International Journal of Movement Education and Social Science
Peer Reviewed and Indexed Journal
IJMESS Vol. 14 Issue 1 (March 2025)
ISSN: 2278-0793 (Print) & 2321-2279 (Online)
Impact Factor 5.62
www.ijmess.org

COMPARATIVE STUDY OF FUNCTIONAL FITNESS BETWEEN TWO GROUPS OF SENIOR CITIZENS OF INDIA AND AMONG OTHER COUNTRY

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Abstract

The study's objective is to ascertain if various aspects of well-being among senior citizens who live in communities are correlated with physical fitness. Frequent physical exercise improves older people's quality of life, their ability to live independently, and their ability to prevent chronic health issues. The functional fitness of senior citizen is more valuable for their independent living. This study compares differences in the functional fitness of two groups of older adults (aged 60 to 64 and 65 to 69) of 50 people living in Bijnor district of Uttar Pradesh. The stratified random sampling technique was used to succulent the subject. The two sample t-tests were performed to compare the means of the groups in order to analyze the data. This study showed that there are no significant differences between functional fitness of the age group 60-64 and 65-69. The mean of all components of functional fitness was almost the same, which clearly indicates that the functional fitness of both age groups is not influenced by age. The next part of the study was to compare the Indian population SFT to Poland, Portugal and the US population. We found the truth that the Indian senior citizen population does not fit as much as the US and Poland populations but is better than the Portugal senior citizens population. We did better in some fitness variables, like flexibility, but needed improvement in strength. Clearly shows that our senior citizens can do better; only they need proper guidelines on "how to do and what to do" for good health.

Keywords: Functional Fitness, Senior Citizen, Aerobic Fitness and Agility.

Introduction

The ageing of the population is one of the major trends influencing sustainable development. The environment, cultures, and economics are all greatly impacted. Population ageing is further positively impacted by decreased baby, child, and mother mortality, decreased communicable illnesses, and improved management of non-communicable diseases, in addition to persistent fertility reductions and longer life expectancies. The average lifespan has increased. Therefore, in order to ensure sustainable economic development, end poverty, and address inequality, nations must implement appropriate laws and take appropriate government action in response to the ageing population. Ageing is a normal part of life, but for those who have reached old age, it comes with it a host of issues (NSO 2021).

Functional fitness is the capability to carry out daily tasks with the utmost physical efficiency and independence without experiencing fatigue too soon. The degree of functional fitness is influenced by a person's lifestyle, which includes their level of physical exercise and general health. An essential measure of health status is physical fitness, which can be determined by administering a short set of tests to the general

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population. From the standpoint of public health, the ability to track how fitness levels change over time offers an essential monitoring technique.
For the approach to be validated and strengthened, more study is required (Nassif, 2012).
The majority of us would agree that maintaining our ability to do the activities we enjoy pain-free for as long as possible is crucial to maintaining our quality of life in our later years. It is becoming more crucial to keep an eye on our bodily health as we live longer. Ironically, both the quantity and quality of life have benefited individuals differently as a result of recent technological advancements. While medical technology has helped people live longer, computer and automation technology are making people spend more time sitting down and raising their risk of developing mobility and chronic health issues (Rikli & Jones, 2001).
Gerontology studies and practice are primarily focused on preventing or delaying the onset of physical frailty in persons 65 years of age and older due to a rise in various problems that are emerging as a result of an aging society (Rikli & Jones, 1999). People who are getting older and doing less physical activity in their everyday lives are more likely to fall, according to reports (Milanović, Z. et al., 2013). According to who World Health Organization falls are the second primary cause of accidental or Union tension energy injury deaths worldwide and one out of three adult older than 65year wood fall every year. World Health Organization (2008); Tromp, et al., (1998). Additionally, post-fall syndromes like decreased self-worth and increased dread of falling prevent fallers from engaging in physical activity, which in turn exacerbates the negative effects of falling (Tinetti, Speechley & Ginter, 1988).
One in six individuals on the planet will be 60 or older by 2030. By this point, there will be 1.4 billion people over the age of 60, up from 1 billion in 2020. The number of people in the globe who are 60 years or older will double by 2050 (2.1 billion). Between 2020 and 2050, the number of people 80 or elderly is projected to triple, reaching 426 million (Unites, 2022).
In 1980, men and women's average terminal ages were 69.8 and 77.5 years, respectively; in 2040, those ages are projected to be 75.0 years for males and 83.1 years for women (Daley & Spinks, 2000). The elderly have twice as many disabilities and four times as many physical limitations as individuals under the age of 60, so there is an urgent need for effective strategies to help them keep a healthy and active lifestyle (Rimmer, 1994).
According to Kosti et al. (2011), elderly people who do not engage in physical activity run the risk of having 40% less muscle mass and 10%–40% less joint motion, depending on the body part. They also run the risk of losing 30% or more of their muscle strength. Between the ages of 30 and 80, muscle mass and power typically decline by 30% to 50% (Daley & Spinks, 2000). In addition, after the age of 50, muscular power declines at a rate of roughly 12%–14% per decade. Resistance training, however, is widely regarded as a hopeful intervention for reversing the decline in muscle structure and loss of muscle function linked to aging (Hurley & Roth, 2000).

Methodology

The stratified random sampling technique was used to select the subject. The two age group of senior citizens voluntarily take part in test procedure with age of 60 to 64 and 65 (n= 50) to 69 (n=50), living in rural area of Bijnor district of Uttar Pradesh. The purpose of this study is to compare differences in the functional fitness of two groups of older adults (aged 60 to 64 and 65 to 69) of 100 people.

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The subject's functional fitness test was carried out in accordance with the prescribed procedures by adhering to the senior fitness test manual's guidelines (Rikli and Jones, 1999). The functional fitness test includes the following motor components, which are described in depth in the senior fitness test manual:

i. Lower Body Strength -Chair Stand Test.
ii. Chest area Strength -The Arm Curl Test For.
iii. Lower Body Flexibility- The Chair Sit and Reach Test.
iv. Upper Body Flexibility- Back Scratch Test.
v. Agility- 8 feet Up and Go Test.
vi. Aerobic Fitness- 6 Minute Walk Test.

To find out present status of functional fitness of both groups, a thorough descriptive statistic was used. Descriptive statistics was used to find out the mean and two-sample t-tests were performed to compare the means of the groups in order to analyse the data.

Findings and Results

The two sample t-tests were performed to compare the means of the groups in order to analyze the data. The significance threshold was set at 0.05. In order to compare the results for the age groups, mean differences were used to assess the Functional Fitness data.

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TABLE 01
MEAN TABLE OF SFT ALL VARIABLE OF BOTH GROUPS

Parameters	Group One 60-64 years	Group Two 65-69
Chair Stand Test (Counts)	14.93	13.33
Arm Curl Test (Counts)	16	16
Chair Sit and Reach Test (Inches)	1.30	2
Back Scratch Test (inches)	-1.59	-2.24
8 Foot Up and Go Test (Second)	5.66	5.98
Six Minute Walk Test (meter)	582.25	577.57

Table 01 depict the mean values of senior citizen's various variable of 60-64 age groups and 65-69 age groups. The mean values of Lower Body Strength of 60-64 age group was 14.93, 65-69 age group was 13.33, when, these mean compared with Rikli and Jones; senior citizen fitness norms (2001) first group was exist in average category and second group was exist in below average category, Upper Body Strength of both age groups were 16 which was lying in average category , Lower Body Flexibility of 60-64 age group and of 65-69 age group was 1.30 and 2 respectively both groups were lying in average category . The mean of Upper Body Flexibility of 60-64 age group was -1.59 and 65-69 age group was -2.24, both age group performance was above average according to norms, Agility Of 60-64 age group was 5.66 and 65-69 age group was 5.98 both groups were present average performance, and Aerobic Endurance of 60-64 age group was 582.25 and 65-69 age group was 577.57, where 60-64 age group depict below average but second group's performance was average.

TABLE 02
COMPARISON OF VARIANCE BETWEEN TWO GROUPS

Variables of SFT	Sig.
Chair Stand Test (Counts)	0.872
Arm Curl Test (Counts)	0.630
Chair Sit and Reach Test (Inches)	0.448
Back Scratch Test (inches)	0.259
8 Foot Up and Go Test (Second)	0.339
Six Minute Walk Test (meter)	0.987

Above table 02 present that the results of comparison of 60-64 age group and 65-69 age group with each fitness variable were not statistically significant at p=0.05 level. Therefore, there was not any significant have seen in both age groups functional fitness.

ISSN: 2278-0793 (Print) & 2321-2279 (Online)
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www.ijmess.org

TABLE 03
FUNCTIONAL FITNESS OF SENIOR CITIZEN OF INDIA, USA, POLAND AND SOUTH KOREA POPULATION.

Age (Years) 60-64 Mean				
	Indian	US	**Poland**	**Portugal**
Chair Stand Test (Counts)	14.93	15.36	16.1	15.7
Arm Curl Test (Counts)	16	18.04	20.8	17.7
Chair Sit and Reach Test (Inches)	1.30	2.53	0.70	-0.27
Back Scratch Test (inches)	-1.59	-1.11	3.26	-7.00
8 Foot Up and Go Test (Second)	5.66	5.54	5.8	4.8
Six Minute Walk Test (meter)	582.25	616	565.1	577.9
Age (Years) 65-69 Mean				
	Indian	**US**	**Poland**	**Portugal**
Chair Stand Test (Counts)	13.33	15.6	16.6	14.8
Arm Curl Test (Counts)	16	18.6	20.7	17.3
Chair Sit and Reach Test (Inches)	2	0.2	0.6	-2.40
Back Scratch Test (inches)	-2.24	-3.9	-3.74	-8.89
8 Foot Up and Go Test (Second)	5.98	5.0	5.9	5.4
Six Minute Walk Test (meter)	577.57	576.98	549.6	526.9

Table 03 represent that the mean value's variables of SFT of four different countries India< US, Poland, and Portugal (Rohilla & Tiwari, 2020: Ignasiak, 2020: Gouveia, et.al, 2013). For 60-64 age group functional fitness test namely Lower Body Strength mean score of Poland population (16.1) > US (15.36) > Portugal (15.7) > Indian (14.93), Upper Body Strength Poland (20.8) > US (18) > Portugal (17.7) > Indian (16), Lower Body Flexibility, US (2.53)> Indian (1.30) > Poland (0.70) > Portugal (-0.27), Upper Body Flexibility of Portugal's population (-7.00) < Poland (-3.26) < Indian (-1.59) < US -1.11, Agility Poland population (5.58) > Indian (5.66) > US (5.54) > Portugal (4.8), Six Minute Walk US population (616) > Indian (582.25) >Portugal (577.9) > Poland (565.1).

In 60-64 age group functional fitness test namely Lower Body Strength mean score of Poland population (16.6) > US (15.6) > Portugal (15.7) > Indian (13.33), Upper Body Strength Poland (20.7) > US (18.6) > Portugal (17.3) > Indian (16), Lower Body Flexibility score of Indian (2.0)> Poland (0.6) > US (0.20) > Portugal (-2.4), Upper Body Flexibility of Portugal's population (-8.89) < US (-3.9) < Poland (-3.74) < Indian (-2.24), Agility score of Indian population (5.98) > Poland population (5.9) >Portugal (5.4) > US (5.0) , Six Minute Walk Indian population (577.57) US > (576.98) > Portugal (526.9) > Poland (549.6).

Discussion

Physical fitness is especially important for seniors because it has historically been linked more with younger age groups than with older individuals. In fact, studies show that if we paid closer attention to our physical activity and fitness as we aged, especially if any evolving weaknesses could be detected and treated early on (Ostir et al., 2004; Garatachea et al., 2017; Pareja-Galeano et al., 2015), much of the physical frailty commonly associated with ageing could be reduced.

Lower and upper body flexibility was found to be slightly better in the 65-69 age groups than in the 60-64 age group. Lower Body Strength was slightly higher in the 60-64 age group than the 65-69 age group, but upper body strength was the same in both groups. Agility was similar in both groups, but aerobic fitness was slightly better in the 60-64 age groups.

This study showed that there are no significant differences between functional fitness of the age group 60-64 and 65-69. The mean of all components of functional fitness was almost the same, which clearly indicates that the functional fitness of both age groups is not influenced by age.

As people age in our society, their degree of activity declines. The primary cause of that as a cultural behaviour is that young people respect elders, and they demonstrate this by providing

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for them at home or outside, such as serving meals to their room or table, bringing them water while they are watching TV or doing something else, carrying their belongings, providing a car for even brief trips, and refusing to let them carry out their daily activities. These actions force the elderly into a sedentary lifestyle. Actually, they do not benefit from these cultural practices. The SFT was created to evaluate physical performance in older individuals across many groups and levels of competence. (Cicioglu, 2010)

The next part of the study was to compare the Indian population SFT to Poland, Portugal and the US population. We found the truth that the Indian senior citizen population does not fit as much as the US and Poland populations but is better than the Portugal senior citizens population. We did better in some fitness variables, like flexibility, but needed improvement in strength. This clearly shows that our senior citizens can do better; they only need proper guidelines on "how to do and what to do" for good health (Rohilla & Tiwari, 2020). Our senior citizen population needs proper nutrition, care, and direction to improve their fitness and health.

Conclusions

This paper mainly discusses the results of comparing the 60-64 age group and the 65-69 age group, with each fitness variable that was not statistically significant at p=0.05 level. Therefore, no significant difference was seen in both age groups' functional fitness.

The next part of the study was to compare the Indian population SFT to Poland, Portugal and the US population. We found the truth that the Indian senior citizen population does not fit as much as the US and Poland populations but is better than the Portugal senior citizens population. Additionally, comparing the performance of our senior citizens in the United States and Poland revealed to us that we are not as fit as we should be, but the difference is not that great—in fact, we outperformed Poland in some tests—because it is evident that our senior citizens are capable of doing better; they just require appropriate guidance on "how to do and what to do" for good health (Rohilla & Tiwari, 2020).

We did better in some fitness variables, like flexibility, but needed improvement in strength. Therefore, the Indian population needs clarity about physical activities and movement education, which can help improve our senior citizens' functional fitness. Poor functional status and little physical exercise lower elderly individuals' quality of life. Therefore, in order to enhance older individuals' functional status, physical activity, and quality of life, educational and physical interventions ought to be put into place at the hospital and community levels (Arjunan,, et. al. 2024). The present policies and awareness movements (Fit India movement) can fill up the gap of information and improve functional fitness of elderly population of India.

References:

Arjunan, P., Annamalai, M., Subramaniam, A., & Arulappan, J. (2024). Physical Activity, Functional Status, and Quality of Life Among Older Adults in India. SAGE open nursing, 10, 23779608241290384.

Cicioglu, I. (2010). Assessment of physical fitness levels of elderly Turkish males over 60 years. Collegium antropologicum, 34(4), 1323-1327.

Daley, M. J., & Spinks, W. L. (2000). Exercise, mobility and aging. Sports medicine, 29, 1-12.

Gouveia, É. R., Maia, J. A., Beunen, G. P., Blimkie, C. J., Fena, E. M., & Freitas, D. L. (2013). Functional fitness and physical activity of Portuguese community-residing older adults. Journal of aging and physical activity, 21(1), 1-19.

Hurley, B. F., & Roth, S. M. (2000). Strength training in the elderly: effects on risk factors for age-related diseases. Sports medicine, 30, 249-268.

Ignasiak, Z., Sebastjan, A., Sławińska, T., Skrzek, A., Czarny, W., Król, P., ... & Umiastowska, D. (2020). Functional fitness normative values for elderly polish population. BMC geriatrics, 20, 1-9.

Kostić, R., Uzunović, S., Pantelić, S., & Đurašković, R. (2011). A comparative analysis of the indicators of the functional fitness of the elderly. Facta Universitatis: Series Physical Education & Sport, 9(2).

Lexell, J., Taylor, C. C., & Sjöström, M. (1988). What is the cause of the ageing atrophy?: Total number, size and proportion of different fiber types studied in whole vastus lateralis muscle from 15-to 83-year-old men. Journal of the neurological sciences, 84(2-3), 275-294.

Milanović, Z., Pantelić, S., Trajković, N., Sporiš, G., Kostić, R., & James, N. (2013). Age-related decrease in physical activity and functional fitness among elderly men and women. Clinical interventions in aging, 8, 549.

Nassif, H., Sedeaud, A., Abidh, E., Schipman, J., Tafflet, M., Deschamps, T., ... & Toussaint, J. F. (2012). Monitoring fitness levels and detecting implications for health in a French population: an observational study. BMJ open, 2(5), e001022.

NSO (2021), Elderly in India, National Statistical Office, Ministry of Statistics & Programme Implementation, Government of India, New Delhi.

Pitetti, K. H. (1994). Fitness and Rehabilitation Programs for Special Populations. Adapted Physical Activity Quarterly, 11(3), 337-338.

Rikli, R. E., & Jones, C. J. (1999). Development and validation of a functional fitness test for community-residing older adults. Journal of aging and physical activity, 7(2), 129-161.

Roe, B., Howell, F., Riniotis, K., Beech, R., Crome, P., & Ong, B. N. (2009). Older people and falls: health status, quality of life, lifestyle, care networks, prevention and views on service use following a recent fall. Journal of clinical nursing, 18(16), 2261-2272.

Rohilla T., Tiwari S., (2020). Functional Fitness Status of the Indian Elderly Population (Male): A Comparative Study Between India, The United States And Poland, 147-161.

Tinetti, M. E., Speechley, M., & Ginter, S. F. (1988). Risk factors for falls among elderly persons living in the community. New England journal of medicine, 319(26), 1701-1707.

Tromp, A. M., Smit, J. H., Deeg, D. J. H., Bouter, L. M., & Lips, P. T. A. M. (1998). Predictors for falls and fractures in the Longitudinal Aging Study Amsterdam. Journal of bone and mineral research, 13(12), 1932-1939.

Union DT. Labour Market Profile Benin–2021/2022.

World Health Organization. Ageing, Life Course Unit, & Université de Genève. Centre interfacultaire de gérontologie. (2008).