

Integration of Autogenic Exercise and Murrotal Al-Quran Improves the Quality of Life of the Elderly: A Quasy Experimental Study

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Abstract: The rising number of older adults in Indonesia, particularly those living with non-communicable diseases (NCDs) like diabetes mellitus (DM), presents significant challenges in enhancing their quality of life. This study investigates the impact of combining autogenic exercise with Al-Quran murottal on the quality of life among the elderly with DM. Employing a quasi-experimental design with a pre- and post-test approach, the research involved 89 elderly participants who met the inclusion criteria. These participants were divided into two groups: an intervention group, which received regular sessions of autogenic training combined with Al-Quran murottal, and a control group, which practiced self-directed internalization. The WHOQOL-OLD instrument was used to assess quality of life, with data analyzed using paired t-test and independent t-test. The findings revealed a significant improvement in the quality of life for the intervention group, as reflected by an increase in the average score from 49.42 to 74.72 ($p < 0.05$). Conversely, the control group experienced a minor, statistically insignificant decline in quality of life. These results demonstrate that integrating physical and spiritual elements, such as autogenic exercises and Al-Quran murottal, effectively enhances the quality of life for older adults with DM, offering a holistic approach to improving their well-being.

Keywords: autogenic training, diabetes mellitus, elderly, murottal al-quran, quality of life

Submitted: 21 Nov 2024, revised: 18 January 2025, accepted: 19 January 2025, published: 30 January 2025

INTRODUCTION

The increase in life expectancy in Indonesia causes the number of elderly to increase from year to year. Data shows that the proportion of the elderly population continues to increase, and by 2035, it is predicted to reach 15.77%. This condition creates challenges for the health sector, especially related to non-communicable diseases (NCDs) such as diabetes mellitus (DM), hypertension, and heart disease, which are often experienced by the elderly group (Miller, 2021). The results of a preliminary study in Baturaja City conducted on older adults with diabetes mellitus (DM) showed that 82% of respondents experienced decreased motivation to live, excessive fatigue, and frequently recurring health complaints. In addition, 25% of older adults show symptoms of psychosocial disorders, such as anxiety and depression, while another 10% experience mobility problems.

The Indonesian Ministry of Health has developed various programs and policies for managing non-communicable diseases (NCDs) based on established guidelines. NCD management encompasses primary prevention (nutrition and physical activity), secondary prevention (early detection and health screening), and tertiary prevention (rehabilitation after diagnosis). However, the comprehensive implementation of these strategies in Community Health Centers remains suboptimal, particularly as it lacks specific targets for older adults with NCDs. This gap increases the risk of worsening health

conditions among the elderly and diminishes their quality of life ([Kemenkes, 2018](#)). To address this, a holistic approach that integrates physical, psychological, social, and spiritual dimensions is essential for improving the quality of life of older adults ([Wei et al., 2022](#)).

These observations highlight an urgent need for interventions that effectively enhance the quality of life in the elderly, particularly through simultaneous physical and mental support. Comprehensive management strategies incorporating primary, secondary, and tertiary prevention, alongside interventions addressing physical, psychological, social, and spiritual needs, are crucial for maintaining the elderly's well-being ([Kemenkes, 2018](#)). Autogenic relaxation therapy has demonstrated positive effects on physical health, including reducing blood pressure and promoting muscle relaxation ([Widiyati et al., 2021](#); [Sutrisno & Nursalam, 2022](#)), while Al-Quran murottal strengthens spiritual well-being, fosters inner peace, and enhances psychological resilience ([Ariani et al., 2024](#)).

Previous studies, such as the combination of progressive muscle relaxation and murottal therapy, have proven effective in improving sleep quality among older adults ([Swasana, 2018](#)) and anxiety among patient with percutaneous coronary intervention procedure ([Hudiyawati et al., 2024](#)). However, no research to date has examined the combined effects of autogenic exercise and murottal therapy on the quality of life of older adults. This gap motivated the researchers to explore the application of these interventions and evaluate their impact on the elderly population in Baturaja City. Such an approach not only offers a solution for managing NCDs but also has the potential to establish an innovative, evidence-based model for enhancing the overall quality of life in older adults. This research aims to analyze the effect of a combination of autogenic exercise and reciting the Koran on the quality of life of elderly people with diabetes mellitus.

METHODS

The design used in this research is a *quasi-experiment* with approach *pre-post group design*. This design is used to assess the effectiveness of the intervention by comparing pretest and posttest results between groups that were not randomly selected ([Thomas, 2024](#)). This research was carried out to determine the effect before and after the combination of autogenic exercise and Al-Quran murottal interventions on the quality of life of the elderly in Baturaja City. Research respondents were divided into 2 (two) groups with two treatments; namely, the intervention group received a combination of scheduled interventions and monitoring. In contrast, the control group received a combination of intervention with demonstration and re-demonstration and then continued with independent internalization. The research was carried out in May-October 2024.

The population of older adults with Diabetes Mellitus (DM) is 375 people, and the sample calculation results using the Slovin formula after considering the margin of error and the possibility of dropping out are 89 respondents ([Adhikari, 2021](#)). The research inclusion criteria were older adults who had been diagnosed with DM, could mobilize independently, and were undergoing DM treatment at the Community Health Center. Exclusion criteria are older adults experiencing immobilization, dementia, and Alzheimer's, as well as DM older adults with a history of uncontrolled medication.

The research employed the World Health Organization Quality of Life (WHOQOL-OLD) questionnaire as the primary instrument. The Indonesian version of the questionnaire consists of 24 items with response options ranging from "not at all" to "very much." Validated by [Gondodiputro et al., \(2021\)](#), this instrument has a validity range of 0.62–0.86 and a reliability score of 0.97. The intervention group participated in spiritual nursing interventions and autogenic exercise a total of five meeting sessions with a duration of 10-20 minutes per meeting for two months with the following stages:

1. Preparation: Choose a quiet, comfortable, and free-of-distraction place. Turn off electronic devices or noise sources. Sit comfortably in a chair or lie down on a supportive surface. Maintain a relaxed but not too tense posture. Wear loose clothing to ensure good air circulation.
2. Initial relaxation: Close your eyes and take a few deep breaths. Focus on the breath, letting it flow slowly and experiencing the initial tension.

3. Autogenic statements: Use simple positive statements or self-suggestions. For example: "My hands and feet feel warm and heavy.", "My breathing is calm and steady.", "My heartbeat is calm and regular.", "My stomach feels warm and comfortable.", "My forehead is cool and calm. ". Repeat each statement 3-5 times slowly with full focus.
4. Visualization: Imagine the body in a relaxed and heavy state. If it helps, use visualization of a calming place, such as a beach or park while listening to a recitation of the Koran.
5. Consolidation of suggestions: Focus on each area of the body mentioned in the suggestion. Let the body receive the message.
6. Returning consciousness: Once finished, take a deep breath and slowly bring your body back to consciousness. Move your fingers, toes, and head to reactivate your body.
7. Light stretches: Do light stretches to help transition from relaxation to normal activity.
8. Reflection: Take time to reflect on the effects of exercise on your body and mind.

In contrast, the control group engaged in independent internalization practices. The frequency of intervention sessions was based on prior studies, which implemented three sessions of autogenic relaxation and Al-Quran therapy ([Widiyati et al., 2021](#); [Sutrisno & Nursalam, 2022](#); [Ariani et al., 2024](#)). The researchers increased the number of sessions to five to assess its extended effectiveness on the quality of life of older adults.

Data analysis was conducted in several stages, incorporating both descriptive and inferential statistical methods to evaluate the intervention's impact on the quality of life of the elderly. The initial stage involved descriptive analysis, summarizing participant characteristics such as age, gender, and occupation, alongside calculating the mean and standard deviation (SD) of quality of life scores for both the intervention and control groups pre-and post-intervention. These metrics provided insights into data distribution and baseline differences between groups.

Subsequently, a paired t-test was employed for within-group analysis to assess changes in quality of life before and after the intervention. Finally, an independent t-test was conducted to compare quality-of-life improvements between the intervention and control groups (between-group analysis). Data from the pretest and posttest assessments were analyzed using statistical software.

RESULTS

Research that has been carried out on DM elderly in the area supported by UPTD Puskesmas Baturaja City by implementing integrated autogenic training interventions and Al-Quran murrotal obtained the following results:

Table 1. Characteristics of the elderly based on age, gender, and occupation (n=86)

Characteristics	Intervention		Control		Intervention		Control	
	f	%	f	%	Mean	SD	Mean	SD
Age (years)	-	-	-	-	64.67	6.32	61.65	11.55
Gender								
Man	14	32.6	7	16.3	-	-	-	-
Woman	29	67.4	36	83.7	-	-	-	-
Work								
Housewife	23	53.5	25	58.1	-	-	-	-
Laborer	4	9.3	5	11.6	-	-	-	-
Household assistant	1	2.3	0	0	-	-	-	-
Retired	8	18.6	3	7	-	-	-	-
Trader	1	2.3	0	0	-	-	-	-
Seamstress	1	2.3	2	4.7	-	-	-	-
Self-employed	1	2.3	0	0	-	-	-	-
Officer	2	4.7	3	7	-	-	-	-
Office staff	1	2.3	0	0	-	-	-	-
Farmer	1	2.3	5	11.6	-	-	-	-
Total	43	100	43	100	-	-	-	-

Characteristics of the Elderly

[Table 1](#) describes that the mean age of older adults in the intervention group was 64.67 years with an SD of 6.32, and in the control group was 61.65 years with an SD of 11.55. The average age of older adults in the intervention group was higher than in the control group. The more significant standard deviation in the control group indicates a broader variation in the age range compared to the intervention group. The majority of older adults were female in both groups, with a higher proportion in the control group, namely 36 older adults (83.7%), compared to the intervention group, namely 29 older adults (67.4%). Half of the elderly work as housewives, both in the intervention group, namely 23 elderly (53.5%), and in the control group, namely 25 elderly (58.1%); this shows that the majority of respondents do not work formally. 2 respondents *drop out* in the middle of implementing interventions for health reasons.

Quality of Life for the Elderly

[Table 2](#) illustrates that the average quality of life among older adults in the intervention group was 49.42 (SD = 9.19) before the intervention, which increased to 74.72 (SD = 12.44) post-intervention. Conversely, the control group had a mean quality of life score of 53.44 (SD = 9.52) before the intervention, which slightly declined to 49.02 (SD = 11.05) afterward. The intervention group demonstrated a significant improvement in average quality of life before and after the intervention, whereas the control group experienced a slight decrease over the same period.

Table 2. Quality of life of older adults in the intervention and control groups before and after intervention (n=86)

Quality of Life	Intervention			Control		
	Mean	SD	95% CI	Mean	SD	95% CI
Before	49.42	9.19	46.59-52.25	53.44	9.52	50.51-56.37
After	74.72	12.44	70.89-78.55	49.02	11.05	45.62-52.42

Differences in the Quality of Life of the Elderly Before and After Intervention

[Table 3](#) shows a statistically significant difference in the quality of life of older adults in the intervention group before and after the intervention, with a p-value of 0.001 ($p < 0.05$). In contrast, no significant difference was observed in the control group, with a p-value of 0.093 ($p > 0.05$). The intervention group experienced a substantial improvement in the average quality of life, with a mean difference of 25.3. This statistically significant result highlights the strong positive impact of the integrated intervention on the quality of life of older adults. On the other hand, the control group showed a slight decline in average quality of life, with a mean difference of -4.42. However, this difference was not statistically significant, indicating that the absence of the structured intervention failed to bring about meaningful changes in the quality of life of the elderly in the control group.

Table 3. Differences in the quality of life of the elderly before and after intervention in the intervention and control groups

Quality of Life	Mean	SD	MD	p-value
Intervention				
Before	49.42	9.19	25.3	0.001
After	74.72	12.44		
Control				
Before	53.44	9.52	-4.42	0.093
After	49.02	11.05		

SD: Standard Deviation; MD: Mean Difference

The Effect of Integrating Autogenic Exercise and Al-Quran Murottal on the Quality of Life of the Elderly

Table 4. Influence Autogenic and murrotal training Al Quran on the quality of life of the elderly

Quality of life	Mean	SD	p-value
Intervention	74.72	12.44	0.001
Control	49.02	11.05	
Difference	25.7		

SD: Standard Deviation

[Table 4](#) demonstrates a statistically significant effect of the integrated intervention involving autogenic exercise and Al-Quran murottal on the quality of life of elderly individuals, with a p-value of 0.000 ($p < 0.05$). This intervention effectively enhanced the quality of life, as evidenced by a significantly higher mean score in the intervention group (74.72) compared to the control group (49.02), reflecting a mean difference of 25.7. These findings confirm the positive impact of the combined intervention in improving the quality of life of elderly individuals with diabetes mellitus (DM). Accordingly, the alternative hypothesis (H_a) is accepted, and the null hypothesis (H_o) is rejected. The research outcomes align well with the predetermined objectives.

DISCUSSION

The respondents' characteristics provide insights into the elderly population with DM involved in the study. The intervention group had an average age of 64.67 years, while the control group averaged 61.65 years. This indicates that participants in the intervention group were generally older. Additionally, the age distribution in the control group was more diverse, as evidenced by a higher standard deviation ($SD = 11.5$) compared to the intervention group ($SD = 6.32$). This wider age variation in the control group reflects a more heterogeneous population, which could potentially influence the study outcomes. Age differences are often correlated with variations in the physical and psychological conditions of elderly individuals ([Maringka et al., 2023](#)). Therefore, the heterogeneity in age within the control group may have contributed to differences in baseline and outcome measures, adding another layer of complexity to the analysis.

The majority of respondents in both groups were women, with a proportion of 67.4% in the intervention group and 83.7% in the control group. This proportion follows the higher prevalence of older women than men in the general population, especially in the elderly group. This is in line with demographic data, which shows that women tend to have a higher life expectancy than men, so the prevalence of older women is more prevalent among older adults undergoing health care ([Pham et al., 2019](#)). In addition, older women are more often at risk of chronic diseases such as DM and more actively seek health care than men, which may be a determining factor for the high number of female respondents in this study ([Zacarias et al., 2016](#)).

The type of work of respondents in this study was dominated by housewives, 53.5% in the intervention group and 58.1% in the control group. The results of this research are in accordance with the socioeconomic characteristics of older adults in Indonesia who do not work formally and act as housewives ([Badan Pusat Statistik, 2013](#)). The absence of formal work activities can affect the quality of life of the elderly because limited physical activity and lack of intense social involvement can increase the risk of depression and decreased cognitive function ([Gothe et al., 2020](#)). On the other hand, respondents who work, although in small numbers, show a variety of types of work, from laborers and traders to retirees. This shows that there are respondents who are still economically active, even in light or temporary work, and who can help maintain their quality of life by carrying out physical and social activities through their work ([Mulholland & Jackson, 2018](#)).

Two respondents experienced *dropout* during the implementation of the intervention due to health problems. This is normal in research conducted on elderly populations with chronic diseases because their physical condition is more susceptible to disease complications. *Dropout* This shows the

importance of conducting more intensive health screening and monitoring during the intervention implementation period in future research in order to minimize the number of respondents who drop out of the study to ensure more representative results ([Nava et al., 2022](#)). Overall, the characteristics of respondents show a distribution that is in line with the profile of the elderly population in Indonesia, with a predominance of women and homemakers. These characteristics are essential to consider in interpreting research results because the factors of age, gender, and employment have a close relationship with quality of life and response to health interventions in the elderly ([Pham et al., 2019](#)).

The application of the integrated intervention of autogenic exercise and murottal Al-Quran in this study showed a significant improvement in the quality of life of older adults with diabetes mellitus (DM) after being given the combined intervention of autogenic exercise and murottal Al-Quran. The mean quality of life in the intervention group increased from 49.42 before the intervention to 74.72 after the intervention, with a statistically significant difference (p-value = 0.000) ([Nava et al., 2022](#)). In contrast, in the control group, which only carried out independent internalization without structured supervision, there was a decrease in the average quality of life from 53.44 to 49.02, which was not statistically significant (p-value = 0.093) ([Garcia et al., 2020](#)).

These findings support previous research showing that a holistic approach that combines physical and spiritual interventions can have a positive impact on the quality of life of older adults with chronic diseases ([Nava et al., 2022](#)). Autogenic exercise has been proven to be effective in reducing physical and psychological tension through increasing parasympathetic nervous system activity, which plays a role in reducing stress and anxiety in the elderly ([Garcia et al., 2020](#)). This increase in parasympathetic function contributes to reducing psychological symptoms such as anxiety and stress that are often experienced by older adults with DM, thus overall improving their quality of life ([Chen et al., 2017](#)).

The implementation of the Al-Quran murottal intervention has a positive influence on the spiritual and psychological dimensions of the elderly. Listening to Al-Quran murottals is known to provide a relaxing effect, reduce anxiety levels, and increase a sense of inner peace and calm, which contributes to improving psychological wellbeing ([Pramesona & Taneepanichskul, 2018](#)). Spirituality is often considered an essential factor in managing chronic diseases in the elderly, especially in Indonesia, where a majority Muslim population has a strong belief in the spiritual aspects of healing ([Pramesona & Taneepanichskul, 2018](#)). Thus, Al-Quran murottal, as part of this integrative therapy, can improve the quality of life by increasing the calm and psychological wellbeing of the elderly.

The decrease in quality of life in the control group indicates that without structured intervention and ongoing support, older adults with DM are at risk of experiencing decreased motivation for life and worse mental health ([Chen et al., 2017](#)). This decline is consistent with the findings of previous studies showing that older adults with chronic illnesses who do not receive physical and psychological support interventions tend to experience a progressive decline in quality of life ([Garcia et al., 2020](#)). Overall, this study confirms that the combination of autogenic exercise intervention and Al-Quran murottal is efficacious in improving the quality of life of DM elderly. An approach that involves physical, psychological, and spiritual aspects in one intervention provides better results compared to an approach that only focuses on one aspect ([Nava et al., 2022](#)). Therefore, the integration of this kind of intervention is highly recommended for adoption in non-communicable disease (NCD) management programs for the elderly in health facilities such as Community Health Centers in an effort to improve the quality of life of the elderly in the areas they support.

The results of this study provide essential implications for the health management of older adults with DM. The integration of autogenic exercises and Al-Quran murottal as a holistic intervention has the potential to become part of chronic disease management programs in primary health care because it has been proven effective in improving quality of life ([Allender, J. & Rector, Cherie & Warner, 2013](#); [Marcia Stanhope, 2016](#); [Miller, 2021](#); [Pramesona & Taneepanichskul, 2018](#)). To achieve maximum effectiveness, training for health workers regarding the application of autogenic exercise techniques and guidance on listening to Al-Quran murottals needs to be improved so that the intervention can be implemented optimally ([Nava et al., 2022](#)). Further research with larger samples and a different variety

of health conditions could be conducted to validate these results as well as explore the potential application of similar interventions in other chronic disease conditions.

CONCLUSION

The results of this study revealed that the integration of autogenic exercise intervention and Al-Quran murottal had a significant positive effect on the quality of life of older adults with diabetes mellitus (DM) in Baturaja City. This research shows that the integration of autogenic exercise therapy and Al-Quran murottal can be a holistic intervention model to improve the quality of life of older adults with DM. An approach that combines physical, psychological, and spiritual aspects provides a more comprehensive impact in improving the well-being of the elderly. Implementation of similar programs in health facilities, such as Community Health Centers, can be considered as part of the management of non-communicable diseases in the elderly, with a focus on a structured approach and ongoing supervision to maximize the effectiveness of interventions. These intervention programs can be implemented in a structured manner in health facilities such as community health centers or elderly posyandu as part of the management of non-communicable diseases in the elderly. Continuous supervision by health personnel, especially nurses, is necessary to ensure the effectiveness of this intervention. The combination of physical, psychological, and spiritual interventions can become a model that is applied more widely in non-communicable disease (NCD) prevention and control programs for the elderly in Indonesia. Special training is needed for health workers, especially nurses, to integrate autogenic exercises and spiritual interventions in nursing care practices.

ACKNOWLEDGMENT

Researchers would like to thank the person in charge of the Non-Communicable Diseases Program (PTM) UPTD Tanjung Baru, Sekarjaya, and Kemalaraja Health Centers, who have assisted so that this research activity can be carried out as planned. We also express our thanks to the Head of the Subdistrict and all respondents who have participated in providing space and are willing to participate in the activities until the end consistently. Thanks, are also expressed to the Poltekkes Kemenkes Palembang, which has provided financial support for this research through the SIMLITABKES 2024 research grant scheme.

AUTHOR CONTRIBUTION

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Author 1 contributes to the collection and processing of data. Authors 2 and 3 contribute to the presentation of data while researcher 4 contributes to the preparation of articles.

ETHICAL APPROVAL AND CONSENT

Ethical approval was obtained from the Health Research Ethics Committee of the Health Polytechnic of the Ministry of Health of Palembang with number 0405/KEPK/Adm2/V/2022 on May 31st, 2022. Informed consent was obtained from all individual participants included in the study, in accordance with the Declaration of Helsinki.

FUNDING SOURCES

Researchers received funding for research and publications from the SIMLITABKES 2024 research grant scheme.

CONFLICT OF INTEREST

The authors affirm that there are no conflicts of interest pertaining to the publication of this paper.

DATA AVAILABILITY STATEMENT

The data that support the findings of this study are not publicly available due to privacy or ethical restrictions. However, they are available from the corresponding author on reasonable request and with permission from Poltekkes Kemenkes Palembang.

PROTOCOL REGISTRATION

This study was not registered.

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