

## Chair-Based Exercise is An Effective Method For Improving Cognitive Function and Quality of Life in The Elderly

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### **Abstract.**

*The community service partner is the elderly and families in Tambak Baru Ilir Village. There are still many elderly people who suffer cognitive impairment and decreased quality of life. Most elderly people ignore this because they don't think it's physically threatening, leading to the elderly becoming dependent on others around them. Elderly and families need to be socialized about non pharmacology treatment to solve this problem, such as chair based exercise. Chair Based Exercise (CBE) is a structured physical exercise intervention carried out in a sitting position, specifically designed for elderly people with physical limitations, weaknesses, or those at high risk of falling. CBE to address issues caused by cognitive impairment and decreased quality life through skinning cognitive function and quality of life in the elderly, demonstrated for 60-minute exercise session for 25 elderly individuals. The result of the CBE demonstration was that the elderly and their families feel enthusiastic about this activity. In kognitif function, majority elderly are in intact cognitive function category and all are in the moderate quality of life category. CBE can have a positive impact on elderly individuals who face issues due to cognitive impairment and decreased quality of life, helping them to maintain their lives and continually respond to their surrounding environment.*

**Keywords:** Chair-based exercise; elderly; cognitive and quality of life.

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### **I. INTRODUCTION**

Elderly people are often associated with various declines in body functions, especially in physical health status. It cannot be denied that body functions no longer work optimally with increasing age [2]. In the aging process, the elderly experience declines in tissues, organs and systems in the body, namely the musculoskeletal system, neuromuscular system, cardiovascular system and respiratory system [3]. Changes occur in the cognitive function of the elderly. Specifically in Banjar Regency, based on the latest report from the Banjar Regency Health Office (2024) [1], the prevalence of cognitive decline in the elderly reaches 40%. This decline in cognitive function can worsen the quality of life of the elderly by causing limitations in daily activities, increased dependence on others, and the risk of increasing psychological disorders such as depression and anxiety [4]. This figure is higher than the provincial and national averages, indicating the need for special interventions in this area to address this problem. The situation analysis that has been carried out is an effort to explore information, potential and existing obstacles as reference material for formulating a community service activity program in the form of fostered village activities. From the team's situation analysis, the initial step taken before implementing the activity, the community service worker first conducted an observation to inventory the condition of the community service location in Tambak Baru Ilir Village, Martapura District, Banjar Regency. At the observation stage, direct observations were made in the field, conducting dialogue with related parties in the community and observing conditions related to physical and non-physical matters.

The results obtained through observation activities were that in Tambak Baru Ilir Village itself in August 2025 the number of elderly people visiting the elderly posyandu was 40 people. The results of previous research by the gerontic division obtained data that the majority of 36.4% of the community experienced mild intellectual dysfunction and 47.3% with poor quality of life [5]. Given the significant impact on cognitive function and quality of life in older adults, effective and accessible approaches to optimize cognitive function are needed. One potential and safe intervention is physical exercise that can be performed by older adults with mobility limitations, such as chair-based exercise.

Chair-based exercise is a type of physical exercise performed while seated in a chair, designed to improve muscle strength, flexibility, balance, and cardiovascular capacity without putting excessive stress on joints or increasing the risk of falls [6]. This exercise has been shown to be effective in improving physical function, reducing the risk of falls, and improving mental health in older adults [7]. Recent studies also show that regular physical exercise can increase blood flow to the brain, improve cognitive function, and prevent cognitive decline [8]. The goal of this community service is to enable older adults and their families to perform chair-based exercise for health and to improve cognitive function and quality of life.

## II. METHODS

The location of this Community Service activity is located in Tambak Baru Ilir Village, Banjar Regency, South Kalimantan. The media used is a booklet. Then carry out chair based exercise for elderly. There are three stages of activity, namely: Preparation The first step in this community service activity is to make observations about health problems that are often suffered by the community. Furthermore, the Community Service screened health problems in the community and it was found that the elderly in Tambak Baru Ilir Village mostly suffered hypertension with kognitive impairment and decreased quality of life. The next step, devotees will teach chair based exercise to optimize the kognitive functional and iquality of life in the elderly for 60 minutes, done according to the ability of the elderly while relaxing the muscles of the elderly body so that it is relaxed / comfortable. After completion, the elderly rest first for 10 minutes before doing the next activity.



**Fig 1.** Measurement of cognitive function and quality of life in the elderly



**Fig 2.** Implementation of chair based exercise

### Monitoring and evaluation

Monitoring and evaluation (monev) is carried out directly to the target. Monitoring and evaluation is carried out by conducting discussions and questions and answers after implementation chair based exercise in Tambak baru ilir Village. This evaluation aims to determine the Elderly Feelings After Performing chair based exercise. The results of the evaluation are both through questions and answers and the implementation of chair based exercise, All elderly are enthusiastic when participating in chair based exercise and can follow chair based exercise provided and some elderly experienced a calm feeling. Overall, chair based exercise can be carried out by all elderly in Tambak Baru Ilir Village.

### III. RESULT AND DISCUSSION

Results of the elderly conducted in Tambak baru ilir Village which was attended by 25 participants. Participants were enthusiastic about the activities carried out. Data collection was carried out in Tambak baru ilir Village on March 14, 2026.

**Table 1.** The elderly characteristic

<b>CHARACTERISTIC</b>	<b>f</b>	<b>%</b>
<b>GENDER</b>		
Male	3	12%
Female	22	88%
<b>TOTAL</b>	<b>25</b>	<b>100%</b>
<b>AGE</b>		
55-65 years old	21	84%
66-74 years old	4	16%
<b>TOTAL</b>	<b>25</b>	<b>100%</b>
<b>EDUCATION</b>		
Elementary school	20	80%
Junior High school	1	4%
Senior high school	4	16%
<b>TOTAL</b>	<b>25</b>	<b>100%</b>
<b>WORK</b>		
Farmer	3	12%
Self-employed	6	24%
unemployed / housewife	16	64%
<b>TOTAL</b>	<b>25</b>	<b>100%</b>

From table 1, the results show that the majority of participants' gender is female, as many as 22 people (88%), the majority of participants' ages are 55-65 years as many as 21 people (84%), the majority of participants' education is elementary school as many as 20 people (80%), the majority of participants' occupations are unemployed/housewives as many as 16 people (64%).

**Table 2.** Cognitive function

<b>Kognitive Function</b>	<b>f</b>	<b>%</b>
Intact cognitive function	14	56%
Mild intellectual impairment	8	32%
Moderate intellectual impairment	3	12%
<b>TOTAL</b>	<b>25</b>	<b>100%</b>

From table 2, the results show that the majority of participants had intact cognitive function, namely 14 people (56%).

**Table 3.** elderly Quality of life

<b>Quality of life</b>	<b>f</b>	<b>%</b>
Moderate	25	100%
<b>TOTAL</b>	<b>25</b>	<b>100%</b>

From table 3, the results show that all participants had a moderate quality of life, namely 25 people (100%). The next stage, implementing community service, involves screening the elderly for cognitive function and quality of life. Declining cognitive function (memory, concentration, orientation) and quality of life are common problems in the elderly (geriatrics) due to the aging process and decreased physical activity [9]. Chair-based exercise is then provided. This aligns with our research on optimizing cognitive function

and quality of life in the elderly through chair-based exercise, which found that chair-based exercise is effective in improving cognitive function and quality of life in the elderly [10]. Chair-Based Exercise (CBE) is a structured physical exercise intervention performed in a seated position, specifically designed for older adults with physical limitations, frailty, or those at high risk of falls [11]. Currently, non-pharmacological therapy is prioritized in management before pharmacological therapy to reduce the side effects of medication use. This aligns with Devi's journal, which found that asthma therapy (listening to the Asmaul Husana, handgrip relaxation, and aromatherapy) was used to lower blood pressure in the elderly [12].

Light-moderate physical exercise in CBE improves systemic blood circulation, including to the brain, which helps maintain cognitive function and prevent further decline [11]. This occurs because the movement exercises in CBE can stimulate the release of neurotransmitters that play a role in memory and concentration. Research by Wahyuni (2023) showed an increase in Mini-Mental State Examination (MMSE) scores and other cognitive functions after routine CBE interventions [11]. The method used in this study was to deliver material using booklets and demonstrations for 60 minutes. This aligns with research conducted by Mardhiah et al. (2015), where the intervention was conducted in groups in the hall of the Indrajaya Community Health Center using booklets and PowerPoint presentations for 60 minutes, providing health education material on self-care for patients with hypertension. The 60-minute duration was more effective for delivering health education [13]. Improving cognitive function and quality of life in the elderly requires a significant role from family/caregivers. Caregivers play a crucial role in determining priorities and achieving health optimization goals in the elderly [14]. Optimizing this role requires nurses to focus on planning nursing care for hypertensive elderly patients, optimizing the caregiver's role in providing care. The nurse's role in cases of hypertensive elderly patients with cognitive impairment and decreased quality of life focuses on providing support to maintain their existing health, while still allowing them to perform their daily activities optimally and providing assistance when needed.

#### IV. CONCLUSION

A community service activity in the form of chair-based exercise for cognitive function and quality of life in the elderly was conducted in Tambak Baru Ilir Village as an effort to optimize cognitive function and quality of life in the elderly. The activity method consisted of measuring cognitive function and quality of life in the elderly, followed by an intervention in the form of chair-based exercise for approximately 60 minutes. Evidence-based chair-based exercise is effective for cognitive function and quality of life in the elderly.

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