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RESEARCH ARTICLE

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## CORELATION BETWEEN COGNITIVE PERFORMANCE AND FUNCTIONAL STATUS IN TRIBAL, RURAL AND URBAN COMMUNITIES

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### ABSTRACT

**Background:** Due to change in mortality rates changes in the life expectancy increased in the older adult population, the prevention of disability and maintenance of functional ability and levels of independence is becoming more important. The geriatric assessment is a multidimensional, multidisciplinary assessment designed to evaluate an older persons socio-environment circumstances. The aim of this study was to examine correlation between cognitive performance and functional status in tribal, rural and urban communities. **Objective:** ageing is associated with a progressive decline in cognitive performance which could result in a shift from an independent to a more dependent lifestyle. The objective was to assess functional status and cognitive performance. **Methods:** Simple random sampling was done for 60 older populations in tribal rural urban areas patients were screened by mini mental scale and barthel index and evaluated accordingly. **Result:** Using paired t-test the mean  $\pm$  SD value for MMS in Tribal - 20.15 $\pm$ 2.32 Rural-24.8 $\pm$ 4.32 and Urban -22.15 $\pm$ 4.19 respectively. BI in tribal- 89.5 $\pm$ 8.25 rural- 99.5 $\pm$ 1.53 Urban- 92.25 $\pm$ 12.19 The p value < 0.0001 is significant. **Conclusion:** the results of this study showed that measures of cognitive performance were associated with functional status in tribal, rural, urban areas. Cogitation was more impaired in tribal compared to other areas

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### INTRODUCTION

Due to change in mortality rates changes in the life expectancy increased in the older adult population, the prevention of disability and maintenance of functional ability and levels of independence is becoming more important. The geriatric assessment is a multidimensional, multidisciplinary assessment designed to evaluate an older persons socio-environment circumstances. Physiological changes that occur with ageing include a decrease in muscle mass and a decline in cognitive function Aging entails biological, psychological, and social changes, which cause specific discomforts leading to depressive disorders. Research shows that depression symptoms are more frequent in people who do not undertake or rarely undertake physical activity than physically active people, even several years after the assessment. Ageing is known to be related with a decrease in cognitive routes such as mental speed, short term memory, reaction time and control skills like arrangement. Motor fitness needs perceptual and higher level cognition processes, such as attention, that are essential for mapping sensation to action and ensuring

protective and adaptive aspects of postural control or motor coordination. There are many possible reasons for the advanced prevalence of cognitive impairment seen in rural areas. A low education level is recognized as a risk factor for cognitive impairment. A decline in cognitive function could also affect quality of life and independent living of older adults. It is usually originated when the physician detect a potential problem specific elements of physical health that are assessed include nutrition, vision, hearing, fecal and urinary continence, and balance. Cognition is one key measurement of functional status .One must know how to perfume to be successful in activity. Though cognition capacity is generally considered in relation to functional status, the nature of the cognitive dimension is poorly termed and poorly understood.

The basic cognitive functions most exaggerated by age are attention and memory. Neither of these are unitary functions, however, and sign suggests that some aspects of attention and memory hold up well with age while others show major declines. Functional ability, physical health, cognition and mental health and cognitive screening for dementia is usually

skilled by means of universal cognitive scale, such as the widely used mini mental scale. This scale draws its strength from the fact that it briefly taps a variety of cognitive functions known to be impaired in dementia functional status is assessed as a difficulty or impairment in basic and instrumental ADLs by The Barthel index Functional difficulties in ADLs are strongly related to cognitive function. For instance, the onset of impaired in four instrumental ADLs (using the phone ,using own medications and handling finances). Functional ability and cognitive function all play a significant role in sustaining the independence and quality of life of age adults. Therefore, the aim of this research was to examine the relationship between functional ability and cognitive performance in high functioning, independently-living older. The physical and functional consequences of falls (fracture, soft tissue injury, premature institutionalization and death) have been well recognized. Extended term concerns may include loss of independence, restriction of physical activity, lowered quality of life, increased social separation or depression. The result of age of education on mini mental scale examination (MMSE) performance was comparatively stable, even after adjusting for age-and education-related health conditions and sensory impairments that influenced level of cognitive functioning. It is a multi-faceted concept that not only includes physical but also motor fitness indexed by components such as flexibility, speed, balance and fine coordination.

**MATERIALS AND METHODOLOGY**

**Source of Data:** Samples were collected from areas of Loni (rural), Kolewadi (tribal) and Pune (urban) in Maharashtra.

**Method of collection of data:** Data collected by the principal investigator.

**Type of Data:** Primary.

**Study Design:** Descriptive survey.

**Sample size:**

- (20 rural population of Loni)
- (20 urban population of Pune)
- (20 tribal population of Kolewadi)

**Participants:** Geriatric population

**Sampling Method:** Simple random sampling

**Study Duration:** 6 months

**Materials to be used:** Consent form Data collection sheet

**SELECTION CRITERIA**

**Inclusion criteria**

- Male and Female
- Age group above 60 years

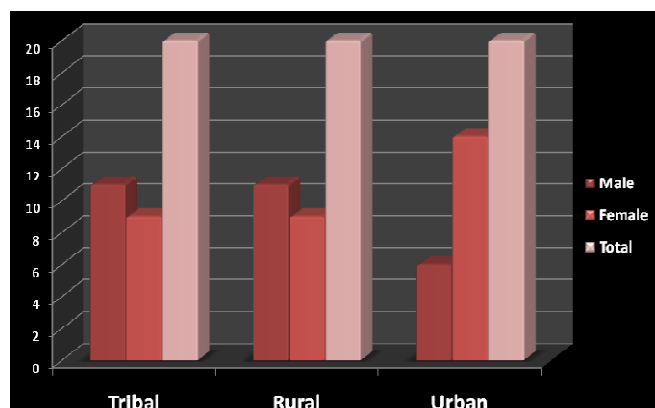
**Exclusion criteria**

- Participants with any illness.
- Participants with physical disability

**RESULTS**

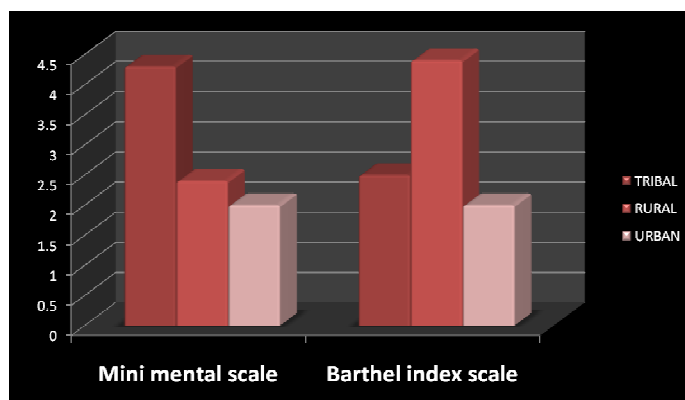
**Table 1.**

Age and Gender wise distribution in tribal rural urban			
Area	Male	Female	Total
Tribal	11	9	20
Rural	11	9	20
Urban	6	14	20
total	28	32	60



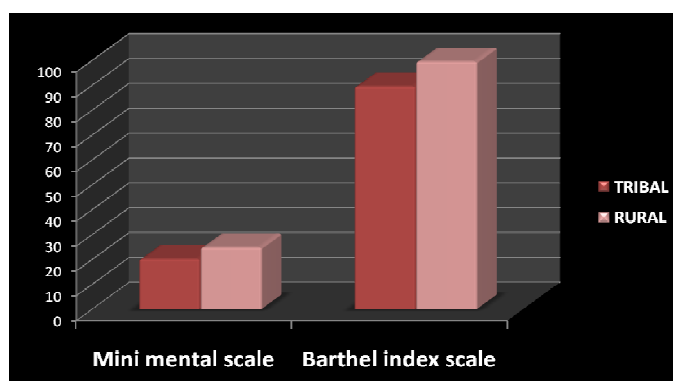
**Table 2. Distribution in Tribal, Rural, Urban**

	Tribal	Rural	URBAN
	MEAN±SD	MEAN±SD	MEAN±SD
Mini mental scale	20.15±2.32	24.8±4.32	22.15±4.19
Barthel index scale	89.5±8.25	99.5±1.53	92.25±12.19



**Table 3. Disturbation of tribal and rural**

	TRIBAL	RURAL	Student's Unpaired 't' test value	'p' value & results
	MEAN±SD	MEAN±SD		
Mini mental scale	20.15±2.32	24.8±4.32	3.04	p<0.01 significant
Barthel index scale	89.5±8.25	99.5±1.53	3.12	p<0.01 significant

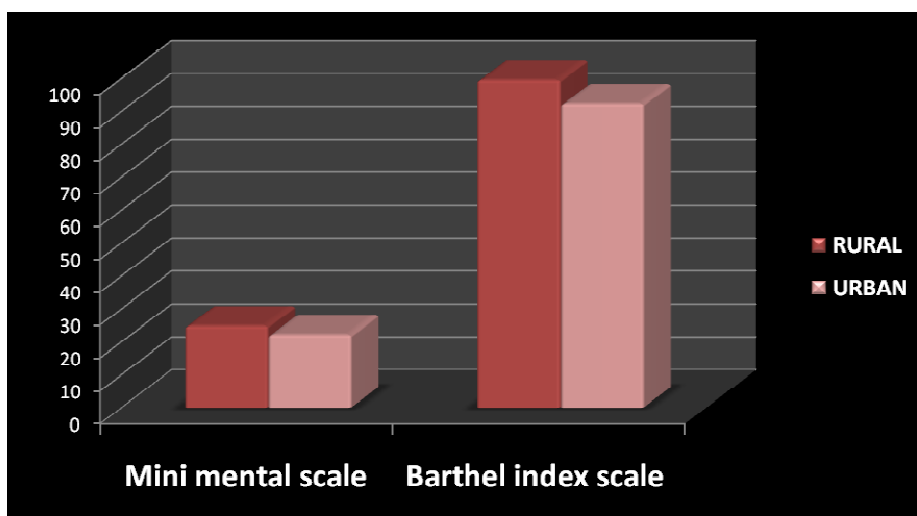


By applying students unpaired ‘t’ test, there is significant difference between mean values of mini mental scale and barthel index when tribal area compared with rural area. Comparison of mean of MMS percentile in tribal and rural area where t value is 3.04 and p value <0.01 which is extremely statistically significant. Comparison of mean of BI in tribal and rural areas where t value is 3.12 and p value <0.01 which is extremely statistically significant.

area where t value is 2.64 and p value <0.01 which is extremely statistically significant. Comparison of mean of BI in tribal and rural areas where t value is 2.87 and p value <0.01 which is extremely statistically significant. By applying students unpaired‘t’ test, there is significant difference between mean values of mini mental scale and barthel index scale when tribal area compared with urban area. Comparison of mean of MMS percentile in tribal and urban area where t

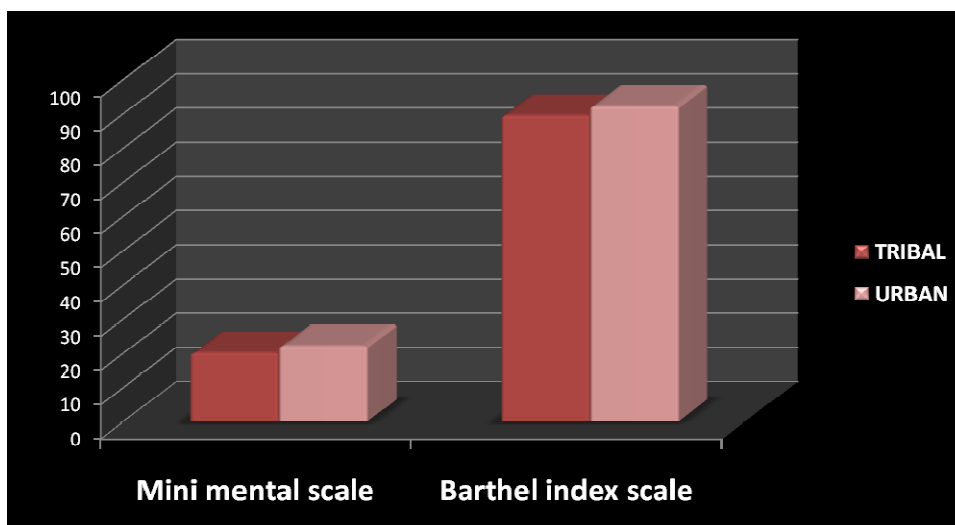
**Table 4. Disturbation of rural and urban**

	RURAL MEAN±SD	URBAN MEAN±SD	Student’s Unpaired ‘t’ test value	‘p’ value & results
Mini mental scale	24.8±4.32	22.15±4.19	2.64	p<0.01 significant
Barthel index scale	99.5±1.53	92.25±12.19	2.87	p<0.01 significant



**Table 5. Disturbation of tribal and urban**

	TRIBAL MEAN±SD	URBAN MEAN±SD	Student’s Unpaired ‘t’ test value	‘p’ value & results
Mini mental scale	20.15±2.32	22.15±14.19	2.34	p<0.01 significant
Barthel index scale	89.5±8.25	92.25±12.19	2.61	p<0.01 significant

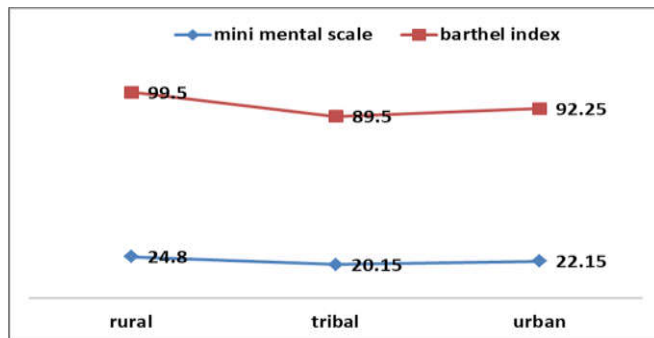


By applying students unpaired‘t’ test, there is significant difference between mean values of mini mental scale and barthel index when rural area compared with urban area. Comparison of mean of MMS percentile in rural and urban

value is 2.34 and p value <0.01 which is extremely statistically significant. Comparison of mean of BI in tribal and rural areas where t value is 2.61 and p value <0.01 which is extremely statistically significant.

**Table 7. Correlation between mini mental scale (cognitive performance) and barthel index (functional status)**

	RURAL	TRIBAL	URBAN
Mini mental scale	24.8	20.15	22.15
Barthel index scale	99.5	89.5	92.25



## DISCUSSION

This study explored relationship between measures of cognitive performance and functional ability in older communities. We hypothesized that there is correlation between cognitive performance and functional ability. The data from this study partially supports our hypothesis. The parameters used for assessment were mini mental scale for cognitive performance and barthel index for physical ability. Results of the present study shows that Comparison of mean of MMS percentile in tribal and rural area where t value is 3.04 and p value <0.01 which is extremely statistically significant. Comparison of mean of BI in tribal and rural areas where t value is 3.12 and p value <0.01 which is extremely statistically significant. Comparison of mean of MMS percentile in rural and urban area where t value is 2.64 and p value <0.01 which is extremely statistically significant. Comparison of mean of BI in tribal and rural areas where t value is 2.87 and p value <0.01 which is extremely statistically significant. Comparison of mean of MMS percentile in tribal and urban area where t value is 2.34 and p value <0.01 which is extremely statistically significant. Comparison of mean of BI in tribal and rural areas where t value is 2.61 and p value <0.01 which is extremely statistically significant. Physiological changes that occur with ageing include a decrease in muscle mass and a decline in cognitive function. Aging entails biological, psychological, and social changes, which cause specific discomforts leading to depressive disorders. Research shows that depression symptoms are more frequent in people who do not undertake or rarely undertake physical activity than physically active people, even several years after the assessment.

The effect of age of education on mini mental scale examination (MMSE) performance was relatively stable, even after adjusting for age-and education-related health conditions and sensory impairments that influenced level of cognitive functioning. Cognitive impairment is associated with falls, fall-related injuries, osteoporotic fractures, fragility, decreases levels of activities of daily living, and dementia in elderly. One strength of our study is that prevalence were compared between tribal, rural, urban communities in a city using exhaustive survey with a sufficiently high participation rate. There are a number of possible reasons for higher prevalence of cognitive impairment observed in rural areas and urban areas. First, a low level education level is recognized as risk factor for cognitive impairment. The result of the present study

is supported by a research conducted by U. Ramnath, which observed there were significant associations between functional ability and cognitive performance even in highly functioning older adults. Study conducted by Ana Cristina Viana Campos, who conclude that there are gender differences related to better quality in this sample. Women with good physical and psychosocial health are more likely to have a better QOL. The best QOL was associated with high socioeconomic conditions and physical and psychosocial health.

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...KOMAL ADHAV

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