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Effect Of Yoga On Management Of Fear Of Falling In Elderly Males

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Abstract

Fear of falling is a psychological condition experienced by elderly people in which they are always concerned about falling while doing physical activity. Fear of falls also reduces confidence in the elderly. This reduces the quality of life in the elderly due to social isolation and lack of physical activities. Hence the present study was conducted to assess the impact of 6-month yoga program on the management of fear of falls in the elderly. To conduct the study 100 elderly males between the age group of 60 to 70 years were selected purposively. A six-month yoga program specific to improvement in psychomotor abilities in the elderly was prepared. The Timed Up and Go Test (TUG) was used to assess the fear of falls in elderly males. The data was collected before the commencement of the yoga program, after 03 months and post-test i.e. after 06 months. It was found that after participating in six months of the yoga program, the persistent fear of falls in the elderly was significantly decreased. Hence it can be concluded that 06 six-month yoga program specific to psychomotor abilities may be used as an alternative tool to reduce the constant fear of falls in elderly males.

Keywords: Elderly males, yoga, fear of falling

Introduction:

The worry of losing balance and consequently falling in the elderly population is termed a fear of falling. It can develop in the elderly with a previous history of falls or even happen to those elderly who have no history of falls. The reason may be decreased physical strength or confidence in walking or moving around. The fear of falls may be linked to physical issues, mental health or behavioural changes. This fear leads to a cycle in which the elderly move less. This lack of movement causes muscle weakness and this creates an even greater chance of falling. Hence the fear of falls is strongly linked to quality of life and overall well-being. Fear of falling (FoF) is a significant concern faced by older adults (Walker and Howland, 1991). WHO Global Report (2023) predicted that the likelihood of falls in the elderly is a burning issue which keeps increasing with advancing age. Singh et al. (2012) defined elderly as those individuals aged 60 years or older. Chandler et al. (1996) defined fear of fall as a condition which hampers and decreases the mobility of the elderly. The major cause of mortality and morbidity in the elderly are caused by fall-related injuries and it has been estimated that 75% of the elderly with a history of falls come from low and middle-income countries. The static and dynamic postural control decreased in even healthy elderly due to changes in sensorimotor and neuromuscular systems (Maki and Mcllroy, 1996). In India, Dhar et al. (2022) reported that fear of falls is a major health-related problem in the elderly population in India. They found that almost 42% reported having a history of fear of falling. This is an area of concern because by 2050 India will have an estimated 323 million elderly. Hence if the problem of fear of falls in the elderly population is not controlled it will create a burden in little resources of geriatric healthcare system in India. To address this issue various methods have been advocated and yoga has been considered one among them. It has been reported in numerous studies that the practice of yoga helps to increase flexibility, balance and strengthening of muscles. The benefits of yoga in enhancing psychomotor capacity have also been advocated. In some studies practicing yoga has resulted in enhanced functional mobility in the elderly population also. The psychological benefits of regular yoga have

also been found in research literature. However experimental studies regarding the effect of yoga in the management of fear of falling in elderly males are far and few. Hence this study was planned.

Review of literature

1. Dibenedetto et al. (2005) in an intervention study reported that by practicing regular yoga the stride length of the elderly increased significantly while the peak hip extension was also enhanced. They concluded that regular yoga practice enhances stride length and peak hip extension in elderly people and decreases age-induced gait function.
2. Schmid et al. (2010) assessed the impact of yoga on the management of fear of fall in the elderly. They found that after 12 weeks of yoga, the lower body flexibility and body balance in static conditions of elderly subjects increased significantly. They concluded that the body balance of elderly subjects can be improved through regular yoga practice which will also help in decreasing their fear of falls.
3. Zeetergren et al. (2011) conducted this study to assess psychomotor and postural control in elderly subjects after participating in 8-week yoga program. They found that after participating in 8 weeks of yoga sessions, the body balance and postural control in the elderly saw a significant increase. It was concluded that yoga is beneficial in gait speed, body balance and posture control in elderly subjects.
4. Youkhana et al. (2016) in their study found that yoga-based programs can offer benefits in terms of increased psychomotor abilities in the elderly but to a limited extent.
5. Shin (2021) in this study reported that regular practice of yoga helps in enhancing body balance and muscular strength but the magnitude of this impact is very low.
6. Liang et al. (2023) in their study reported that yoga promotes relaxation and helps reduce stress which eventually becomes more useful for the elderly in maintaining body balance.

Objective of the Study

The main objective of the present study is to find out the effect of a 06 months yoga program on the management of fear of falling in elderly males.

Hypothesis

It was hypothesized that a six-month yoga program would significantly reduce the fear of falling in elderly males.

Methodology

Sample:

To conduct the study 100 elderly males between the age group of 60 to 70 years were selected purposively and they are not suffering from severe illness. Only those elderly males with a time of >13.5 seconds were selected in this study.

Tools

Timed Up and Go Test (TUG)

To measure fear of fall risk, the Timed Up and Go (TUG) test was used. It measures the time taken by the elderly subject to stand up from a chair then covers a distance of 10 feet by walking at a normal pace then turns around and covers the 10-foot distance and sits on the chair. This test is highly reliable and valid. The cutoff time is >13.5 seconds which denotes a moderate risk of fear of falling in the elderly.

Yoga Program:

A six-month yoga program was prepared while taking expert advice from yoga instructors. The physical condition of the elderly subject was taken into consideration while preparing the yoga program. In this way, a 45-minute yoga exercise routine scheduled for 6 days a week was chalked out. The 45-minute routine includes prayers, asanas, pranayam, surya namaskar and dhyan respectively.

Creation of Experimental and Control Group

The sample of the present study consists of 100 elderly males between 60-70 years of age with timings more than 13.5 seconds on the TUG test. These subjects were then randomly divided into two equal groups named experimental and control groups with equal numbers of subjects. Six months of yoga program was started. After 03 months and 06 months, the TUG test was re-administered. The scores were tabulated and analysed with statistical tools. Results are given in Tables 1, 2, 3 and 4 respectively.

Result and Discussion

Table 1
Descriptive Statistics of Timing on Timed Up and Go Test in Elderly Males of Experimental Group During 06 Months of Study Period

Study Periods	N	TUG Test (Sec.) (Experimental Group)	
		Mean	S.D.
Pre-test	50	15.16	1.67
After 03 months	50	15.06	1.91
Post-test (After 06 months)	50	13.97	1.83
F (2,98) = 13.21, p<.01			

F=13.21, reported in Table 1 indicate a significant difference in time taken by the elderly males of the experimental group to complete the timed up-and-go test after different study periods at 0.01 level of statistical significance.

Table 1(a)
Pairwise Comparisons of Mean Timings for Experimental Group on TUG Test in Various Study Periods

Mean (I)	Mean (J)	Mean Difference (I-J)
Pre-test (M=15.16)	After 03 months (M=15.06)	0.096
	After 06 months (M=13.97)	1.188*
After 03 months (M=15.06)	After 06 months (M=13.97)	1.092*

* Significant at .05 level

A perusal of Table 1(a) indicates a non-significant difference in pre-test and after 03 months timings of elderly males of the experimental group on Timed up and go test (Mean Difference = pretest - after 03 months = 0.096). A perusal of Table 1(a) indicates a significant difference in the meantime duration of elderly males after 06 months of the yoga program as compared to their mean pre-test timing on the timed up and go test. The mean difference of 1.188 reveals a significant decrease in the timing of elderly males of the experimental group after 06 months of the study period at 0.05 level of statistical significance as compared to their pre-test mean timings. A perusal of Table 1(a) indicates a significant difference in the meantime taken by the elderly males after 06 months of the yoga program as compared to their mean timing on timed up and go test after 03 months. The mean difference of 1.092 reveals a significant decrease in the timing of elderly males of the experimental group after 06 months of the study period at 0.05 level of statistical significance as compared to mean timings after 02 months of the study period.

Table 2
Descriptive Statistics of Timing on Timed Up and Go Test in Elderly Males of Control Group During 06 Months of Study Period

Study Periods	N	TUG Test (Sec.) (Control Group)	
		Mean	S.D.
Pre-test	50	14.92	2.12
After 03 months	50	14.68	2.13
Post-test (After 06 months)	50	14.36	2.21
F (2,98) = 2.90, p>.05			

F=2.90, reported in Table 2 indicate a non-significant difference in time taken by the elderly males of the control group to complete the timed up and go test after different study periods.

To assess the effect of the 06 months of a yoga program on the fear of falling in the elderly, the gain score on Timed up and go test for both groups was calculated by subtracting pre-test mean scores from post-test mean scores. Results are given in table 3.

Table 3
Comparison of Gain Scores (Post-Pre) of Experimental and Control Group on Timed Up and Go Test

Timed Up and Go Test	Experimental Group (N=50)		Control Group (N=50)		't'	Sig.
	Mean	S.D.	Mean	S.D.		
Gain Score (Seconds)	-1.18	2.03	-0.55	1.97	1.57	p>.05

A perusal of Table 3 indicates that the time taken to complete the timed up and go test by elderly males of the experimental group was decreased after 6 months as compared to elderly males of the control group but this difference was statistically non-significant (t=1.57, p>.05). To nullify the impact of pre-test scores, ANCOVA was conducted and the results are given in Table 4.

Table 4
Adjusted Mean Scores of Timed Up and Go Test, Controlling for Pre-test Scores of Elderly Males

Groups	**Adjusted Mean for Timed Up and Go Test**
Experimental Group	13.91
Control Group	14.42
F=2.09, p>.05	

Covariates in the model are evaluated at the following values Pre-test = 15.04

It was noticeable that the adjusted post-test mean time taken by the elderly males of the experimental group to complete Timed Up and Go Test was less as compared to elderly males of the control group but the F=2.09 did not support these findings statistically. Results reveal that although 6-month yoga program was found to be beneficial in reducing the fear of falls in the elderly it was not supported by statistical values.

The link between yoga and reduced risk of falls can be understood through various theories. From the psychomotor and biomechanical perspective, yoga enhances proprioception. This enables a better understanding of the ability to sense movement and position of the body. Yoga also enhances physical abilities and thereby when the elderly gain confidence in their physical readiness their fear of falling gradually decreases. The results of the present study are consistent with previous studies by Dibenedetto et al. (2005), Schmid et al. (2010) and Zeetergren et al. (2011)

Conclusion

Based on the results it can be concluded that yoga can be used as a therapy to reduce the fear of falling in elderly males but the results need to be examined more carefully with a large sample size and additional psychomotor variables to prove these results.

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