therapeutic intervention in the near future. Present study is an effort in this direction.

Keeping this in mind the study was planned to delineate the association of QOL with cognitive functioning and the QOL of elderlies which was part of doctoral thesis entitled, "A Clinical Psychological study of cognitive functioning as a determinant of quality of life amongst urban elderlies". (Tripathi & Tiwari, 2012). The thesis work was conducted along with ICMR funded project titled: 'Lucknow urban elderly epidemiological project' (Tiwari *et al.* 2009). The present study is adopted from the thesis to compare the QOL of normal and cognitively impaired community dwelling older adults.

2. Methodology

Institutional ethical clearance was taken for the main study on which data this paper is based. It was a community based survey under aegis of ICMR sponsored Lucknow urban elderly project (Tiwari et al. 2009, 2014) in which a team of trained social workers and clinical psychologists with established inter rater reliability visited two randomly selected urban localities (Musahibganj & Jankipuram) of Lucknow. Out of 7351 homes visited 1888 elderlies were identified who consented participating in the present study.

2.1 Sample

Of the total sample of persons screened the first 300 consecutively recruited persons fulfilling inclusion & exclusion criteria constituted the study sample. They were screened by Hindi Cognitive Screening Test (Tiwari & Tripathi, 2011) in such a way that 75 persons from either of the sexes with HCST positive (Score less than or equal to 23) and Negative scores (Score more than 23) scores were considered for analysis. (Table 1)

Table 1: Sex and cognitive status (HCST positive and negative) wise distribution of the sample:

Classification of Elderlies by Sex	*HCST Positive (score at or below 23)*	*HCST Negative (score above 23)*	*Total*
Males (60 years and above)	75	75	150
Females (60years and above)	75	75	150
Total	150	150	300

Inclusion Criteria

1. Elderly (Males and Females) aged 60 years and above; Confirmation of the age was done using one or more of the following:
   i. Government document; Retirement year (if retired)
   ii. Year of marriage + gap period of his/her eldest child birth + age of eldest son/daughter = Age of the subject
   iii. Age at independence year (1947) of India respect to freedom of India + duration between year 1947 to date of screening/interview = Age of the subject
2. Cooperative persons
3. Persons giving written informed consent (by the elderly / their family members)

Exclusion Criteria:

1. Uncooperative persons;
2. Having been diagnosed as suffering from any psychiatric disorder (as per ICD-10 criteria) other than Mild Cognitive Impairment and Dementia. The findings of the diagnosis from the ICMR funded research project entitled, "An epidemiological study of prevalence of neuropsychiatric disorders with special reference to cognitive disorders amongst urban elderly" (Tiwari et al. 2009b) were adopted for making the diagnoses. Having any indicators of significant organic pathology like head injury, seizure, mental retardation, substance abuse etc. or having significant physical ailments.
3. Having problems with speech, hearing and vision, which can impede the interview.

Assessment Tools:

Following tools were administered for the assessment:

Semi-structured socio-demographic data sheet: Semi structured socio-demographic data sheet was used to collect the information about social, personal and demographic details of the subjects.

Hindi Cognitive Screening Test (HCST): Tiwari and Tripathi (2011) developed a cognitive screening instrument in which items suited to both literate and illiterate subjects and could be interchanged depending upon the literacy, MMSE and HMSE. HCST has a high level of sensitivity (0.93), specificity (0.96), and high positive (0.96), and negative (0.94) predictive value when compared to BCRS. A significant ($p<0.01$) negative correlation ($r = -0.87$) with BCRS total scores and different axes of BCRS was found for concentration ($r = -0.79$), recent memory ($r = -0.83$), past memory ($r= -.79$), Orientation ($r = -.73$), and functioning / self care ($r = -.77$).

World Health Organization Quality of Life-BREF (WHOQOL-BREF) Hindi version (Saxena *et al.* 1998): The WHOQOL-BREF, an abbreviated 26 item version of the WHOQOL-100, was developed using data from the field-trial version of the WHOQOL-100. The items are distributed into 4 domains (physical; psychological; social and environmental health) and 25 facets. WHOQOL-BREF has been shown to have good discriminant validity, content validity and test retest validity. Question number 1 and 2 of the WHOQOL-BREF is related to overall Quality of life and general health respectively as perceived by the individual.

WHOQOL-BREF is a five point rating scale questionnaire which consists of scoring as follows 1: very poor; 2: poor; 3: neither poor nor good; 4: good and 5: very good. It is subjective rating of QOL of the participants on different domains.

The following cut off scores for the Total QOL scores was used in the study to delineate the level of quality of life.

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Level of Quality of life	QOL-BREF total Score
Very poor	1-26
Poor	27-52
Average	53-78
Good	79-104
Very good	105-130

3. Procedure of the Study

Information about the subjects was obtained on semi-structured Socio-demographic proforma. HCST (Tiwari and Tripathi, 2011) was administered on included subjects to identify subjects with Cognitive Impairment. A cut off score of 24 was applied to differentiate cognitively impaired subjects from normal (Table 1). WHOQOL-BREF was administered on all 300 subjects. As and when required, the family members were cross checked about the information given by the elderly subjects at the time of administration of tests. The information which was difficult to elicit from the subjects with cognitive impairment were obtained from their family members who were living with the elderly subjects for at least last one year.

Statistical Analysis: Data was analyzed using statistical software Statistical Packages for Social Sciences (SPSS) version 12.0. and GraphPad InStat demo version 3.05 Inc year 2000. Mean, SD and Chi square test was used for analysis. Fisher's exact test was used for variables with two categories only. A minimum cut off value of $p<0.05$ was considered as statistically significant.

4. Results

The mean age of the older adults was 67.98±8.7 years and there was significant difference (p,0.001) between mean age of normal (65.2 ± 6.6 years)and cognitively impaired (70.7± 9.6) group. Most of the older adults were illiterate (normal-74.7% and cognitively impaired- 65.7%), married (normal-66% and cognitively impaired- 58%) followed by widowed (34% & 40.7%) in both the groups.

Table 2 shows that significantly higher number of older adults from HCST negative (normal) group reported very good (45.3%) QOL on 'physical' domain, when compared to cognitively impaired (2.0%) on HCST. However, significantly higher percentage of cognitively impaired older adults reported average (42.0%), followed by poor (32.3%) and very poor (2.7%) QOL in 'physical' domain when compared to HCST negative older adults.

On 'psychological' domain significantly higher percentage of normal older adults on HCST reported good (50.7%) and very good (42.7%) QOL when compared to cognitively impaired older adults (18.0% and 0% respectively). However this pattern was found to be reverse amongst normal and cognitively impaired older adults.

Similar results were found in 'social' domain where significantly higher number of older adults from HCST negative (normal) group reported good (56.0%) and very good (14%) QOL as compared to HCST positive (cognitively impaired) group where significantly higher number of cognitively impaired older adults reported average (70.0%), poor (14.0%) and very poor (0.5%) 'Social' relationships when compared to normal older adults.

Table 2: Cognitive status wise distribution of QOL of urban older adults

QOL	Cognitive status on HCST	Very Poor N (%)	Poor N (%)	Average N (%)	Good N (%)	Very good	Total	Pearson Chi square
Physical QOL	Cognitive Impairment	8 (5.3)	35(23.3)	63 (42.0)	41 (27.3)	3 (2.0)	150	111.825
	Normal	1(0.7)	1 (0.7)	28 (18.7)	52 (34.7)	68 (45.3)	150	P<.0001 Significant
	Total	9 (3.0)	36 (12.0)	91 (30.3)	93 (31.0)	71 (23.7)	300	
Psychological QOL	Cognitive Impairment	4 (2.7)	23 (15.3)	96 (64.0)	27 (18.0)	0 (0.0)	150	184.084
	Normal	0 (0.0)	0 (0.0)	10 (6.7)	76 (50.7)	64 (42.7)	150	P<.0001 Significant
	Total	4 (1.3)	23 (7.7)	106 (35.3)	103 (34.3)	64 (21.3)	300	
Social QOL	Cognitive Impairment	3 (0.5)	21 (14.0)	105 (70.0)	21 (14.0)	0 (0.0)	150	104.955
	Normal	0 (0.0)	1 (0.7)	44 (29.3)	84 (56.0)	21 (14.0)	150	P<.0001 Significant
	Total	3 (1.0)	22 (7.3)	149 (49.7)	105 (35.0)	21 (7.0)	300	
Environmental QOL	Cognitive Impairment	2 (1.3)	25 (16.7)	85 (56.7)	38 (25.3)	0 (0.0)	150	17.249
	Normal	0 (0.0)	0 (0.0)	26 (17.3)	102 (68.0)	22 (14.7)	150	P<.140 not Significant
	Total	2 (0.7)	25 (8.3)	111 (37.0)	140 (46.7)	22 (7.3)	300	

5. Discussion

The study was conducted with the objective to study the QOL of cognitively impaired older adults aged 60 years and above residing in urban locality of Lucknow, Uttar Pradesh, India. Statistically significant ($p<0.0001$) difference on QOL was found between normal (HCST negative) and cognitively impaired (HCST positive) older adults in physical, psychological and social domains of WHOQOL-BREF. QOL on all these domains were found to be poor amongst cognitively impaired older adults. A similar finding that is poor QOL amongst cognitively impaired older adults were reported by Bartels and Pratt (2009) Tiwari *et al.* (2011) and Bárrios *et al.* (2013).

There was insignificant difference in environmental domain between normal and cognitively impaired subjects in our study. It was in accordance with the findings of Abrahamson et al. (2012) where more severe cognitively impaired subjects reported higher QOL in the domains of comfort and environment and lower QOL in activities, individuality, privacy and meaningful relationships, and the mood scale. It may be explained on the basis of thought process prevalent in the Indian society that older adults should given shelter inside the home and their daily basic needs to be addressed

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irrespective of whether they are normal or having some illness. The other domains are affected in older adults with cognitive impairment as they require individual's effort and somehow it lacks due to symptomatology of the disease.

Our study validates the findings of Logsdon et al. (2002) where they reported poor QOL of cognitively impaired subjects but their emphasis was more on to study whether assessment of QOL in severely cognitively impaired individuals is possible from the subject itself or it would be better to rate on the basis of information provided by caregiver. They found that cognitively impaired elderly can rate their QOL with the progression of disease. WHOQOL-BREF was administered on all the subjects in our study and there were only 2 subjects where information provided was required confirmation of family members.

In our study mean age of the cognitively impaired group was found to be significantly higher than normal's. Poor QOL of cognitively impaired is thus associated with increasing age. This might be due to the fact that with advancing age older adults weaken biologically, physically, psychologically and economically and are not able to cope with their physical disabilities. Similar findings were reported by Gureje *et al.* (2008) for QOL. Joshi *et al*. (2003) also found that health related QOL was associated with advancing age. It is obvious that with advancing age there is progression in cognitive impairment and thus it affects the QOL of older adults. But if, psycho-social and physical wellbeing of older adults can be improved then maximum utilization of remaining cognitive function will be done thus, QOL of the older adults.

6. Conclusion

The results demonstrate that QOL of cognitively impaired older adults was found to be significantly poor when compared to normal older adults. It was more pronounced in the areas of physical, psychological, and social domain of QOL.

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