Psychological Resilience As A Determinant Of Cognitive Status Among Older People In A.P.

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Abstract
Resilience in older age is the ability to stand up to adversity and to 'bounce back' or return to a state of equilibrium following adverse episodes. Researchers observed that certain people stayed mentally healthy regardless of adverse experiences, and thus, constructed the concept of "psychological resilience". The study aimed to investigate the level of resilience in men and women among the older population in Andhra Pradesh and to find out the relationship between Psychological resilience and Cognitive function. Research shows that better health and well-being are associated with greater resilience. The study sample was 480 older populations, which included 240 men and 240 women from the age group of 60 years and above. The Multi-stage random sampling technique was used in the Southern part of Andhra Pradesh with total of 4 districts Kadapa, Kurnool, Ananthapuram & Chittor. The standardized adopted version of MINI MENTAL STATE EXAMINATION (MMSE) was used to assess the cognitive status and an adapted version of the Resilience Scale (Wagnild& Young, 1987) was used to measure the resilience level in male and female older people. The multi-stage random sampling technique was used to collect data by taking individual consent. The present study shows resilience is a positive determinant of cognitive functioning among the older population.
Keywords: Psychological Resilience, Cognitive functioning, older people

I. Introduction

Ageing is a gradual and inevitable process of nature that impacts the physiological functions of the individual. Most high-income countries had over 150 years to adjust to a 10% increase in the proportion of the population aged over 60. Lower and middle-income countries will have less than 20 years to make the same adaptation.

It has been estimated that in India, the population of those aged over 60 years will have increased from its level of 7.7% in 2001 to 12.30% by 2025, and there will be nearly 150 million elderly individuals (Bose A et al., 2004).

With more individuals living longer, there has been an increase in the proportion of the population facing age related disorders and disease; age has been widely established as one of the strongest predictors of acquiring multiple morbidities (Wister et al., 2016).

In the MacArthurmodel, features of successful aging include maintaining good physical health, good mental and physical function, and active engagement with life (Rowe and Kahn 1987). Traditionally, ageing was seen as a negative process, leading to loss on different domains (social, physical, and cognitive). In the 1980′ s a paradigm shift within gerontology led to a more positive outlook on ageing, with, for example, a focus on studying those who age "successfully" (Harris, 2008). Many successful ageing definitions incorporate the complete avoidance of loss, disease and/or adversity (Pruchno et al., 2015). However, for mostolder persons the reality of ageing includes adversities such as illness, disability, loneliness, and cognitive impairment. At the core of resilience is "some form of adversity and a positive response to this adversity" (Cosco et al., 2017). In contrast to the traditional successful ageing construct, resilience in ageing therefore allows us to study dealing with, or doing well despite adversities; a goal that can be achieved regardless of the circumstances (Pruchno and Carr, 2017). It is therefore considered a positive and more generally applicable construct that does justice to the reality of ageing: a complex process with a mix of gains and losses (Cosco et al., 2017; Gattuso, 2003; Harris, 2008).

Promoting and maintaining cognitive health has become a higher priority in low-and-middle income countries where populations are increasingly aging, and India is no exception to this trend (Kalaria et al., 2008). Most people with cognitive disability live in low- or middle-income countries (60% in 2001, estimated to rise to

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71% by 2040); the rate of increase in cognitive disability over the decades is around 300% for India, whereas it is estimated to be only 100% in high-income countries.(Ferri CP et al., 2005).

Cognition refers to mental processes (thoughts) of knowing, encompassing awareness, perception, reasoning, and judgment. In psychological terms, it most commonly refers to individual processing of information and the application of knowledge. Cognition may be viewed also as a social process whereby the individual receives input from the social world. With advancing age, a decline in cognitive function is not a uniform occurrence and there are pronounced individual differences in the rate and timing of changes in cognition (Schaie, 1994).

Aging has been related to a decline in cognitive performance (Crimmins 2016), traditionally explained from a biological perspective (Love, 2006). However, this perspective on aging as a phase of general decline was questioned by researchers who noted that there are important inter- and intra-individual differences in aging (Calero, 2019). In the same way, the bi-factor model of intelligence, proposed for explaining age-associated decline, has been refuted by numerous authors who have shown that a decline or impairment in skills related to fluid intelligence (Jaeggi, 2008) is susceptible to reversibility through different actions taken by the individual (Von Bastian 2013).

Research on adult cognitive development gives emphasis to the study of abilities that are presumed to cut across particular cognitive specializations. In the information-processing literature, for example, much attention is given to the study of age deficits in central processes that are presumed to be independent of particular knowledge domains.

Gero-psychology research was started in the early 1960s. The systematic studies on cognitive aging came out only in the late 1970s onwards Adults with higher educational backgrounds and who work in highly cognitively stimulating jobs will possess high cognitive abilities in comparison to people with low levels of education. Even people who have higher levels of education and highly cognitively stimulating jobs will face a decline in their cognitive functioning but much slower than adults who have low education backgrounds and cognitively stimulating occupations. The cognitive functioning of the elderly has been extensively as well as intensively researched over the past several decades in Western countries (Ramamurti&Jamuna, 1993, 1995). 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).

A common finding from studies conducted in the United States and in European countries is that cognitive health among women is as good as among their male counterparts or better (De Frias, Nilsson, &Herlitz, 2006; Langa et al., 2009; Lewin, Wolgers, &Herlitz, 2001; Weber, Skirbekk, Freund, &Herlitz, 2014). By contrast, studies in low and middle-income countries including India (Oksuzyan, Singh, Christensen, &Jasilionis, 2017), Burkina Faso (Onadja, Atchessi, Soura, Rossier, &Zunzunegui, 2013) and countries in Latin America (Nguyen, Couture, Alvarado, &Zunzunegui, 2008) have indicated lower cognitive performance among women than among men.

The limited numbers of studies that have examined the determinants of gender difference in cognitive health in India have mainly discussed individual level characteristics. For instance, age, education, height, chronic health status and marital status have been shown to be prominent factors modifying the gender gap in cognitive health among older adults in India (Lee et al., 2014; Oksuzyan et al., 2017).

Etymologically, the term resilience derives from the Latin verb resilire: meaning "to jump back" or "to recoil" (Merriam-Webster, 2019). It refers to the ability and resources needed to adapt and navigate stress-inducing experiences (Wiles et al., 2012; Windle, 2011). Resilience models have been applied to numerous forms of adversity, including our focus on healthy aging (Cosco et al., 2017; Stewart and Yuen, 2011; Windle, 2012).

Resilience is characterized as an, at least partially subjective, improvement in functioning in one of three domains, in response to a challenge: physical, psychological or social functioning (Hochhalter et al., 2011). It has been characterized as a dynamic process underlying individual differences in response to life hazards (Luthar et al. 2000; Rutter 2006) and as a more stable personal trait manifesting even in the absence of a stressful situation (Luthar et al. 2000). Resilience has also been described by its attributes, such as high self-efficacy in specific tasks and situations (Gillespie et al. 2007; Hicks and Conner 2014).

From a life course perspective, several methods have been employed to capture resilience cross-sectionally and longitudinally (Cosco, Kaushal, et al., 2017). It is important to note, that the ways in which resilience manifests itself may change across the life course and for different types of adversity (e.g. loss of a spouse, residential move, environmental catastrophe, or multimorbidity). A better understanding of resilience may help to identify protective factors and facilitate the development of intervention strategies, both at an individual and a public health level (Cosco et al., 2017; Whitson et al., 2016).

Earlier reviews on resilience in older adults have focused on empirical research, describing resilience scales, the prevalence of resilience and the factors that play a role in reaching resilience (MacLeod et al., 2016; van Kessel, 2013). A recent comprehensive review of operationalisations of resilience in older adults, however,

has re-stressed the need for a clear overall conceptual framework for resilience as a first step towards appropriate operationalization and application of resilience (Cosco et al., 2019).

Some previous studies have shown that higher levels of resilience are associated with higher levels of physical activity (Perna et al. 2012; Resnick et al. 2018) and social participation (Levasseur et al. 2017).

Objectives
Thus, the present study was planned with the following objectives:
- To assess the cognitive status in the community-dwelling older men and women by using Mini mental state examination (MMSE).
- To assess the Resilience across age, gender, family, and location status groups of older persons.
- To assess the relationship between cognitive status and Resilience across age, gender, family and location status groups of older persons.
- To assess the association between different levels of Cognitive status and Resilience.

Hypothesis
- There will be a significant difference of cognitive functioning in the community dwelling older men and women by using Mini mental state examination (MMSE).
- There will be a significant difference of Resilience across age, gender, family and location status groups of older persons.
- There will be a significant correlation in cognitive status and Resilience across age, gender, family and location status groups of older persons.
- There will be a significant correlation in Resilience across age, gender, family and location status groups of older persons.

Sample Of The Study:
The main study sample consists of 480 older adults. The sample characteristics like age, district, gender, religion, educational status, family status, and locality are described in the Table. I. The total sample was drawn across age groups, 61-65 (44.6%); 66-70 (31.2%), and 71-75 years (24.2%). 4 Districts were included to collect the sample in the Rayalaseema region of Andhra Pradesh namely Kadapa at 22.1 percent, Ananthapur at 26.6 percent, Kurnool at 29.8 percent, and Chittoor with 21.5 percent. The sample was equally distributed across Gender groups (240 Male and 240 Female). Religion sample consists of 87.3 percent Hindus, 10.4 percent Muslims, and 2.3 percent Christians.

Table – I: Socio-demographic details of the sample

S.NO	SUBGROUP	N	%
1	**AGE**		
	61-65	214	44.6%
	66-70	150	31.2%
	71-75	116	24.2%
2	**DISTRICT**		
	Kadapa	106	22.1%
	Anantapur	128	26.6%
	Kurnool	143	29.8%
	Chittoor	103	21.5%
3	**GENDER**		
	Male	240	50.0%
	Female	240	50.0%
4	**RELIGION**		
	Hindu	419	87.3%
	Muslim	50	10.4%
	Christian	11	2.3%
5	**EDUCATIONAL STATUS**		
	No Formal Education	226	47.1%
	Primary Education	135	28.1%
	High School Education	83	17.3%
	College Education	36	7.5%
6	**FAMILY STATUS**		
	Nuclear	242	50.4%
	Joint	230	49.6%
7	**LOCALITY**		
	Rural	240	50.0%
	Urban	240	50.0%

The educational status shows that 47.1 percent of the sample had no formal education, 28.1 percent with primary school education, 17.3 percent with High school education, and 7.5 percent with a college education. The family status shows that 50.4 percent belong to the nuclear family and 46.9 percent are living in the joint families. The locality-wise data was drawn equally from both areas (rural 240 and urban 240). The sample characteristics like Income source, Economic status, marital status, and Living arrangement are described in Table. II. The income source of the sample shows 70.2 percent have the source of salary, 7.9 percent are using their savings, 16.9 percent are dependent on their family income and 5 percent of are sample are dependent on other sources. The economic status of the group shows that 34.6 percent were below the poverty line income group, 56.9 percent belonged to the middle-class income group, and 8.5 percent lived in the above-middle class. The marital status of the sample shows that 11.2 percent are single, 24 percent are widowed and 64.8 percent are married. The living arrangement of the sample shows that 86.9 percent were living with their families, 2.5 percent were living with their relatives and 10.6 were living alone.

Table – II: Socio-demographic details of the sample

S.NO	SUBGROUP	N	%
1	**INCOME SOURCE**		
	Salary	337	70.2%
	Savings	38	7.9%
	Family income	81	16.9%
	Other sources	24	5.0%
2	**ECONOMIC STATUS**		
	Below middle class	166	34.6%
	Middle class	273	56.9%
	Above middle class	41	8.5%
3	**MARITAL STATUS**		
	Single	54	11.2%
	Widowed	115	24.0%
	Married	311	64.8%
4	**LIVING ARRANGEMENT**		
	Family	417	86.9%
	Relatives	12	2.5%
	Alone	51	10.6%

Tools Used In The Study
The standardized tools were used to collect the data on the following variables:
1. 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 (total points = 10), registration (total points=3), attention and calculation (total points =5), recall(total points=3), Language(total points = 8) and coping (total points = 1). 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 & 1-10 as severe impairment (Folstein et al., 1975). An adapted version of the Mini-Mental State Exam Questionnaire was developed in a regional language i.e., Telugu to assess Cognitive functioning in older people. The test-retest reliability was 0.89. The adopted version was developed by Jamuna (2000).
2. RESILIENCE: In the present study, to assess the resilience of the subjects Resilience scale was used, which was developed by Wagnild G M and Young H M (Wagnild& Young, 1987) consists of 25 items, and each item is rated on a7-point scale ranging from Strongly Disagree to Strongly Agree. The total possible scores range from 25-175, with higher scores reflecting greater resilience. Wagnild, G. M. & Young, H. M. showed acceptable Internal consistency reliability (r=0.91). The tool was adapted in the regional Language i.e., Telugu and test-retest reliability was 0.78.

Method Of Testing:
The work was carried out along with the data collection of the ICMR, New Delhi funded research project (Lalitha, 2020) and on the same subjects. All the houses in randomly selected municipal wards of rural and urban areas of the Rayalaseema region in Andhra Pradesh. The information on the age structure of family members residing permanently in these houses was obtained from one family member aged 60 years and above where precautions were taken in ascertaining the age of the subjects. Subjects were included in the study (table 1) after obtaining written informed consent from the subjects and their family members according to inclusion/exclusion criteria.

Inclusion Criteria

➢ The sample was drawn from different sub-groups of age (61-75 years), Gender (Male & Female), Educational Status (No Formal Education, Primary Education, High School Education & College Education), Locality (Rural & Urban), and Marital status (Single, Widowed&Married).

➢ The subject's ability to communicate verbally and understand the instruction.

➢ There has to be no history of severe psychological disorders and hospitalization in the previous year.

➢ The Willingness of the subject to participate in the study.

➢ Cognitively intact, healthy, community-dwelling, and those without any marked disability.

Exclusion Criteria:

➢ Only subjects who were not cognitively intact, unhealthy, or Institutionalized.

➢ Those with any marked disabilities.

➢ Exclude the cases of alcoholics and those who were using excessive drugs.

➢ 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. The obtained data was analyzed by using suitable statistical tests with SPSS.

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II.   Results And Discussion:

Improvement in cognitive health helps to maintain good mental health. Because of the growing elderly population and their cognitive impairment, there is a dearth of research on the impact of cognitive impairment among older adults. Indian society is ageing despite following traditional life style. Maintaining cognitive health is one of the key areas of successful ageing. Researchers have to concentrate on this kind of important issues related to older rather than neglect them. A periodical review on research towards improving functional competence or at least towards the management of functional autonomy is identified as one of the thrust areas of research in Gerontology in India. There is dearth of studies Cognitive research in India particularly on community living older people. Thus, the obtained data was analyzed to meet the objectives of the study.

Firstly, the obtained data was analysed to see the levels of cognitive functioning in different sub-groups (see Table. III).

Firstly, the obtained data was analyzed to see the levels of cognitive functioning in different sub-groups (see Table III). Data related to the level of Cognitive functioning in different age groups show that in the age group of 61-65, there were 13.1 percent reported a moderate level of impairment; 33.6 percent reported mild impairment; and 53.3 percent reported normal cognitive functioning. In the age group of 66-70 years, 18percent percent had moderate functioning, 38.7 percent had mild and 43.3 percent had normal cognitive functioning. In the age group of 71-75 years, 38.8 percent moderate functioning 42.2 percent reported mild, and 19 percent reported having normal cognitive functioning.

Table. III: Levels of Cognitive Functioning (MMSE) – Age, Gender, and Locality -wise

Sub-Groups		Level of Cognitive Functioning –MMSE			
		Normal	**Mild**	**Moderate**	**Total**
AGE	61-65	114(53.3)	72 (33.6%)	28 (13.1%)	**214**
	66-70	65 (43.3%)	58 (38.7%)	27 (18.0%)	**150**
	71-75	22 (19.0%)	49 (42.2%)	45(38.8%)	**116**
	TOTAL				**480**
GENDER	Male	122 (50.8%)	82 (34.2%)	36 (15.0%)	240
	Female	79 (32.9%)	97 (40.4%)	64 (26.7%)	240
	TOTAL				**480**
LOCALITY	Rural	88 (36.7%)	87(36.2%)	65 (27.1%)	240
	Urban	113(47.1%)	92 (38.3%)	35 (14.6%)	240
	TOTAL				**480**

It is clear that as age increases the level of cognitive functioning decreases. Gender-wise scores show that males reported good cognitive functioning compared to females. At a moderate level, the male group reported

15 percent, and 26.7 percent reported in females. Mild levels of cognitive functioning were reported by 34.2 percent of males and 40.4 percent of females. 50.8 percent of males and 32.9 percent of females reported normal cognitive functioning scores, which indicates that females reported poor cognitive functioning compared to males.

Locality-wise scores show that rural people reported 27.1 percent, and 14.6 percent of urban subjects reported a moderate level. A mild level of cognitive functioning was reported by 36.2 percent of rural subjects and 38.3 percent of urban subjects. 36.7 percent of rural subjects and 47.1 percent of urban subjects reported a normal level of functioning. Scores indicate that rural people reported poor cognitive functioning compared to their urban counterparts.

Table IV: Level of Cognitive Functioning (MMSE) Education and Marital Status wise

Sub-Groups		Level of Cognitive Functioning –MMSE			
		Normal	Mild	Moderate	Total
Education	No Formal Education.	86(38.1%)	90(39.8%)	50 (22.1%)	226
	Primary Education	62 (45.9%)	55 (40.7%)	18 (13.3%)	135
	High School education.	32 (38.6%)	26 (31.3%)	25 (30.1%)	83
	College Education	21(58.3%)	8 (22.2%)	7 (19.4%)	36
	TOTAL				480
Marital Status	Single	16 (29.6%)	24(44.4%)	14(25.9%)	54
	Widowed	34 (29.6%)	49(42.6%)	32 (27.8%)	115
	Married	151(48.6%)	106 (34%)	54 (17.4%)	311
	TOTAL				480

Secondly, the data related to the level of cognitive functioning in different educational groups and marital status was analyzed (Table. IV). Data related to Educational status show that in the no-formal education group, there is 22.1 percent are moderately impaired, 39.8 percent are mildly impaired, and 38.1 percent have normal cognitive functioning. In the primary education group, there are 13.3 percent with moderate impairment, 40.7 percent with mild impairment, and 45.9 percent with normal cognitive functioning. In high school education, 30.1 percent reported being moderately impaired, 31.3 percent reported having mild impairment, and 38.6 percent reported having normal cognitive functioning. In the college education group, there are 19.4 percent with moderate impairment, 22.2 percent with mild impairment, and 58.3 percent with normal cognitive functioning. This indicates that the subjects with education reported good cognitive functioning compared to their counterparts

The marital status-wise scores show that the married sub-group people show high cognitive functioning when compared to the other 2 two sub groups, single and widowed. The above data concerning cognitive function in different socio-demographic groups indicates that education plays a major role in maintaining good cognitive functioning. The above data supports the importance of socio-demographic variables like age, education, locality, and marital status in maintaining good cognitive functioning.

Table V: Levels of cognitive functioning-MMSE in the total sample and percentage

S. No.	Level of Cognitive functioning	N	%
1.	Severe	0	0
2.	Moderate	100	20.8
3.	Mild	179	37.3
4.	No impairment	201	41.9
	Total	480	100.0

Table V indicates the overall cognitive functioning status of the sample. It is very clear from the analysis that only 41.9 percent of the sample has no impairment, 37.3 percent has a mild impairment, 20.8 percent has a moderate impairment and none found with severe impairment. The above data shows that nearly 60 percent have mild to moderate cognitive functioning, which indicates cognitive decline in later years of life. Maintenance of good cognitive health is important because all our day-to-day functioning depends on cognitive functioning

Results related to Sub-group differences in Cognitive Functioning-Sub-test MMSE:
Table VI: Means, S. D's and 't' values related to Cognitive Functioning-MMSE in Different Sub Groups

S.NO	SUB-GROUP	N	M(σ)	't'
1.	AGE			
	61-65	214	24.76(4.17)	2.16(a-b)*
	66-70	150	23.77(4.45)	4.91(b-c)**
	71-75	116	20.93(4.96)	
2.	GENDER			
	Male	240	24.53(4.21)	4.81(a-b)**
	Female	240	22.51(4.95)	
3.	EDUCATION			

	Sub-Group	N	M(σ)	't'
	NoFormal Education	226	23.01(4.47)	3.71(a-b)**
	Primary Education	135	24.71(3.69)	3.23(b-c)**
	High School Education	83	22.63(5.76)	1.48(c-d)@
	College Education	36	24.36(5.89)	
4.	**LOCALITY**			
	Rural	240	22.71(5.09)	3.84(a-b)**
	Urban	240	24.34(4.13)	
5.	**MARITAL STATUS**			
	Single	54	22.29(4.70)	0.00(a-b)@
	Widowed	115	22.29(4.82)	3.77(b-c)**
	Married	311	24.19(4.54)	
	*Significantat0.05 level;**Significantat0.01level, @not significant*			

The obtained data was analyzed (see Table VI) to meet the objectives of the study. The results related to the Mini-Mental State Examination (MMSE) show that the mean in different sub-groups is as follows: age group-wise, the means are as follows: 61-65 (M= 24.76); 66-70 (M= 23.77); 71-75 (M = 20.93); and the t-values are a-b (2.16), b-c (4.91). The sub-group differences are 61-65 years, 66-70 years, and 71-75 years and older. are statistically significant (t (t=4.91). The mean of the 61-65-year-old age group is high (M = 24.76) compared to other age groups (66-70-year-olds: M = 23.77; 71-75-year-olds: M =20.93). The above data indicates that as age increases, cognitive functioning decreases. The impact of age on the cognitive functioning of older people was observed. The gender-wise data shows that the mean for the male subjects is high (M=24.53) compared to the female subjects (M = 22.51), and the t-value (t=4.81) is statistically significant.

The education-wise Mini-mental State Exam(MMSE) data shows that the mean values of various sub-groups are as follows: no education (M=23.01); Primary education (M=24.71); high school education (M=22.63) and college education (M=24.36) respectively. The t-values of different sub-groups are as follows: subjects with no formal education and those with primary education are 3.71; those with primary education and high school education are 3.23 and those with high school education and college education are 1.48. The sub-groups differences are statistically significant. The location-wise data shows that the subjects from urban (M=24.34) areas reported a high Mini-mental state compared to those who are from rural (M=22.71) and the obtained t-value (t=3.81) is statistically significant. The marital status wise are as follows: single (22.29); widowed (22.29); married (24.19) and the t-values a-b (0.001), b-c (3.77). The sub-group differences between single and widowed are statistically not significant (t=0.001). And the sub-group differences between widowed and married are statistically significant (t=3.77).

Results related to Sub-group differences in Resilience:

The age group the means are as follows: 60-65 (M=117.08); 66-70 (M=113.09); 71-75 (M=106.37) and the t-values a-b (1.17), b-c (1.69). There is a statistical significance in age sub-group 66-70 & 71-75(t=1.69).The gender-wise data shows that the mean for the Male subjects is reported high Resilience (M=114.84) compared to the female subjects (M=111.36) and the t-value (1.06) is not statistically significant. The Education group wise the means are as follows: No Formal Education (M=111.11), Primary Education (M=114.62), High School Education (M=113.86), College Education (M=120.13), and the t-values a-b (1.03), b-c (0.17), c-d (0.86). There is no statistical significance in the Education sub-group. The Locality-wise data shows that the subjects from Urban (M=115.17) areas reported high Resilience compared to those who are from Rural (M=111.33)and the obtained t-value (t=1.29) is not statistically significant. The marital status wise means are as follows: Single (M=100.12); widowed (M=108.99); married (M=117.10) and the t-values a-b (1.70), b-c (2.28).The sub-group differences between a single, widowed and a married are statistically significant (t=1.70) (t=2.28).

Table. VII Means, S.D's &'t' value related to Resilience in Different Subjects

S.No	Sub-Group	N	M (σ)	't'
1	**AGE**			
	60-65	214	117.08 (32.87)	1.17(a-b)@
	66-70	150	113.09(30.83)	1.69(b-c)*
	71-75	116	106.37(33.47)	
2	**GENDER**			
	Male	240	114.84(31.76)	1.06@
	Female	240	111.36(33.42)	
3	**EDUCATION**			
	No Formal Education	226	111.11(31.64)	1.03 (a-b)@
	Primary Education	135	114.62(30.63)	0.17(b-c)@0.86(c-d)@
	High School Education	83	113.86(35.97)	
	College Education	36	120.13(57.43)	
4	**LOCALITY**			
	Rural	240	111.33(30.34)	1.29(a-b)@
	Urban	240	115.17(34.68)	

5.	MARITAL STATUS			
	Single	54	100.12(28.40)	1.70(a-b)*
	Widowed	115	108.99(32.79)	2.28(b-c)*
	Married	311	117.10(32.52)	
*Significantat0.05level;**Significantat0.01level, @not significant				

Further analysis was carried out on those relationships between cognitive functioning and socio-demographic variables. The correlation matrix related to MOCA and different socio-demographic variables shows that (see Table VIII) about results for MMSE, age (r = 0.312), gender (r = 0.215), locality (r = 0.173), and marital status (r = 0.177) are significantly correlated, whereas the educational status of the subjects (r = 0.047) is not significantly correlated.

The correlation matrix related to Resilience and different socio-demographic variables shows that Age (r=0.129), and Marital status (r=0.177**) were significantly associated. The other socio demographic variables like Gender (r=0.049), Educational status (r=0.069), and Locality status (r=0.059) were not significantly associated.

Table: VIII: Correlation Matrix Relates to MMSE & Resilience with Socio-Demographic Variable.

Sl. No.	Variables	Mini-mental status examination (MMSE)	Resilience
1.	Age	0.312**	0.129**
2.	Gender	0.215**	0.049@
3.	Educational Status	0.047@	0.069@
4.	Locality	0.173**	0.059@
5.	Marital Status	0.177**	0.177**

III. Discussion:

The above results conclude that in the examination of sub-group variances across cognitive domains, significant distinctions emerged. For cognitive functioning (Sub-test-MMSE), the overall sample showed that majority of them are mild to moderate indicates the progession of cognitive decline in the older people. In the sub group differences age, gender, and locality exhibited significance over educational and marital status.

The study examined the impact of socio-demographic factors on cognitive functioning in older adults in India. The findings revealed a notable variation in the sample's educational attainment, with some individuals possessing no formal education but only a limited amount of functional knowledge, while others had varying degrees of formal education. Furthermore, there weren't many resources accessible (in India) for these topics to benefit from formal education when they were young and of school- age. Moreover, these people were not exposed to modern methods of instruction and training at an early age. There was also a notable difference in the individuals' educational backgrounds; some had no formal education at all, but just a little amount of functional education, while others had varying degrees of formal education. One should not undervalue the significance of extending formal schooling to cognitive tasks. In and outside of the classroom, formal education offers a range of activities that demand that a person "learn" or "memorize" a number of subjects. The performance in cognitive functioning, where schooling was a strong predictor, has been greatly impacted by these variances.

Educational attainment is one indicator of cognitive reserve that influences the manifestation of cognitive decline symptoms. Adults with higher educational backgrounds and those working in more intellectually demanding jobs will have higher cognitive capacity than people with lower education levels. Adults with less education and highly stimulating jobs will see a decline in cognitive functioning much earlier than adults with more education and less demanding jobs. An individual's ability to use memory procedures independently and to remember specific cues is enhanced by education. Lastly, it may be of theoretical interest to observe that many participants used the tactics of prioritizing desired actions, indicating that younger people can still achieve their goals just as successfully as older adults. The study found that age, education level, vocabulary, gender, cognitive state, and socioeconomic status were the main characteristics that substantially predicted cognitive performance.

The present study results are supported by the following studies: MMSE is a better predictive tool in estimating the cognitive functioning in different groups of older people (Pinto, et al., 2019; Senda, et al., 2020; Stolder, 2012,Xu, et al., 2023). Few studies found the role of demographic variables in maintaining cognitive functioning. Cognitive functioning variance is due to age, gender, education and (Allaire et al., 2006; Brigola et al., 2019; Freitas, S., et al., 2012; Li, & Li,2022; Malek-Ahmadi, et al., 2015; Wason&Baid, 2012;Yu et al., 2018)whereas few studies found no significant differences in the gender (Mohammed et al., 2023; Zhou et al., 2020). There are occasional reports of more rapid cognitive aging in either males or females, but most of the claims are based on relatively small samples of unknown representativeness. Systematic analysis with larger samples tends to reveal that although there are some gender differences, with males performing higher in some

tests and females performing higher in other tests, the rates of age-related decline are very similar in men and women (Kim et al., 2005; Salthouse, 2010).

The cognitive functioning of the elderly has been extensively as well as intensively researched over the past several decades still individual differences are due to methodological issues. The result corroborates the conclusion of studies carried out in the Western population. Most of the 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, 2007; van Gunten et al., 2008; Wang et al., 2009; Wu et al., 2011). Cognitive deterioration leads to decay of functional ability and contributes to health care expenditures 10 times greater than for those without such deficits (Taylor et al., 2001). Cognitive decline is one of the consequences of aging most feared and memory complaints are subjectively reported by a large proportion of older adults. (Chertkow et al., 2008, Jonker et al., 1996, Zelinski et al., 2001, Leirer et al., 1990, Levy-Cushman 1998, Pearman et al., 2005 &Valentijin et al., 2005).The prevalence of cognitive impairment appears to be widespread and the majority of cases are undiagnosed (Ertel et al., 2008).

Gerontologists have long been concerned with the impact of individual difference factors on Cognitive functioning. Results from these Western countries may not be generalized for the older adult population of our country India. Because, of differing social, cultural, and demographic backgrounds (Jamuna & Ramamurti, 2000; Jamuna et al., 1999; Lalitha, 2000, 2004, 2005). Finally, we observed no difference between the three age groups in resilience. Typically, the decline in health and functioning accelerates after age 60, and many major changes take place after age 80 (Ferrucci et al. 2016). However, the present finding indicates that, unlike many other personal resources, resilience does not decline with advancing age. Earlier studies have also found that psychological resilience is as high or even higher in older than in young or middle-aged persons (Gooding et al. 2012; Hamarat et al. 2002). This finding supports suggestions that resilience is an essential factor for adapting to aging and for aging well (Hayman et al. 2017).

Tenability Of Hypothesis:
➢ **Hypothesis I:** The sub-group differences in Cognitive functioning (MMSE) show that age, gender, and educational status, locality, and marital status were statistically significant. **Thus, hypothesis I is accepted.**
➢ **Hypothesis II:** The sub-group differences in Resilience age, and marital status were significant compared to other subgroups namely gender, locality, and educational status. **Thus, hypothesis II is partially accepted.**
➢ **Hypothesis III:** Socio-demographic characteristics such as age, gender, location, and marital status were found to strongly impact Cognitive functioning (MMSE). The variable, educational status was not associated. **Thus, hypothesis III is partially accepted.**
➢ **Hypothesis IV:** Socio-demographic characteristics such as age, and marital status were found to strongly impact **resilience**. The variables, gender, location, and educational status, were not associated. **Thus, hypothesis IV is partially accepted.**

Findings Of The Study:
• Results related to the Status of cognitive Functioning show that as the age increases the level of cognitive functioning decreases. Gender wise the male reported good cognitive functioning compared to the female. Subjects with High school and College Education status showed better Cognitive functioning. The subjects residing in the Urban areas have higher Cognitive Functioning than the rural people. Married people have good Cognitive functioning than their counter parts.
• The sub-group differences in Cognitive functioning (MMSE) show that age, gender, and locality were significant compared to other subgroups namely educational status and marital status.
• The sub-group differences in resilience show that age, and marital status were significant compared to other subgroups namely gender, locality, and educational status.
• Socio-demographic characteristics such as age, gender, location, and marital status were found to strongly impact cognitive function. The third variable, educational status, was not associated.
• Socio-demographic characteristics such as age, and marital status were found to strongly impact cognitive function. The other variables, gender, location, and educational status, was not associated.

Implication Of The Study:
• A cross-sectional intervention study was carried out on older people who live in communities. Tools for cognitive assessment, such as the MMSE and others, are thought to have strong ecological validity. Healthy senior residents of the community were the subjects of the study. The study's conclusions are crucial for India's field of Gerontology.
• The main contribution of the current work is the understanding of how specific socio-demographic affect cognitive function and Resilience. It was shown that age differences had a significant influence on older Indians.

- The study included elderly adults' cognitive functioning in the current context. All of the subjects involved in the study gave positive feedback, and participants are more willing to take part in various testing scenarios to learn more about themselves.
- Informed consent and others are employed to obtain precise data from the elderly population. The bulk of past study in India by community researchers or psychiatrists has been on the elderly with mild cognitive impairment who are hospitalized. Majority of the subjects had this type of individual assessment for the first time in a community setting.
- Only in the past 20 years, there been a significant increase in cognitive study on older persons. There is a clear lack of comprehensive research in this area, asthe studies from the Indian situation demonstrate. There is still a need to create indigenous assessment instruments, and lack of studies in this area suggests that research on indigenous practices that support the maintenance of healthy cognition in our older Indian population is still in its infancy. Mild Cognitive Impairment results from cognitive decline. Additionally, there was a discrepancy in the aging effect on certain cognitive dimensions, which may have been caused by the use of different cognitive screening instruments.
- To better understand the cognitive changes in older persons with more thorough assessments, further age division is required. The observations mentioned above have significant ramifications because they require policy directives to concentrate on these areas.