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Assessment of mild cognitive impairment in older adults

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Abstract
Cognitive aging refers to a process in which some decline in cognitive function is observed as a consequence of healthy aging. Cognitive aging is widely considered to be a normal part of healthy aging whereas clinically significant changes in cognitive function are not. The trajectory of cognitive aging varies across older people. Some people experience major cognitive decline that may progress to dementia, whereas others experience subtle changes and minor cognitive impairment, consistent with cognitive aging. The present study was escorted with the aim of assessing the level of cognitive impairment on the elderly. For this, 100 elderlies in age group of 60-75 years from urban and rural area of Hisar district of Haryana state were selected. The data were collected with the help of standardized Mini-Mental State Examination by Folstein 2005. Data represented that significant differences were found in the mean scores cognitive functioning in sub-aspects orientation to time (t=1.98), orientation to place (t=3.61), delayed verbal recall (t=2.30), repetition (t=2.79) and writing (t=2.45) between the elders in rural and urban areas of Hisar at 0.05 level of significance.

Keywords: Cognitive functioning, ageing, cultural settings and older adults

Introduction
From a cognitive reserve perspective, engaging with people in the social network and participating in social activity is cognitively effortful and hence may contribute to building cognitive reserve and enhancing cognitive function. In addition, decline in some cognitive domains, such as memory and executive function, tends to be more age-related whereas decline in other domains, such as language and general knowledge, tends to be less affected by aging. In addition to differences in the trajectories of cognitive aging, it has been observed that some older people have considerable brain pathology without exhibiting concomitant declines in cognition. Cognitive reserve theory accounts for this discrepancy and for variations in cognitive aging by proposing that individuals with greater cognitive reserve are able to optimize cognitive performance by recruiting differential brain networks or using alternative cognitive strategies when faced with pathology. Protective lifestyle factors have been identified that may contribute to increased cognitive reserve, such as physical exercise, education, occupational complexity, and engaging in cognitive activity. As these lifestyle factors are modifiable, interventions aimed at reducing risk and enhancing modifiable protective factors may provide a basis to ameliorate poor cognitive function. Good social connections may also increase cognitive reserve and protect against declining cognitive function. However, compared to other lifestyle factors, the association between social connections and cognitive function is less clear, with conflicting findings. There are several reasons why the association between social connections and late-life cognition may be less well understood. Firstly, studying social concepts is more complex than assessing lifestyle factors such as physical activity or smoking which may be more readily observable and easier to quantify objectively using a standardized approach. The nature of social connections is more challenging to specify and isolate; for example, social connectivity may occur during other activities that provide cognitive stimulation. It is therefore difficult to determine which factors or combination of factors is most beneficial to cognitive health. For the present study following specific objectives is outlined:

- To assess the cognitive functioning in older adults.
- To see the comparison in the rural and urban areas of Hisar district.

Materials and Methods
- The study was conducted at Hisar district of Haryana. For urban sample city area was taken and for rural sample Bagla village was selected randomly.

- A list of late adults in the age group of 60-75 years will be procured from the selected areas. A sample of 100 adults was taken randomly from the selected district. Equal number of sample were taken at random. Out of 100 adults, 50 from urban area and 50 from rural area were selected randomly.
- The MMSE by Folstein was used to assess the multiple intelligence of respondents. The tool comprised the sections: Orientation to Time, Orientation to Place, Immediate Recall, Attention, Delayed Verbal Recall, Naming, Repetition, 3-Stage Command, Reading, Writing and Copying.

Results and Discussion

It is essential in every study to know about the general background of respondents to better understand the context in which the study was carried out. This provides information regarding the age, gender, type of family, family size, caste, family income, marital status, education, occupation and perception about health. Study was carried out on elderly aged 60-75 years from rural and urban areas of Hisar district of Haryana. The sample consisted of 100 respondents.

The data in table 1 shows that there was 49 percent of elderly aged 65-70 years, 29 per cent were aged 65^{+}-70 years and 22 per cent were aged 70^{+}-75 years. Data also highlights that 53 per cent of elderly were females and 47 percent were males. Regarding type of family, the data reveals that 65 percent of the families were extended or joint setting and 35 percent were nuclear families. The family size of the data shows that majority (52 percent) of the respondents had medium size families comprising of 5-6 members. Classifying the data pertaining to children on the basis of caste category, it was found that nearly 57 percent of elderly belonged to general caste category. Data figures further shows that nearly 31 per cent elders were from backward caste category followed by scheduled caste category (32%).

Table 1: Personal and socio-economic profile of the respondents

Sr. No.	Personal variables	Rural (n=50) Frequency (%)	Urban(n=50) Frequency (%)	Total n= 100
1.	**Age**			
	60-65 years	19 (38.0)	10 (20.0)	29 (29.0)
	65^{+}-70 years	17 (34.0)	32 (64.0)	49 (49.0)
	70^{+}-75 years	14 (28.0)	08 (16.0)	22 (22.0)
2.	**Gender**			
	Male	24 (49.3)	23 (48.7)	47 (47.0)
	Female	26 (50.7)	27 (51.3)	53 (53.0)
3.	**Marital Status (Male)**			
	Married	48 (38.7)	49 (42.8)	97 (97.0)
	Single	02 (11.5)	01 (06.8)	03 (3.0)
4.	**Marital Status (Female)**			
	Married	50 (50.0)	50 (50.0)	100 (100.0)
	Single	-	-	-
5.	**Type of family**			
	Nuclear	14 (36.0)	21 (36.7)	35 (35.0)
	Joint/Extended	36 (64.0)	29 (63.3)	65 (65.0)
6.	**Family size**			
	Small (upto 4 members)	08 (16.0)	14 (28.0)	22 (22.0)
	Medium (5-6 members)	23 (46.0)	29 (58.0)	52 (52.0)
	Large (above 6 members)	19 (38.0)	07 (14.0)	26 (26.0)
7.	**Caste**			
	Schedule caste	15 (16.7)	17 (18.0)	32 (32.0)
	Backward caste	12 (30.0)	19 (26.0)	31 (31.0)
	General caste	33(53.3)	24 (56.0)	57 (57.0)

*Figures in parentheses indicate percentage

Assessment cognitive functioning in the respondents of Hisar district as per cultural setting

The perusal of table 2 displays the cognitive functioning of elderly in Hisar district. Data regarding cognitive functioning highlights that 69 per cent respondents had medium cognitive impairment followed by lower cognitive impairment (18%). Only 13 per cent of the respondents were found with high cognitive impairment.

Table 2: Assessment of cognitive functioning in the respondents of Hisar

Components	Hisar		Total n=100
	Rural (n=50)	Urban (n=50)	
Cognitive Functioning			
Low C. I (24-30)	07 (14.0)	11 (22.0)	18 (18.0)
Medium C. I (16-23)	38 (76.0)	31 (62.0)	69 (69.0)
High C. I (10-15)	05 (10.0)	08 (16.0)	13 (13.0)

*****Figures in parentheses indicate percentage
Here C. I= Cognitive Impairment

Area wise comparison of respondents for multiple intelligence: To see the difference between rural and urban respondents for different aspects of cognitive functioning, z-test of significance was applied.

The perusal of table 3 displays the comparison of cognitive functioning as per cultural settings of Hisar. Data unveils that statically significant differences were found in the mean scores of orientation to time (z=1.98), orientation to place (z=3.61), delayed verbal recall (z=2.30), repetition (z=2.79) and writing (z=2.45) between the elders in rural and urban areas of Hisar at 0.05 level of significance. The means of immediate recall, attention, naming, 3-stage command, reading, copying and total scores of cognitive functioning were found as non-significant.

Table 3: Mean comparison of social isolation and cognitive functioning as per cultural settings of Hisar district N=100

Components	Hisar		z value
	Rural Mean ± SD N=50	Urban Mean ± SD N=50	
Cognitive Functioning			
Orientation to Time	1.72 ±0.64	1.58 ± 0.60	1.98*
Orientation to Place	2.32 ±1.26	3.38 ± 1.30	3.61*
Immediate Recall	1.70 ± 0.70	1.58 ±0.60	0.93
Attention	2.56± 0.90	2.30 ± 0.61	1.68
Delayed Verbal Recall	1.64 ± 0.72	1.34 ± 0.51	2.38*
Naming	1.74 ± 0.44	1.78 ± 0.41	0.46
Repetition	1.54 ± 0.62	1.50 ± 0.49	2.79*
3-Stage Command	2.36 ± 0.52	2.38 ± 0.56	0.69
Reading	1.05±0.50	1.12 ± 0.48	1.57
Writing	1.52 ± 0.53	1.34 ± 0.47	2.45*
Copying	0.62± 0.24	0.93 ± 0.46	1.24
Total	1.68±0.71	1.46±0.50	1.92

*Significant at 5% level of significance

Conclusion

Results revealed that the respondents were of 60-75 years' age group from rural and urban areas and majority of the respondents belonged to joint and medium sized families. Most of them were belonging to general caste. The area wise comparison of mean scores and standard deviation revealed differences in orientation to time, orientation to place, delayed verbal recall, repetition and writing between the elders in rural and urban areas of Hisar at 0.05 level of significance. The study recommends that the needful attention should be paid to the aged during the crucial years of the older age from the part of children, adults and other "more knowledgeable person" in surroundings.

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