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Assessment of Functional Fitness of Older Adults Residing in Kumbh Mela 2025

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Abstract
Kumbh Mela 2025, held in Prayagraj, India, is one of the world's largest spiritual congregations, attracting millions of devotees, including a large number of older adults. With advancing age, physical and functional capabilities gradually decline, influencing independence and well-being (WHO, 2020). The present study assessed and compared the functional fitness of male older adults aged 60–64 years and 65–69 years residing temporarily established tent city at Kumbh Mela 2025. Fifty participants (25 in each age group) were tested using the Senior Fitness Test Battery, which evaluates lower and upper body strength, flexibility, agility and endurance (Rikli & Jones, 1999). The younger group (60–64 years) showed better performance in lower & upper body strength, flexibility and agility, whereas the older once showed better aerobic endurance. The results highlight the importance of incorporating physical activity and health-support programs for elderly pilgrims during large-scale gatherings such as the Kumbh Mela.

Keywords: Functional fitness, older adults, aging, Kumbh Mela, physical activity, active aging

Introduction

संनिपत्य त्रिषु लोकेषु देवदानवमानवाः ।
कुंभमेले महानद्यां स्नानार्थं समुपागतम् ॥
(Skanda Purāṇa, Nāgara Khaṇḍa, Adhyāya 239, Verse 10)

"From all the three worlds—gods, demons, and humans—gather at the Kumbh Mela by the great river to take the sacred bath for spiritual purification" (Tagare, 1994) [11]. This verse reflects the deep philosophical notion that physical effort and spiritual cleansing are interconnected. Modern interpretations view the pilgrimage as a form of active aging, where faith-based participation becomes an avenue for maintaining health, mobility, and community engagement (Gupta, 2023) [4].

Kumbh Mela 2025 in Prayagraj stands as one of humanity's largest spiritual congregations, symbolizing faith, devotion, and cultural continuity. Held every twelve years at the confluence (Triveni Sangam) of the sacred rivers Ganga, Yamuna, and the mythical Saraswati, it attracts millions of devotees from India and across the world (Singh & Chatterjee, 2020) [10]. The event serves not only as a religious pilgrimage but also as a socio-cultural phenomenon that embodies India's ancient traditions, intergenerational connections, and collective spirituality. The participation of older adults in such a vast event provides a unique opportunity to study the intersection of faith, physical health, and aging.

The setting of Kumbh Mela is physically demanding yet spiritually fulfilling. Pilgrims often engage in prolonged walking, standing in long queues, bathing in cold river water, and living in temporary conditions. These physical demands test endurance, adaptability, and resilience, particularly among elderly participants (Verma, Gupta, & Rao, 2022) [12]. However, these very activities also provide unstructured opportunities for physical engagement that may enhance functional ability and psychological well-being.

India, home to one of the world's fastest-growing elderly populations, is projected to see its population aged 60 years and above rise from 10.1% in 2021 to nearly 14.9% by 2036 (National Statistical Office [NSO], 2021). This demographic transition poses challenges

related to physical fitness, independence, and healthcare access among older adults. Age-related physiological changes such as sarcopenia, reduced joint flexibility, and diminished balance capacity can impair mobility and increase fall risk (Paterson & Warburton, 2010; Chatterjee, 2021) [8, 2]. Consequently, maintaining functional fitness—a combination of muscular strength, flexibility, balance, agility, and aerobic endurance—is essential for autonomy and quality of life (Rikli & Jones, 1999) [9]. Previous studies have explored functional fitness in urban and rural community-dwelling older adults (Kumar, Sharma, & Tiwari, 2019; Dutta & Saha, 2021) [6, 3], but research in temporary mass settings like Kumbh Mela remains scarce. The 2025 Prayagraj Kumbh thus presents an important and contextually rich setting to assess how older adults function physically in an environment that demands both endurance and mental composure.

The present study, therefore, aims to assess and compare the functional fitness of older male adults (aged 60–64 years and 65–69 years) residing temporarily in Kumbh Mela 2025. The findings may contribute to understanding how participation in faith-based mass gatherings influences physical performance and to designing health-support programs for aging pilgrims in future religious events.

Objectives of the Study

- To assess the functional fitness of older adult males residing in Kumbh Mela 2025.
- To compare functional fitness between the age groups 60–64 years and 65–69 years.

Methods & Materials

This study was designed for the assessment of functional fitness status of older adults residing in Kumbh Mela 2025 tent city area. To achieve the purpose of study fifty male adults were selected purposively from Shree Shree Durga Shivir Sector 6 during last week of Kumbh Mela 2025 and written consent and screening was conducted for all subjects before the enrolment in the study. Each test of the Senior Fitness Test (SFT) by Rikli & Jones (1999) [9] was first demonstrated to the participants and if necessary, cues or gestures were provided. All participants performed the six physical tests as described in [Table 1].

Table 1: Methodology of senior fitness testing (SFT) protocol

Assessment category	Test Items	Testing Procedure
Lower body Strength	30 sec. chair stand test	The Participant sits on a chair of an appropriate height (43 cm high). Arms are crossed at the level of the chest. The task is to perform as many correct lifts (rpts) from the chair as possible within 30 s.
Upper body strength	30 sec. arm curl test	The Participant receives a weight on the dominant hand. The weight of the weight is 3.63 kg for men. The task is to perform as many correct forearm bends (rpts) as possible within 30 s.
Lower body Flexibility	Chair sit & reach test	The Participant sits down on the edge of the chair. One leg is straightened and the heel rests on the floor (toes pointing to the ceiling). The other leg is bent (the entire foot is on the floor). The task is to bend his hands to the toes as much as possible. The distance from the middle finger to the toes is measured.
Upper body Flexibility	Back scratch test	The Participant is standing and puts one hand on back from top to bottom, the other from bottom to top. The examined person tries to join the fingers of both hands together. The distance between the middle fingers of both hands is measured.
Agility	8 foot up and go test	The Participant is sitting on the chair. There is a marking cone in front and 8 foot away from chair. At the signal, the participant gets up, approaches the marking cone, circles it, returns to the chair and sits down. The result is the time needed to complete the task.
Aerobic endurance	6 min. walk test	The participant moves for 6 min with a fast walk in a rectangle with full dimensions of 50 yards. The result is the distance covered by the examined person in the given (6 min) time.

Statistical Analysis

The Statistical Package for Social Studies (SPSS) was used for statistical analysis. The age groups of 60—64 years and 65-69 years were analysed separately the descriptive statistics values are presented as mean, minimum, maximum and standard deviation used for all measures and to determine the differences between the groups we used independent t- test. The significance was set at $p< 0.05$.

Result

A total of 50 older adults participated in the study were grouped in to age groups of 60-64 years with mean age of 61.84±1.46 years and 65-69 years with mean age 66.76±1.48 years. The baseline characteristics of the participants are shown in table-2

Table 2: Descriptive Statistics of age and senior fitness test score of different groups

Measures		N	Mean±SD	Minimum	Maximum
Age	60-64	25	61.84±1.46	60	64
	65-69		66.76±1.48	65	69
30 sec. chair stand test (rpts.)	60-64		16.56±4.42	10	28
	65-69		16.16±3.64	9	27
30 sec. arm curl test (rpts.)	60-64		14.52±4.11	6	23
	65-69		13.76±3.62	4	21
Chair sit & reach test (inches)	60-64		-1.65±5.39	-11.00	7.50
	65-69		-2.14±4.28	-8.00	6.00
Back scratch test (inches)	60-64		1.68±4.55	-9.00	9.00
	65-69		1.68±4.80	-10.00	8.50
8 foot up and go test (seconds)	60-64		5.92±1.74	3.80	9.93
	65-69		6.20±1.55	4.00	11.20
6 min. walk test (yards)	60-64		554.20 ±115.95	340	750
	65-69		581.40±76.99	370	750

Above table 2 showed that the Mean±SD, Minimum and Maximum values of older adult's various variables of 60-64 year age group and 65-69 years group.

The mean±SD value of lower body Strength(30 sec. chair stand test) of 60-64 age group was 16.56±4.42, 65-69 age group was 16.16±3.64, Upper Body Strength (30 sec. arm curl test) of 60-64 age group was 14.52±4.11, 65-69 age group was 13.76±3.62, Lower Body Flexibility (Chair sit & reach test) of 60-64 age group was -1.65±5.39, 65-69 age group was -2.14±4.28, Upper Body Flexibility (Back scratch test) of 60-64 age group was 1.68±4.55and 65-69 age group was 1.68±4.80, Agility (8 foot up and go test) of 60-64 age group was 5.92±1.74 and 65-69 age group was 6.20±1.55 and Aerobic Endurance (6 min. walk test) of 60-64 age group was 554.20 ±115.95 and 65-69 age group was 581.40±76.99.

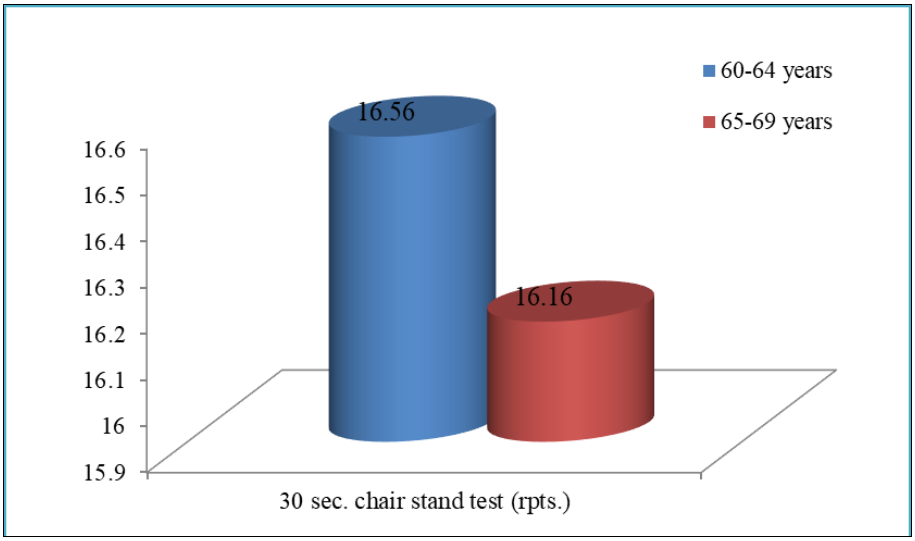

Fig 1: Mean comparison of lower body strength between age group 60-64 years & 65-69 years

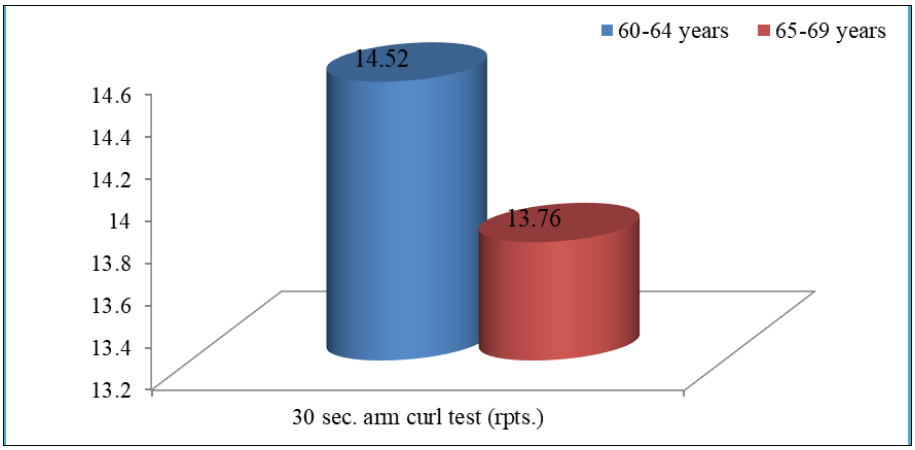

Fig 2: Mean comparison of upper body strength between age group 60-64 years & 65-69 years

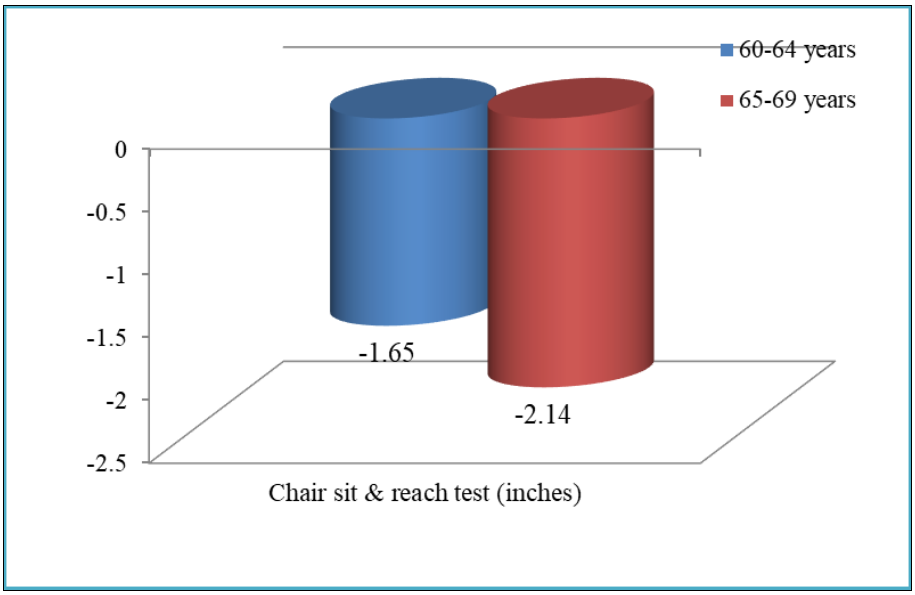

Fig 3: Mean comparison of lower body flexibility between age group 60-64 years & 65-69 years

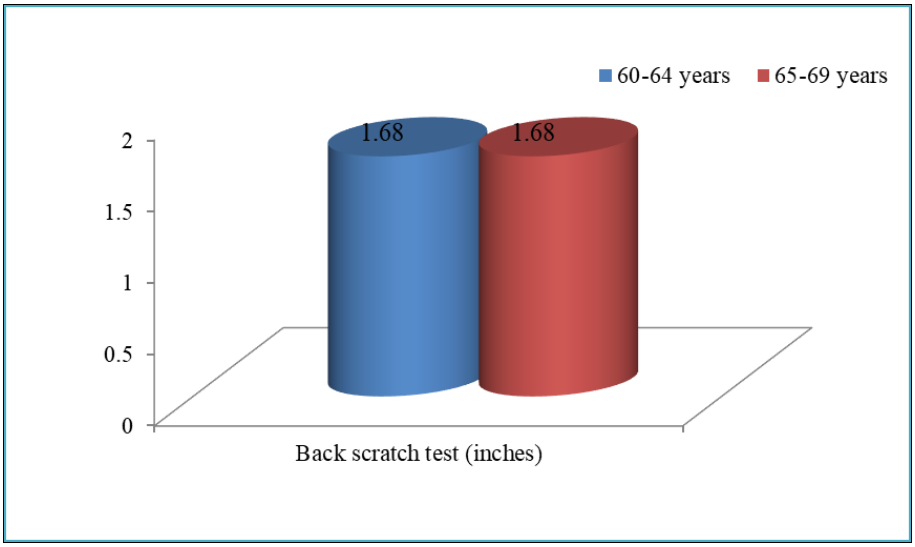

Fig 4: Mean comparison of upper body flexibility between age group 60-64 years & 65-69 years

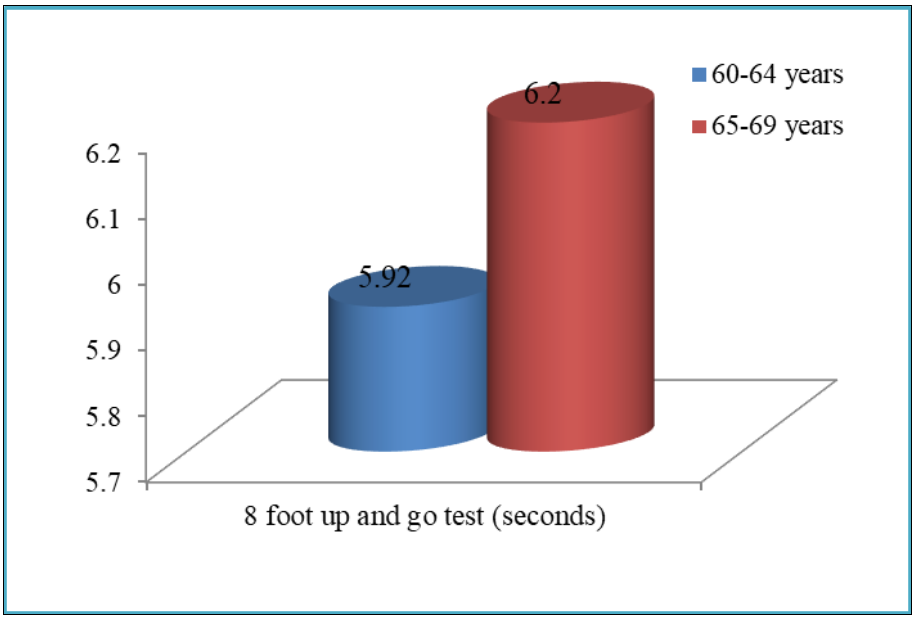

Fig 5: Mean comparison of agility between age group 60-64 years & 65-69 years

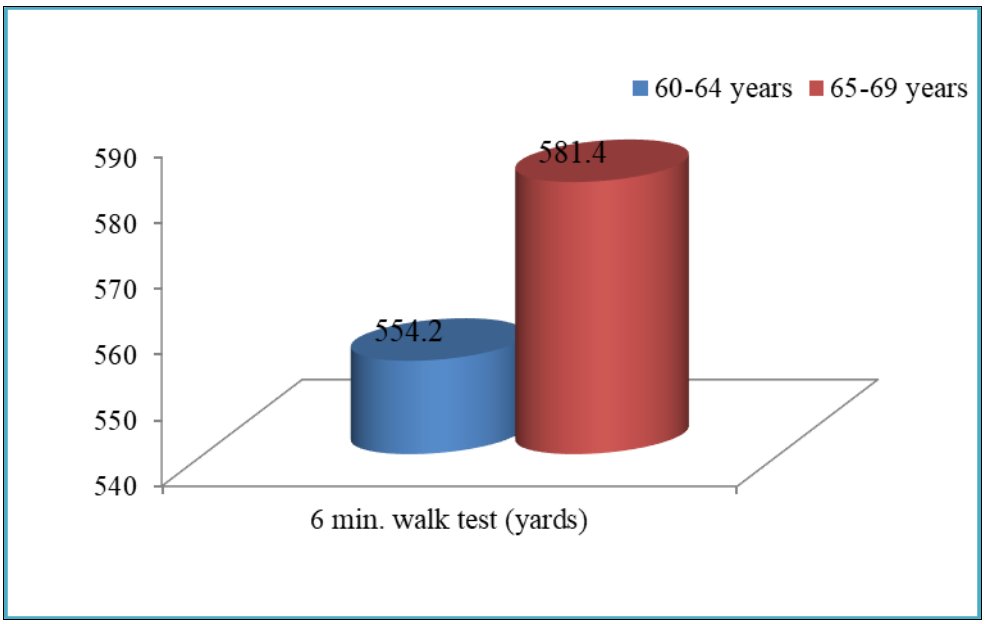

Fig 6: Mean comparison of Aerobic endurance between age group 60-64 years & 65-69 years

Table 3: Independent T- test results of SFT scores between age group 60-64 years and 65-69 years.

Variables			t-value	df	p-value	Significance
Lower Body Strength			0.693	48.0	0.491	NS
Upper Body Strength			0.350	48.0	0.728	NS
Lower Body Flexibility			0.000	48.0	1.000	NS
Upper Body Flexibility			0.355	48.0	0.724	NS
Agility	-0.589	48.0	0.559	NS		
Aerobic endurance	-0.977*	48.0	0.333	Significant		
$p < .05$						

Above table 03 showed that the results of comparison between 60-64 age group and 65-69 age group with functional fitness variable like Lower body strength, Upper Body strength, Lower body flexibility, Upper body flexibility and agility were not statistically significant but in case of Aerobic endurance there was significant difference between 60-64 age group and 65-69 at p=0.05 level. Therefore, there was not any significant have seen in both age groups functional fitness.

Discussion of finding

Findings from this study confirm the gradual decline in all functional fitness variables except anaerobic endurance which was improved and upper body flexibility remain same with increasing age. Aerobic endurance showed significantly difference among participants aged 65–69 years, consistent with previous findings linking aging with neuromuscular and postural deterioration (Paterson & Warburton, 2010; Chatterjee, 2021) [8, 2].

which could reflect regular engagement in stretching, yoga, or devotional postures common among elderly Indian men (Verma *et al*., 2022) [12]. Participation in the Kumbh Mela involves extensive walking and ritualistic movements that may help maintain baseline flexibility and endurance (Gupta, 2023) [4].

However, the decline in strength and agility in the older group indicates potential risks related to falls and fatigue. Therefore, structured physical activity and physiotherapy-based interventions during the Mela could improve safety and quality of life among older pilgrims (WHO, 2020) [13].

These findings align with the philosophy that spiritual gatherings, while primarily religious, can also serve as opportunities for promoting active aging and holistic well-being. The Kumbh Mela thus becomes not just a symbol of devotion but a living model of health, resilience, and community-based elder care.

Conclusions

This paper mainly discusses the results of comparing the 60-64 age group and the 65-69 age group, Older males aged 60–64 years exhibited higher functional-fitness scores than those aged 65–69 years during Kumbh Mela 2025. The study reinforces that aging naturally leads to a decline in functional abilities, yet faith-based participation in events like Kumbh Mela provides meaningful physical engagement that promotes well-being. Integrating health and wellness programs into such mass gatherings can contribute to the national goal of healthy and active aging in India.

Recommendations

1. Establish daily yoga and stretching sessions for elderly pilgrims.
2. Introduce on-site physiotherapy and medical check-up facilities.
3. Train volunteers in assisting elderly pilgrims to prevent falls and injuries.
4. Conduct longitudinal follow-up studies on the physical and mental effects of Kumbh participation.

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