

## MIND OVER MATTER: THE REQUIRED PHYSICAL AND SOCIAL ACTIVITIES FOR COGNITIVE ALERTNESS AMONG PAKISTANI GERIATRIC POPULATION

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### ABSTRACT

**Background of the Study:** Aging is influenced by culture, individual experiences, and socio-demographic characteristics along with societal expectations. Cognitive functioning and activity level in geriatric population may alter their participation in daily life activities thus this study aims to explore the required physical and social activities for cognitive alertness among Pakistani Geriatric population.

**Methodology:** An observation based study of 169 aging individuals who performed on MoCA for cognitive functioning and interviewed on IPAQ for duration of physical activity in everyday life.

**Results:** It is an observational study, conducted among the geriatric population of different areas of Pakistan. A total number of 169 individuals participated out of which 59 % were males and

40 % were females with a majority of the population 74% falling between 65-75 years of age. It was found that 59% of the male and only 19% of the female had 22 score on MoCA for cognitive functioning and these individuals were practicing physical activities such as brisk walk for 3 days a week for more than 40 minutes and are involve at least once a week in social activities.

**Conclusion:** The research finding concluded that physical activities and social gathering both has impact on cognitive function of geriatric population to participate actively in daily activities

**Keywords:** *Aging, geriatric population, cognitive functioning, physical activity, social activities, activity of daily living*

### Introduction

Aging is an ongoing process that occurs throughout the lifespan. The age group of 65+ years may usually be denoted as old age as agreed by the United Nations<sup>1</sup>. As the rest of the world is experiencing an increase in life span, likewise Pakistan is experiencing an upward thrust in its aged population and is ranked as 6th maximum populous country in the world<sup>17,18</sup>. Aging successfully is multifaceted and multidimensional principle, encompassing the avoidance of disability and disease, the preservation of high cognitive and physical function, and continuous engagement in societal and productive activities<sup>19</sup>. Moreover, it is a socially constructed phenomenon that is influenced by cultural and societal expectations, individual experiences as well as socio-demographic characteristics. The term “Successful Aging” is a substantial concept, to define as the standards of aging. Overall understood from a holistic point of view that may

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refer to the capacity to maintain good physical health, while also referring to the social adaptation and psychological processes in later life<sup>20</sup>. Lifestyle is a defining characteristic of social existence and a key idea in social gerontology. It is regarded as each the reason and effect and is used as an assembled, to explicate preferences, as modes of living, and as a trademark of social standing<sup>20</sup>. Healthy aging means a healthy lifestyle. In Pakistan, most of our people follow a collective society standard where grandparents live with their children and grandchildren. In families where cultural norms still prevail, it is considered as the chance to care for older persons a privilege. But at times, taking care leads to the dependency over the family members for even minor chores and for a person living independent life throughout; this might affect the well-being and life-satisfaction. It is even important for the elderly population to feel a productive member of a society to avoid all the mental and health related problems in this age of life. The role of elderly often includes dissolving family matter and to solve issues among them with their wisdom and experience. They often play a role a caretaker for their grandchildren so that the mother of a child gets encouraged and open a way for them to enter in the market and do have jobs. Elderly also volunteers in activities relating to their worship places<sup>17</sup>. The aging research shows that life style plays an important part, it depends on it as it is a gerontological field. It promotes healthy and successful life style and also the opposite, it is often determined as a critical concept as it directs towards gerontology's neglect to transform aging experiences and determinants of health with relation to society and environment. Being social is also important for geriatric age group. It can be in form of joining old age citizen club to participate in activities or to visit park and form a friendship. For elderly people, friendship plays a very important role as it provides psychological calmness and wellbeing. The support they get from family member as well as from society and friends results in good physical condition and also helps in cognitive development. The absence may result in isolation, loneliness and irritation that leads to decline in health. Societal isolation leads to low psychological maintenance and poor health growth<sup>22</sup>. Cognition refers to a scale of mental processes correlate to the acquisition, storage, control, and recover of information. It promotes many daily life chores in health or disease throughout the lifespan<sup>2</sup>. Aging successfully is multifaceted and multidimensional principle, encompassing the avoidance of disability and disease, the preservation of high cognitive and physical function, and continuous engagement in societal and productive activities<sup>22</sup>. In 1998, World Health Organization made a report which estimated that 6% of our US population was over 60, with a likelihood of magnifying twice by 2025<sup>5</sup>. As of 2019, nearly 15 million people in Pakistan are aged over 60 which is seven percent of the country's total population<sup>6</sup>. One of the studies published in the year 2021 reports that individuals of age 65 years and above is 4.4% for Pakistan. Over the last 50 years, in Pakistan the population aged 65 years and above grew substantially from 3.8 to 4.4 % rising at an increasing annual rate that reached a maximum of 1.16% in 2021. Therefore, the shared statistics describes that the geriatric population of Pakistan is increasing but with activity limitation and participation restriction due to inactivelifestyle<sup>7</sup>. Population getting older brings about profound consequences as social, health and economic problems. GAWI that stands for Global Age Watch Index analyzes the records across the world to estimate and monitor important components of the socio-economic wellbeing of geriatric population globally. GAWI considers health status, employment, income security, education, and enabling environments. Pakistan's rank became ninety- two out of ninety-six in 2015 and eighty-one in the domain of enabling societies which is quite low. It clearly suggests that Pakistan needs to overcome this worsening state to cope with prevailing populace structure<sup>17,18</sup>.

Hamer and Chida studied meta-analysis on risk of neurodegenerative disease plus physical activity that involved 16 prospective studies of 163,797 participants without dementia. Among those members who were physically active, there was a 28% decrease in risk of dementia and a 45% decrease in Alzheimer's disease<sup>11,12</sup>. Another meta-analysis of 15 prospective researches shows that 38% of individuals reduced the risk of cognitive decline those who are physically active (mostly older adults). The evidence from cross-sectional and prospective research shows that physically active lifestyle decrease the risk of cognitive impairment in future life<sup>13</sup>. With ageing, there is reduced cognitive functions and low quality of life<sup>2,3</sup>. As suggested by several studies, this decline in quality of life and cognitive activities can be related to the age-related changes that include biological, physical and lack of cognitive activities. <sup>4</sup>World health organization (WHO) along with several studies shows positive impact on cognitive function by physical activities.<sup>8-10</sup> Exercises, mainly aerobics provide maintenance for cognitive function that ultimately results in good health and healthy aging for adults<sup>11,12</sup>. Moreover, the studies for the relation of physical activity and self-regulation function shows that self-regulation acts majorly in determining the health maintenance of aging adults and its effects on physical activity, in preference to the influence of the physical activity on self-regulation. Self-regulation is a factor that effects the mental and physical health of older adults and physical activity behavior<sup>14</sup>. This study aims to explore the required physical and social activities for Pakistani elderly population to stay cognitively alert for better quality of life.

## Methodology

### Study setting

Data collected from different cities of Pakistan.

### Target population

Geriatric population.

### Study design

Study is cross sectional in nature.

### Sampling technique

Non probability, convenience sampling technique.

### Study period

6-8 months.

### Sample size

Open EPI software was used to calculate the sample size. The confidence interval is 95% and 5% the margin of error. Sample size of  $n=169$  was calculated by using formula.

$$\text{Sample size } n = [\text{DEFF} * Np(1-p)] / [(d^2 / Z^2 1-\alpha/2 * (N-1) + p*(1-p)]$$

### Inclusion criteria

Both male and female with age above 65 years.

### Exclusion criteria

Individuals above 65 years of age with bedridden conditions

### Data Analysis

The SPSS (Statistical Package for Social Sciences) software version 20 to enter and analyze data. Participants' demographic variables will be presented with standard deviation, frequency and mean, while their responses will be evaluated using frequency and percentage.

### Data collection tool

1. The Montreal Cognitive Assessment Test (MoCA) is a screening test for cognitive impairment and is used to measure cognitive ability. Language, memory, direction, computations, conceptual thinking, executive functions, attention and focus, as well as visual constructive skills are all examined by MoCA. The test takes approximately 10 minutes and is conducted by the examiner. The overall number of points on the questionnaire is 30, and the score ranging above 22 is healthy cognition.
2. The IPAQ (International Physical Activity Questionnaire) is used in geriatric population (aged 65 years and above) to assess activity levels. The IPAQ-E is a self-reported questionnaire that assesses the duration (hours per day) and frequency (days per week) of several types of physical activity over the previous seven days. Activities are divided into three groups by the IPAQ: high-intensity, moderate-intensity, and walking exercise. Each activity category's total number of hours and days is analyzed.

### Data Collection Procedure

The data collection is based on informed consent. After seeking permission, the questionnaire were filled out based on interview and performance. Following the completion of the sample, the findings were analyzed.

## Results

The demographic details showed that majority of the sample population was between the age ranges of 65-75 whereas only 23% was above 75 years (Table 1A) and female population is almost 40% of the sample in Table 1B.

	Frequency	Percent
65-75	126	74.6
76-85	39	23.1
86-100	4	2.4
Total	169	100.0

*Table 1A Indicating the age range in the sample*

	Frequency	Percent
M	101	59.8
F	68	40.2
Total	169	100.0

*Table 1B Male Vs Female participation*

It was evaluated that 34% of the male geriatric population scored in the range of 22- 23 indicative

health cognition for occupational performance whereas only 13% of the females fall in the range of healthy cognition at MOCA in Table 2.

MOCA	Frequency	Total Sample	Percent
23-33 M	34	101	34%
F	13	68	13%

Table 2 Gender with respect to MOCA

Both male and female together makes 47% of the sample that scored healthy cognition score on MOCA, when compared to their physical activity at IPAQ it reflected almost 81% of healthy cognition walks maximum 50 minutes a day whereas only 9% who walks above 50 minutes also scored the same score as that of individual who walked 50 minutes in Table 3.

MOCA	Walking Time	Frequency	Percent
23-33 Valid	0-50	38	80.9
	51-100	8	17.0
	101-150	1	2.1
	Total	47	100.0

Table 3 Walking Time with respect to MOCA

Another amazing finding was explored that besides the physical activity geriatric population scoring healthy cognition also have social gathering on regular basis minimum once in a month. Table 4 mentioned that 34 % of the health cognitive individuals have minimum once in a week social gathering whereas almost 4% have twice in a month in Table 4.

MOCA	Frequency	Percent
23-33	Once a week	16 34.0
	twice a week	14 29.8
	once in a month	11 23.4
	twice in a month	2 4.3
	others	4 8.5
	Total	47 100.0

Table 4 Social Gatherings

### DISCUSSION

The present investigation evaluated the relationship between activity level and cognitive functioning. WHO also emphasizes upon a positive impact on cognitive functioning by physical activities is estimated<sup>8,10</sup>. The findings support the hypothesis that there is a link between activity level and cognitive functioning, as proposed in this study. The data show link between participation in daily life activities and cognition level in Pakistani geriatric population. The total percentage of older men i.e. 59.4% and 40.2% of older women participated in the study with 74% of the total population that lies between age ranges of 65 to 75. A total of 164 older adults in the current study were found to spend around 100 minutes on moderate physical activity. Most of the geriatric population in Pakistan is not involved in physical activities and spend most of their time sitting. In this study, time spend while sitting is calculated to be around 600-900 minutes per day for 3.5%, 300-600 minutes per day for 30% and around 65.9% spends around 300 minutes while sitting. Our culture promotes the idea of looking after the geriatric population in every aspect

possible that somehow leads to independency in daily life activities. However, it is credible to say that being cognitively active leads towards physically active<sup>35</sup>. The decline in cognitive functioning can also be explained by less physical activity as the person grows or as year's passes, by evaluating cognitive functioning. Moreover, some studies resulted in no relationship between physical activity and cognitive stimulation in aged people. Sabia, S. et al., in the study, concludes that growing age leads towards less physical activity and is more reclined towards dementia diagnosis and sometimes this decline in physical activity can also be an early symptom of dementia<sup>31</sup>. Another important component of this study is that it includes co-founding factors such social gatherings which is very significant in Asian culture and is one of the main occupational performance component. These factors influence the cognitive functioning in older adults. The study conducted by Jennings et al., founds that in comparison to non-caregiving grandparents; caregiving grandparents have better cognitive function, and this association does not differ by gender<sup>32</sup>. Moreover, geriatric population have fewer close contacts and participate less frequently in social gatherings than the adult population in general. Furthermore, they also experience increased feelings of loneliness. One of the study conducted by Toepoel V. however, shows that lowbrow activities might increase satisfaction with life and social integration. Therefore, it may be appropriate to stimulate older people to participate often in lowbrow activities like music events, visit to parks and cinema<sup>33</sup>. However, 34% of total participants with health cognitive score involves in social gatherings once a week and 30% get involved twice a week; which shows that get-together and socializing is also an important factor for the maintenance of healthy cognition. Some studies have reported that cognitive functioning declines with age and also the older population is at a risk of cognition related issues. Physical activity has been indicated as a way to push health within the elderly, similarly on encourage the maintenance of functional capacity, and acts within the prevention and control of varied diseases. Physical activity is that the foremost effective treatment for aging. Given the well-established benefits of physical activity for health and well-being across the life course. Here could be a transparent trend evident publically health across both the developed and increasing developing world that exercise and physical activity interventions are adopted as methods of improving the physical health and well-being of the population. During this context, physical activity is broadly needed as bodily movement that lands up in energy conservation for the performance of routine tasks the first aim of this study was to seem at the effect of physical activity on cognitive functioning among older adults in our research because of large sample size most of all the geriatric population is representing moderate cognitive and low physical activity level. Positive physical effects of accelerating physical activity there's a growing body of evidence indicating cognitive elderly people. Therefore, our research concluded the ratio of moderate cognitive impairment in Pakistani males is higher than females. This shows the positively weak correlation between activity level and cognition so it is estimated that high sample size and cognitive functional measurements are required in future.

## CONCLUSION

These findings in this study may serve as recommendation to the geriatric population for healthy cognition status. Aging can be active and occupational performance may be maintained with minimum 50 minute regular walk and once in a week socialization. Whether living in shelter houses or with family physical activities will keep their participation intact not only for their own living but also as healthy member of family who contribute best in his roles and responsibility. Pakistan government has introduce many policies to protect geriatric population rights , it must also focus on provision of such facilities in the environment such as park, senior citizen clubs at union council levels so the aging population should not be burden on the society and can live fully.

### AUTHORS' CONTRIBUTION:

The following authors have made substantial contributions to the manuscript as under:



**Conception or Design:** *Syeda Iffat Nasir*

**Acquisition, Analysis or Interpretation of Data:** *Syeda Iffat Nasir*

**Manuscript Writing & Approval:** *Syeda Iffat Nasir*

All authors acknowledge their accountability for all facets of the research, ensuring that any concerns regarding the accuracy or integrity of the work are duly investigated and resolved.

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