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Effect of Yoga on Depression Levels in Older People Living in Nursing Home

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Abstract

Background: Older people, especially those living in nursing homes, have a higher risk of experiencing depressive disorders. This condition may lead to decreased physical health, decreased social and cognitive function, and increased risk of suicide attempts. One intervention to help the older people overcome depression is yoga. This study aimed to assess the effect of yoga on depression level in older people living in nursing homes.

Methods: This study applied a one-group pre-and post-test design. The Geriatric Depression Scale–15 (GDS-15) was used to measure depression levels. Participants were recruited from one of the nursing homes in Jakarta, Indonesia. Yoga intervention was performed directly in the nursing home 3 times a week for 9 weeks with each practice duration of 40 minutes. The paired t-test was used to evaluate the statistical difference in depression scores between pre-and post-intervention.

Results: There were 29 out of a total of 68 residents were interviewed after the inclusion and exclusion study was conducted, resulting in 18 respondents who experienced depression and participated in yoga intervention. The majority respondents had mild depression (10 of 12). There was a significant difference in depression scores before and after doing yoga activities ($t=11$; $p<0.001$).

Conclusions: Yoga can be an effective intervention to reduce depression among older people in nursing homes and yoga as a form of physical activity for the elderly may improve their wellness and enhance quality of life.

Keywords: Elderly, depression, older people, nursing home, yoga

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Introduction

Depression is a complex mood disorder characterized by persistent feelings of sadness and a loss of interest or pleasure.[1] In 2017, Southeast Asia ranked highest among world regions for the prevalence of depressive disorders.[2] Approximately 85.67 million people, or about 27% of the world's population, experience depressive disorders.[2] According to the *Riset Kesehatan Dasar* (Riskesdas) 2018, the risk of depression increases with age, with the highest prevalence observed among individuals aged 55–64 years.[3] Older adults living in nursing homes are at a higher risk for depressive disorders. A study conducted in Iran showed that the risk of depression was three to four times higher among older individuals living in nursing homes compared to those living in their own homes.[4] Similarly, an Indonesian study reported that 71% of the elderly residents in a nursing home in Yogyakarta had depressive disorders.[5] Several factors, such as loss of home, spouse, relatives, and friends, as well as feeling of isolation, have been suggested as triggers for depression among older adults in nursing home.[5] Depression in the elderly can lead to negative impacts such as deterioration of physical health, decreased social and cognitive function,

and an increased risk of suicide attempts.[6]

Given the significant impact of depression among older adults, considerable attention has been directed to identifying effective interventions. One effective non-pharmacological intervention is yoga. A systematic review and several quasi-experimental studies conducted in Tamil Nadu, India, have demonstrated the beneficial effects of yoga in reducing depressive symptoms.[7,8] Yoga offers a promising alternative intervention to be implemented in nursing homes to help address depression among the elderly. Therefore, this study aimed to evaluate the effect of yoga on depression among older adults living in Santa Anna Nursing Home, Jakarta, Indonesia.

Methods

This study used a one-group pre-and post-test design. Participants were recruited from Santa Anna Nursing Home in Penjagalan, North Jakarta, Indonesia. Data collection and intervention were conducted from December 2022 to February 2023, and data analysis was carried out from February 2023 to May 2023. Participants were recruited using a purposive sampling technique. The eligibility criteria for participation included being a resident of Santa Anna Nursing Home, aged 65 years or older, and having mild to moderate depression as diagnosed using the Geriatric Depression Scale-15 (GDS-15).

The GDS-15 was used to assess depression. This instrument consisted of 15 questions that evaluate symptoms of depressive disorders in older adults. Participants were asked to respond based on their feelings over the past week. Each question required a "yes" or "no" answer. A "yes" response to questions 2, 3, 4, 6, 8, 9, 10, 12, 14, and 15 indicated depression, while a "no" response to questions 1, 5, 7, 11, and 13 also indicated depression. One point was awarded for each answer indicating depression, and zero points were given otherwise. The total score was calculated by summing the depression-indicating responses. A score of 0–4 was classified as normal, 5–9 as mild depression, and 10–15 as moderate to severe depression. The questionnaire is presented in Table 1.

The intervention consisted of a 9-week yoga program, performed three times per week, with each session lasting 40 minutes. Each session began with the Samavritti breathing technique and a warm-up phase. The yoga asanas practiced included Tadasana, Child's Pose, Janu Sirsasana, Seated Spinal Twist, and Baddha Konasana. All asanas, except for Tadasana, were modified to be performed while seated in a chair to accommodate participants' physical limitations. Each session ended with a cooling-down phase.

Data analysis was performed using SPSS version 26. As the data were normally distributed, a paired t-test was used to evaluate differences in the GDS scores before and after the intervention. This study was approved by the Ethics Committee of the School of Medicine

Table 1 Geriatric Depression Scale-15 (GDS-15) Questionnaire

No	GDS-15 Questions	Yes	No
1.	Are you basically happy with your life?		
2.	Have you dropped many of your activities and interests?		
3.	Do you feel your life is empty?		
4.	Do you often feel bored?		
5.	Are you usually in a good mood?		
6.	Are you afraid that something bad will happen to you?		
7.	Do you usually feel happy?		
8.	Do you often feel helpless?		
9.	Do you prefer to stay at home rather than go out and do new things?		
10.	Do you feel that you have more problems with your memory than most people?		
11.	Do you think it's great to be alive today?		
12.	Do you feel very worthless in your current condition?		
13.	Do you feel energized?		
14.	Do you feel hopeless about your situation?		
15.	Do you think that most people are better off than you?		

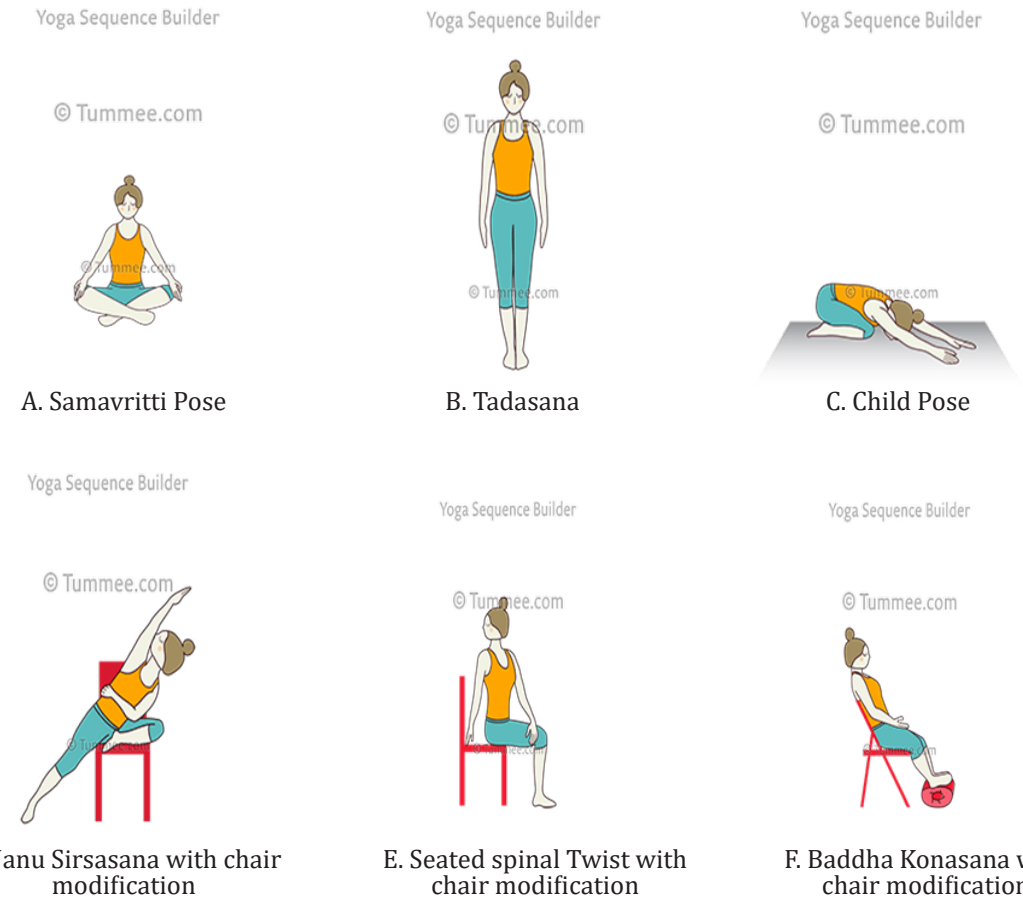

Figure 1 Yoga Poses Practiced By Participants

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Results

Out of 68 older adults living in nursing home, only 29 agreed to be screened. Several residents refused to be interviewed (n=10), were unable to communicate (n=9), or were unwilling to participate in yoga sessions (n=20).

Among the 29 residents who completed the questionnaire, the proportion of respondents who experienced depression was higher (n=18) than those who did not (n=11). Twelve participants (10 with mild depression and 2 with moderate depression) completed the full yoga intervention (Table 2).

The mean score of depression decreased significantly from before to after intervention (Table 3). Similarly, the proportion of mild depression also reduced during this period. Pre-test results showed that most participants had mild depression (n=10). By the end of the intervention, the majority of participants (n=7) no longer exhibited signs of depression. Those who were moderately depressed before the intervention improved to mild depression after completing the yoga program (n=2).

Table 2 Characteristics of Participants (n=12)

Characteristic	n
Gender	
Male	2
Female	10
Age (year)	
60–74	8
75–83	4
Depression	
Mild	10
Moderate	2

Table 3 Levels of Depression Before and After the Yoga Intervention (n=12)

	Mean	SD	t	P*
Pre-intervention	6.583	1.443	11	<0.001*
Post-intervention	3.833	2.125		

Note: *paired t-test

Discussion

This study found that the proportion of depression among older people living in Santa Anna Nursing Home was 62.1%. Depression scores significantly decreased following the yoga intervention, and fewer participants experienced depression after completing the program. Previous studies investigating depression among older people in nursing homes have reported mixed results. Two studies conducted in Indonesia found that the prevalence of depression among nursing home residents was 42.5% in Yogyakarta and 73.7% in Bukit Tinggi.[9,10] Studies from other countries have also reported a high prevalence of depression among this population, with prevalence rate of 58.3% in China, 55.8% in Iraq, and 71.42% in Iran.[4,11,12] Studies from Iraq and Iran additionally reported the prevalence of depression among community-dwelling older adults at 21.5% and 14.29%, respectively.[4,12] Overall, the prevalence rates in nursing homes, including the findings from the present study, are much higher than the global prevalence of depression among older people (28.4%).[13] Conversely, the prevalence among older adults living at home appears similar to the global figure. These findings suggest that older adults residing in nursing homes may be at a higher risk of developing depression.

The varying rates of depression reported across studies may be influenced by sample size and the number of nursing homes involved. The present study had a smaller number of participants compared to previous research. Studies conducted in Yogyakarta, China, and Bukittinggi had sample sizes exceeding 100 participants.[9,10,11] In addition, studies reporting lower prevalence rates, such as those from Yogyakarta and China, included multiple nursing homes.[9,11] In contrast, studies involving only one nursing home, such as the present study and the one from Bukittinggi, reported higher prevalence rates.[10] This suggests that the number of participants and the number of nursing homes involved may influence reported depression rates.

Several factors may contribute to the high prevalence of depression among nursing home residents, including difficulties adapting to new environments, loss of family support, and feelings of loneliness.[14,15] Older adults may find it challenging to adjust to the new living environment of a nursing home, particularly due to physical and cognitive declines associated with aging.[14] Limited social interaction skills have also been associated with higher depression levels, as reported in a study conducted in South Kalimantan.[15] Physical deterioration, such as impaired mobility, hearing, and vision, may hinder social interaction and adaptation, further increasing depression risk.[15] Besides, Feelings of injustice, stemming from expectations of familial care in old age, may also contribute to depression among nursing home residents.[5,14] Furthermore, admission to a nursing home without the older person's consent may trigger feelings of isolation and abandonment.[14] Neurobiological changes associated with loneliness, such as neuronal loss and decreased synaptic connections, may further exacerbate depressive symptoms.[16]

The results of this study showed a significant decrease in depression scores after a 9-week yoga intervention among older adults living in Santa Anna Nursing Home. The mean GDS-15 score dropped from 6.583 to 3.833 ($p<0.001$), and the proportion of participants with mild to moderate depression declined substantially by the end of the program. These findings support previous research showing the beneficial effects of yoga in reducing depression among older adults. Studies conducted in Sukoharjo (Indonesia) and Tamil Nadu (India) also reported similar improvements in depression symptoms following yoga interventions.[8,17] The selection of yoga movements may have contributed to the reduction in depression scores. The present study, as well as the studies in Sukoharjo and India, utilized asanas and pranayama exercises focusing on breathing and relaxation.[8,17] Breathing exercises that expand the chest and ribcage are believed to enhance lung oxygenation and promote emotional release, including sadness, anger, and frustration, common symptoms of depression.[7] Such movements provide rest to neural pathways and balance the sympathetic and parasympathetic branches of the autonomic nervous system.[18] Yoga's

meditative practices promote relaxation, decrease sympathetic nervous system activity, and reduce blood pressure and heart rate.[7] Relaxation sessions in yoga may also activate self-regulation systems, thereby enhancing positive emotions and lowering depression level.[7,18] Thus, yoga movements focusing on breathing and relaxation are effective in reducing depression.

There were differences between this study and previous studies regarding the frequency, session duration, and overall intervention period. The intervention period in this study was shorter compared to other studies. The current study involved yoga practice three times per week for nine weeks, with each session lasting 40 minutes. In comparison, the Sukoharjo study involved twice-daily sessions for 16 weeks, each lasting 20 minutes,[17] while the study in India involved twice-weekly sessions for 16 weeks, with each session lasting 50 minutes.[8] Another study in Florida suggested that practicing yoga consistently even without a teacher 3 to 5 times per week can improve confidence and mood.[19] A systematic review and meta-analysis also confirmed that regular yoga practice, even over a short period (4 to 24 weeks), can positively impact depression levels and improve cognitive and psychological health in older adults.[20] Thus, it can be concluded that practicing yoga regularly, even of shorter duration, can be beneficial for reducing depression among the elderly.

This study had several limitations. Modifications were made to certain yoga movements to accommodate participants' physical capabilities. Additionally, emotional factors such as donor events or family visits could have influenced participants' feelings and thus affected outcomes. The small number of participants, due to communication barriers or reluctance to participate in yoga, limited the study's ability to define a control group. Therefore, although statistical significance was achieved, the findings should be interpreted with caution and cannot be generalized. Nevertheless, the positive outcomes observed suggest that further research involving a larger sample size is warranted to better understand the effects of yoga on depression among older adults.

In conclusion, although this is a preliminary study with a small sample size, it demonstrates a significant decrease in depression scores following a yoga intervention. Yoga represents a valuable non-pharmacological intervention that can contribute significantly to promoting emotional well-being, enhancing physical function, and supporting a healthier, more resilient aging process among older adults.

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