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THE EFFECT OF SLOW STROKE BACK MASSAGE (SSBM) THERAPY ON REDUCING DEPRESSION SIGNS AND SYMPTOMS IN THE ELDERLY

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ABSTRACT

Background: Indonesia has entered an aging population structure since 2021, with the elderly population over 60 predicted to reach 10% in developing countries. Mental health challenges among the elderly are increasingly critical, with 42.09% experiencing health complaints, including depression. **Objective:** This study aimed to analyze the effect of Slow Stroke Back Massage (SSBM) therapy on reducing depression symptoms among elderly individuals in the Bandaharjo Health Center area in Semarang. **Methods:** Using a quasi-experimental design with a one-group pre and post-test method, the research involved 50 elderly women experiencing mild depression symptoms. Depression levels were measured using the Geriatric Depression Scale (GDS-15) before and after SSBM therapy, which was administered twice weekly for 7 days. Data were analyzed using the Wilcoxon test. **Results:** Pre-therapy depression scores averaged 6.24 (SD=1.135), which decreased significantly to 2.26 (SD=1.382) after therapy. Statistical analysis using the Wilcoxon test yielded a Z value of -6.189 with a p-value <0.001. All participants showed improvement from mild depression to normal condition post-intervention. **Conclusion:** SSBM therapy effectively reduces depression levels among elderly women, providing empirical evidence supporting non-pharmacological interventions in elderly mental health management.

Keywords: Depression; Elderly; Non-pharmacological Intervention; Mental Health; Slow Stroke Back Massage

INTRODUCTION

Indonesia has entered an aging population structure since 2021, with the elderly population over 60 years predicted to reach 10 percent in developing countries (Marcheline et al., 2023). According to WHO, it is estimated that by 2025 the number of elderly people worldwide will reach 1.2 billion and will continue to increase to 2 billion people by 2050. Based on Susenas data in March 2022, the percentage of Indonesia's elderly population was 10.48% of the total population (Girsang et al., 2022). This is consistent with findings by Leonardo and Teh (2023) which confirm that the demographic transition to an aging population requires adjustments in health services and adequate housing for the elderly, especially in major cities such as Jakarta.

Depression is a mental disorder characterized by feelings of sadness, hopelessness, and loss of interest in activities that are usually performed (Prianahatin et al., 2023). According to the World Health Organization (WHO), the prevalence of depression among the elderly worldwide is around 8-15%, the prevalence of depression among the elderly in Indonesia reaches 12.8% with a mortality rate due to depression reaching 3.8% (Hartutik et al., 2021). The impact of depression on the elderly can cause various negative effects, such as decreased quality of life, increased risk of chronic diseases, worsening overall health conditions, increased risk of disability and death, and reduced social abilities and daily functioning (Salichah & Maliya, 2024).

Gilleard (2020) examined Erikson's view of integrity and old age, concluding that the final stage of human development is characterized by a conflict between integrity and despair, which is often the root of psychological problems including

depression in the elderly. Mandagi et al. (2022) in their research on the analysis of depression status as a causative factor of gender-based hypertension in Indonesia, showed that depression in the elderly not only affects mental health but also impacts physical health, including increasing the risk of hypertension.

A preliminary study in the Bandaharjo Health Center Area, Semarang City, showed that out of 800 elderly people in Kuningan Village, there were 100 elderly people with influencing factors for the emergence of depression signs and symptoms, such as changes in physical condition, lack of attention, loneliness, missing family, feeling useless, and excessive alcohol consumption. This became the basis for conducting research related to interventions to overcome depression symptoms in the elderly, as emphasized in research by Akbar et al. (2021) on the importance of developing health services for the elderly through elderly posyandu (integrated health service posts).

Depression can be prevented by increasing the production of endorphin hormones (Pratiwi et al., 2021). One effort that can be made to increase endorphin production is by using cutaneous stimulation (Mobalen et al., 2020). Cutaneous stimulation can produce endorphins that play a role in reducing stress and depression levels in individuals, in this case the elderly (Bafadal et al., 2020). Efforts to increase endorphin production can be carried out with non-pharmacological actions, namely Slow Stroke Back Massage (SSBM) therapy.

Slow Stroke Back Massage (SSBM) therapy is one of the non-pharmacological interventions that can help reduce depression symptoms through gentle and slow touch on the back. SSBM is one of the cutaneous stimulation techniques, where SSBM is a massage action on the back with rhythmic hand strokes, pressing gently and slowly for 3 minutes with 60 strokes per minute (Patonengan et al., 2023). Wijaya and Nurhidayati (2020) in their research showed that touch therapy such as SSBM can reduce muscle tension and decrease pain, which is often a contributing factor in depression.

This study aims to analyze the effect of Slow Stroke Back Massage (SSBM) therapy on reducing depression signs and symptoms in the elderly in the Bandaharjo Health Center Area, Semarang, in line with research by Hidayat (2023) which explored the effect of SSBM on reducing headaches and blood pressure in the elderly.

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METHODS

This study used a quasi-experimental design with a "one group pre and post-test design." Observations were conducted twice, before the intervention (O1) called pre-test, and after the intervention (O2) called post-test. The population in this study was elderly people with mild depression signs and symptoms in the Bandaharjo Health Center Area, Semarang, specifically members of the Elderly Posyandu in Kuningan Village, Bandaharjo District.

The sample was selected using purposive sampling technique with inclusion criteria: elderly women aged 60-74 years with mild depression signs and symptoms based on the Geriatric Depression Scale (GDS) measurement, willing to be respondents, cooperative and able to communicate effectively, and having no contraindications to SSBM. The sample size was 50 elderly people, in accordance with guidelines for experimental research as recommended by Dian and Putri (2021) in their research on the relationship between cognitive function and quality of life in the elderly.

The data collection tool used in this study was the Geriatric Depression Scale (GDS)-15 Questionnaire Sheet developed by Yesavage (1982) and adopted by the Indonesian Ministry of Health (2000). This instrument is used to measure the level of depression signs and symptoms in the elderly with score interpretation: 0-4 (normal), 5-8 (mild depression), 9-11 (moderate depression), and 12-15 (severe depression). The validity and reliability of this instrument have been confirmed by Hakim and Aristawati (2023) in their study on measuring depression, anxiety, and stress in the Indonesian population.

The Slow Stroke Back Massage (SSBM) intervention was given with the following

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procedure: stroking the client's back skin slowly, gently and rhythmically using both hands for 3 minutes with 60 strokes per minute, performed twice a week. The therapy was conducted by certified therapists. This procedure is consistent with the protocol developed by Istyawati et al. (2020) in their research on the effectiveness of SSBM in reducing headache pain scale in hypertension patients.

Data analysis used SPSS software with Shapiro Wilk normality test. Because the data were not normally distributed, the Wilcoxon test was used to analyze differences before and after intervention. This study has obtained ethical approval with number: 031/KEP/UNKAHA/SLE/II/2025.

RESULTS

a. Respondent Characteristics

Table 1. Respondent Characteristics in the Bandaharjo Health Center Area, Semarang City 2025 (n=50)

Characteristics	Category	Frequency (n)	Percentage (%)
Age (Years)	60	7	14
	61	6	12
	62	3	6
	63	3	6
	64	4	8
	65	8	16
	66	4	8
	67	3	6
	68	4	8
	69	3	6
	70	1	2
	71	1	2
	72	1	2
	73	1	2
	74	1	2
Education Level	Elementary School	25	50
	Junior High School	5	10
	No Schooling	20	40
Occupation	Domestic Worker	8	16
	Laborer	5	10
	Laundry Worker	6	12
	Kindergarten Teacher	1	2
	Trader	12	24
	Tailor	4	8
	Pecel Seller	1	2
	Self-employed	1	2
	Unemployed	12	24
Marital Status	Widow	29	58
	Married	20	40
	Never Married	1	2

Based on Table 1, the age distribution of the elderly in this study ranged from 60 to 74 years. The highest number of elderly was at age 65 with 8 people (16%), followed by age 60 with 7 people (14%). This distribution depicts a higher proportion of "elderly" (60-74 years) compared to "old" (75-90 years) according to WHO classification, as explained by Astuti et al. (2020) in their study on the effect of elderly exercise on joint pain changes in the elderly.

The majority of elderly in this study had an Elementary School (SD) education level with 25 people (50%). Twenty people (40%) had never attended school, and 5 people (10%) had Junior High School (SMP) as their last education. This education level is an important factor that can affect the elderly's understanding of mental health, as discussed by Fatma et al. (2024) in their review of challenges in clinical assessment of depression symptoms in old age.

The occupation categories with the highest numbers were traders and unemployed, each with 12 people (24%). Elderly working as Domestic

Workers (ART) numbered 8 people (16%), followed by laundry workers with 6 people (12%). This variation in occupations reflects socio-economic status that can affect elderly mental health, as shown by Mualim et al. (2021) in their research on determinants related to depression risk in the elderly.

The majority of elderly were widowed, with 29 people (58%). Elderly who were still married numbered 20 people (40%), while 1 elderly person (2%) was never married. Marital status, especially widowhood, can be a risk factor for depression in the elderly related to social isolation, as reviewed by Setyarini et al. (2022) in their study on the prevalence of emotional problems including stress, anxiety, and depression in old age.

b. Depression Signs and Symptoms Before and After SSBM Therapy

Table 2. Distribution of Depression Signs and Symptoms in the Elderly Before and After Slow Stroke Back Massage (SSBM) Therapy in the Bandaharjo Health Center Area, Semarang City 2025 (n=50)

Depression Signs and Symptoms Category	Frequency (n)	Percentage (%)
Before SSBM Therapy		
Mild Depression	50	100
After SSBM Therapy		
Normal	50	100

Based on Table 2, the analysis results of depression signs and symptoms categories in the elderly before and after SSBM therapy showed significant changes. Before SSBM therapy, all elderly (50 people or 100%) experienced mild depression. After being given SSBM therapy, all elderly experienced condition improvement, where 100% of elderly (50 people) were in the normal category, meaning they no longer experienced mild depression signs and symptoms. These results are consistent with findings by Putri and Wibowo (2020) which showed that SSBM is effective in reducing depression in Type 2 Diabetes Mellitus patients.

Table 3. Depression Signs and Symptoms in the Elderly Before and After SSBM Therapy in the Bandaharjo Health Center Area, Semarang City 2025 (n=50)

Variable	Mean	Median	Mode	SD	Minimum	Maximum
Before SSBM Therapy	6.24	6.00	5	1.135	5	8
After SSBM Therapy	2.26	2.00	4	1.382	0	4

Based on Table 3, depression signs and symptoms in the elderly before and after SSBM therapy showed significant changes. Before SSBM therapy, the mean score of elderly depression signs and symptoms was 6.24, with a median of 6.00 and mode of 5. The standard deviation was 1.135, with a minimum score of 5 and maximum of 8.

After SSBM therapy, there was a significant decrease in depression signs and symptoms scores. The mean score decreased to 2.26, with a median of 2.00 and mode of 4. The standard deviation increased to 1.382, indicating a slight increase in score variation among elderly. The minimum score after therapy was 0, while the maximum score was 4. This score decrease demonstrates the positive effect of SSBM, as explained by Dewi and Yanti (2020) in their research on the effects of SSBM on blood pressure and pulse rate in menopausal hypertension patients.

c. Statistical Analysis

Table 4. *Wilcoxon Test Ranks Table Interpretation*

Category	N	Mean Rank	Sum of Rank
Negative Ranks (Score after < before)	50	25.50	1275.00
Positive Ranks (Score after > before)	0	0.00	0.00
Ties (Score after = before)	0		
Total	50		

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Based on Table 4, all elderly (n=50) experienced a decrease in depression signs and symptoms scores after receiving SSBM therapy. This is shown by Negative Ranks of 50 with Mean Rank of 25.50 and Sum of Ranks of 1275.00. Meanwhile, Positive Ranks and Ties were 0, indicating that no elderly experienced an increase in scores or remained the same before and after intervention.

Table 5. *Wilcoxon Test Results*

Test Statistics	Value
Z	-6.189
p-value (Asymp. Sig. 2-tailed)	0.001

The Wilcoxon statistical test results showed that the Z value = -6.189 with p-value < 0.001. Because the p-value is less than 0.05, it can be concluded that there is a significant difference between depression signs and symptoms scores before and after SSBM therapy.

DISCUSSION

The research results show that SSBM therapy is effective in reducing depression signs and symptoms in the elderly. This is consistent with research conducted by Patonengan et al. (2023) which showed significant differences in depression levels between intervention and control groups. Other research by Bafadal et al. (2020) also concluded that Slow Stroke Back Massage can reduce depression in acute depression psychiatric patients.

The working mechanism of SSBM therapy in reducing depression symptoms is related to parasympathetic nervous system stimulation, which results in relaxation, stress reduction, and increased endorphin hormones. SSBM stimulates nerves in the superficial skin of the back which are then transmitted to the hypothalamus in the brain (Mohamad et al., 2022). The descending nervous system in the hypothalamus releases endogenous opiates, such as endorphins (Karokaro et al., 2023). Increased endorphin hormones stimulate the production of dopamine and serotonin hormones (Mohamad et al., 2022). Rising dopamine hormone levels cause reduced anxiety, while increased serotonin can reduce sleep disorders causing clients to be more relaxed and indirectly distract and reduce the level of depression experienced.

These findings are also supported by Arnold et al. (2020) who in their research on the effects of psychoactive massage in outpatients with depressive disorders showed that massage can affect brain activity in areas related to emotional regulation. Bahrami et al. (2020) in their comparative study between reflexology and aromatherapy massage for relieving anxiety and depression in hospitalized elderly women, also found that touch therapy provides positive effects on emotional conditions.

Furthermore, therapeutic touch in SSBM provides positive psychological effects. Therapeutic touch can increase feelings of comfort and social acceptance, which is important for the elderly who often experience social isolation. This is consistent with research by Mehrabian et al. (2022) which showed that touch therapy can reduce feelings of loneliness and improve emotional well-being in the elderly.

Da Silva and Wida (2024) in their case study on the application of SSBM therapy in non-hemorrhagic stroke patients, also showed that this therapy is not only effective for physical conditions but also beneficial for mental health, including reducing anxiety levels often associated with depression. This is also supported by Sarfika et al. (2023) who applied SSBM to reduce anxiety in hemorrhagic stroke patients with positive results.

In this study, SSBM therapy was administered according to standard procedures with consistent duration and frequency. The therapy was conducted by certified therapists, ensuring the quality and safety of the intervention. As a result, all respondents showed condition improvement from mild depression to normal, demonstrating the effectiveness of SSBM therapy as a non-pharmacological intervention in managing depression in the elderly.

Yunus et al. (2024) in their research on the effect of SSBM on blood pressure of patients in ICU rooms showed that this therapy is not only effective for psychological problems but also provides physiological benefits, emphasizing the

holistic approach of this intervention suitable for elderly needs. Sunaryanti et al. (2023) also showed that SSBM therapy training can provide positive effects on hypertension patients, who are often comorbid with depression in the elderly population.

Sinaga and Nurhadi (2020) in their systematic review on the effectiveness of depression interventions in the elderly, showed that non-pharmacological approaches such as SSBM are safe and effective alternatives, especially for elderly at high risk of experiencing side effects from pharmacological treatment. Irawan et al. (2024) also showed that the combination of back massage with other relaxation techniques can increase intervention effectiveness in reducing blood pressure, which is often a problem in elderly with depression.

Suwanto et al. (2020) compared the effectiveness of Benson relaxation and SSBM in reducing anxiety in hemodialysis patients, showing that both methods are effective, but SSBM provides faster relaxation effects through direct touch. Vermarina et al. (2023) also confirmed that SSBM is effective in reducing blood pressure in elderly with hypertension, who often have comorbidities with depression.

A meta-analysis study by Zenebe et al. (2021) on the prevalence and determinants of depression in old age highlights the importance of interventions such as SSBM in comprehensive depression management strategies for the elderly population, considering its effectiveness and minimal side effects compared to traditional pharmacological approaches.

This research provides important implications for elderly health management, particularly in developing non-pharmacological intervention protocols for depression. SSBM can be integrated into routine elderly health services at primary healthcare facilities as an accessible and cost-effective intervention. Limitations this study has several limitations including the use of only one group without a control group, a relatively short intervention period, and focus on only one geographical area. Future research with randomized controlled trial designs, longer intervention periods, and more diverse populations would strengthen the evidence base for SSBM effectiveness.

CONCLUSION

Slow Stroke Back Massage therapy is effective in reducing depression levels in elderly women, with all participants showing substantial improvement. The findings provide empirical evidence for the potential of non-pharmacological interventions in elderly mental health management. SSBM can be used as an economical, easy-to-perform, and effective alternative therapy for reducing depression symptoms in the elderly.

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