



## The effects of chair yoga with spiritual intervention on the functional status of older adults

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### KEYWORDS

Older adults;  
Spiritual;  
Chair yoga;  
Functional status

### Abstract

**Objective:** “Functional status” is an individual’s ability to fulfill his/her needs and to perform the activities of daily life independently. Functional decline can lead to a higher level of dependency. This study aims to investigate the effects of chair yoga with spiritual intervention on the functional status of older adults.

**Method:** This quasi-experimental study employed a pre- and post-test design using a control group. The study involved an intervention group of 42 respondents and a control group of a further 42 respondents. The sample was selected using multistage random sampling. The data were analyzed using a t-test.

**Results:** The results of the study show that the mean score for the intervention group was higher after the intervention ( $p = 0.000$ ). Furthermore, the mean score for functional status after the intervention was significantly higher for the intervention group than for the control group ( $p = 0.000$ ).

**Conclusions:** It is concluded that the use of chair yoga with spiritual intervention is a useful preventive measure against functional decline in older adults. The study also suggests that this form of intervention should be considered as a complementary nursing therapeutic practice for older adults in the community.

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### Introduction

The aging process is a contributory factor to health problems and functional decline in older adults<sup>1</sup>. As individuals get older, the body’s functionality diminishes, resulting in mobility restrictions and activity alterations<sup>2</sup>. Alongside physical changes, the aging process can also lead to cognitive changes<sup>3</sup>. Both physical and cognitive changes can have an impact on the functional status of older adults.

“Functional status” is the individual’s ability to maintain his/her health and perform the activities of daily life<sup>1</sup>. Its

measurement is based on the individual’s ability to perform activities independently. A decline in an individual’s functional status can lead to disability. Furthermore, functional decline can make individuals more dependent on others.

Dependence in older adults places a greater economic strain on citizens of reproductive age<sup>4</sup>. The consequences of functional decline (including falls, injuries, and mobility limitations) can, in fact, burden families and communities<sup>5</sup>.

The demographic in Indonesia is shifting, with a rising number of older adults living in the country, leading to new challenges for the health system. In 2014, the dependency

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ratio for older adults in Indonesia was 12.41, meaning that for every 100 citizens of reproductive age, there are approximately 12 older adults who cannot look after themselves<sup>6</sup>. The dependency ratio for older adults in West Java in 2014 was also found to be similar (CBS, 2015). The District Health Office of Depok City (2015) states that nearly 5 percent of the total population in the city consists of older adults in the dependence categories A (totally dependent) and B (partially dependent)<sup>7</sup>.

There is growing evidence that yoga interventions could increase the functional abilities of older adults. A study conducted showed that using a chair yoga intervention with older adults aged over 80 leads to improvements with balance and walking speed. In another study, the "Fit Chair Yoga" program was found to have positive consequences for the physical and mental abilities of older adults with Alzheimer's disease<sup>8</sup>.

All the evidence points to the positive impact of yoga on older adults' functional abilities. There is a lack of evidence, however, regarding the integration of spiritual intervention into chair yoga programs. This study aims, therefore, to identify the effects of chair yoga with spiritual intervention on the functional status of older adults.

It is proposed that the program could benefit older adults not only in terms of improving their functional abilities, but also in the sense of increasing their safety. In addition, the program allows social interactions to occur between older adults because it is a group activity.

## Method

This quasi-experimental study employed a pre- and post-test design using a control group. This method was selected to allow the researchers to identify the effects of a particular intervention by comparing the results for the intervention and control groups with each other.

The population used in this study was older adults living in Depok City. The sample was created using 2 sample t-tests (with  $\beta = 80\%$ ,  $\alpha = 5\%$ , and dropout rate = 10%). To collect data, multiple and simple random samplings were taken, involving 84 respondents (42 in the intervention group and 42 in the control group).

The study used the Functional Independence Measure (FIM) to assess the functional status of older adults, including the conduct of basic activities in daily life. FIM is an improved version of the Bathel index developed by the American Congress of Rehabilitation Medicine and the American Academy of Physical Medicine and Rehabilitation. FIM has 2 main domains of measurement: the motoric domain (13 items) and the socio-cognitive domain (5 items)<sup>10</sup>.

Chair yoga with spiritual intervention is an intervention package consisting of 6 phases: centering, warming up, the core pose, cooling down/the counter pose, praying, and meditation. The respondents in the intervention group were divided into two small groups (each subgroup consisting of 21 respondents). Volunteers were utilized as facilitators. The researchers have also completed yoga training and been certified as yoga teachers.

The chair yoga exercise program with spiritual intervention ran 3 times a week for 4 weeks, from 8-9 am. The data

were analysed using a paired t-test to examine the differences between the functional abilities and levels of life satisfaction of older adults in the intervention and control groups both before and after the program. Additionally, an independent t-test was used to examine the differences between the functional abilities and life-satisfaction levels in the intervention and control groups after the program.

Those participants who did not attend the therapy sessions more than twice were considered to have dropped out. Furthermore, participants who missed two or more classes were given an extra session at the end of the course. For the control group, the researchers provided a form of chair yoga with spiritual intervention, and post-test was immediately given after an extra session in intervention group completed.

The study was conducted in Kelurahan Sukatani (intervention group) and Kelurahan Jatijajar (control group). It was approved by the Faculty of Nursing Universitas Indonesia Ethical Committee in March 2016. The research design ensured that there was no possibility of the participants facing physical or mental harm. Personal information, such as names and dates of birth, were not included in the instrument. All the data were managed by using identification numbers.

Before the data analysis began, data editing was conducted to establish whether the data obtained was complete. The researchers utilized an assessment form to evaluate the correctness and completeness of the data. To follow, each variable was coded to enable the researchers to analyze and tabulate the data. Specific codes were assigned to the participants, according to their groups. After the coding had been completed, the researchers classified the data into previously defined categories, before tabulating the information using a statistical computer program.

Univariate analysis presents the frequency and proportion of each of the variables, including means and standard deviations. As the study used the interval parametric scale, the mean differences test (paired t-test) was conducted both before and after the intervention. In order to determine the influence of chair yoga with spiritual intervention on the control and intervention groups, the researchers used the independent t-test.

## Results

The average age of the participants in each group was 66 years. Females accounted for 88.1% of the intervention group and 92.9% of the control group. The majority of the respondents in both the intervention (76.2%) and control (69%) groups had completed senior-high school. Widows/widowers represented over half of the respondents both in the intervention (52.4%) and control (54.8%) groups.

In the intervention group, 66.6% of respondents had a history of disease, as did 71.4% of those in the control group. Levels of physical activity were higher in the intervention group, with an average of 796.43 minutes per week. The average household income was also higher in the intervention group, at IDR 1,392,857.14 (but still lower than the standard minimum wage for Depok City).

Prior to the intervention, the average functional status in the control group was higher, at a value of 122.48 ( $SD = 2.36$ ).

Interestingly, after the intervention, the average functional status was higher in the intervention group, at 124.60 ( $SD = 1.31$ ).

The mean score for the intervention group's functional status was 2.29 higher after the chair yoga exercise program with spiritual intervention than before. Furthermore, the increase was significant ( $p = 0.000$ ). Conversely, the mean score for the control group decreased by 1.15, which was another significant difference ( $p = .000$ ) (Table 1).

After the intervention, the mean score for the intervention group's functional status was 3.27 higher than for the control group. The analysis also showed that the difference was significant ( $p = 0.000$ ). Based on the information in Table 2, it can be stated that chair yoga with spiritual intervention has a significant impact on functional status (Table 2).

## Discussion

The findings of this study indicate that there was a significant increase in the respondents' functional status after the implementation of chair yoga with spiritual intervention. The results support the findings of other studies, such as<sup>10,11</sup>, in which the effects of modified chair yoga exercises upon adults aged over 80 were examined. Galantino et al.'s intervention and resulted in improvements in the participants' balance, thereby reducing the risk of falls and enhancing their walking ability. Likewise, a study conducted<sup>13</sup>, in which chair yoga was practiced, found that the walking capability and balance of the participants was improved. Moreover, that yoga has a significant positive effect on the cognitive functions of older adults<sup>14</sup>.

Other studies have also shown the positive effects of yoga on older adults with specific health issues. Older adults with musculoskeletal issues can achieve better balance and stability through yoga<sup>15</sup>. The results indicating that yoga could be used to address mobility issues. Older adults with knee pain to practice yoga. The findings demonstrate a decline in pain levels after the intervention, as well as an improved ability to perform daily activities<sup>16,17</sup>. Such evidence substantiates the idea that yoga is an important tool for improving the functional status of older adults. Yoga for older adults who have osteoarthritis, showed effective results reducing signs and symptoms of osteoarthritis improve the physical abilities of the older adults<sup>15</sup>. Yoga exercises are performed systematically and routinely effective in increasing the density/bone density in the older adults, depression and sleep disorders<sup>16</sup>.

Variable	Intervention group (n = 42)		Control group (n = 42)	
	Mean difference	p	Mean difference	p
Functional status	2.29	0.000	-1.15	0.000

**Table 2** Differences between the mean scores for functional status in the intervention and control groups after chair yoga with spiritual intervention

Variable	Group	Mean	SD	p
Functional status	Intervention (n = 42)	124.60	1.308	0.000
	Control (n = 42)	121.33	1.896	
		3.27		

Nurse have a responsibility to improve the physical abilities of older adults, so maintain independent despite have degenerative processes and decreased function<sup>1</sup>. A good exercise contains elements of strength/endurance, flexibility and balance are carried out systematically. Exercise can enhance muscle strength (especially the lower extremities), reduce joint symptoms, expanding the range of motion, improved gait, thus allowing more to mobilize the older adults as well. The older adults who have a good mobilization will automatically be able to meet the needs and care of themselves independently, so the ability to perform daily activities of the elderly do not rely on others.

The studies mentioned above differ from our study, in terms of the instrument used, the frequency and duration of the practice, the intervention time, the respondents' characteristics, and the sample size. Our study involved a shorter period of intervention than many others, but the frequency of practice was higher. Accordingly, the results are quite similar to others, with respect to the effectiveness of this type of intervention.

Our study also incorporated spiritual intervention into chair yoga. Here, the respondents were encouraged to say positive words and prayers. This unique aspect targeted the minds and emotional abilities of the older adults. In this way, the intervention was designed to strike a balance between a physical focus and a mental one.

This paper concludes that chair yoga with spiritual intervention requires a minimum time scale of 4 weeks, with a frequency of 3 sessions per week and duration of 60 minutes per session (a total of 12 sessions of exercise). This regular and systematic exercise program could stimulate the nervous system and improve both the blood and lymphatic circulations system, thus contributing to nutrition and oxygen adequacy on a cellular level. Consequently, the body's systems may be more able to fight the effects of the aging process, and even to improve the individual's functional status.

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## References

1. Miller CA. Nursing for wellness in older adult: theory and practice. 6th ed. Philadelphia: Lippincott Williams & Wilkins; 2012.
2. Edelman CL, Mandle CL. Health promotion: Throughout the life span. Seventh edition. Canada: Mosby Elsevier; 2010.
3. Touthy TA. Ebersole & Hess' gerontological nursing & healthy aging. 4th ed. St. Louis, Missouri: Elsevier Mosby; 2014.
4. Ministry of Health RI. The window of data and information older adults. Bulletin Semester I 2013 ISSN 2088-270X. Jakarta: MoH; 2014.
5. WHO. World Report on Ageing and Health. Geneva: WHO Press; 2015.
6. Central Bureau of Statistic. Population Statistic of Older adults 2014 (Katalog BPS: 4104001). Jakarta; 2015.
7. District Health Office of Depok City. Profil kesehatan kota Depok; 2015.
8. Galantino ML, Green L, Decesari JA, Mackain NA, Rinaldi SM, Stevens M, et al. Safety and feasibility of modified chair-yoga on functional outcome among older adults at risk for falls. *Int J Yoga*. 2012;5(2):146-50.
9. Centers for Medicare & Medicaid Services. The inpatient rehabilitation facility-patient assesment instrument (IRF-PAI) training manual. United Stated of America: University of Buffalo Foundation Activities, Inc (UBFA); 2014.
10. McCaffrey R, Park J, Newman D, Hagen D. The effect of chair yoga in older adults with moderate and severe Alzheimer's disease. *Res Gerontol Nurs*. 2014;7(4):171-7.
11. Wati DN, Sahar J, Rekawati E. Elderly balance status affecting risk for fall in PSTW Budi Mulia 1 Jakarta. 5th International Nursing Conference; 2015.
12. Taspinar B, Aslan UB, Agbuga B, Taspinar F. A comparison of the effects of hatha yoga and resistance exercise on mental health and well-being in sedentary adults: A pilot study. *Complement Ther Med*. 2014;22(3):433-40.
13. Ulger O, Yağlı NV. Effects of yoga on balance and gait properties in women with musculoskeletal problems: a pilot study. *Complement Ther Clin Pract*. 2011 Feb;17(1):13-5. doi: 10.1016/j.ctcp.2010.06.006.
14. Ghasemi GA, Golkar A, Marandi SM. Effects of hata yoga on knee osteoarthritis. *Int J Prev Med*. 2013 Apr;4 Suppl 1:S133-8.
15. Cheung C, Wyman JF, Resnick B, Savik K. Yoga for managing knee osteoarthritis in older women: a pilot randomized controlled trial. *BMC Complement Altern Med*. 2014 May 18;14:160.
16. Patel NK, Newstead AH, Ferrer RL. The effects of yoga on physical functioning and health related quality of life in older adults: a systematic review and meta-analysis. *J Altern Complement Med*. 2012 Oct;18(10):902-17.
17. Rekawati E, Hamid AY, Sahar J, Kamso S, Widyatuti. The effectiveness of the cordial older family nursing model in order to improve the quality of family care for older persons. 5th International Nursing Conference; 2015.
18. Marschollek M, Rehwald A, Gietzelt M, Song B, Wolf KH. Daily activities and fall risk—a follow-up study to identify relevant activities for sensor-based fall risk assessment. *Stud Health Technol Inform*. 2010;160(Pt 1):68-72.