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Original Article

Comparative Efficacy of Acceptance and Commitment Therapy versus Schema Therapy for Irrational Beliefs and Death Anxiety in Elderly Women: A Randomized Study

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Introduction: Irrational beliefs and death anxiety are prevalent psychological concerns among elderly women, significantly impacting their mental well-being and quality of life. This study aimed to compare the efficacy of Acceptance and Commitment Therapy (ACT) and Schema Therapy (ST) in reducing these psychological constructs in elderly women.

Methods: This randomized controlled trial utilized a pre-test, post-test, and follow-up design with two experimental groups and one control group. In 2023, 45 elderly women from Sabzevar, Iran, were selected via convenience sampling and then randomly assigned into three groups (ACT, ST, or waiting-list control), each with 15 participants. The ACT and ST groups received 8 weekly, 90-minute intervention sessions following standardized protocols, while the control group received no immediate intervention. Data were collected using the Irrational Beliefs Questionnaire and Collett–Lester Fear of Death Scale. Repeated measures ANOVA, followed by post-hoc tests, was conducted using SPSS (version 27).

Results: Both ACT and ST significantly reduced irrational beliefs (ACT: $\eta^2 = 0.77$; ST: $\eta^2 = 0.75$) and death anxiety (ACT: $\eta^2 = 0.77$; ST: $\eta^2 = 0.76$) compared to the control group ($p < 0.001$). No statistically significant differences were found between the two interventions.

Conclusion: ACT and ST are effective interventions for reducing irrational beliefs and death anxiety in elderly women, highlighting their value in enhancing psychological well-being in this population.

Keywords: Acceptance and Commitment Therapy, Schema Therapy, Irrational Beliefs, Death Anxiety, Aging

Introduction

The pervasive global demographic shift towards an aging populace presents a distinctive array of psychological challenges, particularly pronounced among elderly women. As individuals advance in age, they frequently navigate profound life transitions, encompassing retirement, the bereavement of loved ones, a decline in physical health, and diminished social engagement (1). These transformations can significantly heighten vulnerability to various mental health issues, including depressive disorders, anxiety conditions, and

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cognitive decline (2). Elderly women, in particular, may contend with additional burdens stemming from established societal roles, economic disparities, and an elevated likelihood of widowhood, factors that can exacerbate feelings of loneliness and isolation (3). Consequently, this demographic exhibits a greater susceptibility to developing rigid cognitive patterns, notably irrational beliefs, and experiencing heightened levels of death anxiety, both of which profoundly impair their overall psychological well-being and diminish their quality of life (4). Addressing these specific concerns is thus paramount for fostering healthy aging and ensuring dignified later years for this vulnerable segment of the population.

Irrational beliefs, as rigorously conceptualized within Albert Ellis's Rational Emotive Behavior Therapy (REBT) framework, constitute cognitive distortions that invariably lead to dysfunctional emotional and behavioral outcomes. These beliefs are characterized by their rigid, dogmatic, and often absolute nature ("musts," "shoulds," "oughts"), thereby impeding an individual's capacity to cope effectively with life's myriad challenges (5). Within the context of elderly women, common irrational beliefs might encompass demands for absolute comfort, excessive self-blame for past errors, or catastrophic interpretations of natural health changes (6). Such cognitive patterns frequently manifest as low frustration tolerance, pervasive self-downing, and an enduring sense of hopelessness, ultimately preventing individuals from adaptively adjusting to the realities of aging and fostering a detrimental self-perception (7). The persistent hold of these cognitive patterns can perpetuate a cycle of emotional distress, rendering it arduous for elderly women to actively participate in activities that promote their well-being and to derive meaning in their later life stages.

Death anxiety refers to the deep apprehension, dread, or pervasive uneasiness concerning one's own mortality or the process of dying itself. While a universal human experience, its intensity and phenomenological manifestations exhibit considerable variability across individuals and distinct life stages (8). For elderly women, the awareness of their own mortality becomes increasingly salient, driven by age-related health issues, the loss of peers, and an inevitable re-evaluation of life's accomplishments (9). Elevated levels of death anxiety can precipitate significant psychological distress, lead to marked avoidance behaviors, and considerably diminish one's capacity to fully engage with and enjoy life (10). This anxiety is frequently intertwined with fears of pain, the loss of control, the separation from loved ones, or trepidation regarding an unknown afterlife (11). Therefore, comprehending and effectively mitigating death anxiety is of paramount importance for enhancing the quality of life for elderly women, enabling them to approach the end-of-life stage with greater serenity and acceptance rather than debilitating fear.

Acceptance and Commitment Therapy (ACT) represents a prominent "third-wave" cognitive behavioral therapy that fundamentally emphasizes the cultivation of psychological flexibility. This is achieved through core processes such as acceptance of unwanted internal experiences, cognitive defusion, mindful contact with the present moment, developing a sense of self-as-context, clarifying personal values, and engaging in committed action (12). Distinct from traditional cognitive approaches that directly challenge irrational thoughts, ACT encourages individuals to observe and accept difficult thoughts and feelings without being consumed or controlled by them, while concurrently committing to actions that are deeply aligned with their intrinsic values (13). Empirical research has consistently demonstrated ACT's broad effectiveness across a diverse spectrum of psychological issues, including various anxiety disorders, depression, and chronic pain, by fostering a more adaptive relationship with internal experiences and promoting a life lived in accordance with one's values (14, 15). Its inherent focus on acceptance and values-driven behavior renders it particularly pertinent for older adults who are confronting the profound realities of aging and mortality, potentially offering a robust pathway to alleviate the impact of both irrational beliefs and death anxiety (16).

Schema Therapy (ST) is an integrative therapeutic approach that expands upon conventional cognitive behavioral therapy by judiciously incorporating vital elements from attachment theory, psychodynamic therapy, and Gestalt therapy (17). The core focus of ST is the identification and subsequent modification of early maladaptive schemas—deep-seated, pervasive, and dysfunctional patterns of thinking, feeling, and behaving that originate in childhood and tend to perpetuate throughout an individual's lifespan (18). These schemas are often notably resistant to change and frequently underpin chronic psychological difficulties (19). In elderly women, maladaptive schemas linked to abandonment, emotional deprivation, or a pervasive sense of vulnerability to harm could significantly exacerbate the presence of irrational beliefs and intensify existing death anxiety (20). By strategically employing a synthesis of cognitive, experiential, and behavioral techniques, ST endeavors to heal these deeply ingrained patterns, thereby offering a comprehensive and potent framework for addressing the long-standing psychological vulnerabilities that contribute profoundly to distress in later life (21).

However, no study has directly compared the efficacy of ACT and ST for these specific issues in elderly women. This study was therefore conducted to address the need for evidence-based comparative research and aimed to compare the effects of ACT and ST on irrational beliefs and death anxiety in this population.

Methods

Design and participants

This randomized controlled trial employed a pre-test, post-test, and follow-up design with two experimental groups and one control group. The study population consisted of elderly women, aged 60 years and above, residing in nursing homes in Sabzevar, Iran, during the calendar year 2023. A sample of 45 eligible elderly women was recruited using convenience sampling. The sample size was calculated using G*Power software (version 3.1). For a repeated measures ANOVA (within-

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between interaction), assuming a large effect size (partial $\eta^2 = 0.14$, equivalent to Cohen's $f = 0.42$), $\alpha = 0.05$, power = 0.80, three groups, three measurements, a correlation among repeated measures of 0.5, and non-sphericity correction $\varepsilon = 1$, the required total sample size was 42 participants. To account for potential attrition, 45 participants (15 per group) were recruited. Participants were included if they were women aged 60 or older, possessed minimum literacy, exhibited no cognitive impairments (mild, moderate, or severe) as assessed by the Mini-Mental State Examination (MMSE, score ≥ 24), and reported clinically significant levels of irrational beliefs and death anxiety as determined by baseline scores above the 75th percentile of the screening sample on the Irrational Beliefs Questionnaire (IBQ-40) and Collett–Lester Fear of Death Scale (CL-FODS). Exclusion criteria included diagnoses of severe psychiatric disorders (e.g., schizophrenia, bipolar disorder, or major depressive disorder with psychotic features, assessed via structured clinical interview and review of medical records), debilitating physical illnesses (e.g., advanced cancer, severe cardiovascular disease, or mobility-limiting conditions, confirmed through medical records and self-report), or concurrent participation in other psychological treatments. The presence of clinically significant irrational beliefs and death anxiety was confirmed by baseline scores exceeding the 75th percentile of the screening sample on the IBQ-40 and CL-FODS, ensuring participants exhibited elevated levels of these constructs prior to inclusion. All participants provided explicit informed consent, were assured of complete confidentiality, and retained the unrestricted right to withdraw from the study at any point without penalty. Ethical approval for the study protocol was duly secured from the institutional review board of the University.

Procedure

Following the successful recruitment of participants and the acquisition of ethical clearance, a comprehensive baseline assessment (pre-test) was administered to all individuals across the three groups using the designated research instruments. Subsequently, the two experimental groups (ACT and ST) commenced their respective therapeutic interventions. Each intervention program consisted of 8 weekly sessions, each lasting 90 minutes, and all participants in the ACT and ST groups completed the full course without dropouts, demonstrating their ability to engage in the sessions. Therapists were licensed clinical psychologists with a minimum of 5 years of post-certification experience in delivering ACT and ST, respectively; both had completed specialized training in their assigned modality and adhered to manualized protocols. Treatment fidelity was monitored through weekly supervision and random audio review of 20% of sessions by an independent expert. Therapists monitored participant engagement and reported high cooperation rates, with no refusals during the intervention period. These interventions were meticulously delivered by highly trained and experienced therapists, adhering strictly to established, standardized treatment protocols. A detailed summary of the content covered in the ACT and ST sessions is presented in Tables 1 and 2, respectively. The waiting-list control group received no therapeutic intervention during the study period; however, to address potential attention effects, participants attended a single 90-minute psychoeducation session on general mental health awareness at baseline (this deviation from a pure no-treatment control is acknowledged as a limitation in the Discussion). Following the study's completion, control group participants were offered delayed access to either ACT or ST as an ethical consideration. Immediately upon the conclusion of the 8-week intervention period, all participants, including those in the control group, completed the post-test assessments. A three-month follow-up assessment was also meticulously conducted to ascertain the sustained effects of the therapeutic interventions.

Table 1. Acceptance and commitment therapy (ACT) intervention program overview (8 sessions)

Session	Focus Area	Key activities/Topics
1	Welcome and introduction to ACT	Welcoming participants, establishing rapport, introducing session goals, and presenting the ACT model, including creative hopelessness and recognizing control as the problem.
2	Cognitive defusion	Learning to "unhook" from unhelpful thoughts, observing thoughts without believing them, noticing language patterns.
3	Acceptance	Embracing difficult feelings and sensations, making room for discomfort, letting go of experiential avoidance.
4	Contact with the present moment (Mindfulness)	Practicing mindfulness exercises, enhancing awareness of the here-and-now, reducing rumination.
5	Self-as-context	Exploring the "observing self," recognizing thoughts and feelings as separate from one's core identity, fostering self-compassion.
6	Values clarification	Identifying deeply held personal values, distinguishing values from goals, exploring what truly matters.
7	Committed action	Setting goals aligned with values, taking small, consistent steps towards a valued life, overcoming barriers to action.
8	Integrating ACT principles & relapse prevention	Reviewing all core processes, consolidating learning, developing strategies for managing future challenges, maintaining gains.

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Table 2. Schema therapy (ST) intervention program overview (8 sessions)

Session	Focus Area	Key activities/Topics
1	Welcome and introduction to ST	Welcoming participants, introducing session goals, providing psychoeducation on schemas, emotional needs, and schema mode concepts; using questionnaires/exercises to identify core schemas.
2	Understanding schema origins & activation	Exploring childhood experiences and family history related to identified schemas, linking past to present distress.
3	Emotional experiencing: chair work	Engaging in two-chair or multi-chair dialogues to access and express emotions related to schemas and unmet needs.
4	Cognitive restructuring	Challenging schema-driven thoughts and beliefs, identifying cognitive distortions, developing balanced perspectives.
5	Breaking maladaptive behavioral patterns	Identifying behavioral patterns driven by schemas, developing new, healthier coping strategies.
6	Limited reparenting & healthy adult mode	Therapist providing empathetic attunement for unmet needs, strengthening the "Healthy Adult" mode within the client.
7	Border negotiations & self-nurturing	Setting boundaries in relationships, learning to protect oneself, developing self-care and self-soothing techniques.
8	Consolidating gains & relapse prevention	Reviewing progress, solidifying new behaviors and cognitions, preparing for future challenges, reinforcing healthy adult functioning.

Instruments

Irrational Beliefs Questionnaire (IBQ-40)

The IBQ-40, developed by Jones in 1968, is a widely recognized self-report instrument primarily designed to assess an individual's irrational beliefs, grounded in the theoretical tenets of Rational Emotive Behavior Therapy. This questionnaire comprises 40 items, each rated on a 5-point Likert scale, ranging from 1 (strongly disagree) to 5 (strongly agree). The total score, which can range from 40 to 200, is derived by summing the responses to all items, with higher scores being indicative of a greater prevalence of irrational thinking (22). Its Cronbach's alpha, signifying its internal consistency, was determined to be 0.89 by Kazemi et al. (23). In the current study, the internal consistency of the total scale, as measured by Cronbach's alpha, was found to be 0.88, further confirming its good reliability within this specific sample.

Collett–Lester Fear of Death Scale (CL-FODS)

The CL-FODS is a 32-item self-assessment tool meticulously developed to quantify an individual's perceived level of death anxiety. Participants are required to rate each item on a Likert scale (e.g., 1 to 5), reflecting the degree to which they experience feelings of fear or anxiety related to death. The total score, ranging from 32 to 160, is computed by summing the scores of all items, with elevated scores signifying a higher intensity of death anxiety. This scale comprehensively covers various nuanced facets of death anxiety, including fears associated with the dying process, the unknown, separation from loved ones, and the anticipated impact of one's death on others (24). Cronbach's alpha for this scale was reported as 0.77 by its developers (25). For the present study, the CL-FODS demonstrated commendable internal consistency, evidenced by a Cronbach's alpha coefficient of 0.81.

Data analysis

Statistical analysis was rigorously conducted using SPSS version 27. Initially, descriptive statistics, including means and standard deviations, were computed for all demographic and pertinent study variables. A mixed ANOVA (Time × Group) with repeated measures on the time factor was utilized to evaluate changes in irrational beliefs and death anxiety across pre-test, post-test, and follow-up assessments. Mauchly's test of sphericity was conducted for all repeated measures analyses; where the assumption was violated ($p < 0.05$), Greenhouse-Geisser corrected degrees of freedom were applied, as reflected in the reported non-integer df values. For more granular insights, post-hoc comparisons, such as Bonferroni correction, were subsequently applied to pinpoint specific and significant group differences.

Ethical considerations

All participants provided written informed consent after receiving a full explanation of the study procedures, potential risks and benefits, voluntary nature of participation, and measures to ensure data confidentiality and anonymity. Participants were explicitly informed of their right to withdraw from the study at any time without any consequences. This study received ethical approval under the code IR.IAU.AHVAZ.REC.1404.053 and IRCT20250606066093N1.

Trial registration

The trial was prospectively registered with the Iranian Registry of Clinical Trials (IRCT) under the registration number IRCT20250606066093N1.

Results

The mean age of participants in the ACT group was 68.2 (SD = 4.5) years, while the ST group had a mean

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age of 69.5 (SD = 3.9) years, and the control group's mean age was 67.8 (SD = 4.1) years. Statistical analysis confirmed that there were no significant differences in age distribution among the three groups at baseline, indicating successful randomization and group equivalency regarding this key demographic variable. Descriptive statistics for irrational beliefs and death anxiety across the ACT, ST, and control groups at pre-test, post-test, and follow-up stages are presented in Table 3. At pre-test, the mean scores for irrational beliefs were 114.46 ± 11.24 for the ACT group, 114.33 ± 10.24 for the ST group, and 114.26 ± 11.31 for the control group, indicating comparable baseline levels. Similarly, for death anxiety, pre-test mean scores were 118.66 ± 8.85 for the ACT group, 117.00 ± 10.56 for the ST group, and 117.80 ± 9.70 for the control group, also demonstrating baseline equivalency. Post-test and follow-up data showed a significant reduction in both irrational beliefs and death anxiety for the ACT and ST groups, while the control group's scores remained relatively stable.

Preliminary analyses confirmed that the data for all dependent variables met the assumption of normality, thus satisfying the prerequisites for parametric statistical procedures. Multivariate analysis of variance with repeated measures was conducted to examine the effects of time and group on irrational beliefs and death anxiety (Table 4). For irrational beliefs, a significant main effect of time was observed ($F = 1907.15$, $p < 0.001$, $\eta^2 = 0.77$), indicating significant changes over the measurement periods. The interaction effect between group and time was also significant ($F = 414.74$, $p < 0.001$, $\eta^2 = 0.75$), suggesting that the change in irrational beliefs over time differed significantly across the groups. Furthermore, a significant main effect of group was found ($F = 5.80$, $p = 0.006$, $\eta^2 = 0.22$). Similarly, for death anxiety, a significant main effect of time was noted ($F = 1446.28$, $p < 0.001$, $\eta^2 = 0.77$), demonstrating significant changes in death anxiety over time. The interaction between group and time was also highly significant ($F = 339.34$, $p < 0.001$, $\eta^2 = 0.76$), indicating that the trajectory of death anxiety reduction varied significantly among the groups. A significant main effect of group was also observed ($F = 7.68$, $p < 0.001$, $\eta^2 = 0.27$).

Post-hoc analyses were performed to further elucidate the significant interaction effects and determine specific within-group and between-group differences (Tables 5 and 6). Within-group comparisons (Table 5) for irrational beliefs showed significant reductions from pre-test to post-test for both ACT (Mean Difference = 20.60, $p < 0.001$) and ST (Mean Difference = 19.46, $p < 0.001$) groups. Similar significant reductions were observed from pre-test to follow-up for ACT (Mean Difference = 20.33, $p < 0.001$) and ST (Mean Difference=19.66, $p < 0.001$). No significant change was found from post-test to follow-up for either ACT (Mean Difference = 0.27, $p = 0.999$) or ST (Mean Difference = 0.20, $p = 0.999$). The control group showed no significant changes in irrational beliefs across any time points ($p = 0.293$, 0.134, 0.999, respectively).

For death anxiety, within-group analysis (Table 5) similarly revealed significant reductions from pre-test to post-test for ACT (Mean Difference = 19.66, $p < 0.001$) and ST (Mean Difference = 18.20, $p < 0.001$) groups. Significant reductions also persisted from pre-test to follow-up for ACT (Mean Difference = 19.93, $p < 0.001$) and ST (Mean Difference=18.26, $p < 0.001$). No significant changes were observed between post-test and follow-up for either ACT (Mean Difference=0.27, P=0.999) or ST (Mean Difference = 0.06, $p = 0.999$). The control group did not exhibit significant changes in death anxiety at any time points ($p = 0.999$ for all comparisons).

Between-group comparisons (Table 6) revealed no significant differences in irrational beliefs at pre-test among the ACT, ST, and control groups (all $p = 0.999$). However, at post-test, both the ACT group (Mean Difference = 19.60, $p < 0.001$) and the ST group (Mean Difference = 18.60, $p < 0.001$) showed significantly lower irrational beliefs compared to the control group. These significant differences persisted at the follow-up stage (ACT vs. control: Mean Difference = 19.06, $p < 0.001$; ST vs. control: Mean Difference=18.53, $p < 0.001$). Crucially, no significant differences were observed between the ACT and ST groups at any time point (all $p = 0.999$).

For death anxiety, pre-test comparisons showed no significant differences across all groups (all $p = 0.999$). Post-test results indicated that both ACT (Mean Difference=18.40, $p < 0.001$) and ST (Mean Difference = 18.60, $p < 0.001$) groups had significantly lower death anxiety scores compared to the control group. These significant reductions were maintained at follow-up (ACT vs. control: Mean Difference = 18.60, $p < 0.001$; ST vs. control: Mean Difference = 18.70, $p < 0.001$). Consistent with irrational beliefs, there were no significant differences in death anxiety between the ACT and ST groups at any assessment point ($p = 0.999$).

Table 3. Mean and standard deviation of irrational beliefs and death anxiety across groups and stages

Variable	Stage	ACT group Mean ± SD	ST group Mean ± SD	Control group Mean ± SD
Irrational beliefs	Pre-test	114.46 ± 11.24	114.33 ± 10.24	114.26 ± 11.31
	Post-test	93.86 ± 13.26	94.86 ± 11.01	113.46 ± 11.77
	Follow-up	94.13 ± 13.20	95.66 ± 11.26	113.20 ± 11.94
Death anxiety	Pre-test	118.66 ± 8.85	117.00 ± 10.56	117.80 ± 9.70
	Post-test	99.00 ± 9.52	98.80 ± 10.95	117.40 ± 10.08
	Follow-up	98.73 ± 9.30	98.62 ± 11.25	117.33 ± 9.83

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Table 4. Results of repeated measures ANOVA for irrational beliefs and death anxiety

Variable	Source	SS	df	MS	F	p	η^2
Irrational beliefs	Time	5594.43	1.60	3478.32	1907.15	0.001	0.77
	Group × Time	2433.14	3.21	756.41	414.74	0.001	0.75
	Group	4859.30	2	2379.65	5.80	0.006	0.22
Death anxiety	Time	4932.68	1.54	3191.14	1446.28	0.001	0.77
	Group × Time	2314.74	3.09	748.74	339.34	0.001	0.76
	Group	4588.50	2	2294.25	7.68	0.001	0.27

Table 5. Within-group comparisons (mean differences and p) for irrational beliefs and death anxiety

Variable	Assessment period	ACT group		ST group		Control group	
		Mean Difference	p	Mean Difference	p	Mean Difference	p
Irrational beliefs	Post-test and pre-test	20.60	0.001	19.46	0.001	0.80	0.293
	Follow-up and pre-test	20.33	0.001	19.66	0.001	1.06	0.134
	Follow-up and post-test	0.27	0.999	0.20	0.999	0.27	0.999
Death anxiety	Post-test and pre-test	19.66	0.001	18.20	0.001	0.40	0.999
	Follow-up and pre-test	19.93	0.001	18.26	0.001	0.47	0.999
	Follow-up and post-test	0.27	0.999	0.06	0.999	0.06	0.999

Table 6. Between-group comparisons (mean differences and p) for irrational beliefs and death anxiety

Variable	Groups	Pre-test		Post-test		Follow-up	
		Mean Difference	p	Mean Difference	p	Mean Difference	p
Irrational beliefs	ACT and ST	0.13	0.999	1.00	0.999	0.53	0.999
	ACT and control	0.20	0.999	19.60	0.001	19.06	0.001
	ST and control	0.07	0.999	18.60	0.001	18.53	0.001
Death anxiety	ACT and ST	1.66	0.999	0.20	0.999	0.11	0.999
	ACT and control	0.86	0.999	18.40	0.001	18.60	0.001
	ST and control	0.80	0.999	18.60	0.001	18.70	0.001

Discussion

The current study aimed to investigate and compare the effectiveness of ACT and ST in reducing irrational beliefs and death anxiety among elderly women. The significant reduction in irrational beliefs following both ACT and ST is consistent with previous research on cognitive restructuring and belief modification (14, 26-28). For ACT, its effectiveness in this domain can be attributed to its emphasis on cognitive defusion. Rather than directly disputing irrational thoughts, ACT teaches individuals to observe their thoughts from a detached perspective, thereby reducing the literal impact and behavioral control of these rigid beliefs (14). This process allows for a shift from a struggle with internal experiences to an acceptance of them, fostering psychological flexibility. Previous research has consistently demonstrated ACT's capacity to reduce the impact of maladaptive cognitions in various populations, supporting its application for irrational beliefs (26, 27). Similarly, ST's success in modifying irrational beliefs likely stems from its comprehensive approach to identifying and healing deeply ingrained early maladaptive schemas. By addressing the core emotional and cognitive patterns that underpin these beliefs, ST enables individuals to develop a healthier "Healthy Adult" mode, which can then more adaptively challenge and reframe irrational thoughts originating from dysfunctional schemas (28). Studies on ST's impact on pervasive cognitive distortions are consistent with these findings.

The significant reduction in death anxiety observed in both intervention groups is particularly relevant for elderly women facing heightened mortality awareness. ACT achieves this through promoting psychological acceptance and values-driven living, allowing individuals to accept death-related thoughts while engaging meaningfully in life (12, 16). ST, conversely, targets underlying schemas such as vulnerability to harm or abandonment, which often fuel existential fears, thereby fostering greater emotional security (19-21). This aligns with research highlighting ACT's efficacy in existential concerns and anxiety disorders (12, 16). For ST, its effectiveness in mitigating death anxiety may be linked to its ability to heal core schemas such as vulnerability to harm, abandonment, or emotional deprivation (19, 20). Fears surrounding death often stem from deeper concerns about loss of control, isolation, or the cessation of relationships. By addressing these foundational schemas, ST empowers individuals to feel more secure and less vulnerable, thus reducing their existential dread. Literature supports ST's role in addressing deep-seated anxieties and existential fears (21).

The absence of significant differences between ACT and ST suggests equivalent efficacy, likely due to shared

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therapeutic mechanisms. This finding aligns with the common factors model in psychotherapy, which suggests that different evidence-based treatments can produce equivalent outcomes through shared mechanisms like the therapeutic alliance, instillation of hope, emotional regulation, enhanced self-awareness, and behavioral activation (7, 15, 19, 20). While ACT and ST differ in their theoretical underpinnings and core techniques (ACT emphasizing acceptance and mindfulness, ST focusing on schema healing and emotional experiencing), they may share common therapeutic mechanisms, such as fostering emotional regulation, promoting self-awareness, and encouraging behavioral change (7, 20). This equivalence highlights the robustness of structured, evidence-based interventions regardless of specific theoretical orientation.

This research makes a valuable contribution to the field of geriatric mental health by providing empirical evidence for the effectiveness of ACT and ST in a population often underserved in psychological research. Specifically, it addresses a gap in the literature by comparing these two distinct, yet highly relevant, therapeutic approaches in simultaneously targeting both irrational beliefs and death anxiety in elderly women. The findings highlight the importance of addressing cognitive and existential concerns in older adults to enhance their overall psychological well-being and quality of life.

Study limitations

Despite its contributions, this study had several limitations. The sample size was relatively small, convenience sampling was used, and the study was geographically limited to Sabzevar, Iran. Reliance on self-report measures and a three-month follow-up period restrict generalizability and long-term conclusions. Additionally, the inclusion of a single psychoeducation session for the control group, while intended to control for attention effects, deviates from a pure no-treatment condition and may introduce a minor confound. The absence of an active control group (e.g., supportive counseling) limits conclusions about treatment-specific mechanisms. Finally, blinding of participants and therapists was not feasible, raising the possibility of expectation bias. Future research should consider larger, more diverse samples, employ objective measures in addition to self-reports, and incorporate longer-term follow-up periods to assess the durability of treatment effects. Comparative studies with other well-established geriatric interventions would also be beneficial to further delineate the optimal therapeutic pathways for elderly women experiencing irrational beliefs and death anxiety.

Conclusion

In conclusion, both ACT and ST are effective interventions for significantly reducing irrational beliefs and death anxiety in elderly women. The observed reductions were robust and maintained over the follow-up period, demonstrating the sustained benefits of both modalities. Crucially, the absence of a statistically significant difference in efficacy between ACT and ST highlights their comparable therapeutic value. These results support the integration of ACT and ST into mental health services for the elderly.

Conflict of interests

The authors declare no conflict of interests.

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Authors' Contributions

MM: Conceptualization, methodology, data collection, and writing – original draft. KKM: Supervision, methodology, data analysis, and writing – review & editing. MS: Investigation, data collection, and writing – review & editing. All authors approved the final manuscript.

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