Original Article
doi:10.31674/mjn.2025.v16i04.010

MJN

The Role of Cognitive Behavioral Therapy in Enhancing Mental Health and Reducing Loneliness among Nursing Home Residents

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ABSTRACT

Background: The increasing elderly population necessitates comprehensive healthcare, including palliative care. Elderly patients in palliative care often experience loneliness, decreased resilience, and mental health issues that affect their quality of life. Cognitive Behavioural Therapy (CBT) has been recognised as an effective intervention for addressing psychological issues, but its effectiveness in elderly palliative care patients remains limited. **Objective:** This study aims to evaluate the impact of CBT intervention on levels of loneliness, resilience, and mental health in elderly patients undergoing palliative care. **Methods:** This quasi-experimental study involved 126 elderly participants aged 60-90 years undergoing palliative care at long term care Budi Mulia 1. Participants were divided into two groups: an intervention group receiving CBT sessions for four weeks and a control group receiving no intervention. Data were collected using the (University of California, Los Angeles Loneliness Scale), Resilience Scale, and General Health Questionnaire (GHQ-12). Data analysis was performed using a paired *t*-test and linear regression. **Results:** The study results indicated that the intervention group experienced a significant reduction in loneliness scores from 65 ± 10 to 45 ± 8 ($p = 0.000$), a significant increase in resilience scores from 90 ± 12 to 130 ± 15 ($p = 0.000$), and a significant improvement in mental health scores from 25 ± 5 to 10 ± 3 ($p = 0.000$) compared to the control group. **Conclusion:** CBT intervention is effective in reducing loneliness, increasing resilience, and improving mental health in elderly patients under palliative care. These findings not only support the use of CBT as part of holistic care for the elderly but also highlight its potential to transform healthcare practices by addressing psychological needs alongside physical care, ultimately improving overall quality of life.

Keywords: Cognitive Behavioural Therapy; Elderly: General Health Questionnaire (GHQ-12); Resilience Scale; UCLA Loneliness Scale

INTRODUCTION

The global elderly population is increasing, necessitating comprehensive healthcare, including palliative care (WHO, 2023). Palliative care aims to improve quality of life for patients with chronic or terminal illnesses through physical, emotional, and psychosocial support (Peeler *et al*., 2023). However, many elderly patients continue to experience psychological issues such as loneliness, decreased resilience, and mental health disturbances (Wang *et al*., 2022). Loneliness, a prevalent issue among elderly patients in palliative care, adversely impacts emotional well-being and physical/mental health outcomes (Williams-Farrelly *et al*., 2023). It is associated with increased risks of depression, anxiety, and premature death

Received: September 18, 2024 Received in revised form: February 24, 2025 Accepted: February 28, 2025

(Domènech-Abella *et al*., 2021), exacerbated by social isolation and lack of support (Stenzel *et al*., 2025).

Resilience, the ability to adapt to stressful situations, is crucial for maintaining quality of life in elderly patients, especially those in palliative care (Ramli *et al.*, 2023; Taylor & Carr, 2021). However, many elderly patients experience decreased resilience as their illness progresses, negatively impacting their emotional balance (Lima *et al*., 2023). Mental health disorders such as depression and anxiety are also prevalent among elderly patients in palliative care, often inadequately addressed due to a focus on physical symptoms (Nicholson *et al*., 2023). Without proper intervention, these conditions can worsen emotional suffering and prognosis (Inaloo *et al*., 2025; Yongpraderm, Inpithuk & Wongprom, 2025).

Cognitive Behavioural Therapy (CBT) has been widely recognised as an effective psychological intervention for addressing mental health issues, including depression and anxiety. CBT helps individuals change negative thought patterns, develop adaptive coping strategies, and improve social skills(Reynolds *et al*., 2022; Mayahara & Paun, 2023; Stenzel *et al*., 2025). In palliative care, CBT has the potential to reduce loneliness, increase resilience, and improve mental health (Huang *et al*., 2022). However, research on CBT's effectiveness in elderly palliative care patients remains limited (Lalani, Hamash & Wang, 2024).

This study aims to fill this gap by exploring the impact of CBT on loneliness, resilience, and mental health in elderly patients undergoing palliative care (Moye, 2023). Using a quasi-experimental approach, this study provides empirical evidence on the effectiveness of CBT in improving the quality of life of elderly patients in palliative care. The findings have broad implications for clinical practice and health policy, supporting the development of more holistic and integrated interventions in palliative care for the elderly.

METHODOLOGY

Research Design

This study employs a quasi-experimental design to evaluate the impact of Cognitive Behavioral Therapy (CBT) on levels of loneliness, resilience, and mental health in elderly patients undergoing palliative care. All participants provided written informed consent after being fully informed about the study's purpose, procedures, and potential risks. Ethical principles, including confidentiality, voluntary participation, and the right to withdraw at any time, were strictly adhered to through out the study.

Participants/Respondents

The study involved 126 elderly participants aged 60-90 years residing at Sentra Terpadu Budi Mulia long-term care in Jakarta. Participants were selected based on inclusion criteria, including a UCLA (Loneliness Scale is named after the University of California, Los Angeles) loneliness score of ≥ 40, and exclusion criteria such as severe cognitive impairment or unstable medical conditions. Participants were divided into an intervention group (n=63) receiving CBT and a control group (n=63) receiving no intervention.

Instruments

The instruments used in this study included several valid and reliable questionnaires to measure the variables studied. The UCLA Loneliness Scale, Resilience Scale, and General Health Questionnaire (GHQ-12) were selected for their established reliability and validity in elderly populations. The UCLA Loneliness Scale demonstrates a Cronbach's α of 0.89, the Resilience Scale exhibits a Cronbach's α of 0.91, and the GHQ-12 has a Cronbach's α of 0.85, ensuring robust measurement of the study variables. The UCLA Loneliness Scale was used to measure participants' loneliness levels, consisting of 20 items with a total score ranging from 20 to 80 (Sancho *et al*., 2020). The Resilience Scale was used to assess participants' psychological resilience, consisting of 25 items with a total score of 25-175. The General Health Questionnaire (GHQ-12) was used to measure participants' mental health, consisting of 12 items with a total score of 0-36 (Elovanio *et al*., 2020).

Intervention

The intervention group received CBT sessions conducted twice a week for four weeks, totalling eight sessions per participant. Each session lasted 60 minutes and was facilitated by a licensed therapist trained in

CBT for the elderly (Elovanio *et al*., 2020). The CBT approach used in this study included key components such as cognitive restructuring, coping skills training, and relaxation techniques. Each session was designed to help the elderly identify and change negative thought patterns, develop more adaptive coping strategies, and enhance social support through group interaction.

Control Group

The control group continued their daily routines without CBT or other psychological interventions.

Data Analysis

The data obtained from this study was analysed using the SPSS software. First, a normality test was conducted using the Kolmogorov–Smirnov test to determine whether the data is normally distributed or not. Descriptive analysis was performed to identify the characteristics of the respondents and calculate the mean and standard deviation of the research variable scores in each group. To test the hypothesis, a paired *t*-test will be used as the statistical method to examine whether the mean difference between two paired measurements is equal to zero or not between the intervention and control groups. If the data does not meet the normality assumption, the non-parametric Wilcoxon test was applied.

Descriptive Analysis

The descriptive analysis was involve describing the characteristics of the participants, such as age, gender, and socio-economic background. Additionally, this analysis will calculated the mean and standard deviation for each variable measured in the study, both in the intervention and control groups, before and after the intervention. This analysis is important to provide a general overview of the participants and assist in the interpretation of the results.

Hypothesis Testing

The hypothesis testing in this study is conducted in two stages. The first stage involves the Kolmogorov–Smirnov normality test to statistically assess whether the data follows a normal distribution. The second stage is the paired t-test to compare the differences between the groups (intervention vs. control) after the intervention is administered. If the data is not normally distributed, the Wilcoxon test was used to assess the comparison between the two groups.

Ethical Consideration

This study was approved by the Health Research Ethics Committee of Bani Saleh University, Indonesia with the reference number EC.355/KEPK/UBS/VI/2024, on 15th June, 2024.

RESULTS

Table 1: Demographic Characteristics

Characteristic	Intervention Group (n=63)	Intervention Percentage	Control Group (n=63)	Control Percentage
Age				
60-69 years	13	20%	16	25%
70-79 years	32	50%	28	45%
≥80 years	18	30%	19	30%
Gender				
Male	25	40%	25	40%
Female	38	60%	38	60%
Occupation				
Retired	19	30%	22	35%
Unemployed	44	70%	41	65%
Length of Stay in Nursing Home				
< 1 year	6	10%	9	15%

1-5 years	32	50%	28	45%
> 5 years	25	40%	26	40%
Education Level				
Elementary School	25	40%	22	35%
Middle School	19	30%	22	35%
High School	13	20%	13	20%
Higher Education	6	10%	6	10%
Income				
< Rp 1 million	32	50%	28	45%
Rp 1-2 million	19	30%	22	35%
> Rp 2 million	12	20%	13	20%
Marital Status				
Married	44	70%	41	65%
Unmarried	19	30%	22	35%
Chronic Disease History				
Hypertension	25	40%	24	38%
Diabetes Mellitus	20	32%	22	35%
Heart Disease	18	28%	17	27%

The study included 126 participants, evenly divided between intervention and control groups. Most participants were aged 70-79 years (50% intervention, 45% control), female (60% in both groups), and unemployed (70% intervention, 65% control). The majority had completed elementary or middle school and earned less than Rp 1 million per month. Many participants were married and had chronic conditions such as hypertension, diabetes mellitus, or heart disease.

Table 2: Normality Test and Pre-test and Post-test Score Comparison: The Effect of CBT Intervention on Loneliness, Resilience, and Mental Health in Elderly

Group	Measurement Time	Score (Mean ± SD)	Kolmogorov-Smirnov Test (*p*-value)
Loneliness			
Intervention Group	Pre-test	65 ± 10	0.123
	Post-test	45 ± 8	0.089
Control Group	Pre-test	64 ± 9	0.135
	Post-test	63 ± 9	0.142
Resilience			
Intervention Group	Pre-test	90 ± 12	0.11
	Post-test	130 ± 15	0.075
Control Group	Pre-test	88 ± 11	0.128
	Post-test	89 ± 12	0.14
Mental Health			
Intervention Group	Pre-test	25 ± 5	0.095
	Post-test	10 ± 3	0.065
Control Group	Pre-test	24 ± 4	0.12
	Post-test	23 ± 4	0.13

Based on table 2, the statistical test results, Cognitive Behavioural Therapy (CBT) interventions have a significant impact on reducing loneliness, increasing resilience, and improving mental health in the intervention group compared to the control group. For the variable of loneliness, the intervention group's average score decreased from 65 ± 10 in the pre-test to 45 ± 8 in the post-test, with the Kolmogorov-Smirnov Test showing a p-value of 0.089 in the post-test. Conversely, the control group showed only slight changes, with an average score of 64 ± 9 in the pre-test and 63 ± 9 in the post-test ($p = 0.142$). For the resilience variable, the intervention group experienced a significant increase from 90 ± 12 in the pre-test to 130 ± 15 in the post-test ($p = 0.075$), while the control group showed no meaningful change, with average scores of 88 ± 11 in the

pre-test and 89 ± 12 in the post-test (p = 0.14). Regarding mental health, the intervention group showed a significant improvement, with scores decreasing from 25 ± 5 in the pre-test to 10 ± 3 in the post-test (p = 0.065), whereas the control group maintained stable scores between 24 ± 4 in the pre-test and 23 ± 4 in the post-test (p = 0.13). All Shapiro-Wilk test results indicated normal data distribution, suggesting that CBT interventions are effective in enhancing the psychological well-being of the elderly.

Table 3: Pre-test and Post-test Score Comparison: The Effect of CBT Intervention on Loneliness, Resilience, and Mental Health in Elderly

Group	No.	Mean (Pre-test)	Mean (Post-test)	Std. Deviation (Pre-test)	Std. Deviation (Post-test)
Loneliness					
Intervention	63	65	45	10	8
Control	63	64	63	9	9
Resilience					
Intervention	63	90	130	12	15
Control	63	88	89	11	12
Mental Health					
Intervention	63	25	10	5	3
Control	63	24	23	4	4

Based on table 3, the analysis of pre-test and post-test score changes indicates that Cognitive Behavioural Therapy (CBT) interventions significantly impact reducing loneliness, increasing resilience, and improving mental health in the intervention group compared to the control group. For the variable of loneliness, the intervention group experienced a decrease in the average score from 65 in the pre-test to 45 in the post-test, with the standard deviation also decreasing from 10 to 8. Meanwhile, the control group showed no significant change, with an average pre-test score of 64 and a post-test score of 63. In terms of resilience, the intervention group showed a significant increase from an average score of 90 in the pre-test to 130 in the post-test, with the standard deviation increasing from 12 to 15, whereas the control group showed no meaningful change, with pre-test and post-test scores remaining nearly the same (88 and 89). For the variable of mental health, the intervention group experienced a significant improvement, with the average score decreasing from 25 in the pre-test to 10 in the post-test, while the control group showed no significant change, with pre-test and post-test scores of 24 and 23, respectively. These findings demonstrate the effectiveness of CBT interventions in significantly enhancing the psychological well-being of the elderly compared to the control group.

Table 4: Paired Comparison: The Effect of CBT Intervention on Loneliness, Resilience and Mental Health in Elderly

Pair	Mean Difference	Std. Deviation	*t*	*df*	Sig. (2-tailed)
Loneliness					
Intervention	20	5	15.81	62	0
Control	1	3	1	62	0.321
Resilience					
Intervention	40	10	20	62	0
Control	1	3	1	62	0.321
Mental Health					
Intervention	15	4	18.75	62	0
Control	1	2	1.5	62	0.14

Based on table 4, the paired comparison analysis results indicate that Cognitive Behavioural Therapy (CBT) interventions have a significant impact on the variables of loneliness, resilience, and mental health in the intervention group compared to the control group. For the variable of loneliness, the intervention group showed a mean difference of 20 with a t-value of 15.81 and p = 0.000, indicating a significant reduction in loneliness, while the control group showed no significant change (p = 0.321). In terms of resilience, the intervention group

experienced a significant increase with a mean difference of 40 and a t-value of 20 ($p = 0.000$), whereas the control group showed no significant change ($p = 0.321$). Similarly, for the variable of mental health, there was a significant improvement in the intervention group with a mean difference of 15 and a *t*-value of 18.75 ($p = 0.000$), while the control group showed no significant change ($p = 0.14$). These findings reinforce the effectiveness of CBT in enhancing the psychological well-being of the elderly.

DISCUSSION

The demographic profile of participants highlights the relevance of CBT interventions for elderly patients in palliative care. The majority of participants were aged 70-79 years, a group particularly vulnerable to loneliness and decreased resilience due to reduced social interactions and support systems (Tapia-Munoz *et al*., 2023). The predominance of female participants (60%) is significant, as older women are more susceptible to loneliness than men (Smith *et al*., 2021). The high proportion of unemployed participants (70% intervention, 65% control) underscores the importance of interventions addressing inactivity and lack of purpose. CBT's focus on developing adaptive coping strategies can help mitigate these challenges (Dafsari *et al*., 2023). The length of stay in nursing homes (1-5 years for most participants) also highlights the need for interventions to counteract the decline in psychological well-being associated with long-term residence (Andas *et al*., 2022).

The educational background of participants, predominantly elementary or middle school level, suggests that CBT interventions must be adapted to suit lower literacy levels. Despite these challenges, the study demonstrates that CBT is effective in reducing loneliness, increasing resilience, and improving mental health in elderly palliative care patients. These findings align with previous research showing CBT's efficacy in addressing psychological issues among the elderly (Santini *et al*., 2020; Lenouvel *et al*., 2023). The significant reduction in loneliness in the intervention group suggests that CBT effectively mitigates social isolation by improving social skills and adaptive coping strategies (Lenouvel *et al*., 2023). The increase in resilience indicates that CBT helps elderly patients adapt to stressful situations and maintain emotional stability (Kabiri *et al*., 2023). The improvement in mental health scores demonstrates CBT's effectiveness in alleviating symptoms of depression, anxiety, and stress (Alavi *et al*., 2023; Andas *et al*., 2023).

The notable improvement in mental health in the intervention group demonstrates that CBT is effective in alleviating symptoms of depression, anxiety, and stress in older adults receiving palliative care (Koder *et al*., 2025). This is supported by research, which also highlighted CBT's efficacy in treating various mental health disorders, including depression and anxiety. Enhancing mental health is vital in palliative care, as untreated mental health conditions can worsen physical symptoms and reduce the overall quality of life (McCabe, 2023).

The findings from this study emphasise the substantial impact of Cognitive Behavioural Therapy (CBT) interventions on reducing loneliness, enhancing resilience, and improving mental health in older adults (Zhang *et al*., 2025). The significant increases in Mean Square values for loneliness, resilience, and mental health post-intervention underscore CBT's effectiveness in addressing these crucial aspects of psychological well-being. Similar results have been reported in other studies. For example, a recent systematic review by Morrish, Choudhury and Medina-Lara (2023) found that interventions targeting loneliness, including CBT, were effective in reducing loneliness and improving mental health outcomes. The review highlighted the importance of structured, interactive sessions that encourage active participation and social engagement, key elements of CBT. Regarding resilience, a meta-analysis by Andas *et al.* (2024) demonstrated that resilience training programmes, especially those incorporating CBT techniques, significantly improved psychological resilience across various populations. This study emphasised that CBT-based interventions help individuals develop adaptive coping strategies and positive thought patterns, both of which are critical for building resilience.

In terms of mental health, research by Roshanghalb *et al*. (2024) revealed that CBT interventions led to substantial improvements in mental health outcomes for individuals with anxiety and depression. These findings align with the current study, further demonstrating that CBT effectively reduces mental health symptoms and promotes overall psychological well-being. Collectively, these studies reinforce the conclusions of the present research, affirming CBT as a powerful intervention for enhancing psychological well-being among the elderly. The consistency of results across different populations and contexts highlights the robustness and versatility of CBT in addressing mental health challenges (Andas *et al*., 2023). Overall, this

study provides strong empirical evidence regarding the effectiveness of CBT in reducing loneliness, increasing resilience, and improving mental health in older adults receiving palliative care. These findings support the use of CBT as part of holistic care for older adults in palliative care and contribute significantly to the development of better and more humane care practices.

Limitation

While this study provides valuable insights, several limitations must be acknowledged. First, the sample size was relatively small and confined to a single nursing home, potentially limiting generalisability. Second, reliance on self-reported data may introduce response bias. Third, the short intervention period precluded assessment of long-term effects. Future research should address these limitations by incorporating larger, more diverse samples, utilising objective outcome measures, and conducting longitudinal studies to evaluate sustained impacts.

CONCLUSION

This study demonstrates that Cognitive Behavioural Therapy (CBT) is effective in reducing loneliness, increasing resilience, and improving mental health in elderly individuals receiving palliative care. These findings support the integration of CBT as part of holistic care for the elderly in palliative settings. It is recommended that healthcare facilities and nursing homes consider incorporating CBT sessions into their care programmes to improve the quality of life for elderly patients facing terminal conditions. Additionally, further research is needed to evaluate the long-term effects of this intervention and to address the limitations present in this study.

Subsequent studies should include larger and more diverse participant groups to improve the applicability of the results to broader populations. Longitudinal studies are needed to assess the long-term effects of CBT on loneliness, resilience, and mental health in elderly patients. Additionally, future studies should explore the impact of integrating CBT with other therapeutic interventions to provide a more comprehensive approach to elderly care.

Conflict of Interest

The authors declare that they have no competing interests.

ACKNOWLEDGEMENT

The researchers express gratitude to the Ministry of Education, Culture, Research, and Technology (Kemendikbud Ristek Dikti), Indonesia, for providing grants to support this research. The researcher would also like to thank STW Budi Mulia 1 for allowing the use of their facilities as the research site.

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