

## Effect of Participation in Regular Physical Activity on Depressive Symptoms in Elderly: A Cross-Cultural Perspective

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### ABSTRACT

Population ageing is a well-known phenomenon with significant inference for the developmental trajectory of nations and it is necessary to manage psychological functioning in the elderly. Good psychological functioning requires the management of depressive symptoms. This study aims to evaluate the effect of participation in regular physical activity on depressive symptoms in the elderly with a cross-cultural perspective. For this study, a total of 400 elderly participants aged between 60 and 70 were selected, with an average age of 63.11 years. The sample was divided into two equal groups: 200 tribal and 200 non-tribal elderly subjects and both groups included 100 elderly with regular participation in physical activity and 100 elderly with sedentary lifestyles. To assess depressive symptoms in elderly participants, the Hindi version of the Geriatric Depression Scale (GDS-H), validated by Ganguli (1999), was used. The main effect of regular participation in physical activity on depressive symptoms in the elderly was found to be statistically significant and it indicates that physically active elderly show lower depressive symptoms compared to sedentary elderly. The main effect of culture on depressive symptoms in the elderly was not found to be statistically significant. The interaction between participation in physical activity and culture does not significantly affect depressive symptoms in the elderly. It was concluded that promoting physical activity in elderly populations plays a critical role in managing their depressive symptoms irrespective of their cultural background.

**Keywords: Elderly, Physical Activity, Culture, Depressive Symptoms**

### INTRODUCTION

According to the Report of the Technical Group on Population Projections for India and States 2011-2036, the elderly population saw an ascend of nearly 34 million in 2021 compared to the 2011 Census. This number is projected to further grow by about 56 million by 2031. In 1961, 5.6% of the population was aged 60 or above, a proportion that increased to 10.1% in 2021 and is expected to reach 13.1% by 2031.

Population ageing is a well-known phenomenon with significant inference for the developmental trajectory of nations. This shift not only alters the structure of the population pyramid but also generates new needs, and demands for additional resources, and opens up fresh opportunities.

Psychological problems are a common aspect of ageing due to various factors that impact mental health in the elderly. As people age, they often face significant life changes such as retirement, loss of loved ones, declining physical health, and increased social isolation, all of which can contribute to mental health challenges and depressive symptoms are common in the geriatric population. Depression among the elderly is a major public health problem that profoundly impacts their overall quality of life and well-being. This condition is complex and multi-dimensional, shaped by a range of factors including biological, psychological, and social influences. Depression is often linked to feelings of sadness or negative emotions like anxiety, emptiness, hopelessness, helplessness, guilt, irritability, anger, shame, or restlessness. When someone is depressed, they may lose interest in activities that once brought them joy. Depression can also cause difficulty concentrating, tiredness, physical aches, digestive issues, low energy, and other uncomfortable symptoms. Salmans (1997) noted that a depressed mood is a common symptom of some mental health disorders, especially major depressive disorder, though it can also be a natural response to certain situations, as long as it doesn't last too long. According to Smeltzer et al. (2010), depression is often a response to underlying health issues, and it's frequently overlooked in older adults. Depression in the elderly can be triggered by injuries, long-term illness, the loss of loved ones, or physical complaints. They often describe depression as feeling sad, distressed, or hopeless, which leaves them with no

energy for their usual daily activities. Individual differences are present in depressive symptoms with levels being varied.

To address and manage depression in the elderly, various measures have been suggested and physical activity is one among them. Physical activity means any movement that uses energy. This includes everyday actions like walking or climbing stairs, as well as planned exercises like jogging, swimming, or yoga. Unlike exercise, which is often done with a specific goal in mind, physical activity covers a wide range of movements that help keep you healthy. To get the most benefits from physical activity, health organizations have guidelines. The World Health Organization (WHO) and the Centers for Disease Control and Prevention (CDC) recommend that adults should aim for at least 150 minutes of moderate exercise, or 75 minutes of vigorous exercise each week. Although the link between physical activity and mental health benefits is well-established, with several key ideas explaining how exercise affects our mood and well-being still its cross-cultural perspective lacks scientific evidence regarding the beneficial effect of physical activity in managing depressive symptoms in the elderly.

### **REVIEW OF LITERATURE:**

Lindwall et al. (2006) in their study reported that the elderly who were physically inactive had higher depression scores than those who were active. Additionally, exercise had a more significant impact on reducing depression in older women compared to older men. Nodehi et al. (2013) reported that physically active elderly had much better mental health than those who were inactive. The study concluded that regular exercise is strongly linked to a better quality of life for older people. Motaharinezhad et al. (2016) in their study found that women who walked regularly had significant improvements in self-esteem, life satisfaction, mood, and overall mental health. The study concluded that walking is a simple but effective way to boost mental health in elderly women. De Oliveira et al. (2019) in their study concluded that physical activity helps protect against anxiety and depression in the elderly. Agbangla et al. (2023) reviewed meta-analyses on the effects of physical activity on institutionalized elderly. The review found that physical activity helps reduce falls, mobility problems, functional dependence, and depression, and improves overall health. Faisal et al. (2023) revealed that more physical activity was linked to better mental health and a higher quality of life in the elderly. Ka-yan Ko et al. (2023) in their study reported a beneficial effect of yoga on physical health in the elderly, though the studies had some differences, and the evidence on mental health was limited.

### **OBJECTIVES**

The objective of the present study was to assess the effect of regular participation in physical activity on depressive symptoms in the elderly with a cross-cultural perspective.

### **HYPOTHESIS**

It was hypothesized that "There will be no significant main effects or interaction effects of physical activity participation and cultural background on depressive symptoms among the elderly."

### **METHODOLOGY**

The following methodological steps were taken to conduct the present study.

#### **Sample**

For this study, a total of 400 elderly participants aged between 60 and 70 were selected, with an average age of 63.11 years. The sample was divided into two equal groups: 200 tribal and 200 non-tribal elderly subjects and both groups included 100 elderly with regular participation in physical activity and 100 elderly with sedentary lifestyles. Stratified sampling was used for the selection of the sample

#### **Tools:**

**Geriatric Depression Scale** - To assess depressive symptoms in elderly participants, the Hindi version of the Geriatric Depression Scale (GDS-H), validated by Ganguli (1999), was used. The scale includes 30 yes/no questions for self-reporting depression in the elderly.

**Physical Activity Status:** The status of physical activity i.e. active and sedentary are self-reported by selected elderly subjects and observed by researchers.

#### **Procedure:**

A total of 400 elderly subjects aged 60-70 years (200 tribal and 200 non-tribal) were selected, with a focus on comparing those who regularly participated in physical activity and those with a sedentary lifestyle. The

Geriatric Depression Scale (GDS) was administered according to the protocols outlined in their respective manuals. The data was tabulated and 2x2 Factorial ANOVA was used analysis of the data. Results are given in Table 1.

**RESULT & DISCUSSION**

**Table 1**

**The Effect of Participation in Physical Activity (Factor A) x Culture (Factor B) on Depressive Symptoms in Elderly Subjects**

		Culture (B)		Marginal Mean
		Tribal Elderly (b <sub>1</sub> )	Non-tribal Elderly (b <sub>2</sub> )	
Participation in Physical Activity (A)	Active (a <sub>1</sub> )	N=100 Mean=12.96 S.D. = 5.83	N=100 Mean=12.15 S.D.=4.13	12.55
	Sedentary (a <sub>2</sub> )	N=100 Mean=14.88 S.D.=4.87	N=100 M=15.31 S.D.=4.04	15.09
Marginal Mean		13.92	13.73	

**Table 1 (a)**  
**ANOVA Summary**

Source	Type III Sum of Squares	df	Mean Square	F
Participation in Physical Activity (Factor A)	645.160	1	645.160	28.27, p<.01
Culture (Factor B)	3.610	1	3.610	0.15 <sup>NS</sup>
A x B	38.440	1	38.440	1.68 <sup>NS</sup>
Error	9034.540	396	22.814	
Corrected Total	9721.750	399		

F(1,396) = 3.86 (p<.05) and 6.70 (P<.01); <sup>NS</sup> Not Significant

A perusal of Table 1 gives the following facts about 2 main effects and 1 interaction effect -

**Main Effect of Participation in Physical Activity (Factor A):** The F-value is **28.27** is significant at the **p < .01** level. This indicates that physical activity has a significant impact on depressive symptoms, with physically active elderly showing lower depressive symptoms (Mean = 12.55) compared to sedentary elderly (Mean = 15.09).

**Main Effect of Culture (Factor B):** The F-value is **0.15 is not significant**, meaning that the cultural background (tribal vs. non-tribal) does not have a significant main effect on depressive symptoms in the elderly.

**Interaction Effect of Participation in Physical Activity - Culture (A x B):** The F-value is **1.68 is not significant**. This suggests that the interaction between participation in physical activity and culture does not significantly affect depressive symptoms.

In the present study effect of regular physical activity was found to be beneficial in managing depressive symptoms in elderly subjects. The Stress-Buffering Hypothesis posits that physical activity can buffer individuals against the negative impact of stress. Elderly individuals often face stressors such as chronic illness, financial concerns, and social isolation. Meaningful physical activity helps to reduce physiological markers of stress, such as cortisol levels and enhances one’s ability to cope with emotional and environmental stressors, thereby reducing depressive symptoms. The findings of the present study are consistent with studies conducted by Lindwall et al. (2006), Nodehi et al. (2013), Tamminen et al. (2020) and Agbangla et al. (2023).

In the present study, the main effect of culture was not observed on depressive symptoms in the elderly contradicting the earlier findings that culture does play a role towards depressive symptoms in the elderly as reported by Zisberg (2017).

The two-factor interaction effect of participation in physical activity and culture on depressive symptoms in the elderly was not found to be statistically significant. It shows that irrespective of culture, physical activity is equally useful for tribal and non-tribal elderly for the management of depressive symptoms.

#### **CONCLUSION**

Based on the results it can be concluded that regular physical activity allows the elderly to manage their depressive symptoms as compared to sedentary elderly. It can also be concluded that the benefits of regular physical activity for the management of depressive symptoms in geriatric subjects are universal, irrespective of cultural context.

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