare Benefit Policy Manual Chapter 9 - Coverage of Hospice Services Under Hospital Insurance. CMS; 2018; https://www.cms.gov/Regulations-and-Guidance/Guidance/Manuals/Internet-Only-Manuals-IOMs-Items/CMS012673.
15. Kip KE, Elk CA, Sullivan KL, et al. Brief treatment of symptoms of post-traumatic stress disorder (PTSD) by use of accelerated resolution therapy (ART((R))). *Behav Sci (Basel, Switzerland)*. 2012;2(2):115-134.
16. Kip KE, Hernandez DF, Shuman A, et al. Comparison of accelerated resolution therapy (ART) for treatment of symptoms of PTSD and sexual trauma between civilian and military adults. *Milit Med*. 2015;180(9):964-971.
17. Kip KE, Rosenzweig L, Hernandez DF, et al. Randomized controlled trial of accelerated resolution therapy (ART) for symptoms of combat-related post-traumatic stress disorder (PTSD). *Milit Med*. 2013;178(12):1298-1309.
18. Kip KE, Rosenzweig L, Hernandez DF, et al. Accelerated resolution therapy for treatment of pain secondary to symptoms of combat-related posttraumatic stress disorder. *Eur J Psychotraumatol*. 2014;5.
19. Hoge C. *Accelerated Resolution Therapy (ART): Clinical Considerations, Cautions, and Informed Consent for Military Mental Health Clinicians*. Bethesda, MA: Walter Reed Army Institute of Research, Walter Reed National Military Medical Center, Office of the Surgeon General; 2015.
20. Shear K, Frank E, Houck PR, Reynolds CF 3rd. Treatment of complicated grief: a randomized controlled trial. *JAMA*. 2005; 293(21):2601-2608.
21. Weathers FW, Litz B, Herman D, Huska J, Keane T. The PTSD checklist: reliability, validity, and diagnostic utility. Paper presented at: *Paper presented at the Annual Meeting of International Society for Traumatic Stress Studies*. San Antonio, TX; 1993.
22. Prigerson HG, Maciejewski PK, Reynolds CF3rd, et al. Inventory of complicated grief: a scale to measure maladaptive symptoms of loss. *Psych Res*. 1995;59(1-2):65-79.
23. Monson CM, Gradus JL, Young-Xu Y, Schnurr PP, Price JL, Schumm JA. Change in posttraumatic stress disorder symptoms: do clinicians and patients agree? *Psychological Assess*. 2008;20(2):131.
24. Blanchard EB, Jones-Alexander J, Buckley TC, Forneris CA. Psychometric properties of the PTSD Checklist (PCL). *Behav Res Ther*. 1996;34(8):669-673.
25. Weathers FW, Litz B, Herman D, Huska J, Keane T.The PTSD checklist: reliability, validity, and diagnostic utility. Paper presented at: Paper presented at the Annual Meeting of International Society for Traumatic Stress Studies. San Antonio, TX; 1993.
26. Radloff LS. The CES-D scale: a self report depression scale for research in the general population. *Appli Psychol Meas*. 1977;1: 385-401.
27. Irwin M, Artin KH, Oxman MN. Screening for depression in the older adult: criterion validity of the 10-item center for epidemiological studies depression scale (CES-D). *Arch Intern Med*. 1999; 159(15):1701-1704.
28. Lewinsohn PM, Seeley JR, Roberts RE, Allen NB. Center for epidemiologic studies depression scale (CES-D) as a screening instrument for depression among community-residing older adults. *Psychol Aging*. 1997;12(2):277-287.
29. Cohen J. *Statistical Power Analysis for the Behavioral Sciences*. 2nd ed. Hillsdale NJ: L Erlbaum Associates; 1988.
30. Morris SB, DeShon RP. Combining effect size estimates in meta-analysis with repeated measures and independent-groups designs. *Psychol Meth*. 2002;7(1):105-125.
31. Barrowcliff AL, Gray NS, MacCulloch S, Freeman TC, MacCulloch MJ. Horizontal rhythmical eye movements consistently diminish the arousal provoked by auditory stimuli. *Brit J Clin Psychol*. 2003;42(Pt 3):289-302.
32. Barrowcliff AL, Gray NS, Freeman TCA, MacCulloch MJ. Eye movements reduce the vividness, emotional valence and electrodermal arousal associated with negative autobiographical memories. *J Foren Psych Psychol*. 2004;15(3):325-345.
33. Elofsson UO, von Scheele B, Theorell T, Sondergaard HP. Physiological correlates of eye movement desensitization and reprocessing. *J Anx Disord*. 2008;22(4):622-634.
34. Maxfield L, Melnyk WT, Hayman GC. A working memory explanation for the effects of eye movements in EMDR. *J EMDR Pract Res*. 2008;2(4):247-261.
35. Sack M, Lempa W, Steinmetz A, Lamprecht F, Hofmann A. Alterations in autonomic tone during trauma exposure using eye movement desensitization and reprocessing (EMDR)—results of a preliminary investigation. *J Anx Disord*. 2008;22(7):1264-1271.
36. Stickgold R. EMDR: a putative neurobiological mechanism of action. *J Clin Psych*. 2002;58(1):61-75.
37. Anderson KL, Dimond MF. The experience of bereavement in older adults. *J Adv Nurs*. 1995;22(2):308-315.
38. Prigerson HG.Complicated grief: when the path of adjustment leads to a dead-end. *Bereav Care*. 2004;23(1):38-40.
39. Prigerson HG, Horowitz MJ, Jacobs SC, et al. Prolonged grief disorder: Psychometric validation of criteria proposed for DSM-V and ICD-11. *PLoS Med*. 2009;6(8):e1000121.
40. Jivraj S, Nazroo J, Barnes M. Short- and long-term determinants of social detachment in later life. *Age Soci*. 2016;36(5):924-945.