Research Paper

Role of Socio-Demographic Variables on Cognitive Functioning among Older People in Andhra Pradesh

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ABSTRACT

In India, around 9% of populations are 60 years of age and which is growing rapidly. The need to study for older population is indeed a requirement in modern day scenario. Normal aging is accompanied by changes in cognitive function and brain function. Studies have confirmed that age is closely related to cognitive function, and cognitive decline is an obvious feature of aging. Cognitive functioning plays a major role in everyday functioning of the individual. In old age, people experience profound changes and face important challenges, including modifications in their roles, retirement, and the death of loved ones (friends and family members). As part of ICMR Project, the present study was carried out to examine the status of cognitive functioning and to see the relationship with socio demographic variables among healthy older people living in the community. Total sample of 240 healthy older Population was drawn with 126 Male and 114 female population from the rural and urban areas of Rayalaseema region in Andhra Pradesh. The subjects were contacted individually by taking individual consent the standardized tools like Mini-mental State Examination (MMSE) and Montreal Cognitive Assessment (MOCA) were administered to the selected sample. The results clearly indicate that the sub-groups like the subjects in the age group of 60-65, male, and the subjects with high school and college education, those who are living in the nuclear families, from the rural area, subjects with pension and those belongs to middle class and the married subjects reported good cognitive function compared to their counterparts. Results indicate the role of socio-demographic variables in the cognitive function.

The world is witnessing an irreversible change in the age structure of the population. Worldwide, the number of people aged 60 years and up reached to 962 million in 2017; it is expected to double again by 2050. In developing countries, ageing of the population has become a significant concern, as two-thirds of the world's older adults live in these countries. These regions will be facing faster growth in numbers of older adults than in developed areas in the next decades (United Nations, 2017). The present study reported

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a cognitive impairment prevalence of 10% among Indian elders. The range of cognitive impairment has been reported between 3–19% in different parts of the world.

Human Cognition has a functional, instrumental, and goal directed quality that is easier to observe within the context of real-life, personality meaningful problems than in highly structured tasks administered under controlled laboratory conditions (Ditttmann-Kohli & Batles, 1986; Eckensberger & Meacham, 1984; Hacker, 1985; Volpert, 1980). Consistent with this action theoretic perspective, a comprehensive model of cognition should be able to explicate the means by which adults successfully adapt to the ecologically relevant and personally meaningful problems encountered in everyday life. Many older adults, for example, continue to perform completely in everyday cognitive tasks and within skilled domains, even though they may perform poorly compared to younger adults on laboratory measures of ability. (Welford, 1958) observed that this discrepancy may be due, in part, to a "natural" selective attrition from jobs that require abilities that the older worker no longer has. In one study of work behavior by Sewell and Belbin (Belbin, 1953; Welford, 1958), it was reported that there were no clear age trends in terms of performance out as a function of job type, but there was a difference in the age distribution of workers holding the more time stressful jobs. Previous researchers have generally neglected real-world cognitive functioning. All too often, they have investigated adult cognition through the use of ecologically limited and personally non-involving laboratory problems. The longevity revolution spurred by the phenomenon of epidemiological transition from communicable to non-communicable diseases has increased the possibility of more elderly living longer with low functional competence (Carlson et. al., 1999).

In general, Cognition means processing the stored information. Cognition includes important domains like thinking, memory, perception, motivation, skilled movements and language (Dunkin & Amano, 2005). As we grow older, our cognitive abilities start to decline which include impairments to short-term working memory, retrieval of memories/information, problem-solving, Processing speed and attention. Cognition is crucial to human thinking and experiences, which refers to the mental processes involving the process of selecting, acquiring, interpreting and processing information that are necessary in doing everyday activities. Cognition has been shown as a major factor for measure of brain health and independent living of the population. Studies from western part of the world have reported that cognitive functioning is directly related to the physical health of the elderly that include mobility disability, falls, fractures, fatigue, frailty, cardiovascular events and obesity (Jorm, 2000; McNeal et al., 2001). It was found that increasing age is related to cognitive functioning (Lalitha, Aswartha Reddy & Dheeraj, 2022).

Majority of the Studies have been conducted to study the cognitive functioning among normal as well as well as Psychiatry ill older people (van Hooren et al., 2005, 2007; Tripathi et al., 2009; Tripathi & Tiwari, 2011; Wang et al., 2009; Schiffczyk et al., 2010; Dalal & Sivakumar, 2010). Cognitive functioning of elderly has been extensively as well as intensively researched over the past several decades. Most studies have however, emanated from western and European set-ups (Farmer et al, 1995; Mazzuco et al., 2012., Schidczyk et al., 2010; van Hooren et al., 2005; van Gunten et al., 2008; Wang et al., 2009). Hence, there is an urgent need to prevent or slow down the onset and progression of the disease and recent research has focused on the transition from healthy cognitive ageing to dementia. This transition period, known as MCI, is characterized by a measurable deterioration in cognitive

function that is more than expected based on a person's age and education but does not have a significant effect on a person's daily performance (Roalf et al., 2013

Gero-psychology research was started in the early 1960s. The systematic studies on cognitive aging came out only in the late 1970s onwards (Ramamurti & Jamuna, 1993, 1995). Initially, some studies were carried out on cognitive aging later attentions shifted to specific mental processes. Cognitive training studies demonstrate that diverse socioeconomic, ability level, and ethnic populations benefit from traditional forms of memory training. Studies that use memory training techniques with older adults who are just beginning to experience preclinical cognitive decline but who do not yet have mild cognitive impairment or dementia will be an important facet of future memory training research. Ageing adults (above 60 yrs.) will notice in the decline of cognitive functioning which will have a major impact on performance in day-to-day daily activities (Lalitha, 2000; 2015; Lalitha & Jamuna, 2005; Lalitha, 2015). Mental flexibility will become reduced and face difficulty in forming new memories. Early assessment will be useful in identifying the impairment and disease which may further be a chronic illness for the rest of life. There is a lack of awareness of the benefits of cognitive assessments to the caregivers who are looking after the aged people around them. And with less trained scientific practitioners there less priority in the field of research for cognitive assessment in India. Aging has become an important public health issue due to the acceleration of the global population aging process, particularly in developing countries like India. Results from these western countries may not be generalized for older adult's population of our country India. Because, differing social, cultural and demographic background. Therefore, a study was carried out as part of ICMR project on rural and urban older people and socio demographic variables via-a-vis cognitive functioning is being reported here from the study.

Objectives:
- To assess the cognitive functioning in the community dwelling older men and women.
- To examine the sub group differences in the cognitive functioning among older people.
- To assess the relationship between cognitive status and Socio-demographic variables among older men and women.

Hypotheses:
1. There would be significant difference between all the subgroups in their cognitive functioning among older subjects.
2. There would be significant association between Cognitive functioning and Socio-demographic variables among older subjects.

Sample of the Study
In this study, the following inclusion criteria will be used in sample selection (See Table. I.)

Inclusion criteria:
- The subjects in the age of 60- 75years.
- Willingness to participate in the study.
- Cognitively intact, healthy, community-dwelling and those without any marked disability.

- No History of severe psychological disorders and hospitalization in the previous one year.
- Ability to communicate verbally and understand the instruction.

The study sample consists of 240 older men and women i.e., would be drawn from Community-dwelling elderly in the age range of 60-75 years' age group from the urban areas of five districts namely Kadapa, Chittoor, Nellore, Ananthapur, Kurnool of Rayalaseema region of Andhra Pradesh by using a multi stage random sampling technique. The sample was drawn from different subgroups of age, gender, education, location, Income source, marital status, and Residential status (with formal and without formal education but those who can read and write). Only subjects who were healthy, community-dwelling and those without any marked disabilities were included in the main sample. The socio-demographic details of the sample indicate that age groups of the sample show that 41.7Percent of the sample was 60-65 age group, 21.7 Percent of the sample was 66-70 age group, 36.7 percent of the sample was 70-75 age group.

Gender wise the sample shows that 52.5 percent are male, 47.5 percent female. Education wise the sample shows that 55.8 percent are with no formal education, 26.7 percent have primary education, 11.7 percent have school education and 5.8 percent are with a college education. The family status shows that 61.7 percent belong to the nuclear family and 38.3 percent are living in joint families. Location wise the sample shows 57.9 percent rural areas and 42.1 percent urban areas. The income source shows that 8.8 percent are relying on salary, 63.8 percent are relying on pensions, 7.9 percent on saving and 19.6 percent are on Family Income. Economic status shows that 34.6 percent are from Low Middle Class, 59.2 percent are from Middle Class and 6.3 percent are from Above Middle Class. The marital status wise shows that 3.3 percent are Single living, 32.5 percent are widowed, 64.2 are married. The living arrangement of sample shows that 90.0 percent are living with their families, 1.3 percent are living with other support and 8.8 percent are living alone.

Table-I: Socio-Demographic details of the sample.

S.NO	SUB-GROUP	N	%
1	**AGE**		
	60-65	100	41.7
	66-70	52	21.7
	71-75	88	36.7
2	**GENDER**		
	Male	126	52.5
	Female	114	47.5
3	**EDUCATION**		
	No Formal Education	134	55.8
	Primary Education	64	26.7
	High School Education	28	11.7
	College Education	14	5.8
4	**FAMILY STATUS**		
	Nuclear	148	61.7
	Joint	92	38.3
5	**LOCALITY**		
	Rural	139	57.9
	Urban	101	42.1
6	**INCOME SOURCE**		

	Salary	21	8.8
	Pension	153	63.8
	Savings	19	7.9
	Family Income	47	19.6
7	**ECONOMIC STATUS**		
	Low Middle Class	83	34.6
	Middle Class	142	59.2
	Above Middle Class	15	6.3
8	**MARITAL STATUS**		
	Single	08	3.3
	Widowed	78	32.5
	Married	154	64.2
9	**LIVING ARRANGEMENT**		
	Family	216	90.0
	With Others Support	03	1.3
	Alone	21	8.8

Tools Used in the Study
The standardized tools were used to collect the data on the following variables:
- **MINI MENTAL STATE EXAMINATION (MMSE):** MMSE is one of the most commonly used instruments for screening cognitive functioning and assessing the domains of cognitive functions including orientation, registration, attention, calculation and memory recall. Obtainable scores on the MMSE range from 0 to 30, whereby a score of lower than 25 indicates the likelihood of cognitive impairment. Scores of 21-24 are considered as mild, 10-20 as moderate and & l-10 as severe impairment (Folestein et al., 1975 adapted by Jamuna & Ramamurti, 2000).
- **MONTREAL COGNITIVE ASSESSMENT (MOCA):** The MOCA is intended to assess cognitive impairment (Nasreddine, et al., 2005; Simoes et al., 2008) developed in Telugu was administered to get normative data for the test. MOCA is a brief cognitive screening instrument that was developed for the screening of milder forms of cognitive impairment. The tool is a one-page test with paper-and-pencil format, and the application time is approximately 10–15 min.
- **Socio-demographic data sheet** was used to get the data related to different socio-demographic variables like age (60-75yrs.), gender(male/female), education (No formal education/ Primary education/ High school education/College education); family (Nuclear/ Joint) etc.,

Method of Testing
All the older subjects were personally contacted and explained the importance of the study. If they were willing to cooperate was taken in the first instance itself, otherwise based on the convenient timing of the subject the data was drawn. Care was taken to include disability-free and cognitively intact persons as a sample of the study.

RESULTS AND DISCUSSION
Aging was a risk factor leading to cognitive deficits and significantly negatively predicted cognitive function. There was an aging effect on cognitive level, and cognitive function declined more rapidly after age 80. Many studies found age, educational level, marital status, occupational status, and regular exercise were the significant predictors of cognitive function.

a. Results related to Cognitive Functioning: The obtained data was analyzed to meet the objectives of the study, the results related to MMSE shows (See Table. II) that the means in different sub-groups is as follows: the age group wise the means are as follows: 60-65(M=25.72);66-70(M=25.34);71-75(M=24.07) and the t-values a-b (0.536), b-c (1.964). The sub-group differences between 66-70 and 71-75yrs are statistically significant (t= 1.964). The gender-wise data shows that the mean for the Male subjects is reported high cognitive functioning (M=26.06) compared to the female subjects (M=23.90) and the t-value (4.028) is statistically significant. The Education group wise the means are as follows: No Formal Education (M=23.91), Primary Education (M=25.68), High School Education (M=27.21), College Education (M=28.42) and the t-values a-b (2.697), b-c (2.159), c-d (1.540). The sub-group differences between no formal education and primary education are statistically significant (t=2.697) also sub-groups differences between primary education and high school education are statically significant (t=2.159). The family status sub-group shows that the mean for the nuclear family subjects is reported high cognitive functioning (M=25.25) compared to the joint family subjects (M=24.68) and the t-value (1.007) is not statistically significant. The Locality-wise data shows that the subjects from rural (M=25.58) areas reported high cognitive functioning compared to those who are from urban (M=24.28) and the obtained t-value (t=2.338) is statistically significant.

The Income source group wise the means are as follows: Salary (M=26.38), Pension (M=24.86), Savings (M=23.73), Family Income (M=25.51) and the t-values a-b (1.782), b-c (1.145), c-d (1.166). The sub-group differences between Salary and pension are statistically significant (t=1.782). The Economic status group wise the means are as follows: Low Middle Class (M=24.27), Middle Class (M=25.17), Above Middle Class (M=27.93) and the t-values a-b (1.516), b-c (2.617). The sub-group differences between Middle class and above middle class are statistically significant (t=2.617). The marital status wise means are as follows: Single (M=23.75); widowed (M=23.92); married (M=25.66) and the t-values a-b (0.121), b-c (2.954). The sub-group differences between a widow and married are statistically significant (t=2.954). The Living arrangement wise means are as follows: Family (M=25.10), With Others Support (M=24.00), Alone (M=24.37) and the t-values a-b (0.441), b-c (0.191). The sub-group differences Family, with others support and alone are not statistically significant(t=0.441), (t=0.191). The above means clearly indicates that the sub-groups like the subjects in the age group of 60-65, male, and the subjects with high school and college education, those who are living in the nuclear families, from the rural area, subjects with pension and those belongs to middle class and the married subjects reported good cognitive function compared to their counterparts indicates the role of socio-demographic variables in the cognitive function.

Table. II Means, S. D's & 't' values related to Cognitive status-MMSE in Different Sub Groups

S.NO	SUB-GROUP	N	M (σ)	't'
1	**AGE**			
	60-65	100	25.72 (4.16)	0.536(a-b) [@]
	66-70	52	25.34 (3.89)	1.964(b-c)*
	71-75	88	24.07 (4.48)	
2	**GENDER**			
	Male	126	26.06 (3.25)	4.028**
	Female	114	23.90 (4.95)	
3	**EDUCATION**			
	No Formal Education	134	23.91 (4.69)	2.697(a-b) **
	Primary Education	64	25.68 (3.38)	2.159(b-c) *
	High School Education	28	27.21 (2.40)	1.540(c-d) [@]
	College Education	14	28.42 (2.40)	
4	**FAMILY STATUS**			
	Nuclear	148	25.25 (4.62)	1.007[@]
	Joint	92	24.68 (3.64)	
5	**LOCALITY**			
	Rural	139	25.58 (3.97)	2.338**
	Urban	101	24.28 (4.57)	
6	**INCOME SOURCE**			
	Salary	21	26.38 (3.36)	1.782(a-b) *
	Pension	153	24.86 (3.67)	1.145(b-c) [@]
	Savings	19	23.73 (6.47)	1.166(c-d) [@]
	Family Income	47	25.51 (5.21)	
7	**ECONOMIC STATUS**			
	Low Middle Class	83	24.27 (4.76)	1.516(a-b) [@]
	Middle Class	142	25.17 (3.98)	2.617(b-c)**
	Above Middle Class	15	27.93 (2.57)	
8	**MARITAL STATUS**			
	Single	08	23.75 (2.49)	0.121(a-b) [@]
	Widowed	78	23.92 (3.96)	2.954(b-c)**
	Married	154	25.66 (4.39)	
9	**LIVING ARRANGEMENT**			
	Family	216	25.10 (4.31)	0.441(a-b) [@]
	With relatives	03	24.00 (4.35)	0.191(b-c) [@]
	Alone	21	24.37 (3.99)	
	*Significantat0.05 level; **Significantat0.01level, @not significant			

Cognitive maintenance is an important aspect of healthy aging (Zaninotto et al., 2018). Research found that the cognitive function of older adults with senior education and above was better on the MMSE and RBANS total scores, indicating that a higher educational level had a protective effect on cognitive function and could reduce cognitive risk. This conclusion is consistent with the results of previous studies (Meng and D'Arcy, 2012; Sattler et al., 2012).

Table. III: Means, S. D's & 't' values related to Cognitive status- MOCA in Different Subgroups

S.NO	SUB-GROUP	N	M (σ)	't'
1	**AGE**			
	60-65	100	24.77 (3.83)	0.172(a-b) @
	66-70	52	24.65 (4.16)	2.449(b-c)**
	71-75	88	22.90 (4.01)	
2	**GENDER**			
	Male	126	24.86 (3.63)	3.288**
	Female	114	23.17 (4.32)	
3	**EDUCATION**			
	No Formal Education	134	22.91 (4.11)	3.149(a-b) **
	Primary Education	64	24.79 (3.50)	1.916(b-c) *
	High School Education	28	26.32 (3.52)	0.771(c-d) @
	College Education	14	27.14 (2.59)	
4	**FAMILY STATUS**			
	Nuclear	148	24.46 (4.24)	1.967*
	Joint	92	23.41 (3.66)	
5	**LOCALITY**			
	Rural	139	24.34 (3.66)	1.296@
	Urban	101	23.67 (4.53)	
6	**INCOME SOURCE**			
	Salary	21	25.61 (3.99)	2.098(a-b) *
	Pension	153	23.80 (3.67)	0.522(b-c) @
	Savings	19	24.26 (3.01)	0.103(c-d) @
	Family Income	47	24.12 (5.37)	
7	**ECONOMIC STATUS**			
	Low Middle Class	83	23.27 (4.06)	1.691(a-b) *
	Middle Class	142	24.21 (4.00)	2.542(b-c) **
	Above Middle Class	15	26.93 (3.12)	
8	**MARITAL STATUS**			
	Single	08	24.00 (2.87)	0.730(a-b) @
	Widowed	78	22.93 (4.01)	3.041(b-c)**
	Married	154	24.63 (4.03)	
9	**LIVING ARRANGEMENT**			
	Family	216	24.12 (4.08)	0.054(a-b) @
	With relatives	03	24.00 (5.00)	0.257(b-c) @
	Alone	21	23.38 (3.77)	
	*Significantat0.05level;**Significantat0.01level, @not significant			

The Education group wise the means are as follows: No Formal Education (M=22.91), Primary Education (M=24.79), High School Education (M=26.32), College Education (M=27.14) and the t-values a-b (3.149), b-c (1.916), c-d (0.771). The sub-group differences between no formal education and primary education are statistically significant (t=3.149) also sub-groups differences between primary education and high school education are statically significant (t=1.916).

The family status sub-group shows that the mean for the nuclear family subjects are reported high cognitive functioning (M=24.46) compared to the joint family subjects (M=23.41) and the t-value (1.967) is statistically significant. The Locality-wise data shows that the subjects from rural (M=24.34) areas reported high cognitive functioning compared to those who are

from urban (M=23.67) and the obtained t-value (t=1.296) is not statistically significant. The Income source group wise the means are as follows: Salary (M=25.61), Pension (M=23.80), Savings (M=24.26), Family Income (M=24.12) and the t-values a-b (2.098), b-c (0.522), c-d (0.103). The sub-group differences between Salary and pension are statistically significant (t=2.098). The Economic status group wise the means are as follows: Low Middle Class (M=23.27), Middle Class (M=24.21), Above Middle Class (M=26.93) and the t-values a-b (1.691), b-c (2.542). The sub-group differences between Low middle class and Middle class are statistically significant (t=1.691) also middle class and above middle class are statistically significant (t=2.542). The marital status wise means are as follows: Single (M=24.00); widowed (M=22.93); married (M=24.63) and the t-values a-b (0.730), b-c (3.041).The sub-group differences between a widow and a married are statistically significant(t=3.041).The living arrangement wise means are as follows: Family (M=24.12), With Others Support (M=24.00), Alone (M=23.38) and the t-values a-b (0.054), b-c (0.257).The sub-group differences Family, With others support and Alone are not statistically significant(t=0.054),(t=0.257). Another important finding in this study was that educational level and regular exercise were significant positive predictors of cognitive function in urban older adults.

Studies from western population also indicate that Educational level is one of indicators of cognitive reserve, which influences the manifestation of symptoms of cognitive impairment (Loio- Seoane et al., 2012). People with low education theoretically display a steeper cognitive decline early in the process of aging compared to those with high level of education. (Murayama et al., (2019) findings might indicate that confounders such as the passion for cognitive activity and strong district-level social network may buffer the relationship between low education and cognitive impairment. Lifelong single individuals are those who live alone and lack the necessary emotional support, thus more negative emotions, such as loneliness and depression, may be elicited. Unmarried individuals also showed lower social engagement, as well as the availability of socio psychological resources, which could affect cognitive health and constitute a risk factor for cognitive decline (Sommerlad et al., 2018).

Results related to Correlation between Cognitive Functioning and Socio-Demographic variables:
To meet the objective 3, correlational analysis was carried out and results are presented in Table IV:

Table. IV: Correlation Matrix relates to Cognitive status with Socio-Demographic Variable.

S.NO	VARIABLES	COGNITIVE STATUS-MMSE	COGNITIVE STATUS-MOCA
1.	Age	0.168**	0.201**
2.	Gender	0.253**	0.208**
3.	Educational Status	0.333*	0.348*
4.	Family Status	0.065[@]	0.127[@]
5.	Locality Status	0.150*	0.082[@]
6.	Income Source	0.009[@]	0.026[@]
7.	Economic Status	0.182**	0.195**
8.	Marital Status	0.190**	0.166*
9.	Living arrangement	0.046[@]	0.052[@]
	*Significantat0.05level; **Significantat0.01 level; @-No significant		

The correlation matrix related to MMSE, and other Socio-demographic Variables are presented in Table IV. Result related to MMSE shows that Age (r=0.168), Gender (r= 0.253), Educational status (r=0.333), Locality status (r=0.150), Economic status (r=0.182) and Marital status (r=0.190) was significantly associated with Cognitive status. The other socio-demographic variables like Family status (r=0.065), Income status (r=0.009) and Living Arrangement (r=0.046) were not significantly associated with Cognitive status. Result related to MOCA shows that Age (r=0.201), Gender (r=0.208), Educational status (r=0.348), Economic status (r=0.195) and Marital status (r=0.166) was significantly associated with cognitive status. The other socio-demographic variables like Family Status (r=0.127), Locality Status (r=0.082); Income Source (r=0.026) and Living Arrangement (r=0.52) were not significantly associated with cognitive status.

This finding was supported by the previous studies. Seeman et al., (1993) found that cognitive performance in men was associated with self-efficacy beliefs but not in women. Kim at al., (2005) identified several predictors of depression, including living arrangement (living alone versus living with family/spouse); having chronic conditions such as diabetes, arthritis, digestive disorders, or chronic bronchitis; years of education; and cognitive impairment. Adults with higher educational background and who work in highly cognitively stimulating jobs will possess high cognitive abilities in compare to people with low level of education. Even people who has higher level of education and high cognitively stimulating jobs will face decline in their cognitive functioning but much slower to adults who has low education background and cognitively stimulating occupations. Previous Studies indicates that socio-economic status and prior life experiences have major influence in the decline of cognitive abilities in later stages of life (Lalitha & Jamuna, 2015). Consistently, less education profoundly correlated with poorer performance of the MMSE and MoCA, showing a significant increased trend of MMSE / MoCA score with high education in this study. The results supported the findings of better performance on MoCA for those with 6 years and more education compared to those with less than 6 years education (Din et al., 2016). However, a recent investigation of older Americans revealed that divorced and widowed status had a significant negative impact on cognitive function (Lam et al., 2019). This result was not reflected in the Xu et al., (2021). study and one explanation for this discrepancy was that the effect of marital status on cognitive function might be moderated by other factors. Therefore, the association between marital status and cognitive function in older people should be further explored.

A longitudinal study examined the relationship between occupational cognitive requirements and rates of cognitive decline (Pool et al., 2016). They found that occupational cognitive requirements had a significant positive effect on cognitive performance in old age. Similarly, (Andel et al. 2016) examined the effects of preretirement work complexity on cognitive function and revealed that even after retirement; older adults exposed to more complex occupations still had higher levels in cognitive domains such as memory, language, and processing speed. Various occupational activities reflect differences in cognitive requirements, and the complexity of occupational characteristics determines the level of cognitive reserve (Chapko et al., 2018). Therefore, older adults who have been engaged in higher occupational cognitive requirements for a long time can maintain better cognitive function. In terms of occupational status, it was found that the older people engaged in public institutions, technicians, and clerical work had a higher cognitive level, while the cognitive level was lower in older adults who had previously engaged in commercial

services as their main occupation, indicating that lower occupational cognitive requirements may increase the risk of cognitive decline.

Tenability of Hypotheses and Conclusions:
Hypothesis-I: There would be significant differences between all the subgroups in their cognitive functioning among older subjects.

From Table-II (data related MMSE) & Table III (data related MOCA) the obtained the t values are significant in among majority of the sub groups except in the sub group family and Living arrangement. Hence *the hypothesis is partially accepted.*

Hypothesis-II: There would be significant association between Cognitive functioning and Socio-demographic variables among older subjects.

From table-III the subgroups gender and age show significant association the psychological states. Other sub group shows no significant differences between psycho-physical states Hence *the hypothesis is accepted*.

CONCLUSIONS OF THE STUDY

- The results clearly indicates that the sub-groups like the subjects in the age group of 60-65, male, and the subjects with high school and college education, those who are living in the nuclear families, from the rural area, subjects with pension and those belongs to middle class and the married subjects reported good cognitive function compared to their counterparts indicates the role of socio-demographic variables in the cognitive function.
- Correlation results related to MMSE shows that Age, Gender, Educational status, Locality status, Economic status Marital status was significantly associated with Cognitive status. The other socio-demographic variables like Family status, Income status and Residential status were not significantly associated with Cognitive status.

Implications of the study
- Furthermore, the aging effect on specific cognitive dimensions was different, which could be due to the difference in the cognitive screening tools. Further, age division is needed to clarify the cognitive change in older adults with more comprehensive measurements.
- Furthermore, the study is relevant due to the widespread use of the MMSE, MoCA, the lack of national studies that analyze a wide variety of variables that may influence one's performance on this test, and the absence of studies using stratified community-based samples in Indian studies on cognitive screening instruments.
- This study is a useful approach for better understanding MMSE and MoCA performance in a community population. The influence of education and age on MMSE and MoCA scores was clearly demonstrated, and therefore, these variables are the optimal criteria for the establishment of MMSE and MoCA normative data for the Indian population.

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